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Gradivo za favno hroščev (Coleoptera) Slovenije, 6. prispevek: Polyphaga: Curculionidae: Scolytinae, Platypodinae

Material for the Beetle Fauna (Coleoptera) of Slovenia, 6. contribution: Polyphaga: Curculionidae: Scolytinae, Platypodinae

Maja JURC[1], Roman PAVLIN[1], Danijel BORKOVIČ[1], Sara PINTARIČ[1]

Izvleček

Na podlagi podatkov iz literature, zbirk, podatkovne baze FloVegSi, še zlasti pa rezultatov naših lastnih raziskav, navajamo za favno Slovenije 117 vrst podlubnikov (Scolytinae) in eno vrsto strženarja (Platypodinae). V Sloveniji je bil leta 1988 objavljen seznam podlubnikov (Titovšek 1988), ki je obsegal 69 vrst. Dopolnjen seznam favne podlubnikov je rezultat predvsem analize dodatnega ulova v pasteh s feromoni pri spremljanju prenašalcev borove ogorčice. V gradivu navajamo 48 dodatnih vrst, med katerimi je 42 domorodnih in 6 tujerodnih. Za vse obravnavane vrste so predlagana nova slovenska imena. Predstavljen je zgodovinski pregled raziskav obravnavanih skupin na območju Slovenije med letoma 1858 in 2023. Podani so sistematski pregled, lokacije in karte razširjenosti podlubnikov in strženarja. Na kratko so predstavljene ekološke in biološke značilnosti obravnavanih vrst. Predstavljene so mikrolokacije najdb na gostiteljskih rastlinah in gozdnih proizvodih ali tipi uporabljenih pasti skupaj z uporabljenimi atraktanti. Pri posameznih obravnavanih vrstah so dodane barvne fotografije. Ovrednotena sta ekološki in ekonomski pomen podlubnikov in strženarjev.

Ključne besede: Insecta, Coleoptera, Curculionidae, Scolytinae, podlubniki, feromoni, Platypodinae, strženarji, Slovenija, favna, saproksili

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Abstract

Based on data from literature, collections, FloVegSi database and expecially results of our own research, we have identified 117 species of bark beetle (Scolytinae) and one species of pinhole borers (Platypodinae) for the fauna of Slovenia. In Slovenia, a list of bark beetle was published in 1988 (Titovšek 1988) and it included 69 species. The updated list of the bark beetle fauna is mainly the result of the analysis of additional catches in pheromone traps when monitoring the vectors of the pine wood nematode. The material lists 48 additional species, 42 of which are native and 6 non-native. New Slovenian names are proposed for all considered species. The historical review of research (between 1858 and 2023) on the species in Slovenia is presented. Systematic overview, locations and distribution maps of all species of bark beetle and pinhole borer are given. The microlocations of the finds on host plants and forest products or the types of traps with used attractants are presented. Color photos for most of the discussed species are provided. The ecological and biological characteristics of the species are briefly presented. The ecological and economic importance of bark beetles and pinhole borers is assessed.

Keywords: Insecta, Coleoptera, Curculionidae, Scolytinae, bark beetles, pheromones, Platypodinae, pinhole borers, Slovenia, fauna, saproxylics

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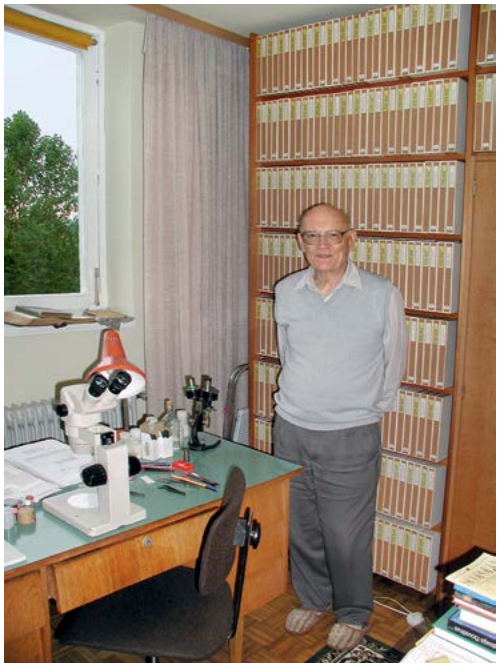
Delo posvečamo izjemnima slovenskima koleopterologoma in mentorjema:

Savu Brelihu (1927 – 2012) in prof. dr. Janezu Titovšku (1936 –).

This work is dedicated to the Slovenian extraordinary coleopterologists:

Savo Brelih (1927 – 2012) and Prof. dr. Janez Titovšek (1936 –).



Slika 1: Savo Brelih (Foto: Maja Jurc)

Figure 1: Savo Brelih (Photo: Maja Jurc)

Slika 2: prof. dr. Janez Titovšek (Foto: Roman Pavlin)

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1. Uvod

1.1. Uvodne besede

Raziskave entomofavne v Sloveniji potekajo že več kot četrt tisočletja. Nekatere skupine, kot so npr. Plecoptera, Odonata, Saltatoria, Dermaptera, Isoptera, Embioptera, Heteroptera, Hemiptera: Psylloidea, Megaloptera, Mecoptera in Lepidoptera (delno) so že precej dobro raziskane, zato so v teh skupinah najdbe za Slovenijo novih vrst pojavljajo le občasno. Pri redovih, kot so Coleoptera, Hymenoptera in Diptera, v katerih je število vrst večje, pa lahko tudi v prihodnosti pričakujemo najdbe za Slovenijo novih vrst.

Hrošči so red žuželk, ki je vzbujal pozornost že pri naših prvih entomologih. Najstarejši podatki o hroščih s slovenskega ozemlja so že iz predlinejevskega obdobja. Leta 1685 je polihistor Janez Vajkard Valvazor, baron Bogenšperški, kranjski plemič, kartograf, geograf, zgodovinar, pisatelj, založnik in zbiratelj, na 163 listih naslikal 234 barvnih rastlinskih in živalskih akvarelov, med njimi tudi štiri vrste hroščev: *Anisoplia agricola*, *Cantharis rustica*, *Procerus gigas* in *Saperda scalaris*. Sistematične raziskave rastlin in živali segajo v obdobje Linneja. Najpomembnejši mejnik je leta 1754 postavil Joannes Antonius Scopoli s svojim prihodom v Idrijo ter izdajami prvih del o kranjski flori (1760, 1772) in entomofavni (1763, 1772). V naslednjih obdobjih so številni avtorji in zbiralci nadaljevali z raziskovanjem naših žuželk (Siegel 1866, Brancsik 1871, Fuchs 1905), med katerimi zasledimo tudi podlubnike in strženarje.

1.2. Zgodovinski pregled taksonomije podlubnikov in strženarjev

Prvih pet vrst podlubnikov je poimenoval Linné in jih uvrstil v rod *Dermestes* (*D. fuscus*, *D. castaneus*, *D. niger*, *D. ferrugineus*, *D. testaceus*) (Linnaeus 1758, Knížek in

1. Introduction

1.1. Foreword

Research on entomofauna in Slovenia has been ongoing for more than a quarter of a millennium. Some groups, such as Plecoptera, Odonata, Saltatoria, Dermaptera, Isoptera, Embioptera, Heteroptera, Hemiptera: Psylloidea, Megaloptera, Mecoptera and Lepidoptera (partly) are already quite well studied and only occasionally an unknown insect species for Slovenia from these groups is found. In exceptionally species-rich orders such as Coleoptera, Hymenoptera and Diptera, much is still unknown, and we expect quite a few new species to be found for the first time in Slovenia.

Beetles are an order of insects that attracted the attention of our earliest entomologists. The earliest records of beetles from Slovene territory date back to the pre-Linnaean period. In 1685, the polymath Janez Vajkard Valvazor, Baron of Bogenšperk, a nobleman from Kranj, cartographer, geographer, historian, writer, publisher, and collector, painted 234 watercolours of plants and animals on 163 sheets, including 4 species of beetle: *Anisoplia agricola*, *Cantharis rustica*, *Procerus gigas* and *Saperda scalaris*. Systematic research on plants and animals dates back to the time of Linnaeus. The most important milestone was set in 1754 by Joannes Antonius Scopoli with his arrival in Idrija and the publication of the first works on Carinthian flora (1760, 1772) and entomophauna (1763, 1772). In the subsequent periods, many authors and collectors continued to study our insects (Siegel 1866, Brancsik 1871, Fuchs 1905), including bark beetles and pinhole borers.

1.2. Historical overview of the taxonomy of bark beetles and pinhole borers

The first five species of bark beetles, named by Linné were placed in genus *Dermestes* (*D. fuscus*, *D. castaneus*, *D. niger*, *D. ferrugineus*, *D. testaceus*) (Linnaeus 1758, Knížek &

Beaver 2004). Vse so bile evropske vrste, ki so zdaj sistematsko prerazporejene v druge rodove. Geoffroy (1762) je opisal rod *Scolytus* za vrsto *S. scolytus* in je prestavil vrste, ki jih je poimenoval Linné, v rod *Bostrichus*. Fabricius (1801) je v svojo monografijo uvrstil 52 vrst podlubnikov, dodal je rod *Hylesinus*. Prav tako je opisal prvo vrsto strženarjev *Platypus cylindrus*, čeprav v rodu *Bostrichus*. Latreille (1806) je prvi postavil podlubnike na raven družine (Scolytidae), Shuckard (1840) pa strženarje (Platypodidae). Pozneje, v 19. stoletju, je več avtorjev opisalo nove vrste v obeh družinah. Pomembna je monografija Chapuis (1865) o družini strženarjev in Chapuis (1869) o družini podlubnikov ter monografija Eichhoff (1878) o družini Scolytidae, ki je temeljno delo za nadaljnje študije. Prvi katalog družine Scolytidae (ki je zajel tudi Platypodidae) je vključeval sistematski katalog avtorjev Gemminger in Harold (1872), ki obsega 534 veljavnih vrst in 60 rodov. V drugi polovici 20. stoletja so velik prispevek k poznavanju palearktičnih podlubnikov prispevali A. Balachowsky (Francija), A. Pfeffer (Češka republika), A. Nobuchi (Japonska), F. G. Browne in H. Roberts (Velika Britanija) (Lieutier s sod. 2004). Pomemben prispevek za generično raven obravnavanih vrst je delo Wood (1986) za Scolytidae in Wood (1993) za Platypodidae. V svetovnem merilu je pomemben katalog avtorjev Wood in Bright (1992), ki je zajel 5.812 vrst in 225 rodov podlubnikov (Lieutier s sod. 2004). V Sloveniji se je od leta 1988 za potrebe praktičnega dela gozdarjev uporabljala sistematika prof. dr. J. Titovška (Titovšek 1988), ki je temeljila na delu Die Forstschädlinge Europas (Schwenke 1974) in determinacijskem ključu Freude, Harde in Lohse (1981). V raziskovalnem delu smo uporabljali sistematiko podlubnikov avtorjev Pfeffer in Knížek (1993) *Check-list of Czechoslovak Insects IV (Coleoptera)*, od leta 2011 pa uporabljamo *Katalog palearktičnih hroščev* (Löbl in Smetana 2011), po katerem so pod-

Beaver 2004). All were European species, which are now, of course, in other genera. Geoffroy (1762) described the genus *Scolytus* for the species *S. scolytus*, and placed Linné's species in the genus *Bostrichus*. Fabricius (1801) included 52 species of bark beetle in his monograph, adding the genus *Hylesinus*. He also described the first species of pinhole borer, *Platypus cylindrus*, albeit in the genus *Bostrichus*. Latreille (1806) was the first to place bark beetles at the level of the family, and Shuckard (1840) was the first to do the same for pinhole borers. Later, in the 19th century, several authors increased the number of species in both families. The monographs by Chapuis (1865) on the family Platypodidae and Chapuis (1869) on the family Scolytidae are important, as is the monograph by Eichhoff (1878) on the family Scolytdae, which is a fundamental work for further studies. The first catalogue of the family Scolytidae (which included the Platypodidae) included the systematic catalogue of Gemminger & Harold (1872), which comprised 534 valid species from 60 genera. In the second half of the 20th century, major contributions to the knowledge of Palaearctic bark beetles were made by A. Balachowsky (France), A. Pfeffer (Czech Republic), A. Nobuchi (Japan), F.G. Browne & H. Roberts (UK) (Lieutier et al. 2004). Important contributions to the genera level of the analysed species are the works of Wood (1986) for Scolytidae and Wood (1993) for Platypodidae. Globally, the catalogue of Wood & Bright (1992), which covered 5,812 species and 225 genera of bark beetles (Lieutier et al. 2004), is important. In Slovenia, the classification by Prof. Dr. J. Titovšek (Titovšek 1988), based on the book Die Forstschädlinge Europas (Schwenke 1974) and the determination key Freude, Harde & Lohse (1981), has been used since 1988 for practical work in forestry. In our research work we used the classification of bark beetles by Pfeffer & Knížek (1993) *Check-list of Czechoslovak Insects IV (Coleoptera)*, and since 2011 we have been using the *Catalogue of Palearctic Beetles* (Löbl & Smetana 2011), according to which bark beetles and pinhole

lubniki in strženarji zdaj uvrščeni v družino rilčkarjev (Curculionidae) kot poddružini Scolytinae in Platypodinae.

1.3. Razširjenost podlubnikov in strženarjev v svetu

Na svetu je trenutno opisanih več kot 6.000 vrst podlubnikov in okoli 1.500 vrst strženarjev. Več kot 600 vrst podlubnikov se pojavlja v Severni Ameriki in okoli 900 vrst na palearktičnem območju. Centri geografske distribucije in vrstne diverzitete podlubnikov so v subtropskih in tropskih območjih kjer prevladujejo vrste iz tribusov (Dryocoetini, Xyleborini, Cryphalini). Raziskovalci menijo, da je eden od razlogov za veliko število vrst predvsem pa visoko gostoto populacij podlubnikov na nekaterih geografskih območjih rezultat razmerja med spoloma, ki je močno nagnjen v korist samic (zaradi pseudoarhenotokije – lažne arhenotokije in haplodiploidnosti). To vodi v povečano fekunditeto samic in agregacijske sposobnosti podlubnikov pri iskanju ustreznega habitata za razmnoževanje (Lieutier s sod. 2004). Vse omenjene fiziološke značilnosti podlubnikov lahko povečajo sposobnost njihove populacije za eksplozivno namnožitev.

Strženarji prevladujejo v tropskih območjih, na palearktičnem območju je znanih okoli 96 vrst. V Evropi sta znani dve vrsti, hrastov strženar (*Platypus cylindrus)* in jelov strženar (*P. oxyurus)*; v Sloveniji je bil zabeležen le hrastov strženar. Večinoma so terciarne vrste, ki naseljujejo odmrla, podrta in posekana drevesa šele po določenem času.

1.4. Ekologija podlubnikov in strženarje

Podlubniki v širšem pomenu besede vključujejo prave podlubnike, ki se razmnožujejo in hranijo v floemu (floemofagne vrste), in ambrozijske hrošče (nekatere podlubnike in vse Platypodinae), ki vrtajo v les in se hranijo predvsem s ektosimbiontskimi ambrozijskiborers are now classified as subfamilies Scolytinae and Platypodinae, in the family weevils (Curculionidae).

1.3. Distribution of bark beetles and pinhole borers in the world

More than 6,000 species of bark beetles and about 1,500 species of pinhole borers have been described worldwide. More than 600 species of bark beetles occur in North America and about 900 species in the Palaearctic region. Centres of their geographical distribution and species diversity of bark beetles are located in subtropical and tropical areas where species from the tribes predominate (Dryocoetini, Xyleborini, Cryphalini). Researchers believe that one of the reasons for the large number of species and high population density of bark beetle populations in some geographical areas is due to the sex ratio, which is strongly skewed in favour of females (due to pseudo-arrhenotoky and haplodiploidy). This leads to increased female fecundity and aggregation abilities of bark beetles in search of suitable breeding habitat (Lieutier et al. 2004). All these physiological characteristics of bark beetle may increase the ability of their populations to reproduce explosively.

Pinhole borers predominate in tropical areas, in the Palaearctic area about 96 species are known. In Europe, two species are known, *Platypus cylindrus* and *P. oxyurus*; only *P. cylindrus* was recorded in Slovenia. They are mostly tertiary species which inhabit dead, fallen and cut trees only after a certain time.

1.4. Ecology of bark beetles and pinhole borers

Bark beetles in the broad sense include true bark beetles, which breed and feed in the phloem (phloemophagous species), and ambrosia beetles (some bark beetles all pinhole borers), which bore into the wood and feed mainly on ectosymbiont ambrosia fungi in the

mi glivami v rovih (ksilomicetofagne vrste) (Vega in Hofstetter 2015). Nekatere vrste se razvijajo v semenih in plodovih (spermofagne vrste), v strženih vejic in drugih tanjših steblih ali v pecljih odpadlih listov (mielofagne vrste). Širše gledano so podlubniki in strženarji fitofagni in mikofagni.

Vendar imajo podlubniki in strženarji še mnogo raznovrstnejšo prehrano v celotnem arealu njihove razširjenosti (Koch 1992, Mihajlović 2008, Vega in Hofstetter 2015). Tako ločimo:

– Floemofagne vrste se hranijo v floemskem tkivu (notranji del skorje), čeprav ličinke nekaterih vrst brazdajo zunanja tkiva beljave, lahko odrasli osebki naključno (ne pa pogosto) vnašajo trose gliv v gostitelja in tako povečujejo hranilno vrednost substrata. Njihova črvina je rdečkasto rjava (barva terakote). To so vse vrste iz rodov *Ips*, *Dendroctonus*, *Tomicus*, in nekatere iz rodov *Scolytus* in *Pityophthorus*.
– Ksilomicetofagne vrste (ambrozijski podlubniki) se hranijo z »gojenimi« ektosimbiontskimi glivami, ki rastejo v lesu, ličinke nekaterih vrst te skupine podlubnikov zaužijejo tudi les. Schedlova (1958) definicija je: »Ličinke se hranijo z micelijem gliv, ki jih gojijo na stenah svojih rovov«. Za vnašanje trosov gliv imajo odrasli osebki posebej oblikovane vdolbinice – mikangije. Iz svojih rovov izrivajo svetlo rjavo, skoraj belo črvino.
– Spermatofagne vrste se hranijo na velikih trdih semenih in ovojnih tkivih plodov, kot so razvijajoča se semena storžev, nosilne strukture semen metuljnic, semena koruze in semena makadamije. Vrsta *Hypothenemus hampei* se prehranjuje na razvijajočih se semenih kave.
– Mielofagne vrste se hranijo v strženu vejic, drobnih vej ali tankih debelc različnih vrst drevja, vključujoč mlade trse. To je značilno za nekatere vrste iz rodov *Pityophthorus*, *Hypothenemus* in *Scolytus*.
– Ksilofagne vrste se prehranjujejo s ksilemom (beljava, nikoli črnjava), vendar ne »gojijo« gliv v svojih rovih. To so vrste

tunnels (xylemycetophagous species) (Vega & Hofstetter 2015). Some bark beetles develop in seeds and fruits (spermophagous species), in the pith and other thinner stems, or in the petioles of fallen leaves (myelophagous species). More broadly, bark beetles and pinhole borers are phytophagous and mycophagous. When discussing the feeding of these two groups, we use the name 'bark beetles' to cover all categories, whatever their specificities.

However, bark beetles and pinhole borers have a much more diverse diet throughout their range (Koch 1992, Mihajlović 2008, Vega & Hofstetter 2015). That's how we distinguish:

– Phloemophages are species that feed in the phloem tissue (the inner part of the bark), although the larvae of some species do burrow into the outer tissues of the sapwood and can (but not often) carry fungi that increase the nutritional value of the substrate. They introduce fungal spores into the host at random. Their castings are reddish brown (terracotta colour). These are all species of the genera *Ips*, *Dendroctonus*, *Tomicus*, and some from the genera *Scolytus* and *Pityophthorus*.
– Xylomycetophages (ambrosia beetles) feed on "cultivated" ectosymbiont fungi that grow in wood, and the larvae of some species of this group of bark beetle also consume wood. Schedl's (1958) definition says: "the larvae... feed on the mycelia of fungi which they grow on the walls of their tunnels". The bark beetles have specially designed structures to transport fungal spores – mycangia. They push light brown, almost white castings out of their tunnels.
– Spermatophages feed on large hard seeds and the enveloping tissues of fruits, such as the developing seeds of cones, the supporting structures of legume seeds, maize seeds and macadamia seeds. *Hypothenemus hampei* feed on the developing seeds of coffee.
– Myelophages are species that feed on the pith of twigs, small branches or thin trunks of various tree species, including young vines. This is characteristic of some species

iz rodov *Phloeoborus* ter nekatere vrste iz rodu *Lymantor* in *Scolytus*.
– Mikofagne vrste se hranijo z glivami (te pa ne »gojijo« v svojih rovih), predvsem s trosišči zaprtotrosnic v suhih vejah ali v skorji (rod *Lymantor*).
– Herbifagne vrste (herbivori) se hranijo na koreninah detelje (npr. *Hylastinus obscurus*), na steblih mlečkov iz rodu *Euphorbia*, *Xylocleptes bispinus* se hrani v neolesenelih tkivih srobotov iz rodu *Clematis*. Nekatere vrste se hranijo z listnimi peclji (*Scolytus* spp.), to so filofagne vrste. Nekateri se hranijo tudi na svežih ali suhih mesnatih rastlinskih tkivih, vključujoč stebla zelnatih rastlin, listne peclje, kaktuse, stebla trav in viviparne poganjke mangrov.

Podlubniki in strženarji so torej v širšem pomenu besede s. l. fitofagni (floemofagni, floemomicetofagni, ksilomicetofagni, spermatofagni, mielofagni, ksilofagni, herbifagni-herbivori in filofagni) in le redke vrste so mikofagne.

Podlubnike in strženarje uvrščamo med saproksile, organizme, ki so v določenih fazah svojega razvojnega cikla vezani na mrtev ali odmirajoč les, odmirajoče ali odmrlo drevje, na lesne glive ali na prisotnost drugih saproksilov. Sodelujejo v dekompoziciji lesa kot primarni saproksili (v fazi kolonizacije, ko naselijo nepoškodovano drevje / les) ali kot sekundarni saproksili, ki sodelujejo v dekompoziciji (pridružijo se primarnim saproksilom) in razkrajajo trohneči les, ki mu sledi humifikacija. Saproksili omogočajo in povečujejo hitrost razgradnje lesa ter presnovijo velike količine hranil z multitrofičnimi interakcijami (Jurc s sod. 2010, 2010a). Terciarni saproksili so vrste, ki naseljujejo odmrla, podrta in posekana drevesa šele po določenem času.

Podlubniki običajno živijo v razpršenih habitatih, ki so primerni za preživetje ene generacije hroščev. To pomeni, da se nove generacije adultov razpršijo, da najdejo nove lokacije za »vzrejo« zaroda. Ti dve značilnosti podlubnikov in ambrozijskih hroščev

of the genera *Pityophthorus*, *Hypothenemus* and *Scolytus*.
– Xylophages feed on xylem (sapwood, never heartwood) but do not "grow" fungi in their tunnels. These are species of the genera *Phloeoborus*, some of the genera *Lymantor* and *Scolytus*.
– Mycophages feed on fungi (which they do not "grow" in their tunnels), mainly on the sorus of ascomyota in dry twigs or bark (genus *Lymantor*).
– Herbiphages (herbivores) feed on clover roots (e.g., *Hylastinus obscurus*) stems of milkweeds from genus *Euphorbia*, the *Xylocleptes bispinus* feeds in the non-woody tissues of leather flower from genus *Clematis*. Some species are phyllophages, i.e., they feed on leaf petioles (*Scolytus* spp.). Some also feed on fresh or dry fleshy plant tissues, including herbaceous plant stems, leaf stalks, cacti, grass stems and mangrove viviparous shoots.

Thus, in the broad sense of the word, bark beetles and pinhole borers are phytophagous (phloemophagous, phloemomycetophagous, xylomycetophagous, spermatophagous, myelophagous, xylophagous, herbiophagous-herbivorous and phyllophagous). Occasionally, some species are mycophagous.

Bark beetles usually live in scattered habitats that are suitable for one generation of beetles to survive. This means that new generations of adults disperse to find new locations for their offspring. These two characteristics of bark beetles and ambrosia beetles means they have a large variety of spatial and temporal requirements. Most species develop on dead or dying tissues of woody and sometimes herbaceous plants and are not always economically important. Indeed, such species may become economically important if their tunnels are in wood used for furniture or veneer, or if they are vectors of pathogenic fungi and colonise healthy trees. They are typical forest dwellers, dendrobionts. Relatively few species attack healthy trees, seedlings, saplings or seeds of commercially important crops (e.g. developing coffee fruits, young cones, palms, macadamias). When

pogojujeta njihovo visoko variabilnost glede prostorskih in časovnih zahtev. Večina vrst se razvija na mrtvih ali odmirajočih tkivih lesnatih in včasih zelnatih rastlin ter niso vedno ekonomsko pomembne. Vsekakor take vrste lahko postanejo ekonomsko pomembne, če so njihovi rovi v lesu, ki se uporablja za pohištvo ali furnir, ali če so vektorji patogenih gliv in se naselijo na zdravo drevje. So tipični prebivalci gozda, dendrobionti. Relativno malo vrst lahko napade zdravo drevje, sejanke in sadike ali seme komercialo pomembnih pridelkov (npr. razvijajoče se plodove kave, mlade storže, palme, makadamije). Vendar pa te lahko na območjih s toplejšo klimo povzročijo veliko ekonomsko škodo. Ta je lahko izrazita tudi v monokulturnih nasadih, ko se, po ekstremnih vremenskih dogodkih, ki poškodujejo ali uničijo nasade, izjemno hitro povečajo populacije podlubnikov, ki naredijo še dodatno škodo (Lieutier s sod. 2004).

Lokalna distribucija podlubnikov je odvisna predvsem od temperaturnih razmer (so poikilotermne ali ektotermne živali), prisotnosti ustreznega habitata za njihov razvoj in od količine prisotne hrane. Višje temperature in nenadno povečanje trofične kapacitete okolja (po vetrolomih, snegolomih ali sušah) lahko povzročita, da se populacija podlubnikov v 2–3 letih zaradi povečane fertilitete samic tako poveča, da pride do kalamitete – čezmerne namnožitve podlubnikov, kar omogoča, da premagajo rezistenco gostiteljev ter uspešno napadejo in naselijo tudi zdrava, živa drevesa.

Strženarji so vrste, ki so po ekologiji podobne nekaterim predstavnikom iz rodov ambrozijskih podlubnikov, kot so vrste iz rodov različnežev (*Anisandrus*), lesarjev (*Xyleborus*) in lestvičarjev (*Trypodendron*). Morfološko se strženarji precej razlikujejo od podlubnikov. Ličinke strženarjev živijo v lesu, v katerem so prisotne različne vrste ektosimbiontskih gliv, ki so hrana ličinkam.

Podlubniki se ne glede na to, da se lahko pojavijo hkrati v habitatu, zelo razlikujejo glede njihove ekologije in biokemijske ad-

that happens in warmer climates they can cause significant economic damage, in particular in monoculture plantations of such crops, when rapid population increases can occur following extreme weather events that damage or destroy plantations (Lieutier et al. 2004).

The local distribution of bark beetles depends mainly on temperature conditions (they are poikilothermic or ectothermic animals), the presence of suitable habitat for their development, and the amount of food present. Higher temperatures and a sudden increase in the trophic capacity of the environment (after windthrows, snow damage or droughts) can cause the population of bark beetles to increase so much that a gradation or calamity occurs within 2-3 years due to increased female fertility. This is important because a large population of bark beetles allows them to overcome host resistance and successfully attack and colonise even healthy, living trees.

Pinhole borers are species that are ecologically similar to some members of bark beetles in the genera *Anisandrus*, *Xyleborus* and *Trypodendron*. Morphologically, pinhole borers are quite distinct from the species of the subfamily Scolytinae. The larvae of the pinhole borers live in wood which contains various species of ectosymbiontic fungi that provide food for the larvae.

We classify bark beetles and pinhole borers as saproxyles, organisms that are attached to dead or dying wood, dying or dead trees, wood fungi or the presence of other saproxyles during certain stages of their development cycle. They participate in wood decomposition as primary saproxyles (during the colonisation phase when they colonise intact trees / wood) or as secondary saproxyles that participate in decomposition (joining primary saproxyles) and decompose decaying wood, followed by humification. Saproxyles facilitate and increase the rate of wood decomposition and metabolize large amounts of nutrients through multitrophic interactions (Jurc et al. 2010, 2010a). Tertiary saproxyls are species that inhabit dead, fallen and felled trees only after a certain period of time.

The Scolytinae differ greatly in their ecology and biochemical adaptations to host plants al-

aptacije na gostiteljske rastline. Podlubniki, ki se hranijo v floemu (relativno tanka plast skorje pod odmrlim zunanjim delom skorje), so običajno omejeni na eno ali samo nekaj gostiteljskih rastlin. Ambrozijski podlubniki (in strženarji), ki vnašajo v les ektosimbiontske glive za prehrano ličink, običajno naseljujejo več gostiteljskih rastlin. Večina biološkega znanja o floemofagnih in ksilomicetofagnih ambrozijskih podlubnikih temelji na raziskavah le nekaj rodov, kot so: *Dendroctonus*, *Ips*, *Scolytus*, *Xyleborus*, *Trypodendron*, *Tomicus*, *Pityogenes*, *Pityophthorus*, *Hylastes* in *Gnathotrichus*. Večina vrst iz teh rodov so obligatni in fakultativni »ubijalci dreves« in predstavljajo samo okoli 10 % vrst podlubnikov (podatek za ZDA in Kanado) (Byers 2004). Pri nas je ta odstotek okoli 4 %. Raziskovalci menijo, da je biologija podlubnikov, ki so prilagojeni na samo enega ali nekaj gostiteljev (in to so naše ekonomsko pomembne vrste na smreki, rdečem boru ali beli jelki), rezultat naravne selekcije na variabilnost rastlinskih biokemičnih snovi v tkivih. Menijo, da je vsaka rastlinska vrsta v koevoluciji s podlubniki razvila kemične snovi proti pogubnim (»tree killing«) podlubnikom. Ugotavljajo, da signalne kemične snovi, ki spreminjajo vedenje podlubnikov sestavljene iz kemičnih snovi gostiteljskih dreves in podlubnikov. Gostiteljske in negostiteljske signalne snovi so lahko atraktanti, repelenti, toksični za podlubnike ali so hrana za podlubnike. Signalne snovi vplivajo na: (1) odkrivanje in sprejemanje gostiteljskega drevesa, (2) stimulacijo prehranjevanja in odvračanja, (3) rezistenco rastline, (4) feromonsko / alomonsko biosintezo in komunikacijo, (5) privabljanje predatorjev, parazitov in kompetitorjev podlubnikov. V monitoringu populacij nekaterih ekonomsko pomembnih podlubnikov se uporabljajo sintetični feromoni, kot so Pheroprax®, Chalcoprax®, Linoprax® in drugi. Poznavanje kemijske ekologije podlubnikov in odnosov drevo-podlubnik je osnova za upravljanje s populacijami podlubnikov in zmanjševanje poškodb drevja.

though they can occur simultaneously in the same habitat. Bark beetles that feed on the phloem (the relatively thin layer of bark beneath the dead outer part of the bark) are usually restricted to one or only a few host plants. Ambrosia beetles (and pinhole borers), which introduce symbiont fungi into the wood for larval feeding, usually inhabit a larger number of host plants. Most of the biological knowledge on phloemophagous and xylomycetophagous ambrosia beetles is based on studies of only a few genera such as *Dendroctonus*, *Ips*, *Scolytus*, *Xyleborus*, *Trypodendron*, *Tomicus*, *Pityogenes*, *Pityophthorus*, *Hylastes* and *Gnathotrichus*. Most of the species in these genera are obligate and facultative "tree-killing" bark beetles and represent only about 10% of the bark beetle species (data for the USA and Canada) (Byers 2004). In Slovenia, this share is around 4%. Researchers believe that the biology of bark beetles that are adapted to only one or a few hosts (and these are our economically important species on spruce, red pine or white fir) is the result of natural selection on the variability of plant biochemical substances in the tissues. It is believed that each plant species in coevolution with the bark beetles has developed chemical substances against the "tree-killing" bark beetles. They conclude that semiochemicals (signal chemical compounds or chemical substances that modify the behaviour of bark beetles) are composed of chemical substances from the host trees and the bark beetles. Host and non-host signal compounds may be attractants, repellents, toxic to the understorey or food for the understorey. Signalling substances (compounds) affect: (1) host tree detection and acceptance, (2) feeding stimulation and deterrence, (3) plant resistance, (4) pheromone / alomone biosynthesis and communication, (5) attraction of predators, parasites and competitors of bark beetles. Synthetic pheromones such as Pheroprax®, Chalcoprax®, Linoprax® and others are used in the monitoring of populations of some economically important bark beetles. Knowledge of the chemical ecology of bark beetles and tree-bark beetle relationships provides the basis for managing bark beetle populations and reducing damage to trees.

2. Slovensko poimenovanje

V Sloveniji so bile nekatere vrste rastlin in živali v slovenščini že sistematično poimenovane (npr. Kryštufek in Janžekovič 1999, Martinčič s sod. 2007, Verovnik s sod. 2012, Vrezec s sod. 2020). Poimenovanja hroščev so bila večinoma priložnostna v poljudnih favnističnih delih in redko sistematična, takrat, ko je bilo treba neko skupino vrst zaradi ekonomskega pomena približati širši javnosti (Titovšek 1988) ali predstaviti vrste evropskega varstvenega pomena v Sloveniji s predlogom slovenskega poimenovanja (Vrezec s sod. 2011). Ravno sistematični pregled favne obravnavanih skupin ponuja priložnost za poenotenje in tvorbo slovenskih imen. Gre za celosten pregled omenjenih skupin na Slovenskem, k čemur spada tudi slovensko poimenovanje. V poimenovanje smo vključili vseh 117 vrst podlubnikov in eno vrsto strženarja. Upoštevali smo tudi dosedanje slovensko poimenovanje (Imenik slovenskih imen nevretenčarjev, ki ga ureja Prirodoslovni muzej Slovenije http://www1.pms-lj.si/imenik/imenik.php). Pri tvorbi imen smo sledili načelom dvobesednega poimenovanja, enoznačno smo poimenovali rodovna imena, vrstno ime se vedno ujema s slovenskim imenom roda. Tako je bilo predlagano tudi pri pticah (Jančar 1999, Vrezec s sod. 2017). Upoštevane so bile morfološke, distribucijske in ekološke značilnosti vrst ter že obstoječa imena v slovenščini (Titovšek 1988), latinščini in v drugih jezikih. Opravljena je bila tudi ponovna interpretacija obstoječih latinskih imen vrst (Bracegirdle in Miles 1971; Bradač 1972; Verbinc 1979; Stearn 1983; Batič s sod. 2023) (tabela 1).

2. Slovenian nomenclature

In Slovenia, some species of plants and animals have already been systematically named in Slovene (e.g. Kryštufek & Janžekovič 1999, Martinčič et al. 2007, Verovnik et al. 2012, Vrezec et al. 2020). Naming of beetles was mostly done ad hoc in popular faunal works and was rarely systematic, when it was necessary to inform the general public about a group of species due to their economic importance (Titovšek 1988), or to present species of European conservation importance in Slovenia with a proposal for a Slovene name (Vrezec et al. 2011). This systematic review of the fauna of bark beetles and pinhole borers offers an opportunity for standardisation and the creation of Slovene names. It is a comprehensive overview of these groups in Slovenia and includes Slovene nomenclature. All 117 species of bark beetle and one species of pinhole borer have been included in the nomenclature. We have also considered existing Slovene nomenclature (Slovene Directory of Invertebrate Names, managed by the Natural History Museum of Slovenia http://www1.pms-lj.si/imenik/imenik.php). In creating the names, we followed the principles of two-word naming, so we named genus names unambiguously, the species name always corresponds to the Slovene name of the genus. This has also been proposed for birds (Jančar 1999, Vrezec et al. 2017). Morphological, distributional and ecological characteristics of the species were taken into account, as well as existing names in Slovene (Titovšek 1988), Latin and other languages. Reinterpretation of existing Latin species names was also carried out (Bracegirdle & Miles 1971; Bradač 1972; Verbinc 1979; Stearn 1983; Batič et al. 2023) (Table 1).

Tabela 1: Predlog slovenskega poimenovanja taksonov (poddružina, rod, vrsta) v družini rilčkarjev (Curculionidae), poddružinah podlubnikov (Scolytinae) in strženarjev (Platypodinae) s pregledom obstoječega angleškega, nemškega in dosedanjega slovenskega poimenovanja in z virom najstarejše uporabe slovenskega imena.

Table 1: Proposed Slovene names of taxa (family, genus, species) of the weevils (Curculionidae), subfamilies bark beetles (Scolytinae) and pinhole borers (Platypodinae) and an overview of existing English, German and current Slovene names with the oldest source of the Slovene name.

Latinsko ime / *Latin name*	Angleško in nemško / *English and German name* European and Mediterranean Plant Protection Organization (EPPO), Grüne 1979 (SG), Fauna Europaea (FE), ForestryImages (FI), ResearchGate (RG), Schwenke 1974, Encyclopedia of Life (EOL)	Pregled dosedanjega slovenskega poimenovanja in avtor - vir / *Overview of Slovenian hitherto used names and author - source* Imenik slovenskih imen nevretenčarjev, Prirodoslovni muzej Slovenije - PMS	Predlog slovenskega imena (razlaga imena v oklepaju) / *Proposed Slovenian name*
Scolytinae Latreille, 1804	- bark beetles (FE) - Subfamily Scolytinae (EPPO)	podlubniki Titovšek 1988	**podlubniki** (hrošči, katerih ličinke živijo pod lubjem ali v skorji in se prehranjujejo z ličjem in kambijem drevesa)
Hylastes Erichson, 1836	- Genus *Hylastes* (EPPO)	koreninarji Titovšek 1988	**koreninar** (prezimuje na mestu eklozije ali v spodnjem delu dreves oziroma na koreninah)
Hylastes angustatus (Herbst, 1704)	- pine bark beetle (RG) - schmaler Kiefernbastkäfer (SG), (EPPO)	ozki borov koreninar Titovšek 1988, (PMS)	ozki koreninar
Hylastes ater (Paykull, 1800)	- black pine bark beetle (FI) - schwarzer Kiefernbastkäfer (SG), (EPPO)	črni borov koreninar Titovšek 1988, (PMS)	črni koreninar
Hylastes attenuatus Erichson, 1836	- bark beetle (FI) - starkpunktierter (Schwenke 1974)-Kiefernbastkäfer (SG), (EPPO)	pikčasti borov koreninar Titovšek 1988	pikčasti koreninar
Hylastes brunneus (Erichson, 1836)	- bark beetle (FI)		rjavi koreninar
Hylastes cunicularius Erichson, 1836	- bark beetle (FI) - schwarzer Fichtenbastkäfer (SG), (EPPO)	smrekov koreninar Titovšek 1988, (PMS)	smrekov koreninar
Hylastes linearis Erichson, 1836	- bark beetle (FI)		podolgovati koreninar
Hylastes opacus Erichson, 1836	- bark beetle (FI) - mattschwarzer Kiefernbastkäfer (SG), (EPPO)		temni koreninar
Hylurgops LeConte, 1876	- bark beetles (FI) - Genus *Hylurgops* (EPPO)		čo**katež** (čokat podlubnik, s širokim vratnim ščitom)
Hylurgops glabratus (Zetterstedt, 1828)	- brown spruce bast borer (EPPO) - dunkelbrauner Fichtenbastkäfer (SG), (EPPO)	veliki smrekov ličar Titovšek 1988	smrekov čokatež
Hylurgops palliatus (Gyllenhal, 1813)	- gelbbrauner Fichtenbastkäfer (SG) - Fichtenstammbastkäfer (EPPO)	mali smrekov ličar Titovšek 1988	mali čokatež
Hylastinus Bedel, 1888	- Genus *Hylastinus* (EPPO)		**grebenar** (predprsni hrbtni ščit z medialnim, longitudinalnim grebenom)
Hylastinus fankhauseri Reitter, 1895	- bark beetle (FI) - Goldregenborkenkäfer (EPPO)	negnojev ličar Titovšek 1977, nagnojev ličar (PMS)	nagnojev grebenar

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Hylastinus obscurus (Marsham, 1802)	- clover root bark beetle (EPPO) - clover root borer (EPPO) - Kleewurzelborkenkäfer (EPPO) - Kleewurzelkäfer (EPPO)		deteljni grebenar
Hylesinus Fabricius, 1801	- ash bark beetles (*Hylesinus* spp.) (FI) - Genus *Hylesinus* (EPPO)		**jesenar** (najpogostejše gostiteljske rastline so jeseni)
Hylesinus crenatus (Fabricius, 1787)	- großer schwarzer Eschenbastkäfer (SG), (EPPO)	veliki jesenov ličar Titovšek 1988	veliki jesenar
Hylesinus wachtli orni Fuchs, 1906	/		beloluskasti jesenar
Hylesinus toranio (D´Anthoine, 1788)	- olive bark beetle (EPPO) - kleiner schwarzer Eschenbastkäfer (SG), (EPPO)	mali črni jesenov ličar (PMS)	oljkov jesenar
Hylesinus varius (Fabricius, 1775)	- ash bark beetle (FI) - ash bark beetle (FI), (EPPO) - bunter Eschenbastkäfer (SG) - bunter kleiner Eschenbastkäfer (EPPO) - ähnlicher bunter Bastkäfer (EPPO)	pisani jesenov ličar Titovšek 1988, (PMS)	pisani jesenar
Kissophagus Chapuis, 1869	- Genus *Kissophagus* (EPPO)		**bršljanar** (gostitelj je bršljan)
Kissophagus vicinus (Comolli, 1837)	- Efeuborkenkäfer (EPPO)		gladki bršljanar
Pteleobius Bedel, 1888	- Genus *Pteleobius* (EPPO)		**brestar** (najpogostejše gostiteljske rastline so bresti)
Pteleobius kraatzii (Eichhoff, 1864)	- bunter Ulmenbastkäfer (SG)		rjavobetni brestar
Pteleobius vittatus (Fabricius, 1792)	- bunter Ulmenbastkäfer (SG), (EPPO)		črnobetni brestar
Dendroctonus Erichson, 1836	Genus *Dendroctonus* (EPPO) - bark and ambrosia beetles (FI)		**orjakar** (največji evropski podlubniki)
Dendroctonus micans (Kugelann, 1794)	- great spruce bark beetle (FI), (EPPO) - European spruce bark beetle (EPPO) - Riesenbastkäfer (SG), (EPPO)	orjaški smrekov ličar Titovšek 1988, (PMS)	smrekov orjakar
Hylurgus Latreille, 1806	- Genus *Hylurgus* (EPPO)		**zbitež** (telo cilindrično, metatoraks tako dolg kot abdomen)
Hylurgus ligniperda (Fabricius, 1787)	- golden- haired bark beetle (EPPO) - holzzerstörender Kiefernbastkäfer (EPPO) - rothaariger Kiefernbastkäfer (SG), (EPPO)		dolgodlaki zbitež
Hylurgus micklitzi Wachtl, 1881	/		kratkodlaki zbitež
Tomicus Latreille, 1802	- Genus *Tomicus* (EPPO)		**poganjkar** (mladi odrasli osebki se zrelostno hranijo v strženih poganjkov)
Tomicus destruens (Wollaston, 1865)	- pine shoot beetle (EOL)		sredozemski poganjkar

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Tomicus minor (Hartig, 1834)	- lesser pine shoot beetle (FI) (EPPO) - minor pith borer (EPPO) - small pine engraver (EPPO) - kleiner Kiefernmarkkäfer (EPPO) - kleiner Waldgärtner (SG), (EPPO) - rotbrauner Waldgärtner (EPPO)	mali borov strženar Titovšek 1988, (PMS)	mali poganjkar
Tomicus piniperda (Linnaeus, 1758)	- Japanese pine engraver, larger pith borer, pine beetle, pine shoot beetle (EPPO) - common pine shoot beetle (FI) - gefurchter Waldgärtner, großer Kiefernmarkkäfer (EPPO) - großer Waldgärtner (SG), (EPPO)	veliki borov strženar Titovšek 1988, (PMS)	veliki poganjkar
Xylechinus Chapuis, 1869	- Genus *Xylechinus* (EPPO)		**luskičar** (izrazite trde strukture, luske, na predprsju imajo izrazite trde strukture, luske)
Xylechinus pilosus (Ratzeburg, 1837)	- Fichtenbastkäfer (Schwenke 1974)		kosmati luskičar
Hypoborus Erichson, 1836	- Genus *Hypoborus* (EPPO)		**poraščenec** (površina telesa prekrita z dolgimi, štrlečimi, ščetinastimi dlačicami, vendar brez debelih lusk)
Hypoborus ficus Erichson, 1836	- Feigenborkenkäfer (EPPO)	figov ličar Titovšek 1988	figov poraščenec
Liparthrum Wollaston, 1854	- Genus *Lipartrum* (EPPO)		**dvovrstnež** (površina telesa prekrita s kratkimi, debelimi luskami v vrstah med bazalnimi dlačicami)
Liparthrum genistae (Aubé, 1862)	/	koščeničin ličar Titovšek 1988	koščeničin dvovrstnež
Liparthrum mori (Aubé, 1862)	/	murvov ličar Titovšek 1988	murvov dvovrstnež
Phloeosinus Chapuis, 1869	- Genus *Phloeosinus* (EPPO)		**zobčkar** (na koničniku pokrovk so vrste koničastih izrastkov ali zobcev)
Phloeosinus aubei (Perris, 1855)	- cedar bark beetle, Eastern juniper bark beetle, small cypress bark beetle (EPPO) - zweifarbiger Thujenborkenkäfer (SG), (EPPO)		brinov zobčkar
Phloeosinus thujae (Perris, 1855)	- Wacholderborkenkäfer (GS), (EPPO)	tujin ličar Titovšek 1988	dvobarvni zobčkar
Phloeotribus Latreille, 1797	- Genus *Phloeotribus* (EPPO)		**ličar** (prehranjujejo se z ličjem, živim delom skorje)
Phloeotribus cristatus (Fauvel, 1889)	/		brnistrov ličar

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Phloeotribus rhododactylus (Marsham, 1802)	/		žukov ličar
Phloeotribus scarabaeoides (Bernard, 1788)	- olive bark beetle (FI), (EPPO) - europäischer Ölbaumborkenkäfer (SG), (EPPO)	oljkov ličar Titovšek 1988, (PMS)	oljkov ličar
Phloeotribus spinulosus (Rey, 1883)	/	dolgokijasti smrekov ličar Titovšek 1988	smrekov ličar
Carphoborus Eichhoff, 1864	- Genus *Carphoborus* (EPPO)		**linijaš** (pokrovke z izrazitimi progami, poraščene s finimi okroglimi luskami)
Carphoborus minimus (Fabricius, 1798)	- kleinster Kiefernbastkäfer (SG), (EPPO)		mali linijaš
Carphoborus perrisi (Chapuis, 1869)	- kleiner Pistazienborkenkäfer (EPPO)		pistacijev linijaš
Carphoborus pini Eichhoff, 1881	/		borov linijaš
Polygraphus Erichson, 1836	- Genus *Polygraphus* (EPPO)		**dvojnookec** (očesi sta v sredini razcepljeni na dve polovici, oči so dvodelne)
Polygraphus poligraphus (Linnaeus, 1758)	- small spruce bark beetle (FI) - doppeläugiger Fichtenbastkäfer (SG), (EPPO)	dvojnooki smrekov ličar Titovšek 1988, (PMS)	smrekov dvojnookec
Polygraphus subopacus Thomson, 1971			svetli dvojnookec
Gnathotrichus Eichhoff, 1869	- Genus *Gnathotrichus* (EPPO)		**pegar** (napaden les se lahko obarva)
Gnathotrichus materiarius (Fitch, 18589	- eastern pine wood stainer (EPPO) - Amerikanischer Nadelnutzholzborkenkäfer (EPPO)	ameriški lesni pegač Pavlin (v: Jurc s sod. 2022)	ameriški pegar
Pityophthorus Eichhoff, 1864	- Genus *Pityophthorus* (EPPO)		**vejar** (zalega v tankolubne drevesne dele, veje, vejice in vrhače)
Pityophthorus balcanicus Pfeffer, 1940	/	balkanski vejni lubadar Titovšek 1988, (PMS)	balkanski vejar
Pityophthorus carniolicus Wichmann, 1910	/	kranjski vejni lubadar Titovšek 1988, (PMS)	kranjski vejar
Pityophthorus glabratus Eichhoff, 1878	- kleiner Kiefernzweigborkenkäfer (SG), (EPPO)		gladki vejar
Pityophthorus lichtensteinii (Ratzeburg, 1837)	/	borov vejni lubadar Titovšek 1988	borov vejar
Pityophthorus micrographus (Linnaeus, 1758)	- kleiner nordischer Fichtenborkenkäfer (SG)		drobnočrtni vejar

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Pityophthorus pityographus (Ratzeburg, 1837)	- fir bark beetle (FI) - furchenflügliger Fichtenborkenkäfer (SG), (EPPO) - kleiner Fichtenborkenkäfer, sechszähniger Fichtenborkenkäfer (EPPO)	jelov vejni lubadar Titovšek 1988, (PMS)	jelov vejar
Pityophthorus pubescens (Marsham, 1802)	/		puhasti vejar
Cryphalus Erichson, 1836	- Genus *Cryphalus* (EPPO)		**zrnar** (na vratnem ščitu se nahajajo grobe grbice, zrna)
Cryphalus asperatus (Gyllenhal, 1813)	- bark beetle (FI) - gekörnter Fichtenborkenkäfer (Schwenke 1974)	zrnati smrekov lubadar Titovšek 1988	smrekov zrnar
Cryphalus intermedius Ferrari, 1867	- bark beetle (FI) - kleiner Lärchenborkenkäfer (GS)	zrnati macesnov lubadar Titovšek 1988, (PMS)	macesnov zrnar
Cryphalus piceae (Ratzeburg, 1837)	- fir bark beetle (FI) - gekörnter Tannenborkenkäfer (SG), (EPPO) - kleiner Tannenborkenkäfer (EPPO)	zrnati jelov lubadar Titovšek 1988, (PMS)	jelov zrnar
Cryphalus saltuarius Weise, 1891	- gekörnter Fichtenborkenkäfer (EPPO)		rahločrtni zrnar
Ernoporicus Berger, 1917	- Genus *Ernoporicus* (EPPO)		**štrlečkar** (na sprednjem robu vratnega ščita so koničasti zobčki)
Ernoporicus caucasicus (Lindemann, 1876)	- kleiner Lindenborkenkäfer (SG)		kavkaški štrlečkar
Ernoporicus fagi (Fabricius, 1798)	- kleiner Buchenborkenkäfer (SG)	mali bukov lubadar Titovšek 1988	bukov štrlečkar
Ernoporus C. G. Thomson, 1859	- Genus *Ernoporus* (EPPO)		**grbičar** (na sprednjem delu vratnega ščita nepravilno razporejene grbice)
Ernoporus tiliae (Panzer, 1793)	- bark beetle (FI) - kleiner Lindenborkenkäfer (EPPO)	lipov lubadar (PMS)	lipov grbičar
Hypothenemus Westwood, 1834	- Genus *Hypothenemus* (EPPO)		**drobnež** (zelo majhen podlubnik, samice so dolge 1,0-1,3 mm, samci pa 0,7-0,8 mm)
Hypothenemus eruditus (Westwood, 1834)	/		luskasti drobnež
Crypturgus Erichson, 1836	- bark beetle (FI) - Genus *Crypturgus* (EPPO)		**podaljškar** (materinski rovi izhajajo kot podaljšek iz materiskih rovov drugih podlubnikov, ki so predhodno naselili gostiteljsko drevo)
Crypturgus cinereus (Herbst, 1794)	- kleiner Kiefernborkenkäfer (SG), (EPPO)	drobni borov lubadar Titovšek 1988, (PMS)	borov podaljškar
Crypturgus cribrellus Reitter, 1895	/		drobni podaljškar

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Crypturgus cylindricollis Eggers, 1940	/		valjasti podaljškar
Crypturgus hispidulus Thomson, 1870	- kleiner borstiger Nadelholzborkenkäfer (SG), (EPPO)		ščetinasti podaljškar
Crypturgus mediterraneus Eichhoff, 1869	/		sredozemski podaljškar
Crypturgus numidicus Ferrari, 1867	/		nomadski podaljškar
Crypturgus pusillus (Gyllenhal, 1813)	- bark beetle (FI) - schmaler Fichtenborkenkäfer (EPPO) - winziger Fichtenborkenkäfer (GS), (EPPO)	drobni smrekov lubadar Titovšek 1988, (PMS)	smrekov podaljškar
Dryocoetes Eichhoff, 1864	- Genus *Dryocoetes* (EPPO)		**kosmatinec** (po vsem telesu, zlasti po hrbtni strani so na gosto poraščeni z dolgimi, štrlečimi dlačicami)
Dryocoetes alni (Georg, 1856)	- Erlenbastkäfer (EPPO) - Erlenborkenkäfer (SG)		jelšev kosmatinec
Dryocoetes autographus (Ratzeburg, 1837)	- bark beetle (FI) - Zottenborkenkäfer (EPPO) - zottiger nordischer Fichtenborkenkäfer (EPPO) - zottiger Fichtenborkenkäfer (SG)	kosmati smrekov lubadar Titovšek 1988, (PMS)	smrekov kosmatinec
Dryocoetes hectographus Reitter, 1913	/		stočrtni kosmatinec
Dryocoetes villosus (Fabricius, 1792)	- behaarter Eichenborkenkäfer (EPPO) - zottiger Eichenborkenkäfer (SG)		kocasti kosmatinec
Lymantor Løvendal, 1889	- Genus *Lymantor* (EPPO)		**ovalnež** (ovalna oblika telesa)
Lymantor coryli (Perris, 1855)	- Haselborkenkäfer (EPPO) - Haselnuβborkenkäfer (SG)		lešnikov ovalnež
Taphrorychus Eichhoff, 1878	- Genus *Taphrorychus* (EPPO)		**bukovar** (najpogostejše gostiteljske rastline so bukve)
Taphrorychus bicolor (Herbst, 1794)	- kleiner Buchenborkenkäfer (SG), (EPPO)	kosmati bukov lubadar Titovšek 1988, (PMS)	dvobarvni bukovar
Taphrorychus siculus Eggers, 1908	/		bodičasti bukovar
Taphrorychus villifrons (Dufour, 1843)	- kleiner Eichenborkenkäfer (SG), (EPPO)		čelnodlačni bukovar
Xylocleptes Ferrari, 1867	- Genus *Xylocleptes* (EPPO)		**dolgež** (izrazito podolgovato telo)
Xylocleptes bispinus (Duftschmid, 1825)	- Clematisborkenkäfer (EPPO) - Waldrebenborkenkäfer (SG), (EPPO)	srobotov lubadar Titovšek 1988	srobotov dolgež
Ips DeGeer, 1775	- Genus *Ips* (EPPO)		**lubadar** (tradicionalno ljudsko ime za hrošče v skorji iglavcev)

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Ips acuminatus (Gyllenhal, 1827)	- sharp-toothed bark beetle (EPPO) - engraver beetle (FI) - sechszähniger Kiefernborkenkäfer (SG), (EPPO)	ostrozobi borov lubadar Titovšek 1988, (PMS)	borov lubadar
Ips amitinus (Eichhoff, 1872)	- eight-toothed spruce bark beetle (FI), (EPPO) - small spruce bark beetle (EPPO) - kleiner 8zähniger Fichtenborkenkäfer (SG) - kleiner achtzähniger Fichtenborkenkäfer (EPPO)	mali osmerozobi smrekov lubadar Titovšek 1988, (PMS)	montanski lubadar
Ips cembrae (Heer, 1836)	- large larch bark beetle (FI) (EPPO) - achtzähniger Lärchenborkenkäfer (EPPO) - großer Lärchenborkenkäfer (SG), (EPPO)	veliki macesnov lubadar Titovšek 1988, (PMS)	macesnov lubadar
Ips duplicatus (Sahalberg, 1836)	- norther spruce bark beetle - duble-spined bark beetle	dvojnozobi smrekov lubadar De Groot 2018	dvojnozobi lubadar
Ips sexdentatus (Boerner, 1766)	- six-toothed bark beetle (EPPO) - six-spined engraver beetle (FI) - großer 12-zähniger Kiefernborkenkäfer (EPPO) - großer Kiefernborkenkäfer (EPPO) - zwölfzähniger Kiefernborkenkäfer (EPPO) - groβer 12zähniger Fichtenborkenkäfer (SG)	dvanajsterozobi borov lubadar Titovšek 1988, (PMS)	dvanajsterozobi lubadar
Ips typographus (Linnaues, 1758)	- eight-dentate bark beetle, eight-spined engraver, eight-toothed spruce bark beetle, spruce bark beetle, European spruce bark beetle (FI) - Ajanfichtenborkenkäfer, Ajanfichtenbuchdrucker, Buchdrucker, großer 8-zähniger Fichtenborkenkäfer (EPPO) - Buchdrucker, groβer 8zähniger Fichtenborkenkäfer (SG)	osmerozobi smrekov lubadar Titovšek 1988, (PMS)	osmerozobi lubadar
Orthotomicus Ferrari, 1867	- Genus *Orthotomicus* (EPPO)		**borar** (najpogostejše gostiteljske rastline so bori)
Orthotomicus erosus (Wollaston, 1857)	- südeuropäischer Kiefernborkenkäfer (SG), (EPPO)	južnoevropski borov lubadar Titovšek 1988, (PMS)	južnoevropski borar
Orthotomicus laricis (Fabricius, 1792)	- lesser lach bark-beetle (FI) - vielzähniger Kiefernborkenkäfer (SG)	mnogozobi borov lubadar Titovšek 1988, (PMS)	mnogozobi borar
Orthotomicus longicollis (Gyllenhal, 1827)	- pattern engraver beetle, vielzähniger Kiefernborkenkäfer (EPPO) - langhalsiger Kiefernborkenkäfer (SG), (EPPO)		dolgoščitni borar
Orthotomicus proximus (Eichhoff, 1868)	- Kiefernstangenholzborkenkäfer (SG)	ploskozobi borov lubadar Titovšek 1988, (PMS)	ploskozobi borar
Orthotomicus suturalis (Gyllenhal, 1827)	- bark beetle (FI) - Kiefernstangenholzborkenkäfer (SG)	mrki borov lubadar Titovšek 1988, (PMS)	mrki borar
Pityogenes Bedel, 1888	- Genus *Pityogenes* (EPPO)		**zvezdar** (formirajo izrazit zvezdast rovni sistem)

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Pityogenes bidentatus (Herbst, 1784)	- two-toothed pine beetle (FI) - two-toothed pine beetle (EPPO) - zweizähniger Kiefernborkenkäfer (SG), (EPPO)	dvozobi borov lubadar Titovšek 1988, (PMS)	dvozobi zvezdar
Pityogenes bistridentatus (Eichhoff, 1878)	- bark beetle (FI) - kleiner Arvenborkenkäfer (EPPO)	krivozobi borov lubadar Titovšek 1988, (PMS)	krivozobi zvezdar
Pityogenes calcaratus (Eichhoff, 1878)	/		kljukasti zvezdar
Pityogenes chalcographus (Linnaeus, 1760)	- six-dentate bark beetle, spruce wood engraver (EPPO) - six-toothed spruce bark beetle (FI) - Kupferstecher (SG), (EPPO) - sechszähniger Borkenkäfer, sechszähniger Fichtenborkenkäfer (EPPO) - 6zähniger Fichtenborkenkäfer (SG)	šesterozobi smrekov lubadar Titovšek 1988, (PMS)	šesterozobi zvezdar
Pityogenes conjunctus Reitter, 1887	- kleiner Arvenborkenkäfer (SG)	alpski borov lubadar Titovšek 1988	alpski zvezdar
Pityogenes quadridens (Hartig, 1834)	- bark beetle (FI) - vierzähniger Borkenkäfer (EPPO) - vierzähniger Kiefernborkenkäfer (SG)	štirizobi borov lubadar Titovšek 1988, (PMS)	štirizobi zvezdar
Pityogenes trepanatus (Nördlinger, 1848)	- kleiner Schwarzkiefernborkenkäfer (EPPO) - Schwarzkiefernborkenkäfer (SG)	šesterozobi borov lubadar Titovšek 1988, (PMS)	borov zvezdar
Pityokteines Fuchs, 1911	- bark beetles (FI) - Genus *Pityokteines* (EPPO)		**jelkar** (najpogostejše gostiteljske rastline so jelke)
Pityokteines curvidens (Germar, 1824)	- silver fir bark beetle (FI), - silver-fir bark beetle (EPPO) - European fir engraver beetle (FE) - krummzähniger Tannenborkenkäfer (GS), (EPPO)	krivozobi jelov lubadar Titovšek 1988, (PMS)	krivozobi jelkar
Pityokteines spinidens (Reitter, 1895)	- fir bark beetle (FI) - European fir engraver beetles (FE) - mittlerer Tannenborkenkäfer (EPPO)	ostrozobi jelov lubadar Titovšek 1988, (PMS)	ostrozobi jelkar
Pityokteines vorontzowi (Jakobson, 1896)	- European fir engraver beetle (FI) - European fir engraver beetles (FE) - mittlerer Tannenborkenkäfer (EPPO)	vorontzowov jelov lubadar Titovšek 1988, (PMS)	vorontzowov jelkar
Scolytus Geoffroy, 1762	- Genus *Scolytus* (EPPO)		**beljavar** (materinski rovi se zajedajo globoko v beljavo)
Scolytus carpini (Ratzeburg, 1837)	- Hainbuchensplintkäfer Hainbuchensplintkäfer, Weißbuchensplintkäfer (EPPO)		gabrov beljavar
Scolytus intricatus (Ratzeburg, 1837)	- European oak bark beetle (FI) - oak bark beetle (EPPO) - Eichensplintkäfer (SG), (EPPO)	hrastov beljavar Titovšek 1988, (PMS)	hrastov beljavar
Scolytus laevis Chapuis, 1869	- mittlerer Ulmensplintkäfer (SG), (EPPO)	srednji brestov beljavar Titovšek 1988	gladki beljavar
Scolytus mali (Bechstein, 1805)	- apple bark beetle, large fruit bark beetle, larger shothole borer (EPPO) - großer Obstbaumsplintkäfer (EPPO) - glänzender Obstbaumsplintkäfer (SG), (EPPO)	veliki sadni beljavar Titovšek 1988, svetli likar (PMS)	sadni beljavar

Latinsko ime / *Latin name*	Angleško in nemško / *English and German name* European and Mediterranean Plant Protection Organization (EPPO), Grüne 1979 (SG), Fauna Europaea (FE), ForestryImages (FI), ResearchGate (RG), Schwenke 1974, Encyclopedia of Life (EOL)	Pregled dosedanjega slovenskega poimenovanja in avtor - vir / *Overview of Slovenian hitherto used names and author - source* Imenik slovenskih imen nevretenčarjev, Prirodoslovni muzej Slovenije - PMS	Predlog slovenskega imena (razlaga imena v oklepaju) / *Proposed Slovenian name*
Scolytus multistriatus (Marsham, 1802)	- smaller European elm bark beetle (FI) - lesser European elm bark beetle, smaller European elm bark beetle (EPPO) - kleiner Ulmensplintkäfer (SG), (EPPO)	mali brestov beljavar Titovšek 1988, (PMS)	mnogočrtni beljavar
Scolytus pygmaeus (Fabricius, 1787)	- kleiner Ulmensplintkäfer (EPPO) - Zwergsplintkäfer (GS)	pritlikavi brestov beljavar Titovšek 1988	pritlikavi beljavar
Scolytus ratzeburgii E. W. Janson, 1856	- birch bark beetle, birch sapwood borer (EPPO) - großer Birkensplintkäfer (SG), (EPPO)	brezov beljavar Titovšek 1988, (PMS)	brezov beljavar
Scolytus rugulosus (P.W.J. Müller, 1818)	- apple tree beetle, fruit tree bark beetle, shot-hole borer (EPPO) - kleiner Obstbaumsplintkäfer (EPPO) - runzeliger Obstbaumsplintkäfer (GS), (EPPO)	mali sadni beljavar Titovšek 1988	brazdasti beljavar
Scolytus scolytus (Fabricius, 1775)	- large elm beetle (FI) - elm bark beetle, large elm bark beetle, large European elm bark beetle (EPPO) - großer Ulmensplintkäfer (SG), (EPPO)	veliki brestov beljavar Titovšek 1988	brestov beljavar
Ambrosiodmus Hopkins, 1915	- Genus *Ambrosiodmus* (EPPO)		**ambrozijar** (hranijo se z ambrozijskimi glivami v rovnih sistemih)
Ambrosiodmus rubricollis (Eichhoff, 1876)	/		rdečevrati ambrozijar
Ambrosiophilus Huler & Cognato, 2009	- Genus *Ambrosiophilus* (EPPO)		**ambrozijofil** (hranijo se z ambrozijskimi glivami v rovnih sistemih)
Ambrosiophilus atratus (Eichhoff, 1876)	- mulberry bark beetle (EPPO)		črni ambrozijofil
Anisandrus Ferrari, 1867	- Genus *Anisandrus* (EPPO)		**različnež** (izrazit spolni dimorfizem adultov)
Anisandrus dispar (Fabricius, 1792)	- European shothole borer, arger shothole borer, pear blight beetle (EPPO) - ungleicher Holzborkenkäfer (EPPO) - ungleicher Holzbohrer (SG), (EPPO)	vrtni lesar Titovšek 1988, (PMS)	vrtni različnež
Xyleborinus Reitter, 1913	- Genus *Xyleborinus* (EPPO)		**lesarček** (hroščki, ki živijo v lesu in so manjši od lesarjev, samičke 2,0-2,4 mm, samčki 1,6-1,8 mm)
Xyleborinus attenuatus (Blandford, 1894)	/		pikčasti lesarček
Xyleborinus saxesenii (Ratzeburg, 1837)	- cosmopolitan ambrosia beetle, lesser shothole borer (EPPO) - kleiner Holzbohrer (SG), (EPPO)		mali lesarček
Xyleborus Eichhoff, 1864	- Genus *Xyleborus* (EPPO)		**lesar** (rovni sistemi se nahajajo v lesu)
Xyleborus cryptographus (Ratzeburg, 1837)	/		topolov lesar

Latinsko ime / *Latin name*	Angleško in nemško / *English and German name* European and Mediterranean Plant Protection Organization (EPPO), Grüne 1979 (SG), Fauna Europaea (FE), ForestryImages (FI), ResearchGate (RG), Schwenke 1974, Encyclopedia of Life (EOL)	Pregled dosedanjega slovenskega poimenovanja in avtor - vir / *Overview of Slovenian hitherto used names and author - source* Imenik slovenskih imen nevretenčarjev, Prirodoslovni muzej Slovenije - PMS	Predlog slovenskega imena (razlaga imena v oklepaju) / *Proposed Slovenian name*
Xyleborus dryographus (Ratzeburg, 1837)	- gekörnter Nutzholzborkenkäfer (SG), (EPPO)	zrnati lesar Titovšek 1988	zrnati lesar
Xyleborus eurigraphus (Ratzeburg, 1837)	/	zrnati lesar Titovšek 1988	borov lesar
Xyleborus monographus (Fabricius, 1792)	- bark beetle (FI) - Eichenholzbohrer, kleiner schwarzer Nutzholzborkenkäfer (EPPO) - kleiner schwarzer Nutzholzborkenkäfer, gehöckerter Eichenholzbohrer (SG)	mali črni lesar Titovšek 1988, (PMS) Babuder in Pohleven 1995	hrastov lesar
Xyleborus pfeilii (Ratzeburg, 1837)	- Pfeili's Bark Veevil (NatureServe)	jelšev lesar Titovšek 1988	jelšev lesar
Xylosandrus Reiter, 1913	- Genus *Xylosandrus* (EPPO)		**ambrozijevec** (hranijo se z ambrozijskimi glivami v rovnih sistemih)
Xylosandrus crassiusculus Motschulsky, 1866	- Asian ambrosia beetle (EPPO) - granulate ambrosia beetle (EPPO)	azijski ambrozijski podlubnik Kavčič 2017	azijski ambrozijevec
Xylosandrus germanus (Blandford, 1894)	- ambrosia beetle (FI) - smaller alder bark beetle (EPPO) - japanischer Nutzholzborkenkäfer (EPPO) - schwarzer Nutzholzborkenkäfer (SG), (EPPO)	črnolesni ambrozijski podlubnik Pajek 2019	črni ambrozijevec
Trypodendron Stephens, 1830	- Genus *Trypodendron* (EPPO)		**lestvičar** (rovni sistemi v obliki lestve v lesu)
Trypodendron domesticum (Linnaeus, 1758)	- European hardwood ambrosia beetle (FI) - Laubnutzholzborkenkäfer, Buchennutzholzborkenkäfer (SG) - Buchennutzholzborkenkäfer (EPPO)	(PMS)	bukov lestvičar
Trypodendron leave Eggers, 1939	/		temnonogi lestvičar
Trypodendron lineatum (Olivier, 1795)	- striped ambrosia beetle (FI) - spruce timber beetle, striped ambrosia beetle, two-striped timber beetle (EPPO) - gemeiner Nutzholzborkenkäfer, gestreifter Nutzholzborkenkäfer, liniierter Nutzholzborkenkäfer (EPPO) - linierter Nutzholzborkenkäfer (SG)	progasti lestvičar Titovšek 1988, (PMS)	progasti lestvičar
Trypodendron signatum (Fabricius, 1792)	- ambrosia beetle (FI) - linierter Laubnutzholzborkenkäfer, (SG) - Eichennutzholzborkenkäfer (SG), (EPPO)	hrastov lestvičar Titovšek 1988, (PMS)	hrastov lestvičar
Platypodinae Shuckard, 1840	- Pinhole Borers - Cylinderbaggar (FE) - Subfamily Platypodinae (EPPO)	strženarji (PMS)	**strženarji** (tradicionalno ime za hrošče, ki povzročajo »mušičavost« lesa, izgrizujejo rove v lesu)
Platypus Herbst, 1794	- Genus *Platypus* (EPPO)		strženar
Platypus cylindrus Fabricius, 1792	- oak pinhole borer, pinhole borer (EPPO) - Eichenkernholzkäfer (EPPO)	hrastov strženar (PMS) Babuder in Pohleven 1995	hrastov strženar

3. Gradivo in metode

3.1. Izvor gradiva

Pri pripravi gradiva smo za obdobje med letoma 1858 in 2023 zbrali podatke iz entomoloških zbirk in literature. Največ gradiva obsegajo večinoma neobjavljeni podatki avtorjev s terenskega vzorčenja hroščev.

3.1.1. Entomološke zbirke

Pregledali smo 10 inštitutskih entomoloških zbirk, ki jih danes hranijo v Prirodoslovnem muzeju Slovenije – PMS, https://www.pms-lj.si/; v Biološkem Inštitutu Jovana Hadžija ZRC SAZU, na Raziskovalni postaji Barje; na Oddelku za gozdarstvo in obnovljive gozdne vire Biotehniške fakultete in tri zasebne entomološke zbirke.

Večji del gradiva je deponiran v petih zbirkah Prirodoslovneg muzeja Slovenije. (1) Pregledana je bila zbirka Josefa Stussinerja (cJSs), Stussinerjeva entomološka zbirka. Primerki so večinoma iz Slovenije in Grčije. Nastajala je ob koncu 19. in v začetku 20. stoletja. Njen avtor je Josip Stussiner (1850-1917). Obsega 167 entomoloških škatel, okoli 40.844 primerkov, od tega 6.500 vrst hroščev (Coleoptera). Hrošči v zbirki so determinirani in sistematično urejeni. (2) Zgodovinska zbirka Josefa Staudacherja (1876–1945), Staudacherjeva entomološka zbirka (cJSD). Nastala je med obema vojnama na območju Slovenije (nekdanje Dravske banovine) in Dalmacije. Zbirka je sistematično urejena, hrošči so določeni. Obsega 40 entomoloških škatel (4.346 primerkov) metuljev (Lepidoptera) in 139 entomoloških škatel (okoli 100.000 primerkov) hroščev (Coleoptera). (3) Največ gradiva vsebuje Osrednja slovenska zbirka hroščev (Coleoptera), katere avtor je Savo Brelih (1927–2012) (cCCS) (slika 3).

V zbirko so vključene zbirke Antona Karla Vincenca Bianchija (1858–1933) (cABi), dr. Evgena Jaegra (1892–1959) (cEJe), Josefa Peyerja (??–1940/45?) (cJPe) in Sava Breliha

3. Materials and methods

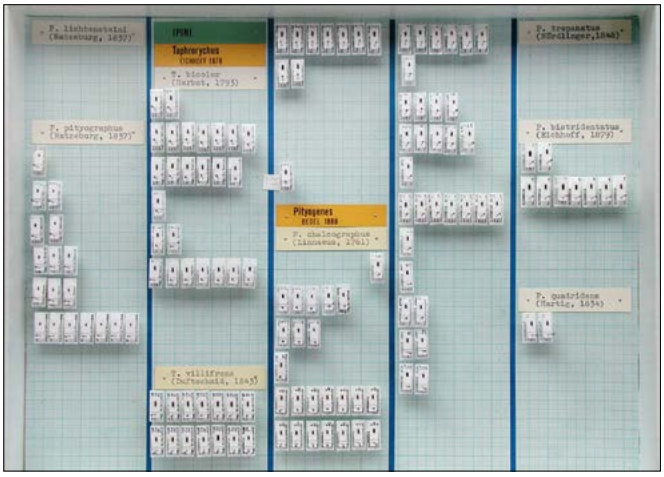
3.1. Material sources

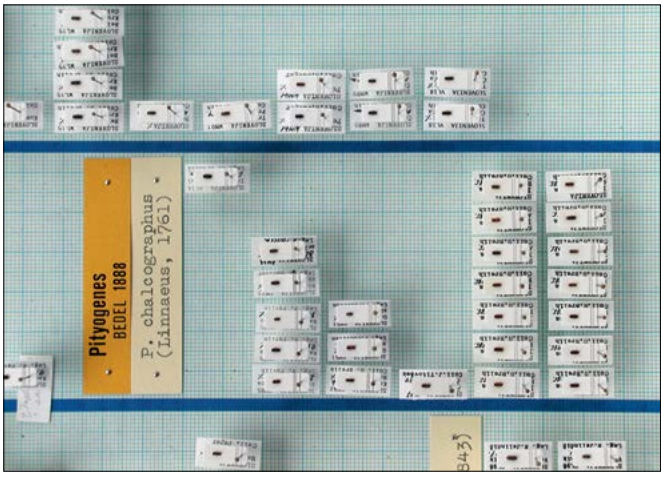
For the period between 1858 and 2023, we collected data from entomological collections and literature. Most of the material consists of the authors' unpublished data from field sampling of beetles.

3.1.1. Entomological collections

We examined specimens of bark beetles and pinhole borers in 10 entomological collections which are currently held at the Natural History Museum of Slovenia – NHMS, https://www.pms-lj.si/; the Jovan Hadži Institute of Biology ZRC SAZU, the Barje Research Station; the Department of Forestry and Renewable Forest Resources at the Biotechnical Faculty, as well as three collections held privately by collectors.

The largest part of the material is deposited in five collections kept by the Natural History Museum of Slovenia. (1) The Josef Stussiner Collection (cJSs), also known as the Stussiner Entomological Collection, was reviewed. It was created at the end of the 19th and the beginning of the 20th century. The specimens are mainly from Slovenia and Greece. Its author is Josef Stussiner, 1850-1917. It consists of 167 entomological boxes, about 40,844 specimens, including 6,500 species of beetles (Coleoptera). The beetles in the collection are identified and systematically arranged. (2) The Historical collection of Josef Staudacher (1876-1945), the Staudacher Entomological Collection (cJSD), created between both world wars in Slovene territory (former Drava Banovina) and Dalmatia. The collection is systematically arranged, the beetles are identified. It comprises 40 entomological boxes (4,346 specimens) of butterflies (Lepidoptera) and 139 entomological boxes (about 100,000 specimens) of beetles (Coleoptera). (3) The largest collection is the Central Slovene Collection of Beetles (Coleoptera) (cCCS), authored by Savo Brelih (1927-2012) (Figure 3). The collection includes the collections of Anton Karl Vincenc Bianchi (1858-1933) (cABi), dr. Evgen Jaeger (1892-1959)





Slika 3: Osrednja slovenska zbirka hroščev (Coleoptera), cCCS (Foto: Maja Jurc, 14.11.2003)

Figure 3: Central Slovene Collection of beetles (Coleoptera), cCCS (Photo: Maja Jurc, 14.11.2003)

(1927–2012) (cSBr). Zbirka obsega 72.313 primerkov v 623 entomoloških škatlah. (4) Gspanova zbirka hroščev (Coleoptera) (cAGs) je nastala v prvi polovici 20. stoletja na območju Slovenije, Balkanskega polotoka in palearktika. Njen avtor je Alfonz Gspan (1878–1963). Zbirka obsega 293 entomoloških škatel in okoli 64.537 primerkov. Zbirka je dobro urejena in obdelana. Je največja zbirka hroščev iz tega obdobja v Sloveniji. (5) Furlanova entomološka zbirka (Vincenc Furlan, 1934–2012) obsega 151 entomoloških škatel, ki vsebujejo stenice (Hemiptera), hrošče (Coleoptera) in metulje (Lepidoptera).

Pregledali smo tudi zbirke dr. Boža Drovenika (cBDr), Zbirka hroščev (Coleoptera) Biološkega inštituta Jovana Hadžija ZRC SAZU je nastajala od leta 1920 do 2020, leta 2017 jo je PMS prevzel od ZRC SAZU, shranjena je v Biološkem Inštitutu Jovana Hadžija, ZRC SAZU, Raziskovalna postaja Barje). Zbirka obsega 363 entomoloških škatel hroščev in 35 entomoloških škatel metuljev.

Pregledana je bila tudi vsebina zbirke podlubnikov (ena entomološka škatla), ki jo je prof. Janez Titovšek iz BFG daroval Gozdarski fakulteti v Sarajevu (cŠFS).

Številni primerki hroščev se nahajajo tudi v zasebnih zbirkah. Za prispevek so bili pregledani, potrjeni ali ponovno določeni materiali iz zbirk Andreja Kaple (cAKa), Alje Pirnat (cAPi) in Vladimirja Kodriča (cVKo). Tudi te zbirke so pomemben vir podatkov za obravnavani poddružini.

3.1.2. Literaturni podatki

Iz 19. in začetka 20. stoletja so prva dela, ki vključujejo tudi podatke o prisotnosti podlubnikov in strženarjev na ozemlju današnje Slovenije so dela treh avtorjev: Moritza Siegla (1866), Karla Brancsika (1871) in Gilberta Fuchsa (1905).

Siegel (1866) v delu *Versuch einer Käfer-Fauna Krains,* navaja podlubnike, ki so našteti v spodnjem seznamu. Na prvem

(cEJe), Josef Peyer (??-1940/45?) (cJPe) and Savo Brelih (1927-2012) (cSBr). The collection comprises 72,313 specimens in 623 entomological boxes. (4). The Gspan Collection of Beetles (Coleoptera) (cAGs) was created in the first half of the 20th century in Slovenia, the Balkan Peninsula and the Palearctic. Its author is Alfonz Gspan, 1878-1963. The collection consists of 293 entomological boxes and about 64,537 specimens. Well-arranged and administered, it represents the largest collection of beetles from this period in Slovenia. (5). The aforementioned Furlan Entomological Collection (Vincenc Furlan, 1934-2012), comprises 151 entomological boxes containing true bugs (Hemiptera), beetles (Coleoptera) and butterflies (Lepidoptera).

We also analysed the collections of Dr. Božo Drovenik (cBDr). The Coleoptera Collection of the Jovan Hadži Biological Institute ZRC SAZU, has ben created between 1920 and 2020. In 2017 the museum took it over from the ZRC SAZU, now it is stored in the ZRC SAZU's Jovan Hadži Institute of Biology, Barje Research Station). It contains 363 entomological boxes of beetles and 35 entomological boxes of butterflies.

The contents of the collection of bark beetles (one box) donated by Prof. J. Titovšek from the BFG to the Faculty of Forestry in Sarajevo (cŠFS) were also reviewed.

A number of beetle specimens are also held in private collections. Materials from the collections of Andrej Kapla (cAKa), Alja Pirnat (cAPi) and Vladimir Kodrič (cVKo) have been reviewed, confirmed or redefined for the contribution. These collections represent an important source of data for the subfamilies analysed here.

3.1.2. Literature data

The first works from the 19th and early 20th centuries on the bark beetles and pinhole borers in the territory of present-day Slovenia were published by three authors: Moritz Siegel (1866), Karl Brancsik (1871) and Gilbert Fuchs (1905).

Siegel (1866), in *Versuch einer Käfer-Fauna Krains*, lists bark beetles, which are given in the list below. The names according to Siegel

mestu so napisana imena po Sieglu, na drugem pa zdaj veljavna imena:

are written in the first place, and the now valid names are in the second place:

Xylophagi (Scolytinae, Platypodinae)

Hylastes ater Payk. = *Hylastes ater* (Paykull, 1800)
Hylastes cunicularius Er. = *Hylastes cunicularius* Erichson, 1836
Hylastes angustatus Hbst. = *Hylastes angustatus* (Herbst, 1794)
Hylastes opacus Er. = *Hylastes opacus* Erichson, 1836
Hylastes palliatus Gyll. = *Hylurgops palliatus* (Gyllenhal, 1813)
Hylastes Trifolii Müll. = *Hylastinus obscurus* (Marsham, 1802)
Hylurgus ligniperda Fab. = *Hylurgus ligniperda* (Fabricius, 1787)
Hylurgus piniperda Lin. = *Tomicus piniperda* (Linnaeus, 1758)
Hylurgus minor Hartig. = *Tomicus minor* (Hartig, 1834)
Dendroctonus micans Kugl. = *Dendroctonus micans* (Kugelann, 1794)
Dendroctonus minimus Fab. = *Carphoborus minimus* (Fabricius, 1798)
Dendroctonus pilosus Rtzb. = *Xylechinus pilosus* (Ratzeburg, 1837)
Hylesinus Fraxini Fab. = *Hylesinus varius* (Fabricius, 1775)
Hylesinus vittatus Fab. = *Pteleobius vittatus* (Fabricius, 1787)
Polygraphus pubescens Er. = *Polygraphus poligraphus* (Linnaeus, 1758)
Scolytus destructor Ol. = *Scolytus scolytus* (Fabricius, 1775)
Scolytus intricatus Rtzb. = *Scolytus intricatus* (Ratzeburg, 1837)
Xyloterus domesticus Lin. = *Trypodendron domesticum* (Linnaeus, 1758)
Xyloterus lineatus Ol. = *Trypodendron lineatum* (Olivier, 1795)
Crypturgus pusillus Gyll. = *Crypturgus pusillus* (Gyllenhal, 1813)
Cryphalus Tiliae Fab. = *Ernoporus tiliae* (Panzer, 1793)
Cryphalus asperatus Gyll. = *Cryphalus asperatus* (Gyllenhal, 1813)
Cryphalus Abietis Rtzb. = *Cryphalus asperatus* (Gyllenhal, 1813)
Bostrychus typographus Lin. = *Ips typographus* (Linnaeus, 1758)
Bostrychus stenographus Dft. = *Ips sexdentatus* (Börner, 1776)
Bostrychus Laricis Fab. = *Orthotomicus laricis* (Fabricius, 1792)
Bostrychus bispinus Rtzb. = *Xylocleptes bispinus* (Duftschmid, 1825)
Bostrychus curvidens Germ. = *Pityokteines curvidens* (Germar, 1824)
Bostrychus bidens Fab. = *Pityogenes bidentatus* (Herbst, 1784)
Bostrychus autographus Rtzb. = *Dryocoetes autographus* (Ratzeburg, 1837)
Bostrychus cryptographus Rtzb. = *Xyleborus cryptographus* (Ratzeburg, 1837)
Bostrychus villosus Fab. = *Dryocoetes villosus* (Fabricius, 1792)
Bostrychus bicolor Hbst. = *Taphrorychus bicolor* (Herbst, 1794)
Bostrychus dispar Fab. = *Anisandrus dispar* (Fabricius, 1792)
Bostrychus monographus Fab. = *Xyleborus monographus* (Fabricius, 1792)
Bostrychus dryographus Er. = *Xyleborus dryographus* (Ratzeburg, 1837)
Platybus cylindricus Fab. = *Platypus cylindrus* Fabricius, 1792

Brancsik (1871) v delu *Die Käfer der Steiermark* navaja podatke tako za avstrijski kot za slovenski del Štajerske. Pri nekaterih, zlasti pogostnejših vrstah pod-

Brancsik (1871), in *Die Käfer der Steiermark*, gives data for both the Austrian and the Slovene part of Styria. For some, especially the more common species of bark beetles,

lubnikov, ne navaja točnih najdišč niti imen najditeljev. Teh v našem seznamu ne navajamo, saj ni gotovo, da so bila najdišča na ozemlju današnje Slovenije. Povzemamo pa podatke, pri katerih je naveden najditelj (J. N. Spitzy), ki je zbiral material v širši okolici Lenarta v Slovenskih goricah, in seveda tiste, pri katerih je navedeno točno najdišče. Najdišče, kjer iz Brancsikovega besedila ni bilo mogoče zanesljivo ugotoviti, ali gre za Severno Štajersko (Avstrija) ali za Lenart v Slovenskih goricah, smo označili z vprašajem (?). S slovenskega dela Štajerske je Brancsik dobival gradivo od že omenjenega Spitzyja in od univ. prof. dr. Leitgeba iz Celja. V seznamu so na prvem mestu napisana imena po Brancsiku, na drugem pa zdaj veljavna znanstvena imena, za njimi pa najdišča in opombe, kot jih navaja avtor.

he does not give the exact sites, nor the names of the finders. We have not included these in our list, as it is not certain that the sites were in the territory of present-day Slovenia. However, we summarise the data where the finder is listed as J. N. Spitzy, who collected material in the wider area of Lenart in the Slovenske Gorice, and of course those where the exact site is mentioned. Where it was not possible to determine with certainty from Brancsik's text whether the site was in North Styria (Austria) or Lenart in Slovenske Gorice, we used a question mark (?). Brancsik obtained material from the Slovene part of Styria from the aforementioned Spitzy and from Prof. Dr. Leitgeb from Celje. In the list, the names according to Brancsik are given first, the currently valid scientific names, followed by the sites and notes as given by the author.

SCOLYTIDAE

Hylastes linearis Er. = *Hylastes linearis* Erichson, 1836 – ? Lenart, okolica
Hylastes decumanus Er. = *Hylurgops glabratus* (Zetterstedt, 1828) – Pohorje
Hylurgus ligniperda Fabr. = *Hylurgus ligniperda* (Fabricius, 1787) – ? Lenart, okolica
Phloeophthorus tarsalis Först. = *Phloeotribus rhododactylus* (Marsham, 1802) – Lenart
Crypturgus cinereus Hrbst. = *Crypturgus cinereus* (Herbst, 1794) – Pohorje
Cryphalus Tiliae Fabr. = *Ernoporus tiliae* (Panzer, 1793) – Lenart
Pityophthorus ramulorum Per. = *Pityophthorus pubescens* (Marsham, 1802) – Pohorje
Dryocetes bicolor Hrbst. = *Taphrorychus bicolor* (Herbst, 1794) – Celje

Fuchs (1905) v delu *Die Borkenkäfer Kärntens und der angrenzenden Gebirge* navaja za Koroško in sosednja pogorja prisotnost 70 vrst podlubnikov in ene vrste strženarja. Pri naštetih vrstah velikokrat manjkajo podrobnejši podatki o najdiščih, prav tako niso navedeni datumi najdb. Le za tri vrste podlubnikov sta navedeni lokaciji, ki sta nedvomno na območju današnje Slovenije:

In *Die Borkenkäfer Kärntens und der angrenzenden Gebirge,* Fuchs (1905) lists the presence of 70 species of bark beetles and one species of pinhole borer for Carinthia and neighbouring mountain ranges. For these species, more detailed site information is often lacking, and the dates of collection are not given. For only three species of bark beetles the book lists sites which are undoubtedly in present-day Slovenia:

Phloeosinus thujae Perris = *Phloeosinus thujae* (Perris, 1855) – Bohinj, Julijske Alpe, leg. prof. dr. Peneke
Hylastes ater Payk. = *Hylastes ater* (Paykull, 1800) – Pohorje
Lymantor coryli Perris = *Lymantor coryli* (Perris, 1855) – Bohinj, Julijske Alpe, leg. prof. dr. Peneke

V gradivo so vključeni le zgoraj navedeni podatki. Za vse druge vrste, ki jih avtor v svojem delu navaja, pa ne moremo z gotovostjo trditi, da so njihova najdišča na območju slovenskega dela Koroške. Za vrsto *Ips amitinus* Eich. = *Ips amitinus* (Eichhoff, 1872) npr. navaja, da je prisotna »na smreki, boru, redkeje na macesnu, tako južno kot severno od reke Drave«. Za 30 vrst podlubnikov in vrsto *Platypus cylindrus* Fabr. = *Platypus cylindrus* (Fabricius, 1792) so kot najdišče navedene Karavanke, za nadaljnjih 15 vrst pa Fuchs navaja, da so prisotne »po celi deželi«. Theodor Prossen v članku iz leta 1913 *I. Nachtrag zum Verzeichnisse der bisher in Kärnten beobachtete Käfer* v poglavju Ipidae za Koroško navaja 48 vrst podlubnikov, vendar se pri tem večinoma omejuje na citiranje Gilberta Fuchsa in ne navaja dodatnih lokacij iz današnje Slovenije.

Napisanih je bilo tudi nekaj strokovnih člankov, ki so opozarjali zlasti na ekonomski pomen podlubnikov. Cesarsko kraljevi (c. kr.) gozdni nadzornik Ivan Salzer je leta 1876 objavil prispevek *Kratek popis smrekovega lubadarja s poudarkom njegovega pokončavanja* (Učiteljska knjižnica ljudske šole v Starem trgu pri Ložu) (Salzer 1876). Sledijo prispevki profesorjev z BF, Oddelka za gozdarstvo: Šlander (1948, 1951, 1953, 1958), Titovšek (1969, 1973, 1974, 1977, 1983, 1988, 1994).

Rezultate raziskovalnega dela o podlubnikih v Sloveniji so objavili: Babuder in Pohleven 1993, 1995; Babuder s sod. 1996; Benkovič 1951; De Groot 2018; Demšar in Jurc 2007; Geister 2004; Hauptman 2018, 2019a, 2019b, 2020, 2022a, 2022b, 2022c; Hauptman s sod. 2018, 2019, 2019a, 2019b; Hočevar in Jurc 1982; Jug 1967; Jerina s sod. 2008; Jurc 1993,1996, 2000, 2000a, 2001, 2001a, 2001b, 2002, 2002a, 2002b, 2004a, 2004b, 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2007, 2008, 2008a, 2010, 2012, 2013, 2016, 2019, 2020, 2021a, 2021b, Jurc 2021c; Jurc in Bojović 2004c; Jurc in Brelih 2001; Jurc in Miljašević 2006g; Jurc in Nève Repe 2009; Jurc in Reščič, 2013; Jurc in Škulj 2018; Jurc s sod. 2003,

Only the above information is included in the main part of Scopolia. For all the other species mentioned in the author's work, it cannot be stated with certainty that their sites are in the Slovene part of Carinthia. For example, for the species *Ips amitinus* Eich. = *Ips amitinus* (Eichhoff, 1872), he states that it occurs “on spruce, pine, and less frequently on larch, both south and north of the Drava River”. For 30 species of bark beetle and the species *Platypus cylindrus* Fabr. = *Platypus cylindrus* (Fabricius, 1792), the Karavanke Mountains are listed as the site of occurrence, and for a further 15 species Fuchs states that they are present “throughout the whole country”. Theodor Prossen, in his 1913 article *I. Nachtrag zum Verzeichnisse der bisher in Kärnten beobachtete Käfer,* lists 48 species of bark beetle for Carinthia in the Ipidae chapter, but mostly limits himself to quoting Gilbert Fuchs and does not mention any additional sites in present-day Slovenia.

Previous posts are followed by short technical papers that mainly show the economic importance of bark beetles. In 1876, the Imperial Royal Forest Supervisor Ivan Salzer published a paper entitled *A short inventory of the spruce bark beetle, with an emphasis on its killing* (Teacher's Library of the Folk School in Stari Trg pri Ložu) (Salzer 1876). This was followed by contributions by professors of forestry Šlander (1948, 1951, 1953, 1958) and Titovšek (1969, 1973, 1974, 1977, 1983, 1988, 1994).

The results of research work on bark beetles in Slovenia have been published: Babuder & Pohleven 1993, 1995; Babuder et al. 1996; Benkovič 1951; De Groot 2018; Demšar & Jurc 2007; Geister 2004; Hauptman 2018, 2019a, 2019b, 2020, 2022a, 2022b, 2022c; Hauptman et al. 2018, 2019, 2019a, 2019b; Hočevar & Jurc 1982; Jug 1967; Jerina et al. 2008; Jurc 1993,1996, 2000, 2000a, 2001, 2001a, 2001b, 2002, 2002a, 2002b, 2004a, 2004b, 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2007, 2008, 2008a, 2010, 2012, 2013, 2016, 2019, 2020, 2021a, 2021b, Jurc 2021c; Jurc & Bojović 2004c; Jurc & Brelih 2001; Jurc & Miljašević 2006g; Jurc & Nève Repe

2006, 2009a, 2010, 2010a, 2011, 2012, 2016, 2017, 2021, 2022; Jurc D. 1988; Jurc D. s sod. 2003, 2004, 2005; Kavčič 2017; Kavčič s sod. 2017, 2023; Kovačević 1953; Meterc s sod. 2010; Nève Repe s sod. 2013, 2015, 2018; Ogris in Jurc 2010; Ogris s sod. 2019, 2020; Pavlin 1991a, 1991b, 1991c, 1992a, 1993, 1993a, 1993b, 1993c, 1993d, 1993e, 1993f, 1994, 1994a, 1994c, 1994d, 1995a, 1995b, 1996, 1997, 2001, 2003, 2004, 2005, 2008, 2010a, 2011a, 2012, 2013a, 2013b, 2014a, 2014b, 2014c, 2015a, 2015b, 2016a, 2016b, 2016c, 2016e, 2017a, 2017b, 2017c, 2017d, 2018, 2018a, 2018, 2018c, 2018d, 2018e, 2019a, 2019b, 2019c, 2019d, 2019e, 2020a, 2020b, 2020c, 2020d, 2020e, 2021a, 2021b, 2022a, 2022b, 2023a, 2023b; Pavlin s sod. 1994b, 2010b, 2011b, 2012; Pavlin in Trdan 2007; Perko, 1969; Podlesnik in Jurc 2012, 2018; Podlesnik s sod. 2014; Rener 2002; Rener in Jurc 2001; Ropret s sod. 2007; Smolnikar s sod. 2019; Stauffer s sod. 2001; Urleb 1957; Vrezec s sod. 2012.

Rezultati dela na podlubnikih so objavljeni tudi v diplomskih, magistrskih in doktorskih nalogah: Bjelić 2014; Brudar 2020; Demšar 2006; Groznik 2019; Habjan 2009; Jagodic 1997; Jene 2005; Kalič 2006; Komjanc 2005; Koželj 2010; Krašna 1998; Kresevič 2005; Križnar 2012; Lesar 2004; Lukman 2010; Pajek 2019; Perko 2001; Nève Repe 2014; Petelin 2017; Podlesnik 2016; Rener 2000; Ribič 2007; Ropret 2006; Rus 2007; Rutar 2014; Sever 2012; Škulj [Jurc], 1988; Šimon 2011; Vrhovnik 2008; Vučko 2016; Župnek 2020.

Pri upravljanju s podlubniki so v svetu in pri nas začeli uporabljati sintetične populacijske (agregacijske) feromone. Objave s tega področja so v tujini prispevali Bakke 1970, 1975; Bakke in Hugges 1974; Bakke s sod. 1977; Bauer in Vité 1975; Blight s sod. 1977; Francke 1973; Francke in Heemann 1974; Francke s sod. 1974, 1977; Gerken 1978; Gerken s sod. 1978; Grüne 1979; Harring in Candace 1978; Harring s sod. 1975; Harrtig s sod. 1975; Lanier s sod. 1977; Leuze 1977; Peacock s sod. 2009; Jurc & Reščič, 2013; Jurc & Škulj 2018; Jurc et al. 2003, 2006, 2009a, 2010, 2010a, 2011, 2012, 2016, 2017, 2021, 2022; Jurc D. 1988; Jurc D. et al. 2003, 2004, 2005; Kavčič 2017; Kavčič et al. 2017, 2023; Kovačević 1953; Meterc et al. 2010; Nève Repe et al. 2013, 2015, 2018; Ogris & Jurc 2010; Ogris et al. 2019, 2020; Pavlin 1991a, 1991b, 1991c, 1992a, 1993, 1993a, 1993b, 1993c, 1993d, 1993e, 1993f, 1994, 1994a, 1994c, 1994d, 1995a, 1995b, 1996, 1997, 2001, 2003, 2004, 2005, 2008, 2010a, 2011a, 2012, 2013a, 2013b, 2014a, 2014b, 2014c, 2015a, 2015b, 2016a, 2016b, 2016c, 2016e, 2017a, 2017b, 2017c, 2017d, 2018, 2018a, 2018, 2018c, 2018d, 2018e, 2019a, 2019b, 2019c, 2019d, 2019e, 2020a, 2020b, 2020c, 2020d, 2020e, 2021a, 2021b, 2022a, 2022b, 2023a, 2023b; Pavlin et al. 1994b, 2010b, 2011b, 2012; Pavlin & Trdan 2007; Perko, 1969; Podlesnik & Jurc 2012, 2018; Podlesnik et al. 2014; Rener 2002; Rener & Jurc 2001; Ropret et al. 2007; Smolnikar et al. 2019; Stauffer et al. 2001; Urleb 1957; Vrezec et al. 2012.

Results of the work on bark beetles are also published in bachelor/master and PhD theses: Bjelić 2014; Brudar 2020; Demšar 2006; Groznik 2019; Habjan 2009; Jagodic 1997; Jene 2005; Kalič 2006; Komjanc 2005; Koželj 2010; Krašna 1998; Kresevič 2005; Križnar 2012; Lesar 2004; Lukman 2010; Pajek 2019; Perko 2001; Nève Repe 2014; Petelin 2017; Podlesnik 2016; Rener 2000; Ribič 2007; Ropret 2006; Rus 2007; Rutar 2014; Sever 2012; Škulj [Jurc], 1988; Šimon 2011; Vrhovnik 2008; Vučko 2016; Župnek 2020.

The use of synthetic population (aggregation) pheromones in the management of bark beetles has been introduced in the world and in Slovenia. Foreign publications in this field include Bakke 1970, 1975; Bakke & Hugges 1974; Bakke et al. 1977; Bauer & Vité 1975; Blight et al. 1977; Francke 1973; Francke & Heemann 1974; Francke et al. 1974, 1977; Gerken 1978; Gerken et al. 1978; Grüne 1979; Harring & Candace 1978; Harring et al. 1975; Harrtig et al. 1975; Lanier et

1975; Pearce s sod. 1975; Stoakley s sod. 1978; Vité 1978. Od slovenskih avtorjev so prispevke o feromonih podlubnikov objavili Titovšek 1988; Pavlin 1991b, 1992a, 1997, 2001; Jurc s sod. 2012, 2017. V zadnjih letih so potekale raziskave razširjenosti škodljivih organizmov (MKGP, UVHVVR), ki so se izvajale z lovom podlubnikov v različne tipe pasti (črna križna past Econex, črna križna past Witasek, talna past, črna ploščata režasta past Theysohn®) z uporabo različnih atraktantov (etanol, vejice iglavcev, Galloprotect Pack®, Linoprax®, Pheroprax®, Chalcoprax®, α-pinen, Chalcowit®, PC-Ecolure®, Curviwit®) (Jurc s sod. 2016, Pavlin s sod. 2016c, Hauptman s sod. 2018, Kavčič 2018).

Pregledali smo starejše kataloge in taksonomske ključe, kot so Siegel 1866, Barncsik 1871, Grüne 1979, Freude s sod. 1981, Titovšek 1988, Pfeffer in Knížek 1993, Lucht 1994; Pfeffer 1995, ter taksonomijo zajetih podlubnikov in strženarjev uskladili z veljavnim katalogom (Löbl in Smetana 2011).

3.1.3. Baza podatkov FloVegSi

Iz podatkovne zbirke FloVegSi (Favna, flora in vegetacija Slovenije, BIJH ZRC SAZU https://bijh.zrc-sazu.si/sl/zbirka/podatkovna-zbirka-flovegsi-favna-flora-in-vegetacija-slovenije-bijh-zrc-sazu) smo povzeli podatke za 10 vrst podlubnikov, ki so bili rezultat favnističnega popisa.

3.1.4. Vzorčenje hroščev na terenu

Več kot polovica zbranih podatkov je rezultat terenskega dela avtorjev. Uporabljeni sta bili dve metodi dela:

1. iskanje osebkov na gostiteljskih rastlinah, drugem lesnatem materialu ali v tleh;
2. lov v pasti.

al. 1977; Leuze 1977; Peacock et al. 1975; Pearce et al. 1975; Stoakley et al. 1978; Vité 1978. Slovenian authors who have published papers on bark beetle pheromones were Titovšek 1988; Pavlin 1991b, 1992a, 1997, 2001; and Jurc et al. 2012, 2017**.** In recent years, pest distribution surveys (MKGP, UVHVVR) have been carried out by trapping bark beetles in different types of traps (Econex black cross trap, Witasek black cross trap, ground trap, Theysohn® black flat slot trap) using different attractants (ethanol, conifer twigs, Galloprotect Pack®, Linoprax®, Pheroprax®, Chalcoprax®, α-pinene, Chalcowit®, PC-Ecolure®, Curviwit®) (Jurc et al. 2016, Pavlin et al. 2016c, Hauptman et al. 2018, Kavčič 2018).

We consulted older catalogues and taxonomic keys such as Siegel 1866, Barncsik 1871, Grüne 1979, Freude et al. 1981, Titovšek 1988, Pfeffer & Knížek 1993, Lucht 1994; Pfeffer 1995 and aligned the taxonomy of the covered bark beetles and pinhole borers with the current catalogue Löbl & Smetana 2011.

3.1.3. Database FloVegSi

From the FloVegSi database (= Fauna, flora and vegetation of Slovenia, BIJH ZRC SAZU (https://bijh.zrc-sazu.si/sl/zbirka/podatkovna-zbirka-flovegsi-favna-flora-in-vegetacija-slovenije-bijh-zrc-sazu) we used data for 10 species of bark beetles which were the result of a faunal inventory.

3.1.4. Sampling beetles in the field

More than half of the data collected is the result of the authors' fieldwork. Field collection of bark beetles is carried out in two basic ways:

1. by collecting specimens on host plants, other woody material or in the soil;
2. (and) with trapping.

3.1.4.1. Iskanje podlubnikov na gostiteljskih rastlinah

Podlubnike najlažje najdemo na napadenih (gostiteljskih) rastlinah. Na drevesu z znaki napada (sprememba barve krošnje, vhodne ali izletne odprtine na deblu, prisotnost črvine in pri iglavcih tudi iztekanje smole) se običajno pri floemofagnih vrstah odstrani skorja in se odrasli osebki (imagi) nabirajo neposredno iz rovnih sistemov. Tudi če so mladi osebki / imagi že izleteli, se v rovnih sistemih velikokrat najdejo ostanki mrtvih imagov. Pogosto tudi deli poškodovanih imagov zadostujejo za zanesljiv-o determinacijo vrste. Če so podlubniki pod skorjo v belih razvojnih fazah (jajčece, ličinka, nepigmentirana buba), je kose napadenega lesnega materiala priporočljivo odnesti v laboratorij, jih namestiti v insektarije in počakati na konec razvoja generacije. Tako dobimo na voljo odrasle osebke, ki jih lažje določimo, velikokrat pa so zraven tudi vrste, ki smo jih prej spregledali. Drugi načini iskanja podlubnikov na lesnatih rastlinah zajemajo nabiranje imagov iz izvotljenih mladih poganjkov, iz mest prezimovanja pod skorjo ali neposredno na napadenih drevesih pred ali med zavrtavanjem v debla ali veje. Zadnji način je primeren tudi za nabiranje ksilomicetofagnih vrst, kjer do imagov običajno lahko pridemo le tako, da razcepimo les in jih poberemo iz rovnih sistemov. Tako floemofagne kot ksilomicetofagne vrste lahko nabiramo tudi iz hlodovine, panjev, sečnih o_primeren vsak primerno svež kos lesa, ki ni bil (oziroma je bil le delno) obeljen. Vzorce podlubnikov lahko pridobimo tudi prek nastav, ki jih uporabljamo pri obvladovanju gospodarsko pomembnih podlubnikov: kontrolnih (ali lovnih) dreves, debel ali kupov vej. Nekatere vrste podlubnikov prezimujejo (tudi) v tleh, v bližini napadenih dreves. Metodo izkopavanja iz tal je v Sloveniji prvi uporabil Šlander (1958).

3.1.4.1. Collecting beetles on host plants

The easiest way to collect bark beetles is on infested (host) plants. On trees showing signs of attack (change in canopy colour, entrance or exit holes on the trunk, presence of droppings and, in conifers, resin oozing), the bark is usually removed in phloemophagous species and the imagoes are collected directly from the tunnel systems. Even if the young beetles have already fledged, the remains of dead imago are often found in the tunnel systems. Often, even parts of damaged beetles are sufficient for reliable species identification. If the bark beetles are in the 'white' developmental stages (egg, larva, unpigmented pupa), it is advisable to take the pieces of infested wood material to the laboratory, place them in insectaries and wait for the end of the development. This way, we have adult specimens (imagoes) that are easier to identify, and species that we have previously overlooked are often present as well. Other ways of collecting bark beetles on woody plants include collecting beetles from hollow of young shoots, from overwintering sites under the bark or directly on infested trees before or during boring into trunks or branches. The latter method is also suitable for collecting xylomycetophagous species of bark beetles, where the only way to access the imagoes is usually by splitting the wood and collecting them from the tunnel systems. Both phloemophagous and xylomycetophagous species of bark beetles can also be collected from logs, stumps, logging residue and construction timber. For phloemophagous species, any reasonably fresh piece of wood that has not been (or has only been partially) debarked is suitable for colonisation. We can also obtain samples of bark beetles through traps used in the control of economically important bark beetles: control (or trapping) trees, trunks or piles of branches. Some species of bark beetles overwinter (also) in the ground, near infested trees. Digging bark beetles from the ground was first used in Slovenia by Šlander (1958).

3.1.4.2. Metoda lovnih pasti

Sredi 80. let 20. stoletja so v Sloveniji gozdarji začeli uporabljati pasti, ki so temeljile na uporabi sintetičnih populacijskih feromonov podlubnikov. Najprej so bili na voljo pripravki Pheroprax® (za vrsto *Ips typographus* – osmerozobi lubadar), Chalcoprax® (za *Pityogenes chalcographus* – šesterozobi zvezdar) in Linoprax® (za *Trypodendron lineatum* – progasti lestvičar). Prvotne cevne pasti so kmalu zamenjale učinkovitejše ploščate režaste pasti znamke Theysohn®. Prvi strokovni članki o pasteh so se nanašali na njihovo učinkovitost oziroma na ulov ciljnih vrst (Cimperšek 1986, 1988). Pozneje je bilo opravljenih več raziskav, usmerjenih v analizo dodatnega ulova neciljnih vrst, zlasti drugih vrst podlubnikov in njihovih plenilcev (Pavlin 1991a, 1991b). Podobna raziskava je bila opravljena tudi na skladiščih lesa (Babuder s sod. 1996). Razvoj novih feromonov je omogočil tudi ulov oziroma popisovanje drugih vrst podlubnikov. Sistematični zoogeografski popis vrste *Ips cembrae* v severnem delu Slovenije je Pavlin (1997, 2001c) izvedel s pomočjo pasti in feromona Cemprax®. Pomemben vir za podatke o razširjenosti podlubnikov v Sloveniji je prispevala tudi podrobna analiza ulova iz križnih pasti, ki so bile namenjene monitoringu žagovinarjev (Cerambycidae: *Monochamus*), potencialnim vektorjem borove ogorčice (*Bursaphelenchus xylophilus*) (Jurc s sod. 2016). Raziskava je potekala v letih od 2007 do 2015 v gozdnih sestojih iglavcev, z uporabo različnih feromonov za vrsto *Monochamus galloprovincialis*, ki so vsebovali tudi kairomonske komponente v obliki mešanice različnih feromonov podlubnikov (Pavlin 2010b, Pavlin s sod. 2016c). Za ulov ksilomicetofagnih podlubnikov so primerne tudi pasti, opremljene z atraktanti v obliki alfa-pinena in etanola (Hauptman s sod. 2019a). Uporaba lovnih pasti z različnimi atraktanti je omogočila popolnoma nov pogled na zoogeografijo posameznih vrst podlubnikov. Med vrstami, ki smo jih prvič našli v Sloveniji po letu 2000, je veliko takih (zlasti

3.1.4.2. Catching bark beetles in traps

In the mid-1980s, foresters in Slovenia started using traps based on synthetic bark beetle pheromones. Initially, Pheroprax® (for *Ips typographus*), Chalcoprax® (for *Pityogenes chalcographus*) and Linoprax® (for *Trypodendron lineatum*) were available. The original tube traps were soon replaced by the more effective Theysohn® flat slot traps. The first peer-reviewed papers on traps focused on their effectiveness or on the capture of target species (Cimperšek 1986, 1988). Later, several studies were carried out to analyse the additional capture of non-target species, in particular other species of bark beetle and their predators (Pavlin 1991a, 1991b). A similar study was carried out in timber yards (Babuder et al. 1996). The development of new pheromones also enabled the capture or inventorying of other species of bark beetle. A systematic zoogeographical inventory of *Ips cembrae* in the northern part of Slovenia was carried out by Pavlin (1997, 2001c) using the Cemprax® trap and pheromone. An important source of data on the distribution of bark beetles in Slovenia was provided by a detailed analysis of additional catches from cross-traps designed to monitor sawyers (Cerambycidae: *Monochamus*), which are potential vectors of the pinewood nematode (*Bursaphelenchus xylophilus*) (Jurc et al. 2016). The study was carried out from 2007 to 2015 in coniferous stands using different pheromones for *Monochamus galloprovincialis*, which also contained "kairomone components" in the form of a mixture of different bark beetle pheromones (Pavlin 2010b, Pavlin et al. 2016c). Traps equipped with attractants in the form of alpha-pinene and ethanol are also suitable for catching xylomycetophagous bark beetles (Hauptman et al. 2019a). The use of traps with different attractants has provided a completely new perspective on the zoogeography of individual bark beetle species. Among the species found for the first time in Slovenia after 2000, there are many (especially xylomycetophago-

ksilomicetofagnih) vrst, ki smo jih našli le v pasteh in še nikoli na gostiteljskih rastlinah.

3.2. Prikaz podatkov

3.2.1. Zbiranje in obdelava podatkov v tabeli

Podatke iz različnih virov smo vnašali v Exelovo tabelo, ki je omogočila preglednost, zlasti poenotenje podatkov. Poleg latinskega imena vrste in avtorja je vsak vpis vseboval pokrajino, krajevno ime, koordinato zemljepisne dolžine (X), koordinato zemljepisne širine (Y), UTM-kvadrant, nadmorsko višino, gostiteljsko rastlino / tip pasti, napaden del rastline / vrsto feromona, ime avtorja, zbirko / literaturo in datum. Vpisani so vsi razpoložljivi podatki. Zlasti pri starejših najdbah lahko kakšen podatek manjka ali pa je vpisan z manjšo stopnjo natančnosti. Vsebina tabele je za vse vrste izpisana v obliki besedila za vsako vrsto v poglavju 4. REZULTATI.

Pokrajina: Delitev Slovenije na pokrajine in njihov vrstni red smo povzeli po starejših prispevkih Gradiva za favno hroščev Sloveniije, v katerih delitev temelji na geografski karti »Zemljevid Slovenske dežele in pokrajin« (Kozler in Knorr 1853) ter na karti Gabrovca, M. in Rajšpa, V. (1998), objavljeni v knjigi Slovenija – pokrajine in ljudje, (str. 18-19), ki temelji na mejah avstrijskih dežel iz leta 1914. Posebej je obravnavana Bela krajina, prav tako tudi Ljubljana z okolico, katere meje niso zgodovinsko utemeljene.

Krajevno ime: Prvo krajevno ime se nanaša na ožje, drugo (če je zapisano) pa na širše ime najdišča. Prvo ime je izbrano iz Atlasa Slovenije v merilu 1:50.000, tretja izdaja, (Kos 1996). Vsebuje lahko različne geografske pojme. Izjemoma so v posameznih primerih dodana tudi ledinska imena ali imena lastnikov zemljišča. Posamezna najdišča, ki so razmeščena v bližini istega kraja in so medsebojno oddaljena vsaj

us) species that were found only in traps but never on host plants.

3.2. Display of data

3.2.1. Collection and processing of data in the table

Data from various sources were entered into an Excel spreadsheet which made it possible to review and unify the data. The table facilitated transparency, in particular the standardization of data. In addition to the Latin name of the species and the author, the table contained the region, place name, longitude (X), latitude (Y), UTM quadrant, altitude, host plant / trap type, plant part attacked / type of pheromone, author name, collection / literature, and date. All available data were entered. Particularly for older records, some information may be missing or entered with a lower level of accuracy. The contents of the table are presented in the form of text for each species in Chapter 4. RESULTS.

Landscape. The territorial division of Slovenia into regions were taken from older volumes of Scopolia in which the division is based on the *Map of the Slovene Land and its Regions* (Kozler & Knorr 1853) and the map by Gabrovec, M. & Rajšp, V. (1998), published in the book *Slovenia – Regions and People* (p. 18-19), which is based on the 1914 borders of Austrian provinces. Bela Krajina region is specifically discussed, as well as Ljubljana and its surroundings, the borders of which are not historical.

Place name: The first place name refers to the narrower name of the site, the second (if provided) to the broader name of the site. The first name is taken from the *Atlas of Slovenia*, Third Edition (Kos 1996). It may contain different geographical terms. In exceptional cases, microtoponyms or names of landowners are added. Individual sites which are located close to the same place and are at least 30 m apart are also indicated with additional numbers. Place

30 metrov, pa so lahko dodatno označena tudi s številkami. Krajevna imena so zapisana po 8. verziji Slovenskega pravopisa. Predlog »pri« ali vezaj se uporablja samo, kadar sta del uradnega imena kraja. Ob krajevnih imenih so občasno dodane tudi opombe, ki se nanašajo na ožjo lokacijo (npr. drevesnica).

Geografske koordinate: Geografske koordinate temeljijo na projekciji po referenčnem elipsoidu WGS84. Pri večini starejših lokacij so koordinate povzete iz tretje izdaje Atlasa Slovenije (Kos 1996), zaokrožene so na najbližjo minuto. Novejše lokacije so določene po spletnem Atlasu okolja in so zaokrožene na najbližjo sekundo. V primerih starejših lokacij, kjer se geografski pojem razteza nekaj 10 km daleč (Pohorje, Ljubljana …), so v oklepajih vpisane sredinske koordinate.

UTM-kvadrat: UTM-kvadranti so določeni na podlagi geografske dolžine in širine prek spletnega pretvornika koordinatnih sistemov. Pri približno določenih koordinatah so UTM kvadranti podani v oklepajih.

Nadmorska višina: V starejših podatkih je nadmorska višina določena prek kart ali prek barometrskih višinomerov. Nadmorske višine, označene s simbolom ~, so določene samo približno, z odstopanjem ± 50 m. Kadar se lahko nadmorska višina hitro spreminja (gore …) in je ni bilo možno zanesljivo določiti, jo nadomešča simbol *. V novejših podatkih je nadmorska višina običajno določena prek digitalnega Atlasa okolja in je bila odčitana hkrati z geografskimi koordinatami.

Gostiteljska rastlina / tip pasti: Vpisano je latinsko ime rastline, na kateri je bil nabran osebek. Z redkimi izjemami je to ime gostiteljske rastline. Imena smo povzemali po različnih izdajah botaničnega ključa Mala flora Slovenije (Martinčič s sod. 2007). V starejših podatkih je gostiteljska rastlina lahko vpisana samo kot rod, še pogosteje pa ta podatek v celoti manjka. Če osebek ni bil nabran na gostiteljski rastlini ali njenem delu, je bil ujet v past. Tipi pasti so različni, v besedilu so okrajšani. Okrajšava običajno temelji na okrajšanem imenu proizvajalca pasti.

names are spelled according to the 8th version of the *Slovene Orthography*. The Slovene preposition *pri* or a hyphen is used only if it is part of the official place name. Place names are sometimes accompanied by a footnote referring to a more specific location (e.g., a tree nursery).

Geographical coordinates: Geographical coordinates are based on the WGS84 reference ellipsoid projection. For most of the older sites, the coordinates are taken from the *Atlas of Slovenia* (Kos 1996), rounded to the nearest minute. More recent locations are based on the online *Atlas of the Environment* and are rounded to the nearest second. In the case of older locations where the geographical concept extends tens of kilometres (Pohorje, Ljubljana, etc.), the central coordinates are given in brackets.

UTM quadrant: UTM quadrants are defined based on longitude and latitude via the online Coordinate System Converter. For approximate coordinates, UTM quadrants are provided in brackets.

Altitude: For older data, altitude is determined with maps or barometric altimeters. Altitudes marked with the symbol ~ are only approximate, with a tolerance of ± 50 m. In cases where altitude may change rapidly (mountains, etc.) and could not be determined reliably, it is replaced by the * symbol. In more recent data, altitude is usually determined via the digital Environmental Atlas and has been read at the same time as the geographical coordinates.

Host plant / Trap type: The Latin name of the plant on which the specimen was collected is listed. With rare exceptions, this is the name of the host plant. The names have been taken from various editions of the botanical key to the *Small Flora of Slovenia* (Martinčič et al. 2007). In older data, the host plant may be entered only as a genus, and even more often this information is missing altogether. If the bark beetle was not collected on the host plant or a part of it, it was trapped. There are different types of traps, which are abbreviated in the text. The abbreviation is usually based on the abbreviated name of the trap manufacturer.

Napaden del rastline / vrsta feromona: Pri večini novejših vpisov smo zabeležili tudi del napadene rastline in njegove dimenzije. Če je bil del rastline nepravilne oblike (npr. panj), je številka v cm povprečje meritve največje in najmanjše dimenzije. Okrajšava rs pomeni, da je bila vrsta določena izključno na podlagi opazovanja rovnega sistema. Pri rodu *Crypturgus* se uporablja okrajšava nrs, kar pomeni, da je bila vrsta najdena v rovnih sistemih, ki so izhajali iz rovnega sistema druge vrste, ki je v nadaljevanju navedena z latinskim imenom.

Podatki o avtorjih: Z okrajšavami so navedeni legatorji (l), opazovalci (o), določevalci (d), preimenovalci (r) in potrjevalci (v). Lahko gre za eno ali več oseb, katerih imena so okrajšana s prvo črko imena in prvima dvema črkama priimka (npr. MJu za Majo Jurc).

Zbirka / literatura: Kadar je bil podatek pridobljen iz zbirke (muzejske ali zasebne) ali pa iz literature, je vir naveden. Oboje je okrajšano. Zbirke se začenjajo s črko c in se nadaljujejo z okrajšavo utemeljitelja zbirke ali inštitucije. Naveden je samo tisti vir, iz katerega je bil podatek dejansko povzet. Viri se začenjajo z okrajšavo lit., nadaljujejo z okrajšanim imenom avtorja in letnico objave (npr. lit.JTi1983).

Datum: Datum je naveden na koncu vsakega vnosa. Razlog so periodična nabiranja materiala na posameznih lokacijah (zlasti v pasteh), zato je najkrajši in najlažje berljiv način vpisa z datumi, naštetimi na koncu. V starejših podatkih je namesto dneva velikokrat vpisan samo mesec, npr. 8.1966. V redkejših primerih je na voljo samo leto. Če manjka tudi omemba letnice, je podatek opremljen z razvrstitvijo v tri obdobja: <1951 (do vključno 31. 12. 1950), 1951–2000 (od 1. 1. 1951–31. 12. 2000) ali >2000 (od 1. 1. 2001). Obdobja smo določili na podlagi obdobja aktivnosti legatorjev in načina prepariranja.

Krajšanje vpisanih podatkov: Poleg datumov, vpisanih na koncu, smo obseg besedila skrajšali tudi z izpuščanjem enakih

Plant part attacked / Pheromone type: For most of the more recent entries, we also recorded the part of the plant attacked and its dimensions. If the plant part was irregularly shaped (e.g., a stump), the number in cm represents the average of the measurements of the largest and smallest dimensions. The abbreviation rs means that the species was determined solely based on observations of the tunnel system. In the genus *Crypturgus*, the abbreviation nrs is used to indicate that the species was found in tunnel systems derived from the tunnel system of another species which is referred to below by its Latin name.

Authors' information: Abbreviations are used for legators (l), observers (o), determiners (d), renamers (r) and validators (v). One or more persons may be named and their names are abbreviated to the first letter of the first name and the first two letters of the surname (e.g. MJu for Maja Jurc).

Collection / Literature: The data must be obtained from a collection (museum or private) or from a source / literature. Both are abbreviated. Collections begin with the letter c and are followed by the abbreviation of the founder of the collection or institution. Only the source from which the information was actually taken is provided. Sources begin with the abbreviation lit., followed by the abbreviated name of the author and the year of publication (e.g. lit. JTi1983).

Date: The date is indicated at the end of each entry. This is due to the periodic collection of material at specific locations (especially in traps), so the shortest and easiest way to read the entry is with the dates listed at the end. In older data, often only the month is entered instead of the day, e.g., 8.1966. In rarer cases, only the year is available. If the year is also missing, the data are classified into three periods: <1951 (up to and including 31.12.1950), 1951-2000 (1.1.1951 - 31.12.2000) or >2000 (from 1.1.2001). The periods have been defined on the basis of the period of activity of the legators and the method of preparation.

Shortening entries: In addition to the dates entered at the end, we have also shortened the

podatkov pri podobnih vpisih. Ko je uporabljen izraz »ibidem«, pomeni, da je vpis enak prejšnjemu, razlikuje se le del vpisa, ki sledi besedi »ibidem«. Po prvi spremembi se vpis nato nadaljuje do konca, tudi kadar se naslednji podatki ujemajo s predhodnim vpisom.

3.2.2. Razširjenost na palearktičnem območju, karte, fotografije, omembe v katalogih

Razširjenost na palearktičnem območju: Palearktik zajema Evropo, severno Afriko, zahodno Azijo, Sibirijo, sever Kitajske in Japonsko. Razširjenost v gradivu obravnavanih vrst v palearktiku je predstavljena po katalogu Löbl in Smetana (2011) s kraticami držav (glej poglavje 3.4.1). V primerih, ko prisotnost vrste v Sloveniji v katalogu ni bila navedena, je bila oznaka za Slovenijo (SL*) dodana naknadno.

Karte: Osnova za izdelavo kart razširjenosti podlubnikov je bila urejena excelova tabela z zgodovinskimi in recentnimi podatki. Na podlagi geografskih koordinat za vsak vpis je bila grafična predstavitev pripravljena s programom ArcGIS. Karte razširjenosti so izrisane za skoraj vse predstavljene vrste, na njih so oznake razdeljene v tri obdobja: <1951 (do vključno 31.12.1950), 1951–2000 (1.1.1951–31.12.2000) ali >2000 (od 1.1.2001). Starejši, nepopolni podatki, ki ne navajajo krajevnega imena, v kartah niso prikazani.

Fotografije: Večina vrst je predstavljenih s fotografijo primerka dorzalno (od zgoraj) in lateralno (bočno), pri nekaterih vrstah so na voljo fotografije samičk in samčkov (OLYMPUS, EFI, PMS, Maja Jurc, 17.10.2004).

text by omitting identical information in similar entries. When *ibidem* is used, it means that the entry is identical to the previous one, only the part of the entry following the word *ibidem* is different. After the first change, the entry is then continued to the end, even in cases where the subsequent data match the previous entry.

3.2.2. Distribution in the Palearctic region, maps, photographs, mentions in catalogues

Distribution in the Palearctic region: The Palearctic covers Europe, North Africa, Western Asia, Siberia, Northern China and Japan. The distribution of the considered species in the Palearctic is presented according to the LÖBL & SMETANA (2011) catalog, with country abbreviations (see chapter 3.4.1). In cases where the presence of the species in Slovenia was not indicated in the catalog, the labels for Slovenia (SL*) was added subsequently.

Maps: The basis for creating maps of the distribution of bark beetles was an edited excel table with historical and recent data. Based on the geographic coordinates for each entry, a graphical representation was prepared using the ArcGIS program. Distribution maps are drawn for all represented species, on which the labels are divided into three periods: <1951 (up to and including 31.12.1950), 1951-2000 (1.1.1951 - 31.12.2000) or >2000 (from 1.1.2001). Older, incomplete data which do not provide a place name are not shown in the maps.

Photographs: Most species are presented with a dorsal (top) and lateral (side) photograph of the specimen, for some species photographs of females and males are available (OLYMPUS, EFI, PMS, Maja Jurc, 17.10.2004).

3.3. Razlaga v besedilu uporabljenih terminov in tujk

adúlten (lat. *adultus* dorasel, odrasel): a) dorasel osebek; b) zadnji razvojni stadij organizmov s preobrazbo (z metamorfozo), ↔ imago

alohtón (nlat. iz gr. á*llos* drug, drugačen + gr. *Khthón* zemlja): drugoten, tuj, priseljen, tujeroden, nesamonikli, neavtohton

alpínski (nlat. iz lat. *alpis* gora): a) alpinističen; b) živeč nad zgornjo gozdno mejo (nad 2000 m)

ambrózija (gr. *a* ne- + *brotos* človek, smrtnik; nesmrten; gr. *ambrosía* iz *ambrósios* ali *ambrotos* nesmrten): »pijača olimpijskih bogov«, v stgr. mit. jed bogov, ki daje nesmrtnost in večno mladost; ambrozijski podlubniki so nekatere vrste iz poddružine Scolytinae in vse vrste strženarjev iz poddružine Platypodinae, katerih ličinke se hranijo večinoma z ektosimbiontskimi »ambrozijskimi glivami«, katere odrasle samice »gojijo« v rovnih sistemih v lesu

anténa (gr. *antenna* prečni drog na jamboru): a) čutilna struktura v obliki odrastkov na glavi nekaterih nevretenčarjev; b) parna, večinoma členkasta in večinoma gibljiva okončina z mnogimi čutnicami na glavi členonožcev, tipalka, tipalnica

areál (lat. *area* prostor, igrišče): življenjsko območje določenih vrst živih bitij ali drugih biosistematskih enot, taksonomskih enot, taksonov

arhenotokia (arrhenotoky): je oblika partenogeneze, kjer se iz neoplojenih jajčec razvijejo samci, iz oplojenih pa samice. Pojavlja se pri dvostarševskih vrstah

avtohtón (gr. *autos* sam, svoj + gr. *Khthón* zemlja): prvotni prebivalec, domačin, domač, samonikel, izviren

beljáva: zunanji, navadno svetlejši in iz še delujočih (prevodnih) celic zgrajen les na obodu debla pod skorjo

bíodiverzitéta (angl. *biodiversity* iz gr. *bíos* življenje + lat. *diversus* nasproten,

3.3. Explain of terms and foreign words used in the text

adultus (Lat. *adultus*, adult, grown-up): a) an adult specimen; b) the last developmental stage of organisms by transformation (metamorphosis)

allochthonous (nlat. from Gr. állos other, different + Gr. *khthón* earth): foreign, alien, immigrant, non-native, non-indigenous

Alpine (nlat. from Lat. *alpis* mountain): (a) mountainous; (b) living above the upper forest limit (above 2000 m)

ambrosia (Gr. *a* no- + *brotos* man, mortal; immortal; Gr. *ambrosía* from *ambrósios* or *ambrotos* immortal): "drink of the Olympian gods", in Greek myth, a dish of the gods which confers immortality and eternal youth; ambrosia borers are species of the subfamily Scolytinae (and all species of the subfamily Platypodinae) whose larvae feed mainly on ectosymbiontic "ambrosia fungi" which the adult females "grow" in burrow systems in wood

antenna (Gr. *antenna* transverse bar on the mast): a) sensory structure in the form of growth on the head of some invertebrates; b) paired, mostly articulated and mostly movable limb with many sensory organs on the head of arthropods, ↔ feeler

area (Lat. *area* space, playground): the habitat of a particular species of living things or other biosystematic units, ↔ taxonomic units, ↔ taxa

arrhenotoky (arrhenotoky): unfertilised eggs produce males, fertilised eggs produce females. Occurs in "biparental" species

autochthonous (Gr. *autos* autos, own + Gr. *khthón* land): original inhabitant, native, indigenous, native-born, original

sapwood: outer wood, usually lighter in colour and made up of still functioning (conducting) cells, on the periphery of the trunk under the bark

biodiversity (from Gr. *bíos* life + Lat. *diversus* opposite, diverse, varied): the diversity of life

raznolik, pester): raznovrstnost življenja v vseh njegovih oblikah, ravneh in kombinacijah, biotska raznovrstnost

Coleóptera (lat. *coleoptera* iz gr. *koleón* tul, skorja, oklep + gr. *pteron* krilo): skupina žuželk, pri katerih čvrste pokrovke (elitra) navadno prekrivajo drugi, kožnati par kril, hrošči

črnjava: temnejši, navadno iz odmrlih celic zgrajen les v notranjosti debla, obarvana jedrovina, ↔ jedrovina

dekompozícija (nlat. *de(s)-* iz lat., v sestavljenkah: nasprotnost, upadanje + lat. *compositio* sestava): a) razstavljanje, razčlenitev; razpadanje; b) proces razkrojevanja organskih ostankov, ki ga opravljajo edafski organizmi v tleh kopenskih in na dnu vodnih ekosistemov

dendrobiónt (iz gr. *déndron* drevo + iz gr. *bión*, *bióntos,* ki biva): organizem, ki živi na drevesu ali v njem

deuterotokia (deuterotoky): je oblika partenogeneze, kjer se iz neoplojenih jajčec razvijejo tako ženski kot moški potomci. Pojavlja se pri enostarševskih vrstah

diverzitéta (iz lat *divêrza* razno, raznoterost): raznoterost, raznolikost, pestrost

dodatno ali **regeneracijsko hranjenje:** samice nekaterih žuželk po odlaganju določenega števila jajčec – čista generacija – prekinejo z ovipozicijo in se začnejo intenzivno hraniti; hranjenje omogoči dozorevanje preostalih jajčec, po dodatnem hranjenju samice nadaljujejo z odlaganjem jajčec in zasnujejo sestrsko generacijo

dopolnilno ali **zrelostno hranjenje:** hranjenje, ki je potrebno za spolno dozoritev osebka

dorzálen (nlat. *dorsalis* iz lat. *dorsum* hrbet): pri živalih hrbten, ki je bližje hrbtu

ekologíja (nlat. *eco-*, *oeco-* iz gr. *oíkos* dom, bivališče itn. + *lógos* beseda, govor, razum, nauk, veda itn.): veja biologije, ki proučuje odnose med organizmi, odnose med organizmi in neživim okoljem ter pojasnjuje, kako ti odnosi vplivajo na njihovo razširjenost in številčnost

in all its forms, levels and combinations, ↔ biological diversity

Coleoptera (Lat. *coleoptera* from Gr. *koleón* crust, armour + Gr. *pteron* wing): group of insects in which the forewings (elytra) usually cover a second pair of wings, beetles

heartwood: darker wood, usually built up from dead cells inside the trunk, duramen

decomposition (nlat. *de(s)-* from Lat., in compounds: opposition, decline + Lat. *compositio* composition): a) breaking down, disintegration; decomposition; b) the process of decomposition of organic remains by edaphic organisms in the soil of terrestrial and bottomland aquatic ecosystems

dendrobiont (from Gr. *déndron* tree + Gr. *bión*, *bióntos* living): an organism that lives on or in a tree

deuterotoky: production of both males and females from unfertilised eggs. Males are biologically and ecologically non-functional. Female diploidy occurs in the female offspring as a result of different cytogenetic mechanisms. It occurs in 'monogamous' species.

diversity (from Lat *divêrza* diversity): variety, multiplicity, heterogeneity

regenerative feeding: after depositing a certain number of eggs – pure generation – females of some insects interrupt oviposition and start feeding intensively; feeding allows the remaining eggs to mature and after supplementary feeding females resume oviposition and conceive a sister generation

maturation feeding: is feeding that is necessary for the sexual maturation of the specimen (e.g. in some insect species)

dorsal (nlat. *dorsalis* from Lat. *dorsum* back): in animals, of, toward, on, in or near the back

ecology (nlat. *eco-*, *oeco-* from Gr. *oíkos* home, dwelling, etc. + *lógos* word, speech, intellect, doctrine, science, etc.): is the branch of biology that studies the relationships between organisms, the relationships between organisms and the non-living environment, and explains how these relationships affect their distribution and abundance.

ectothermic animal (Gr. *ektós* outside, external + *thérme* heat, warmth): a type of animal

ektotêrmna živál (gr. *ektós* zunaj, zunanji, izven + *thérme* toplota, vročina): vrsta živali, katerih telesna temperatura se izravnava s temperaturo okolja (vsi nevretenčarji, ribe, dvoživke in plazilci), mrzlokrvna žival, ↔ poikilotermna žival

ekzúvij (lat. *exuvium* prazna ovojnica): zunanja plast intgumenta ali del zunanjega ogrodja, ki ostane po levitvi, ↔ lev

elítra (gr. edn.: *elýtron*, množ.: *elýtra* ovoj, pokrov, platnica itd.): otrdelo sprednje krilo nekaterih žuželk (npr. hroščev), ↔ pokrovka

entomologíja (gr. *éntomos* urezan, zarezan; ali gr. *éntomon* žuželka + *lógos* beseda, govor, razum, nauk, veda itn.): žužkoslovje; veja zoologije, ki se ukvarja s proučevanjem žuželk, tj. njihovim ustrojem, načinom življenja in razmnoževanja ter njihovim odnosom do žive in nežive narave

fakultatîven /-vna (prid.): neobvezen

fávna (lat. *Fauna* Favna, rimska boginja plodnosti, boginja gozdov, zaščitnica živih bitij): a) živalstvo kakega območja ali obdobja; b) opis ali seznam vseh živalskih vrst določenega območja

fekunditéta (iz nlat. *fecunditas*, *fecunditatis* iz lat. *fecundare* oploditi): a) plodnost, zmožnost organizma za uspešno razmnoževanje; b) potencialna plodnost predstavlja realizirano potomstvo v idealnih razmerah okolja

feromón (gr. *pherein* nositi, prenašati + (hor) mon nlat. *Hormonum* iz gr. *hormôn* – deležnik glag. *Hormân* poganjati, spraviti v gibanje, spodbujati, vzbuditi): snov, ki jo v izredno majhnih količinah v zunanje okolje izločajo živali in s tem povzročajo značilne vedenjske odgovore pri osebkih iste vrste (npr. socialni feromon, spolni feromon idr.)

fertilitéta (nlat. *fertilitas* iz lat. *fertilis* fertilen): a) fertiliteta, sposobnost organizma za uspešno razmnoževanje; b) realna plodnost, ki se realizira v naravnem okolju

whose body temperature equilibrates with ambient temperature (all invertebrates, fish, amphibians and reptiles), cold-blooded animal, ↔ poikilothermic animal

exuvium (Lat. *exuvium* empty sheath): the outer layer of the integument or part of the exoskeleton remaining after molting, e.g. the stratum corneum of reptilian skin or the cuticle of arthropods, ↔ molt

elytron (Grk. sing: *elýtron*, pl.: *elýtra* sheath, cover, etc.): a) scaly growth on the parapodia of polychaetes; b) stiffened forewing of some insects (e.g. beetles)

entomology (Gr. éntomos cut, incised; or Gr. éntomon insect + *lógos* word, speech, intellect, doctrine, science, etc.): insectology; the branch of zoology concerned with the study of insects, i.e., their structure, mode of life and reproduction, and their relation to animate and inanimate nature

facultative (adj.): optional (20th cent.)

fauna (Lat. *Fauna*, Roman goddess of fertility, goddess of forests, protector of living creatures): a) the animals of an area or period; b) a description or list of all the animal species in an area

fecundity (from Lat. *fecunditas*, *fecunditatis* from Lat. *fecundare* to fertilise): a) fertility, the ability of an organism to reproduce successfully; b) potential fertility, representing actual offspring under ideal environmental conditions

pheromone (Gr. *pherein* to carry + (hor)mon nlat. *hormonum* from Gr. *hormôn* - participle of *hormân* to drive, set in motion, stimulate, excite): a substance secreted in extremely small quantities by animals into the environment, thereby causing characteristic behavioural responses in individuals of the same species (e.g. social pheromone, sex pheromone, etc.)

fertility (nlat. *fertilitas* from Lat. *fertilis* fertilen): a) the ability of an organism to reproduce successfully; b) actual birth rate realised in the natural environment

phyllophagus (nlat. *phyllo-* from Gr. *phýllon* leaf): an animal that feeds on plant leaves

filofág (nlat. *phyllo-* iz gr. *phýllon* list + iz gr. *phageîn* jesti, požirati): živaI, ki se hrani z rastlinskimi listi

fitofág (nlat. *phyto-* iz gr. *phytón* rastlina + iz gr. *phageîn* jesti, požirati): živaI, ki se hrani z rastlinami

flóem (nlat. *phloeam* sitaste cevi rastlin iz gr. *phlóos* skorja ličje, lubje): glavno prevajalno tkivo raztopljenih, v listih nastalih org. snovi (ogljikovih hidratov, asimilatov) rastlin proti mestu porabe; zgrajen iz podolgovatih sitastih celic (sitk) s sitasto preluknjanimi prečnimi stenami in spremljevalk; lahko nastane iz prokambija (primarni floem) ali iz kambija (sekundarni floem)

floemofág (nlat. *phloeam* sitaste cevi rastlin iz gr. *phlóos* skorja ličje, lubje + iz gr. *phageîn* jesti, požirati): živaI, ki se hrani s skorjo (lubjem, ličjem) rastlin

gostítelj: organizem, ki je za zajedavca življenjsko okolje in vir hrane

gradácija (lat. *gradatio* iz *gradus* stopnja): postopnost, stopnjevanje, kalamiteta

habitát (angl. iz lat. *habitare* bivati, prebivati): konkreten prostor, kjer živi organizem (npr. deblo, duplo ali panj, notranjost drugega organizma ipd.), bivališče

haploidnost: je lastnost celic in organizmov, katerih genski zapis sestavlja enojni komplet kromosomov (enojno garnituro avtosomov in en spolni kromosom)

haplodiploidnost: iz neoplojenih jajčec se razvijajo haploidni samci, iz oplojenih pa diploidne samice

hitín (fr. *chitine* iz gr. *khitón* hiton, obleka, pri starih Grkih dolga prepasana halja brez rokavov, oklepni suknjič itn.): polisaharid, polimer N–acetilglukozamina, sestavlja ogrodje nekaterih organizmov

ibidem: ravno tam

idem: isto

imágo (lat. *imago* podoba, predstava): odrasel, popolnoma razvit osebek (adulten osebek), ustaljen izraz za žuželke, ↔ adúlt

invertebráta (nlat. iz lat. *in-* nikalna predpona ne- + lat. *vertebrata* vretenčarji): nevretenčarji

phytophagous (nlat. *phyto-* from Gr. *phytón* plant + from Gr. *phageîn* to eat, to devour): an animal that feeds on plants

phloem (nlat. *phloeam* tubes of plants from Gr. *phloos* bark): the main tissue conducting dissolved, leaf-derived organic substances (carbohydrates, assimilates) of plants towards the site of consumption; built of elongated tubular cells (sieves) with vascular transverse walls and companion cells; may arise from procambium (primary phloem) or from cambium (secondary phloem)

phloemophagus (nlat. *phloeam* vascular tubes of plants from Gr. *phlóos* bark + from Gr. *phageîn* to eat, to swallow): animal that feeds on the bark of plants

host: an organism which is the parasite's habitat and food source

gradation (Lat. *gradatio* from *gradus* grade): gradualness, gradation, calamity

habitat (from Lat. *habitare* to dwell): a specific place where an organism lives (e.g., tree trunk, cavity or stump, the interior of another organism, etc.), ↔ dwelling place

haploidy: is the property of cells and organisms whose genetic make-up consists of a single set of chromosomes (a single set of autosomes and a single sex chromosome)

haplodiploidy: unfertilised eggs develop into haploid males, fertilised eggs into diploid females

herbiphages: feed on roots, fresh or dry fleshy plant tissues, including stems of herbaceous plants, leaf stalks, cacti, grass leaves, mangrove viviparous shoots

herbivore (Lat. *herba* herb + Lat. *vorare* to eat): an animal that feeds on plant food

chitin (fr. *chitine* from gr. *khitón* chiton, dress, in the ancient Greeks a long, sleeveless, belted robe, armoured jacket, etc.): polysaccharide, polymer of N-acetylglucosamine, building block of the skeleton of some organisms

ibidem: right there

idem: the same

imago (Lat. *imago* image, representation): an adult, sexually mature specimen (adult specimen), an established term for insects

jedrovína: notranje plasti lesa v rastočem drevesu, kjer so celice odmrle, rezervne snovi, kot je npr. škrob, so se spremenile v jedrovinske snovi; j. je lahko neobarvana (npr. pri smreki, jelki itd.) ali obarvana (npr. pri črnem orehu, dobu, rdečem boru itd.), obarvana jedrovina, ↔ črnjava

juvenílen (nlat. *juvenilis* iz lat. *iuvenilis* mladosten): mladosten; spolno nezrel odrasli osebek

kámbij (nlat. *cambium* menjava iz lat. *cambire* menjati): delitve sposobno tvorno tkivo pri rastlinah (meristem), meristemsko tkivo v steblu ali korenini, sestavljeno iz posamezne plasti ali več plasti celic, iz katerih z delitvami nastajajo sekundarna tkiva, navznoter les, navzven pa sekundarna skorja

koleopterológija (lat. *coleoptera* iz gr. *koleón* tul, skorja, oklep + *lógos* beseda, govor, razum, nauk, veda itn.): nauk o hroščih

kolinski: živeč na gričevju (1–600 m)

koničnik (obronek eliter): poševnina na koncu pokrovk, stranski levi in desni robni del koničnika lahko ima zobčke (bodice)

ksilém (iz gr. *ksýlon* les): prevajalno in oporno tkivo; prevaja vodo, ki jo sprejemajo korenine iz tal, in v njej raztopljene rudninske snovi po trahejah in traheidah navzgor

ksilofág (iz gr. *ksýlon* les + iz gr. *phageîn* jesti, požirati): živaI, ki se hrani z lesom

ksilomicetofág (iz gr. *ksýlon* les + iz gr. *mýkes* goba + iz gr. *phageîn* jesti, požirati): živaI, ki se hrani z lesom, ki je prerasel s hifami gliv

lárva (lat. *larva* krinka, maska itn.): mladostni, zgodnji razvojni stadij mnogih živali, ki še ni spolno zrel, vendar se hrani samostojno, označujemo jih po zaporedju pojavljanja (L1., L2. itn.), ↔ ličinka

laterálen (lat. *lateralis* iz *latus*, *lateris* bok, stran): a) bočen, stranski, ki je odmaknjen od medialne ravnine

lažni zvezdasti rovni sistem: manjkajo jajčne niše, nepravi (»lažni«) zvezdasti rovni sistem, v katerem krake zvezde namesto materinskih rovov tvorijo rovi ličink, ki

Invertebrata (nlat. from Lat. *in-* nickel prefix ne- + Lat. *vertebrata* vertebrata): invertebrates

heartwood: the inner layers of wood in a growing tree where the cells have died and reserve substances such as starch have been converted into heartwood; heartwood may be unstained (e.g. spruce, fir, etc.) or stained (e.g. black walnut, hollow, red pine, etc.)

juvenile (nlat. *juvenilis* from Lat. *iuvenilis* youthful): a) youthful; childish; b) physically and sexually immature

cambium (nlat. *cambium* change from Lat. *cambire* to change): a) dividing tissue in animals (blastema); b) dividing tissue in plants (meristem), i.e. cells

coleopterology (Lat. *coleoptera* from gr. *koleón* quiver, crust, armour + *lógos* word, speech, intellect, doctrine, science, etc.): the study of beetles

colline: hill-dwelling (1-600 m altitude)

apex (elytral apex): the slant at the end of an elytral rim, the left and right sides of the apex may be serrated (denticles), declivity – the downward-sloping posterior portion of the elytra: the back end of the beetle

xylem (from Gr. *xýlon* wood): a conducting and supporting tissue; it transports water taken up by the roots from the soil and the mineral substances dissolved in it upwards through the tracheae and tracheids

xylophagus (from Gr. *xýlon* wood + from Gr. *phageîn* to eat, to devour): an animal that feeds on wood

xylomycetophagus (from Gr. *xýlon* wood + from Gr. *mýkes* mushroom + from Gr. *phageîn* to eat, to devour): an animal that feeds on wood that has been overgrown by the hyphae of fungi

larva (Lat. *larva* cover, mask, etc.): juvenile, early developmental stage of many animals, not yet sexually mature but feeding independently, designated by order of appearance (1st, 2nd larva, etc.)

lateral (Lat. *lateralis* from *latus*, *lateris* lateral, side): a) of, relating to, or situated at or on the side

false stellate system: absence of egg niches, not real ("false") stellate system, in which

izhajajo iz okrogle ploskovne izjedline - kotilnice

levítev: občasno odstranjevanje roževinaste plasti kože (pri nekaterih plazilcih) ali zunanjehitinske plasti (pri členonožcih) zaradi oviranja rasti ali obnove

lèv ↔ ekzuvij

ličínka ↔ larva

ličje: sekundarni floem, živi del skorje, delimo ga v prevodnega in neprevodnega (skladiščnega); sega od kambija do najmlajšega (tj. najglobljega) periderma oz. felogena

lignikolen (*lat. lignum* les): živeč na lesu

lubje: mrtva skorja, mrtvo tkivo zunaj najmlajšega felogena

L1 (jajčna larva): prvi stadij ličinke

meristém: tkivo iz celic, ki so trajno sposobne za mitotsko delitev, kar omogoča rast rastline

mikangij: posebna ektodermalna vdolbinica pod vratnim ščitom podlubnikov (ali drugod), v katerih se naberejo trosi gliv

mikofagne vrste: hranijo se z glivami (te pa ne »gojijo« v svojih rovih), predvsem s trosišči zaprtotrosnic v suhih vejah ali skorji

mielofagne vrste: razvijajo se v strženih vejic in drugih tanjših steblih ali v pecljih odpadlih listov

monogámija (iz gr. *mónos* sam, enojen + gr. *gámos* zakon): osebek, ki živi z enim partnerjem in navadno skupaj skrbita za zarod, s.s.

montanski (lat. *mons*, *montis* gora): gorski (900–1500 m)

obrša: krošnja drevesa

paleárktičen (iz gr. *palaiós* star, starodaven + *arktikós* severen) v zvezi: palearktične vrste, ki naseljujejo palearktik (Evropo, severno Afriko, zahodno Azijo, Sibirijo, sever Kitajske in Japonsko)

poikilotérmna živál (iz gr. *poikílos* mnogoter, različen + *thérme* toplota, vročina): »okoljetopla« žival, pri kateri se telesna temperatura prilagaja temperaturi okolja, mrzlikrvna žival ↔ ektotermna žival

pokrývka ↔ elitra

star arms are built from larval tunnels, which emerge from a circulate flat-shaped cavity (brooding chamber)

molting: the periodic removal of the stratum corneum (in some reptiles) or the outer chitinous layer (in arthropods) which impede growth or regeneration

molt ↔ exuvium

larva ↔ grub

secondary phloem: the living part of the bark, divided into conducting and non-conducting (storage) phloem; extending from the cambium to the youngest (i.e. deepest) periderm or phelogen

lignicolous (Lat. *lignum* wood): living on wood

cortex bark: dead tissue outside the youngest phyllogene

L1 (egg larvae) ↔ first larval stage

meristem: a tissue made of cells that are permanently capable of mitotic division, allowing the plant to grow

mycangium: a special ectodermal recess on the cuticle of bark beetles (or elsewhere) that serve to carry fungal spores

mycophagous species: that feed on fungi (they do not "grow" them in their tunnels), mainly by feeding on the sorus of sac fungi in dry branches or bark

myelophagous species: develop in the hollow of young twigs and other thinner stems or in the petioles of fallen leaves

monogámia (from Gr. *mónos*, single + Gr. *gámos* marriage): a person who lives with one partner and usually takes care of the offspring together, s.s.

montane (Lat. *mons*, *montis* mountain): pertaining to, growing in, or inhabiting mountainous regions (900-1500 m)

Palaearctic (from Gr. *palaiós* old, ancient + *arktikós* northern): in relation to: Palaearctic species inhabiting the Palaearctic (Europe, North Africa, West Asia, Siberia, northern China and Japan)

poikilotherm (from Gr. *poikílos* various + *thérme* heat): "ambient warm" animal in which the body temperature adjusts to the ambient temperature, ↔ cold-blooded animal, ectothermic animal

poligamíja (gr. *poly-* iz *polýs* mnog + gr. *gámos* zakon): a) zakonska zveza ene osebe z več osebami drugega spola; b) osebek, ki živi z več partnerji

pronótum (gr. *pró* spredaj + nlat. *notum* iz gr. *nôtos* hrbet): predprsni hrbtni ščit pri žuželkah, vratni ščit, skutum

protóraks (gr. *pró* spredaj + nlat. *thorax* iz gr. *thóraks* prsni koš): prvi, anteriorni segment oprsja členonožcev, predprsje

prôsta búba ↔ pupa libera

pseudoarrhenotokija: psevdoarhenotokija ali eliminacija očetovskega genoma je pojav, pri katerem se samci razvijejo iz oplojenih jajčec, vendar je očetov genom heterokromatiniziran ali izgubljen v somatskih celicah in se ne prenese na njihove potomce, ↔ arhenotokia

púpa (lat. *pupa* punčka, deklica): predzadnji razvojni stadij žuželk s popolno preobrazbo, v katerem se razgradijo organi ličinke in nastajajo organi odraslega osebka, žuželka je obdana s čvrsto hitinsko ovojnico, se ne hrani in miruje, pojavlja se pri hroščih, metuljih, muhah, kožekrilcih, buba

púpa líbera (lat. *pupa* punčka + ital. iz lat. *liber* prost, svoboden, samostojen): buba, pri kateri se okončine, kot so krila, noge in tipalke (če so razvite), prilegajo trupu, vendar so proste, pojavlja se pri večini hroščev in kožekrilcih, ↔ prosta buba

saproksíl (nlat. iz gr. *saprós* gnil + gr. *ksýlon* les): organizem/vrsta, ki je v določenih fazah svojega razvojnega cikla vezana na mrtev ali odmirajoč les, odmirajoče ali odmrlo drevje (stoječe ali ležeče), na lesne glive ali na prisotnost drugih saproksilov

sénsu láto (lat. *sensus* misel, pomen + *latus* širok): v širšem pomenu besede (okr.: s. l.)

sénsu strícto (lat. *sensus* misel, pomen + lat. *strictus* iz *stringere* dotakniti se, stisniti): v ožjem pomenu besede, dobesedno vzeto (okr.: s. s.)

sklerít (gr. *skleros* trd): posamezen trden del hitinjače členonožcev (kalcificirana in/ali močno hitinizirana ploščica segmenta), najpomembnejši skleriti so tergit, sternit, plevrit

chitinized forewings in beetles ↔ elytron

polygamy (Gr. *poly-* from *polýs* plural + Gr. *gámos* marriage): a) marriage of one person with several persons of the opposite sex; b) a person living with several partners

pronotum (Gr. *pró* anterior + nlat. *notum* from Gr. *nôtos* dorsum): plate-like dorsal shield in insects, ↔ neck shield, scutum

prothorax (Gr. *pró* anterior + nlat. *thorax* from Gr. *thóraks* thorax): the first, anterior segment of the body of an arthropod

pseudo-arrhenotoky: pseudoarrhenotoxicity or paternal genome elimination is a phenomenon in which males develop from fertilised eggs, but the paternal genome is heterochromatinised or lost in somatic cells and is not passed on to their offspring, → arrhenotoky

pupa (Lat. *pupa* doll, girl): a) penultimate developmental stage of insects with complete transformation, during which the larval organs are decomposed and the adult organs are formed, the insect is surrounded by a firm chitinous sheath, does not feed and is dormant; occurs in beetles, butterflies, flies, leatherwings

púpa líbera (Lat. *pupa* doll + Ital. from Lat. *liber* free, autonomous): beetle in which the limbs such as the wings, legs and tentacles (if developed) fit to the body but are free, occurring in most beetles and leatherwings

saproxylic (nlat. from Gr. *saprós* rotten + Gr. *ksýlon* wood): organism/species that is attached to dead or dying wood, dying or dead trees (standing or lying), wood fungi or the presence of other saproxylics at certain stages of its developmental cycle

sensu lato (Lat. *sensus* thought, meaning + *latus* broad): in the broad sense of the word, (abbr.: s.l.)

sénsu strícto (lat. *sensus* thought, meaning + lat. *strictus* from *stringere* to touch, to squeeze): in the strict sense of the word, taken literally, (abbr.: s.s.)

sclerite (Gr. *skleros* hard): a single hard part of the chitinoderm of an arthropod (calcified and/or heavily chitinized segment plate), the most important sclerites are tergite, sternite, pleurite

skorja: netehnični izraz za vsa tkiva zunaj vaskularnega kambija ali ksilema; v starejših drevesih je sestavljen iz mrtve (zunanje) skorje ali lubja in žive (notranje) skorje ali ličja

spermofagne vrste: se razvijajo v semenih in plodovih

steno- (nlat. *steno-* iz gr. *stenós* tesen): v zloženkah: skrčeno, zoženo; ozkost

stenofág (nlat. *steno-* iz gr. *stenós* tesen, + iz gr. *phageîn* jesti, požirati): vrsta, ki se hrani samo z določeno vrsto hrane

sternít (gr. *sternon* prsi): trebušni hitiniziran sklerit posameznega segmenta pri nekaterih členonožcih, trebušna ploščica

šiv: rezerviran izraz za prvi greben ob stiku eliter. Ostale strukture na elitrah so medprostori / grebeni.

taksón (nlat. *taxon* iz angl. *taxon* iz *tax(onomy)* + -on iz gr. *táksis* ureditev, postavitev): imenovana, opredeljena skupina organizmov v klasifikaciji živih bitij; biosistematska enota (kategorija), npr. vrsta, rod, družina, red itn., taksonomska enota

tárzus (nlat. *tars(o)* – iz gr. *tarsós* tarzus, v zloženkah: nart): a) končni členek ali členki noge členonožcev, stopalce

termofílen (nlat. *thermo-* iz gr. *thermós* topel, gr. *thérme* toplota, vročina + nlat. *phil(o)* – iz gr. *phílos* ljubitelj, *philía* ljubezen, *phileín* ljubiti, + *-(o-)*): ki ljubi toploto, toploljuben

tipska vrsta: vrsta, ki se izbere za značilno predstavnico rodu ali podrodu

trófičen (fr. *trophique* iz gr. *trophé* hrana, živež): ki se nanaša na prehrano, oskrbo s hrano

univoltina vrsta (nlat. iz lat. *unus* eden, edin, samo eden + ital. *volta* obrat, pot): vrsta, ki ima eno zalego potomcev na leto

ventrálen (nlat. *ventralis* iz *venter* trebuh; trebušen): pri živalih spodnji, ki je na trebušni strani

žlebljenje: je postopek poškodovanja skorje do lesa v obliki paralelnih žlebov, razmaknjenih do 3 cm, s standardizirano napravo

suture: a reserved term for the first ridge at the contact of the elytra. Other structures on the elytra are interstices / ridges

bark: non-technical term for all tissues outside the vascular cambium or xylem; in older trees it consists of dead (outer) bark and living (inner) bark

spermophage species: species that develop in seeds and fruits

steno- (nlat. *steno-* from Gr. *stenós* tight): in compounds: short, abbreviated

stenophage (nlat. *steno-* from Gr. *stenós* tight, + from Gr. *phageîn* to eat, to devour): a species that feeds only on a particular type of food

sternite (Gr. *sternon* breast): abdominal chitinized sclerite of a segment in some arthropods, ↔ abdominal plate

taxon (nlat. *taxon* from Eng. *taxon* from *tax(onomy)* + -on from Gr. *táksis* arrangement, arrangement): a named, defined group of organisms in a classification of living things; a biosystematic unit (category), e.g. species, genus, family, order, etc. ↔ taxonomic unit

tarsus (nlat. *tars(o)-* from Gr. *tarsós* tarzus, in compounds: tarsus): the terminal joint or joints of the leg of an arthropod

thermophilous (nlat. *thermo-* from Gr. *thermós* warm, Gr. *thérme* heat, heat + nlat. *phil(o)-* from Gr. *phílos* lover, *philía* love, *phileín* to love, + *-(o-)*): who loves heat, warmth-loving

type species: a species selected to be a characteristic representative of a genus or subgenus

trophic (fr. *trophique* from gr. *trophé* food, foodstuffs): referring to nutrition, food supply

univoltine species(nlat. from lat. *unus*, one, only one + ital. volta turn, path): a univoltine species that has one brood of offspring per year

ventral (nlat. *ventralis* from *venter* abdomen; ventral): in animals the lower part, which is on the ventral side

gouging: is the process of damaging the bark to the wood in the form of parallel grooves, spaced up to 3 cm apart, with a standardized device

3.4. Kratice

V poglavju so predstavljene kratice (okrajšave), ki so uporabljene v glavnem delu besedila. Obsegajo geografske simbole, avtorje ter podatke, ki se nanašajo na nabiranje in hranjenje gradiva: zbirke, ustanove, laboratorije in podatkovne baze; tipe pasti; feromone in vabila; druge kratice in mikrolokacije (dele napadenih rastlin ali gozdnih proizvodov).

3.4.1. Geografski simboli

V sistematskem pregledu ugotovljenih vrst podlubnikov in strženarjev v Sloveniji so pri opisu njihove svetovne razširjenosti navedeni geografski simboli iz kataloga Löbl in Smetana (2011). Kjer je manjkala oznaka prisotnosti za Slovenijo (SL), je bila ta dodana.

3.4. Abbreviations

In this chapter the abbreviations, used in the main part of the paper are presented. They include geographycal symbols, authors and data, related to the collection and storage of material: collections, institutions, laboratories and databases; trap types; pheromones and attractants; other abbreviations and microlocations (parts of attacked plants or forest products).

3.4.1. Geographical symbols

In the systematic review of the species of bark beetles and pinhole borers found in Slovenia, the geographical symbols from the LÖBL & SMETANA (2011) catalog were used to show their global distribution. Where the presence mark for Slovenia (SL) was missing, it was added.

E	**Evropa / Europe**
AB	Azerbajdžan / Azerbaijan
AL	Albanija / Albania
AN	Andora / Andorra
AR	Armenija / Armenia
AU	Avstrija / Austria
AZ	Azori / Azores
BE	Belgija / Belgium
BH	Bosna in Hercegovina / Bosnia Herzegovina
BU	Bolgarija / Bulgaria
BY	Belorusija / Belarus
CR	Hrvaška / Croatia
CT	Rusija: Centralno evropsko območje / Russia: Central European Territory
CZ	Češka republika / Czech Republic
DE	Danska / Denmark
EN	Estonija / Estonia
FA	Ferski otoki / Faeroe Islands
FI	Finska / Finland
FR	Francija (vklj. Korzika, Monako) / France (incl. Corsica, Monaco)
GB	Velika Britanija (vklj. Kanalski otoki) / Great Britain (incl. Channel Islands)
GE	Nemčija / Germany
GG	Gruzija / Georgia
GR	Grčija (vklj. Kreta) / Greece (incl. Crete)
HU	Madžarska / Hungary
IC	Islandija / Iceland
IR	Irska / Ireland
IT	Italija (vklj. Sardinija, Sicilija, San Marino) / Italy (incl. Sardinia, Sicily, San Marino)

KZ Kazahstan / Kazakhstan
LA Latvija / Latvia
LS Lihtenštajn / Liechtenstein
LT Litva / Lithuania
LU Luksemburg / Luxembourg
MA Malta / Malta
MC Makedonija / Macedonia
MD Moldavija / Moldavia
ME Črna Gora / Montenegro
NL Nizozemska / The Netherlands
NR Norveška / Norway
NT Rusija: Severno evropsko območje / Russia: North European Territory
PL Poljska / Poland
PT Portugalska / Portugal
RO Romunija / Romania
RU Rusija / Russia
SB Srbija / Serbia
SK Slovška / Slovakia
SL Slovenija / Slovenia
SP Španija (vklj. Gibraltar) / Spain (incl. Gibraltar)
SR Svalbard (Spitsbergi) / Svalbard (Spitzbergen)
ST Rusija: Južno evropsko območje / Russia: South European Territory
SV Švedska / Sweden
SZ Švica / Switzerland
TR Turčija / Turkey
UK Ukrajina / Ukraine
YU Srbija in Črna gora / Serbia and Montenegro
N Severna Afrika / North Africa
A Azija / Asia
AUR Avstralsko območje / Australian Region
NAR Nearktično območje / Nearctic Region
NTR Neotropsko območje / Neotropical Region
ORR Orientalsko območje / Oriental Region

3.4.2. Avtorji

V osrednjem delu gradiva so za oznako dejavnosti avtorjev uporabljene kratice za najditelje (l), entomološke zbirke (c), določevalce (d), opazovalce (o), novodoločitelje (r) in potrjevalce določitev (v). Za pravilnost določitve so odgovorni določevalci. Pri zbirkah je namesto avtorja lahko navedena tudi ustanova. Okrajšave imen avtorjev, ki so prispevali podatke (l, c, d, o, r, v) so oblikovane iz začetnih črk njihovih imen in priimkov (tabela 2).

3.4.2. Authors

In the central part of the material, the folowing abbreviations for authors are used: finders (l), entomological collections (c), determinants (d), observers (o), new determinants (r), and confirmers of the determinations (v) has been added**.** The determiners are responsible for the correctness of the determination. In the case of collections, the institution can also be indicated instead of the author. Abbreviations of the authors names (l, c, d, o, r, v) that contributed data are formed from the initial letters of their first and last names (Table 2).

Tabela 2: Kratice lastnih imen avtorjev.

Table 2: Abbreviations of the proper names of authors.

AAd = Aljaž Adamič
ABa = Andrej Bantan
AČe = Aljaž Česen
AGs = Alfonz Gspan
AKa = Andrej Kapla
AKr = Aljaž Kravanja
AKv = Andreja Kavčič
AMu = Andraž Muršec Stramlič
ANe = Aljaž Nerat
APi = Alja Pirnat
ARe = Andreja Nève Repe
ARi = Andrej Ribič
ARu = Andrej Rus
ATr = Andraž Trček
AVi = Anton Vizjak
BAj = Bine Ajdišek
BDr = Božidar Drovenik
BKo = Boštjan Komjanc
BMa = Bergelj Martin
BRe = Blaž Rekanje
BVr = Branko Vreš
BZa = Bojan Zadravec
CKr = Ciril Krušnik
CSt = Christian Stauffer
ČVi = Črt Vilhar
DBo = Danijel Borkovič
DDe = Domen Dekleva
DJg = Dušan Jug
DJu = Dušan Jurc
DMo = Drejc Mohorič
DPr = D. Primc
DSo = David Sotenšek
EGr = Eva Groznik
EPe = Erik Petelin
FFe = Florjan Felicijan
FGl = Franc Glavič
FJa = Franci Jagodic
FPe = Franc Perko
FPo = Franci Pohleven
FUl = Franjo Urleb
FUr = Franc Uršič
GBa = Gorazd Babuder
GFu = Gilbert Fuchs
GKo = Gregor Koželj
GLe = Gašper Lesjak
GMe = Gregor Meterc
GSe = Gabrijel Seljak
HEg = Hans Eggers
HKr = Herman Krauss
IKr = Irena Krašna
IRe = Igor Rener
JČe = Jure Černilogar
JDe = Jan Dekleva
JKr = Julija Krivec
JNS = J. N. Spitzy
JPe = Josef Peyer
JPo = Jan Podlesnik
JPr = Jurij Primc
JRo = Jerneja Ropret
JSd = Josef Staudacher
JSk = Jure Skopec
JSs = Josef Stussiner
JŠl = Jože Šlander
JTi = Janez Titovšek
KBa = Klemen Bratina
KBr = Karl Brancsik
KMa = Klara Markelj Ažman
KPa = Karmen Pavlin
KSe = Kristina Sever
LCu = Luka Cuderman
LDe = Luka Demšar
LPa = Luka Pajek
LPe = Laura Peternelj
LPl = Lucija Pliberšek
LSa = Leon Sadek
LSe = Loti Seljak
LTg = Leitgeb
MBj = Maja Bjelič
MCi = Mitja Cimperšek
MDa = Mirza Dautbašić
MEg = Manfred Egger
MFr = Manca Fras
MJe = Marko Jene
MJu = Maja Jurc
MKa = Manfred Kahlen
MKl = Marko Kalič
MKo = Monika Kočar
MKr = Martin Krafogel
MLu = M. Lukman
MMl = Matic Mlakar

MOr = Martin Orel
MPe = Marko Perko
MPr = Miran Praznik
MRa = Mojca Rak
MSi = Moritz Siegel
MŠi = Martin Šimon
MŠk = Maja Škulj
MTr = M. Tratnik
MTu = Maks Turšič
MVr = Mateja Vrhovnik
MZd = Marko Zdešar
MŽv = Mirko Žvižaj
NBo = Nina Borštnar
NHa = Neža Habjan
NOg = Nikica Ogris
NPi = Nik Pirih
NRu = Nejc Rutar
NSm = N. Smerdu
OČe = Ožbej Čerin
PČe = Peter Černigoj
POr = Patricija Oražem
PPe = profesor Peneke
PSu = Petra Suhorepec
RBe = Ruben Bernard-Dominko
RJe = Rado Jelinčič
RMi = Rok Miklič
RPa = Roman Pavlin
RRe = Robert Režonja
RSi = Rudolf Simmel
SBe = Slavko Benkovič
SBo = Sara Bohorč
SBr = Savo Brelih
SBu = Svit Brudar
SDe = S. Debeljak
SHo = Stana Hočevar
SJe = S. Jecelj
SPe = Simon Peljhan
SPl = Stanko Pele
SRu = Saša Rus
SSu = Samo Sušek
STr = Stanislav Trdan
TAr = Tina Arnež
THa = Tine Hauptman
TLe = Tilen Levstek
TRb = Tevž Ribič
TRi = Tomaž Rihter
TSt = Tatjana Stritar
TZu = T. Zupančič
TŽu = Tjaša Župnek
UCe = U. Cepic
UFr = Urban Frelih
VDo = Vasja Dornik
VFu = Vincenc Furlan
VKo = Vladimir Kodrič
VVu = Valerij Vučko
ZKa = Zora Karaman
ŽBo = Žan Bohinc
ŽBr = Žan Breznik
ŽDo = Žiga Dobnik
ŽKo = Žiga Kolar
ŽKv = Željko Kovačević
ŽPa = Žiga Papež
ŽŠt = Žiga Štucin

l – legit, zbral / *collected*
c – collectio, zbirka / *collection*
d – determinatio, določil / *determinated*
o – observatio, opazoval / *observed*
r – redeterminatio, na novo določil, preimenoval / *changed, redefined*
v – vidi, pregledal, potrdil / *inspected, confirmed*

3.4.3. Zbirke, laboratoriji in podatkovne baze / *Collections, institutions and laboratories*

cABi = zbirka Anton Karel Vincenc Bianchi */ Anton Karel Vincenc Bianchi Collection*
cAGs = zbirka Alfonz Gspan */ Alfonz Gspan Collection*
cAKa = zbirka Andrej Kapla */ Andrej Kapla Collection*
cAPi = zbirka Alja Pirnat */ Alja Pirnat Collection*
cBDr = zbirka Božidar Drovenik */ Božidar Drovenik Collection*
cBFG = Entomološka zbirka BF, Oddelek za gozdarstvo in obnovljive gozdne vire */ Entomological Collection of Biotechnical Faculty, Department of Forestry and Renewable Forest Resources*
cEJa = zbirka Eugen Jaeger */ Eugen Jaeger Collection*
cJPe = zbirka Josef Peyer */ Josef Peyer Collection*
cJSd = zbirka Josef Staudacher */ Josef Staudacher Collection*
cJSs = zbirka Josef Stussiner */ Josef Stussiner Collection*
cSBr = zbirka Savo Brelih */ Savo Brelih Collection*
cŠFS = zbirka Šumarski fakultet Sarajevo */ Collection of the Faculty of Forestry in Sarajevo*
cVFu = zbirka Vincenc Furlan */ Vincenc Furlan Collection*
cZRC = zbirka BIJH ZRC SAZU (CPDP - favnistični popis (hrošči)) */ BIJH ZRC SAZU collection (CPDP - faunal inventory (beetles))*
FloVegSi (= Favna, flora in vegetacija Slovenije, BIJH ZRC SAZU */ Fauna, flora and vegetation of Slovenia, BIJH ZRC SAZU*
GGB = Gozdno gospodarstvo Bled */ Gozdno Gospodarstvo Bled*
GIS = Gozdarski inštitut Slovenije */ Forestry Institute of Slovenia*
IGLG = Inštitut za gozdno in lesno gospodarstvo */ Institute of Forest and Wood Economics*
LEŠ = Laboratorij za ekološke študije, Biotehniška fakulteta, Oddelek za gozdarstvo in obnovljive gozdne vire */ Laboratory for Ecological Studies, Biotechnical Faculty, Department of Forestry and Renewable Forest Resources*

3.4.4. Tipi pasti */ Trap types*

t = past (tip/proizvajalec neznan / trap (type/*manufacturer unknown)*
tBak = past iz plastenk (Baker type) */ plastic bottle trap (Baker type)*
tCev = cevna past iz odtočne cevi */ pipe trap from a drain pipe*
tEco = črna križna past Econex */ Econex black cross trap*
tEkl = talni eklektor premera 4,5 cm */ floor eclectometer with a diameter of 4,5 cm*
tHat = talna past za *Hylobius abietis / ground trap for Hylobius abietis*
tPal = prozorna lepljiva plošča s plastično posodo za etanol, tip PAL, proizvajalec Plant Protection Institute, Hungary Academy of abela1Science, Budimpešta */ transparent adhesive panel with plastic ethanol container, type PAL, produced by Plant Protection Institute, Hungarian Academy of Science, Budapest*
tPfall = talna past */ floor trap*
tRebA = rumena lepljiva plošča s plastično posodo za etanol, tip Rebell Amarillo trap */ yellow adhesive plate with plastic ethanol container, Rebell Amarillo type trap*
tRebR = rdeča lepljiva plošča s plastično posodo za etanol, tip Rebell Rosso trap */ red adhesive plate with plastic ethanol container, Rebell Rosso type trap*
tRid = črna ploščata režasta past Ridex */ black Ridex flat slotted trap*
tRöc = bela ploščata režasta past Röchling */ white Röchling flat slotted trap*
tThe = črna ploščata režasta past Theysohn */ Theysohn black flat slotted trap*

tWit = črna križna past Witasek */ Witasek black cross trap*
tWmf = črna večcevna ("multifunnel") past Witasek */ Witasek black multifunnel trap*
tWpr = past WitaPrall */ WitaPrall trap*
tWtr = črna ploščata režasta past WitaTrap, Witasek */ WitaTrap black flat slotted trap, Witasek*

3.4.5. Feromoni in vabila */ Pheromones and attractants*

Kont = kontrola, brez vstavljenega feromona */ control, no pheromone inserted*
phAlfa = α-pinen */ α-pinene*
phAlKi = 9% alkoholni kis */ 9% alcoholic vinegar*
phAtDu = feromon Atradup, Raluca Ripan */ Atradup pheromone, Raluca Ripan*
phCemp = feromon Cemprax */ Cemprax pheromone*
phChal = feromon Chalcoprax */ Chalcoprax pheromone*
phChaW = feromon Chalcowit */ Chalcowit pheromone*
phCurW = feromon Curviwit */ Curviwit pheromone*
phEcIT = feromon IT Ecolure */ IT Ecolure pheromone*
phEcITe = feromon IT Ecolure Extra */ IT Ecolure Extra pheromone*
phEcITt = feromon IT Ecolure Tubus */ pheromone IT Ecolure Tubus*
phEcPC = feromon PC Ecolure */ PC Ecolure pheromone*
phEtan = etanol */ ethanol*
phGaP2 = feromon Galloprotect 2D */ Galloprotect 2D pheromone*
phGaPH = feromon Galloprotect Host */ Galloprotect Host Pheromone*
phGaPP = feromon Galloprotect Pack */ pheromone Galloprotect Pack*
phGaPr = feromon Galloprotect */ Galloprotect pheromone*
phGaWi = feromon Gallowit */ Gallowit pheromone*
phGLVp = feromon GLV Plus, Witasek */ GLV Plus pheromone, Witasek*
phLino = feromon Linoprax */ Linoprax pheromone*
phPher = feromon Pheroprax */ Pheroprax pheromone*
veCo = vejica iglavca */ conifer twig*
vePs = vejica *Pinus sylvestris* */ Pinus sylvestris twig*

3.4.6. Druge okrajšave */ Other abbreviations*

rs = rovni sistem (primer vpisa: veja 25 cm rs pomeni, da je bilo opazovanje in določitev vrste opravljeno samo na podlagi rs) */ tunnel system (entry example: "branch 25 cm rs" means that the observation and determination of the species was done only on the basis of the tunnel system)*
nrs = nadaljevanje rovnega sistema podlubnika druge vrste (pri rodu *Crypturgus*, primer vpisa: hlod 35 cm nrs *Ips typographus*) */ continuation of the tunnel system of a different species of bark beetle (for the genus Crypturgus, entry example: 'log 35 cm nrs Ips typographus')*
gEZ = gojeno v entomološkem zaboju (primer vpisa: deblo gEZ) */ grown in an entomological box (entry example: "trunk gEZ")*
gLEŠ = gojeno v Laboratoriju za ekološke študije, BFG - LEŠ (primer vpisa: deblo 25 cm gLEŠ) */ grown at Laboratory for ecological studies, BFG - LEŠ (example entry: "trunk 25 cm gLEŠ")*
ok = okuženo z (primer vpisa: kontrolno deblo 30 cm ok *Crytridiopsis typographi*) */ infested with (entry example: "control trunk 30 cm ok Crytridiopsis typographi")*

3.4.7. Mikrolokacija: deli napadenih rastlin ali gozdnih proizvodov / *Microlocations: parts of attacked plants or forest products*

OPOMBA: Ob vsaki od spodaj navedenih možnosti je lahko tudi podatek o dimenziji oziroma premeru v cm (izjeme: drva, enoletni poganjki, sečni ostanki …), lahko tudi v kombinaciji z vsebino poglavja Druge okrajšave. / ***NOTE****: Each of the options below may also contain dimension or diameter in cm (exceptions: firewood, annual shoots, cuttings, etc.), can also be combined with the chapter Other abbreviations.*

debelce */ small-diameter trunk*
deblo */ trunk*
delno obeljena hmeljevka */ partially debarked hop pillar*
drva */ firewood*
enoletni poganjki */ annual shoots*
gradbeni les */ construction timber*
hlod */ log*
jamski les */ mining wood*
kontrolno deblo */ control trunk*
kontrolno drevo */ control tree*
korenina */ root*
krajnik */ side lumber*
lovno deblo */ trap trunk*
lovno drevo */ trap tree*
neobeljen gradbeni les */ barked construction timber*
neobeljen panj */ barked stump*
neobeljen les za kurjavo */ barked firewood*
neobrobljena deska */ unedged board*
odrzan (= s sekiro obeljen) hlod */ debarked (with axe) log*
odrzan (= s sekiro obeljen) panj */ debarked (with axe) stump*
obeljen hlod */ debarked log*
obeljen panj */ debarked tree*
opožarjeno drevo */ charred tree*
panj */ stump*
podrto drevo */ felled tree*
poganjki */ shoots*
progasto obeljen panj */ partially debarked stump*
sadika */ seedling*
sečni ostanki */ logging residues*
sušica */ dead standing tree*
talni vzorci */ ground samples*
ujeto v letu */ captured in flight*
veja */ branch*
vejni kup */ branch pile*
vrhač */ tree top*
žlebljeno deblo */ gouged trunk*

4. Rezultati

4.1. Sistematski pregled ugotovljenih vrst in njihova geografska razširjenost v Sloveniji

Na podlagi zbranih podatkov iz naših lastnih raziskav, literature, entomoloških zbirk, ter podatkov iz podatkovne baze FloVegSi, navajamo za favno Slovenije 117 vrst podlubnikov (Scolytinae) ter eno vrsto strženarja (Platypodinae). Pregled temelji na 11.489 vnosih podlubnikov in strženarjev. Sistem in nomenklatura sta povzeta po Löbl in Smetana (2011): Catalogue of Palearctic Coleoptera. V Sloveniji je bil leta 1988 objavljen seznam vrst podlubnikov (Titovšek 1988), ki je obsegal 69 vrst. Dopolnjen seznam favne podlubnikov je rezultat predvsem analize dodatnega ulova v pasteh s feromoni pri spremljanju potencialnih prenašalcev borove ogorčice. V gradivu navajamo 48 dodatnih vrst, 42 domorodnih (*Hylastes brunneus* – rjavi koreninar, *Hylastes linearis* – podolgovati koreninar, *Hylastes opacus* – temni koreninar, *Hylastinus obscurus* – deteljni grebenar, *Hylesinus wachtli orni* – beloluskasti jesener, *Kissophagus vicinus* – gladki bršljanar, *Pteleobius kraatzii* – črnobetni brestar, *Pteleobius vittatus* – rjavobetni brestar, *Hylurgus ligniperda* – dolgodlaki zbitež, *Hylurgus micklitzi* – kratkodlaki zbitež, *Tomicus destruens* – sredozemski poganjkar, *Xylechinus pilosus* – kosmati luskičar, *Phloeosinus aubei* – brinov zobčkar, *Phloeotribus rhododactylus* – žukov ličar, *Carphoborus minimus* – mali linijaš, *Carphoborus perrisi* – pistacijev linijaš, *Carphoborus pini* – borov linijaš, *Pityophthorus glabratus* – gladki vejar, *Pityophthorus micrographus* – drobnočrtni vejar, *Pityophthorus pubescens* – puhasti vejar, *Cryphalus saltuarius* – rahločrtni zrnar, *Ernoporicus caucasicus* – kavkaški štrlečkar, *Hypothenemus eruditus* – luskasti

4. Results

4.1. A systematic review of established species and their geographical distribution in Slovenia

A catalogue of the bark beetles (Scolytinae) and of pinhole borers (Platypodinae) fauna was prepared based on the data from literature, entomological collections, database FloVeg.Si and particularly on the results of our research. We list 117 species of Scolytinae and one species of Platypodinae for the fauna of Slovenia. The review is based on approximately 11,489 entries of Scolytidae and Platypodidae species. The system and nomenclature are summarised from Löbl & Smetana (2011): *Catalogue of Palearctic Coleoptera*. In Slovenia, a list of species of bark beetles which included 69 species was published in 1988 (Titovšek 1988). The updated list of the bark beetle fauna is mainly the result of the analysis of additional catches in pheromone traps when monitoring the vectors of the pinewood nematode. We list 48 additional species in the material. Among the added species are 42 native species (*Hylastes brunneus*, *Hylastes linearis*, *Hylastes opacus*, *Hylastinus obscurus*, *Hylesinus wachtli orni*, *Kissophagus vicinus*, *Pteleobius kraatzii*, *Pteleobius vittatus*, *Hylurgus ligniperda*, *Hylurgus micklitzi*, *Tomicus destruens*, *Xylechinus pilosus*, *Phloeosinus aubei*, *Phloeotribus rhododactylus*, *Carphoborus minimus*, *Carphoborus perrisi*, *Carphoborus pini*, *Pityophthorus glabratus*, *Pityophthorus micrographus*, *Pityophthorus pubescens*, *Cryphalus saltuarius*, *Ernoporicus caucasicus*, *Hypothenemus eruditus*, *Crypturgus cribrellus*, *Crypturgus cylindricollis*, *Crypturgus hispidulus*, *Crypturgus mediterraneus*, *Crypturgus numidicus*, *Dryocoetes alni*, *Dryocoetes hectographus*, *Dryocoetes villosus*, *Lymantor coryli*, *Taphrorychus siculus*, *Taphrorychus villifrons*, *Ips duplicatus*, *Orthotomicus longicollis*, *Pityogenes calcaratus*, *Scolytus carpini*, *Xyleborinus*

drobnež, *Crypturgus cribrellus* – drobni podaljškar, *Crypturgus cylindricollis* – valjasti podaljškar, *Crypturgus hispidulus* – ščetinasti podaljškar, *Crypturgus mediterraneus* – sredozemski podaljškar, *Crypturgus numidicus* – nomadski podaljškar, *Dryocoetes alni* – jelšev kosmatinec, *Dryocoetes hectographus* – stočrtni kosmatinec, *Dryocoetes villosus* – kocasti kosmatinec, *Lymantor coryli* – lešnikov ovalnež, *Taphrorychus siculus* – bodičasti bukovar, *Taphrorychus villifrons* – čelnodlačni bukovar, *Ips duplicatus* – dvojnozobi lubadar, *Orthotomicus longicollis* – dolgoščitni borar, *Pityogenes calcaratus* – kljukasti zvezdar, *Scolytus carpini* – gabrov beljavar, *Xyleborinus saxesenii* – mali lesarček, *Xyleborus cryptographus* – topolov lesar, *Xyleborus eurygraphus* – borov lesar, *Trypodendron leave* – temnonogi lestvičar) in 6 tujerodnih vrst (*Gnathotrichus materiarius* – ameriški pegar, *Ambrosiodmus rubricollis* – rdečevratni ambrozijar, *Ambrosiophilus atratus* – črni ambrozijofil, *Xylosandrus crassiusculus* – azijski ambrozijevec, *Xylosandrus germanus* – črni ambrozijevec in *Xyleborinus attenuatus* – pikčasti lesarček). Potrjena je prisotnost ene vrste strženarja pri nas: *Platypus cylindrus* – hrastov strženar.

Poleg podatkov o geografski razžirjenosti so pri večini vpisov podani tudi podatki o načinu nabiranja materiala, ki obsegajo gostiteljsko vrsto in del napadene rastline ali gozdnega proizvoda. Če je bil podlubnik ujet v past, sta navedena tudi tip pasti in vrsta feromona. Pri starejših najdbah navedeni podatki velikokrat manjkajo, prav tako so lahko nepopolni tudi podatki o avtorju ali datumu najdbe.

Komentarji o vrstah vključujejo splošno razširjenost vrste v palearktiku, gostitelje omenjene v literaturi, gostitelje v Sloveniji, biološke značilnosti vrst (število generacij, čas rojenja, oblika rovnih sistemov), ki so povzete po literaturi in dopolnjene s podatki iz Slovenije. Pri nekaterih vrstah so v omejenem obsegu prikazane njihove

saxesenii, *Xyleborus cryptographus*, *Xyleborus eurigraphus*, *Trypodendron leave*) and 6 non-native species (*Gnathotrichus materiarius*, *Ambrosiodmus rubricollis*, *Ambrosiophilus atratus*, *Xylosandrus crassiusculus*, *Xylosandrus germanus* and *Xyleborinus attenuatus*). The presence of one species of pinhole borer in our country has been confirmed: *Platypus cylindrus*.

In addition to data on geographical distribution, most entries also provide information on the method of collecting the material, which includes the host species and part of the attacked plant or forest product. If the bark beetle was caught in a trap, the type of trap and the type of pheromone are also indicated. In the case of older finds, the specified information is often missing, and the information about the author or the date of the find may also be incomplete.

Comments on the species include occurrence in the Palearctic, hosts mentioned in literature, hosts in Slovenia, biological characteristics of the species (number of generations, time of swarming, shape of the tunnel systems), which are summarised from the literature and supplemented with data from Slovenia. For some species, morphological characteristics are presented to a limited extent, but these are not sufficient for a reliable identification of the species, which is also not the purpose of this publication. Adult size (range of length) is provided for all species. For the most economically important species, we also mention species-specific pheromones, which form the basis for the development of synthetic preparations for their control.

morfološke značilnosti, ki pa ne zadoščajo za zanesljivo determinacijo vrste, kar tudi ni namen te publikacije. Pri vseh vrstah je navedena velikost imagov (razpon dolžine). Pri gospodarsko najpomembnejših vrstah so omenjeni tudi vrstno specifični feromoni, ki so osnova za izdelavo sintetičnih pripravkov za njihovo obvladovanje. Večina vrst v katalogu je predstavljena s fotografijo reprezentativnega primerka in s karto razširjenosti vrste v Sloveniji.

Curculionidae Latreille, 1802

Scolytinae Latreille, 1804 **PODLUBNIKI**

01.00. ***Hylastes*** Erichson, 1836 KORENINAR

01.01. *Hylastes angustatus* (Herbst, 1794) OZKI KORENINAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Hylastes angustatus* (HBST); GRÜNE 1979: *H. angustatus* (Herbst, 1793); FREUDE, HARDE, LOHSE 1981: *H. angustatus* Herbst; LUCHT 1987: *H. angustatus* (Hbst., 1793); TITOVŠEK 1988: *H. angustatus* (Herbst); PFEFFER & KNÍŽEK 1993: *H. angustatus* (Herbst, 1793); PFEFFER 1995: *H. angustatus* (Herbst, 1793).

E: AU BE BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA LT MC MD NR NT PL PT SK SL SP ST SV SZ TR UK YU **A:** TR **AFR**

Vrsta je prisotna v južni in srednji Evropi, na Krimu, na Kavkazu, v Aziji in na afrotropskem območju. SIEGEL (1866) navaja, da je bila vrsta »na Kranjskem redka, največ pod borovim in smrekovim lubjem«. Novejša najdišča so zlasti na Gorenjskem in v slovenskem delu Istre (slika 5), primerki so bili ujeti v pasti. Gostitelji so *Pinus sylvestris*, *P. pinaster*, *P. nigra*, *P. pinea*, manj pogosto *Picea abies*, *P. orientalis*, občasno tudi *Larix decidua*. V Sloveniji je bila vrsta ugotovljena na *Pinus nigra*, *P. sylvestris* in *Picea abies.* Floemofagna vrsta, letno razvije od 1 do 3 generacije. Dolžina adultov je 2,5–3,0 mm. Pokrovke se na koničniku v loku spuščajo k zadnjemu sternitu (slika 4).

The species is found in southern and central Europe, the Crimea, the Caucasus, Asia and the Afrotropical region. SIEGEL (1866) states that the species was “rare in Carniola, mostly under pine and spruce bark”. More recent records are found mainly in Gorenjska and the Slovene part of Istria, specimens were caught in traps (Figure 5). Hosts include *Pinus sylvestris*, *P. pinaster*, *P. nigra*, *P. pinea*, less frequently *Picea abies*, *P. orientalis*, occasionally also *Larix decidua*. In Slovenia, the species has been found on *P. nigra*, *P. sylvestris* and *P. abies. A* phloemophagous species, it develops 1 to 3 generations per year. Length (adultus) is 2.5-3.0 mm. The elytra descend to the posterior sternite in an arc at the apex (Figure 4).

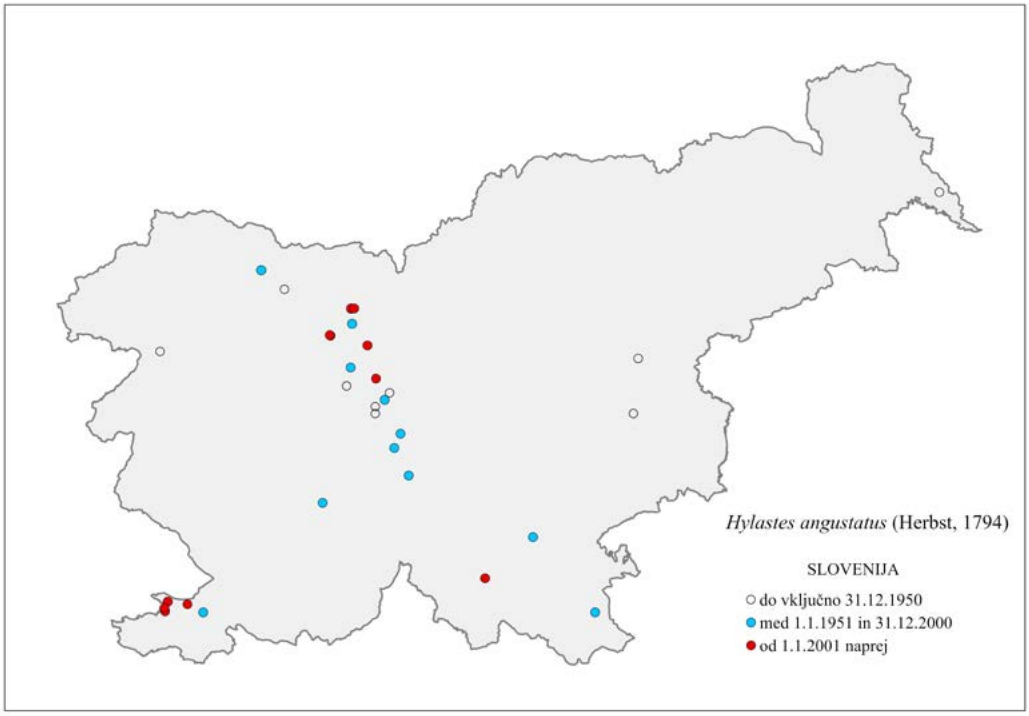
Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Picea abies*, ldMSi, lit.MSi1866, pred 1951; *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.
ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2018d, 7.6.2018, 9.8.2018, 26.9.2018; ibidem, lit.RPa2019c, 23.5.2019, 19.6.2019, 31.7.2019; **Črni Kal**, 13°53′, 45°33′, VL14, 290 m, *Pinus nigra*, ldJTi, lit.JTi1983, 12.1978; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2019d, 19.6.2019, 31.7.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2017b, 31.5.2017, 19.6.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 17.4.2014, 23.5.2014; ibidem, lit.RPa2015b, 6.5.2015, 4.5.2017; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2018e, 27.7.2018; ibidem, lit.RPa2019e, 23.5.2019, 19.6.2019, 31.7.2019.
PRIMORSKO: **Tolmin**, 13°44′, 46°11′, VM01, 200 m, cAGs, 15.4.1858.

Slika 4: OZKI KORENINAR *Hylastes angustatus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 4: *Hylastes angustatus*, dorsal, lateral (Photo: Maja Jurc)

GORENJSKO: **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, phLino, lGBa dSBr, cSBr, 4.5.1993; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008; ibidem, lit.RPa2010a, 9.6.2010; ibidem, lit. RPa2015a, 13.5.2015, 27.5.2015; ibidem, lit.RPa2016a, 13.4.2016, 11.5.2016, 25.5.2016, 7.6.2016; ibidem, lit.RPa2017a, 12.4.2017, 10.5.2017, 25.5.2017, 8.6.2017, 21.6.2017, 5.7.2017, 19.7.2017; ibidem, lit.RPa2018a, 25.4.2018, 9.5.2018, 24.5.2018, 6.6.2018, 20.6.2018, 18.7.2018, 1.8.2018; ibidem, lit. RPa2019a, 3.6.2019, 19.6.2019; ibidem, lit.RPa2020d, 25.3.2020, 22.4.2020; ibidem, lit.RPa2021b, 16.6.2021, 14.7.2021; ibidem, lit.RPa2022b, 18.5.2022; ibidem, lit.RPa2023b, 17.5.2023, 14.6.2023, 12.7.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2015a, 13.5.2015, 27.5.2015, 10.6.2015, 24.6.2015, 8.7.2015, 22.7.2015, 18.8.2015; ibidem, lit. RPa2016a, 27.4.2016, 11.5.2016, 25.5.2016, 7.6.2016, 6.7.2016, 20.7.2016, 3.8.2016, 17.8.2016; ibidem, lit.RPa2017a, 10.5.2017, 25.5.2017, 8.6.2017, 21.6.2017, 5.7.2017, 19.7.2017, 2.8.2017, 30.8.2017; ibidem, lit.RPa2018a, 25.4.2018, 9.5.2018, 6.6.2018, 20.6.2018, 4.7.2018, 18.7.2018, 1.8.2018, 15.8.2018; ibidem, lit.RPa2019a, 8.5.2019, 22.5.2019, 3.6.2019, 3.7.2019, 18.7.2019; ibidem, lit.RPa2021b, 4.6.2021, 16.6.2021, 30.6.2021, 28.7.2021; ibidem, lit.RPa2022b, 18.5.2022, 2.6.2022, 15.6.2022; ibidem, lit.RPa2023b, 17.5.2023, 1.6.2023, 14.6.2023, 26.7.2023; ibidem, phGaWi, ldRPa, lit.RPa2008, 16.7.2008; ibidem, lit.RPa2010a, 9.6.2010; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2010a, 20.7.2010; ibidem, lit.RPa2016a, 13.4.2016, 27.4.2016, 25.5.2016; ibidem, lit.RPa2017a, 8.6.2017, 21.6.2017; ibidem, lit.RPa2022b, 2.6.2022; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tWit, Kont, ldRPa, lit.RPa2008, 16.7.2008; **Brdo pri Kranju 1/35**, 14°24′36″, 46°17′13″, VM52, 456 m, *Pinus sylvestris*, panj 10 cm, ldRPa, lit.RPa2003, 11.10.2003; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, lGBa dSBr, cSBr, 23.5.1991; **Radovljica**, 14°10′, 46°20′, VM33, 500 m, ldAGs, cAGs, pred 1951; **Šenčur, Zlato polje 1,** 14°24′11″, 46°15′01″, VM52, 414 m, tThe, phChal, ldRPa, lit.RPa1991a, 12.5.1989; **Voglje 7**, 14°27′23″, 46°11′52″, VM51, 367 m, tHat, phEtan vePs, ldRPa, lit.RPa2021a, 15.6.2021; **Zgornje Bitnje 2**, 14°19′37″, 46°13′19″, VM41, 396 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008; **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit.RPa2008, 16.7.2008.
NOTRANJSKO: **Unec**, 14°18′, 45°49′, VL47, 520 m, lVFu dSBr, cVFu, 25.5.1985.
LJUBLJANA Z OKOLICO: **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, tWit, phGaHo, ldRPa, lit.RPa2013b, 14.8.2013; **Jeterbenk, Polhograjsko hribovje**, 14°23′, 46°06′, VM50, ~760 m, lJSs, cJSd, 29.6.1933; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, 27.3.1941; ibidem, ldSBr, cSBr, 26.4.1946; ibidem, lJSs, cJSd, 1.5.1916, 2.6.1938, 10.6.1940,



Slika 5: OZKI KORENINAR *Hylastes angustatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 5: *Hylastes angustatus*, distribution map according to historical and recent data

10.5.1943, 3.6.1944; ibidem, *Prunus* sp., list, cBFG, 22.5.1954; **Ljubljana, Tivoli**, 14°29′, 46°03′, VL69, 303 m, ldAGs, cAGs, 12.4.1944; **Ljubljana, Tomačevo**, 14°32′, 46°05′, VM60, 285 m, ldAGs, cAGs, 2.5.1933; **Ljubljana, Vič**, 14°29′, 46°02′, VL59, 294 m, ldAGs, cAGs, 19.5.1939.
DOLENJSKO: **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 30.4.1983; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, tThe, phPher, ldRPa, lit.RPa2014b, 31.5.2004; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 6.5.1981; **Podturjak, Turjak**, 14°36′, 45°53′, VL68, 350 m, ldSBr, cSBr, 12.6.1980; **Podturn pri Dolenjskih Toplicah**, 15°02′, 45°44′, WL06, 175 m, lMka dBDr, cZRC, 2.6.1996; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phPher, lGBa dSBr, cSBr, 28.4.1993, 14.5.1993.
BELA KRAJINA: **Tribuče, Črnomelj**, 15°15′, 45°33′, WL14, 200 m, lBDr dSBr, cSBr, 3.5.1989.
ŠTAJERSKO: Kalobje, Kostrivnica, 15°24′, 46°10′, WM31, 620 m, ldVKo vZKa, cŠFS, 1.5.1928; **Sveti Jurij, Trmovec, Sevnica**, 15°23′, 46°02′, WL29, 400 m, ldVKo, cBFG, 4.5.1930.
PREKMURJE: **Lendava**, 16°27′, 46°34′, XM15, 200 m, ldAGs, cAGs, 15.4.1934.

01.02. *Hylastes ater* (Paykull, 1800) ČRNI KORENINAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: FUCHS 1905: *Hylastes ater* Payk.; SIEGEL 1866: *Hylastes ater* Payk.; GRÜNE 1979: *H. ater* (Paykull, 1800); FREUDE, HARDE, LOHSE 1981: *H. ater* Paykull; LUCHT 1987: *H. ater* (Payk., 1800); TITOVŠEK 1988: *H. ater* (Paykul); PFEFFER & KNÍŽEK 1993: *H. ater* (Paykull, 1800); PFEFFER 1995: *H. ater* (Paykull, 1800).

E: AU AZ BE BH BU BY CR CT CZ DE FI FR GB GE GR IT LA LT MC NL NR PL PT SK SL SP ST SV SZ UK YU **A:** ES FE FUJ JA KZ SC TR WS »Mandžurija« **AUR NTR**

Vrsta je razširjena po vsej Evropi, Aziji, Avstraliji in na neotropskem območju. Siegel (1866) navaja, da vrsta »na Kranjskem ni redka, največ pod borovim in smrekovim lubjem«. Novejša najdišča na Gorenjskem, Primorskem in v slovenski Istri so posledica ulova v pasti (slika 7). Gostitelji so *Pinus* spp., manj pogosto *Picea abies*, *P. obovata*, *Taxus baccata*, *Pseudotsuga menziesii*. V Sloveniji je bila vrsta ugotovljena na *Pinus nigra*, *P. sylvestris* in *Picea abies.* Letno razvije od 1 do 3 generacije, roji aprila in maja. Je sekundarna vrsta, za zaleganje izbira korenine, korenovec, sveže panje in sveže podrta debla. Enokraki vzdolžni rovni sistem leži pretežno v skorji in se le blago zajeda v beljavo, materinski hodnik je dolg 7–8 cm. Dolžina adultov znaša 3,4–4,8 mm (slika 6). Vrsta je tudi primarna, saj se imagi zaradi zrelostnega prehranjevanja zavrtavajo v območje kambija, kar lahko povzroči sušenje 25–35 let starih borov. Zaradi obžiranja na območju koreninskega vratu so pogoste tudi škode v borovih kulturah, mlajših od 10 let, in v drevesnicah. Poleg borovega rilčkarja *Hylobius abietis* (Curculionidae) lahko povzroča izrazito škodo na borovem mladju. Njegova naravna sovražnika sta parazitoidni osici *Dinoticus eupterus* Walk. in *Rhopalicus tutela* Walk. (Chalcidoidea).

The species is distributed throughout Europe, Asia, Australia and the Neotropics. Siegel (1866) states that the species "is not rare in Carniola, mostly it is found under pine and spruce bark". More recent records in Gorenjska, Primorska and Slovene Istria are the result of trapping (Figure 7). Hosts include *Pinus* spp., less frequently *Picea abies*, *P. obovata*, *Taxus baccata*, *Pseudotsuga menziesii*. In Slovenia, the species has been found on *P. nigra*, *P. sylvestris* and *P. abies. It* develops 1-3 generations annually, swarming in April and May. A secondary species, it prefers roots, rootlets, fresh stumps and freshly felled trunks for breeding. The uniramous longitudinal tunnel system is located mainly in the bark and only gently penetrates the sapwood, the maternal gallery is 7-8 cm long. Adult length is 3.4-4.8 mm (Figure 6). The species is also primary, as imagoes bore into the cambium zone due to maturity feeding, which can cause drying of 25-35 year old pines. Damage to pine crops less than 10 years old and nursery stock is also common due to damage in the root-collar area. Aside from *Hylobius abietis* (Curculionidae), it is the most important pest species in young pines. Its natural enemies are the parasitoids *Dinoticus eupterus* Walk. and *Rhopalicus tutela* Walk. (Chalcidoidea).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, 21.3.1905; cBFG, pred 1951; *Picea abies*, ldMSi, lit.MSi1866, pred 1951; *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.

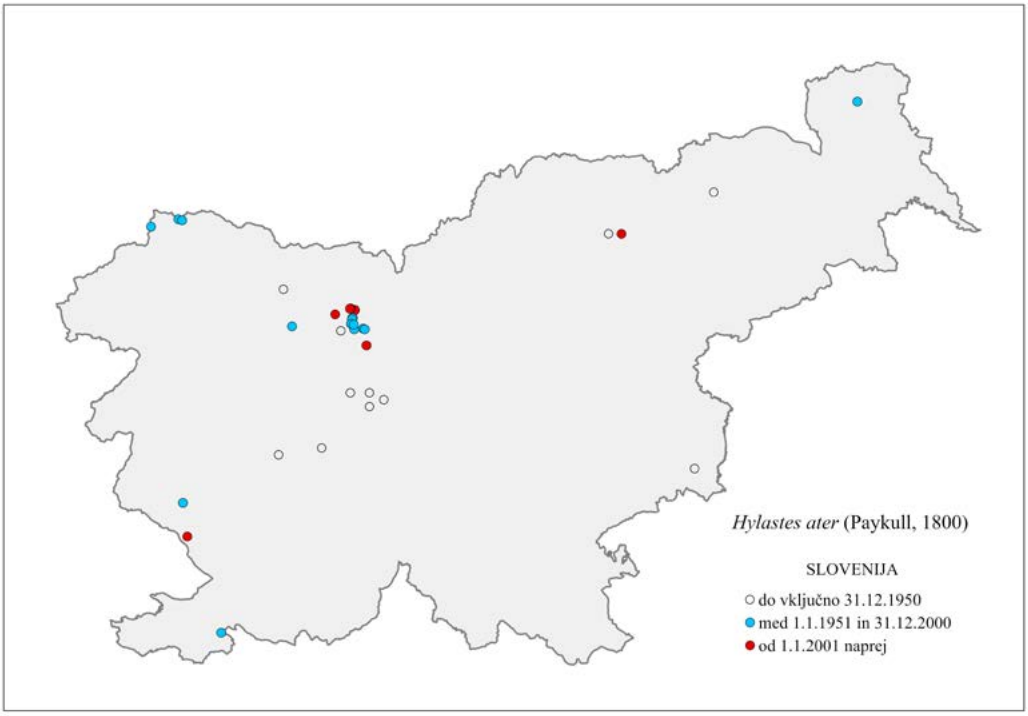
ISTRA: **Kojnik, Koper**, 13°57′, 45°30′, VL13, 780 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit. MJu2001, 22.7.1999.

PRIMORSKO: **Kobjeglava, Komen**, 13°49′, 45°49′, VL07, 320 m, lMŠk dSBr, lit.MŠk1988, 7.1985; **Tomajski Govec, Pod Govcem, Vrhovlje**, 13°49′55″, 45°44′06″, VL06, 296 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 13.6.2001.

GORENJSKO: **Brdo pri Kranju**, 14°25′, 46°17′, VM52, 470 m, lAKa dSBr, cSBr, 27.5.2005; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit. RPa2008, 15.10.2008; ibidem, lit.RPa2010a, 9.6.2010, 8.9.2010; ibidem, lit.RPa2011a, 6.7.2011; ibidem, lit.RPa2015a, 13.5.2015, 2.9.2015; ibidem, lit.RPa2016a, 25.5.2016, 6.7.2016; ibidem, lit. RPa2018a, 25.4.2018, 9.5.2018, 24.5.2018, 6.6.2018, 20.6.2018, 18.7.2018; ibidem, lit.RPa2019a, 19.6.2019; ibidem, lit.RPa2020d; ibidem, lit.RPa2022b, 18.5.2022, 2.6.2022, 29.6.2022; ibidem,

Slika 6: ČRNI KORENINAR *Hylastes ater*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 6: *Hylastes ater*, dorsal, lateral (Photo: Maja Jurc)



Slika 7: ČRNI KORENINAR *Hylastes ater*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 7: *Hylastes ater*, distribution map according to historical and recent data

lit.RPa2023b, 26.7.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaWi, ldRPa, lit.RPa2010a, 9.6.2010; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2022b, 15.6.2022; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, Kont, ldRPa, lit.RPa1991a, 12.5.1989, 19.5.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 16.6.1989, 30.6.1989; ibidem, phPher,

ldRPa, lit.RPa1991a, 14.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 16.6.1989; **Brnik, letališče, pri parkirišču**, 14°26′59″, 46°14′14″, VM52, 393 m, tThe, Kont, ldRPa, lit.RPa1991a, 28.4.1989, 5.5.1989, 12.5.1989, 26.5.1989, 23.6.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 12.5.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 5.5.1989, 12.5.1989, 26.5.1989; **Grpišca, Karavanke**, 13°48′01″, 46°30′06″, VM05, 1330 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994; **Jureževa planina, pod Vošco, Karavanke**, 13°48′47″, 46°29′57″, VM05, 1415 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994; **Kranj**, (14°22′), (46°14′), VM52, ~390 m, ldAGs, cAGs, 28.3.1910; **Macesnovec, nad karavlo, Planica**, 13°42′18″, 46°29′02″, VM05, 1104 m, tThe, phCemp, ldRPa, lit.RPa1995b, 14.7.1994; **Milje 1**, 14°24′23″, 46°15′50″, VM52, 425 m, tThe, phPher phChal, lRPa dJTi, lit.RPa1991a, 5.5.1989, 12.5.1989; ibidem, ldRPa, lit. RPa1991a, 26.5.1989; **Milje 2**, 14°24′30″, 46°15′52″, VM52, 428 m, tThe, phPher phChal, ldRPa, lit.RPa1991a, 19.5.1989, 26.5.1989; **Milje 4, v Hrastičih**, 14°24′21″, 46°15′41″, VM52, 423 m, tThe, phPher phChal, ldRPa, lit.RPa1991a, 5.5.1989, 12.5.1989, 26.5.1989; **Mlaka pri Kranju**, 14°20′50″, 46°16′22″, VM42, 418 m, *Pinus sylvestris*, deblo 10 cm, ldRPa, lit.RPa2014c, 1.4.2002; **Radovljica**, 14°10′, 46°20′, VM33, 500 m, dAGs, cAGs, 30.4.1875; **Selške Lajše, Selca, Jakec**, 14°11′50″, 46°14′38″ VM32, 660 m, *Picea abies*, neobeljen panj 57 cm, lFJa dJTi, lit.FJa1997, 6.7.1995; **Šenčur, v Križancah**, 14°24′47″, 46°14′13″, VM52, 394 m, tThe, phPher phChal, ldRPa, lit.RPa1991a, 5.5.1989; **Šenčur, Zlato polje 1,** 14°24′11″, 46°15′01″, VM52, 414 m, tThe, Kont, lRPa dJTi, lit.RPa1991a, 5.5.1989, ibidem, ldRPa,lit.RPa1991a,19.5.1989, 2.6.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 12.5.1989, 19.5.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 12.5.1989, 26.5.1989; **Šenčur, Zlato polje 2,** 14°24′42″, 46°14′53″, VM52, 408 m, tThe, phChal, ldRPa, lit.RPa1991a, 12.5.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 12.5.1989; **Voglje 7**, 14°27′23″, 46°11′52″, VM51, 367 m, tHat, phEtan vePs, ldRPa, lit.RPa2021a, 15.6.2021.
NOTRANJSKO: **Hotedršica**, 14°09′, 45°56′, VL38, 545 m, ldSBr, cSBr, 29.9.1949; **Verd, Vrhnika**, 14°18′, 45°57′, VL48, 300 m, ldAGs, cAGs, pred 1951.
LJUBLJANA Z OKOLICO: **Babni Dol, Staneževič**, 14°24′, 46°05′, VM50, 370 m, ldAGs, cAGs, pred 1951; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), lJSs, cJSd, 13.3.1918, 20.5.1924, 4.1925, 7.10.1928, 12.5.1932, 1.6.1945; **Ljubljana, Dravlje**, 14°28′, 46°05′, VM50, 310 m, ldAGs, cAGs, 28.5.1944; **Ljubljana, Večna pot**, 14°28′, 46°03′, VM50, 300 m, ldAGs, cAGs, 6.7.1943, 20.5.1944, 20.3.1948.
ŠTAJERSKO: Brežice, 15°36′, 45°54′, WL48, 155 m, ldVKo, cŠFS, 20.5.1933; **Maribor, Melje**, 15°40′, 46°34′, WM55, 270 m, ldJPe, cJPe, pred 1951; **Pesek, Koča na Pesku, Pohorje**, 15°20′43″, 46°28′00″, WM24, 1382 m, tRöc, phLino, ldRPa, lit.RPa2014c, 20.5.2009; **Pohorje**, (15°18′), (46°28′), (WM24), *, ldGFu, lit.GFu1905, pred 1951.
PREKMURJE: **Mačkovci, Goričko**, 16°10′, 46°47′, WM88, 340 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 7.1977.

01.03. *Hylastes attenuatus* Erichson, 1836 PIKČASTI KORENINAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *H. attenuatus* Erichson, 1836; FREUDE, HARDE, LOHSE 1981: *H. attenuatus* Erichson; LUCHT 1987: *H. attenuatus* Er., 1836; TITOVŠEK 1988: *H. attenuatus* (*Pfeffer 1995: H. attenuatus Erichson, 1836*). Erichson; PFEFFER & KNÍŽEK 1993: *H. attenuatus* Erichson, 1836; PFEFFER 1995: *H.* Erichson, 1836.

E: AU AZ BE BH BY CR CT CZ EN FI FR GB GE GR IT LA LT MC NR NT PL PT SK SL SP ST SV SZ UK YU **N:** MR **A:** HEI JA LIA SC TAI TR

Slika 8: PIKČASTI KORENINAR *Hylastes attenuatus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 8: *Hylastes attenuatus*, dorsal, lateral (Photo: Maja Jurc)

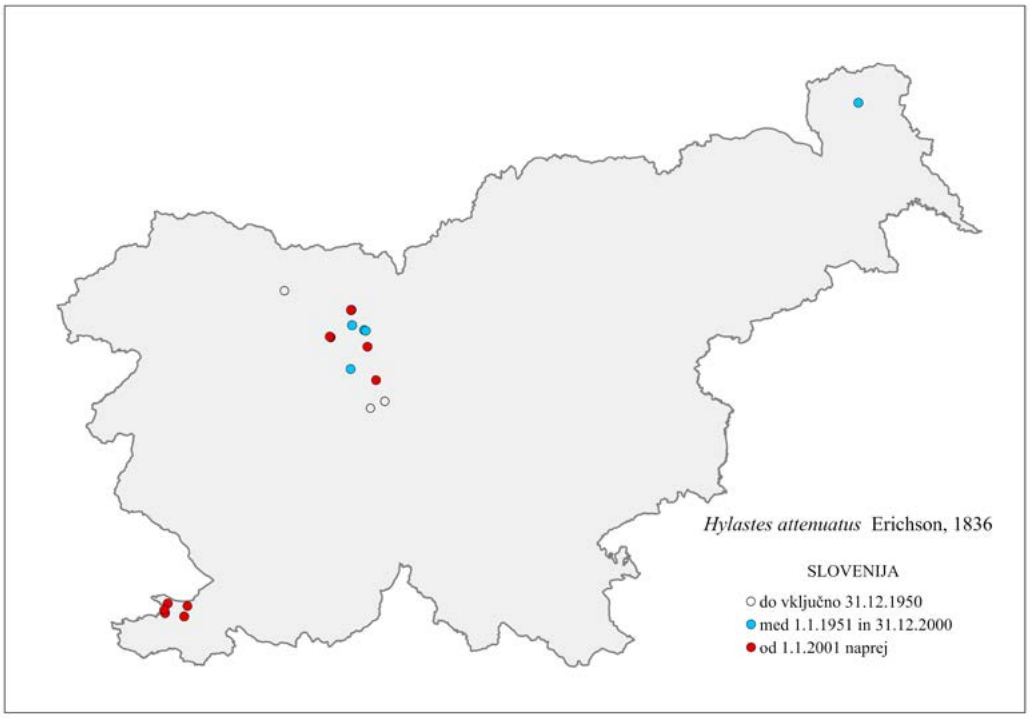
Razširjen je v gorskih predelih srednje Evrope do južne Švedske, v jugozahodnem in južnem delu evropskega dela nekdanje Sovjetske zveze, na Krimu, na Kavkazu, v Severni Afriki in Aziji. Novejše najdbe v Sloveniji so omejene na Gorenjsko in slovensko Istro (slika 9) in večina je bila pridobljena s feromonskimi pastmi. Gostitelji so *Pinus sylvestris*, *P. nigra*, *P. halepensis*, *P. pinaster*, in druge vrste borov, izjemoma *Picea abies*. V Sloveniji (Prekmurje) je bil kot edini gostitelj zabeležen *P. sylvestris*. Letno osnuje od 1 do 2 generaciji, roji marca in aprila ter junija in julija. Rovni sistem je enokrak vzdolžen. Dolžina adultov je 2,0–2,6 mm (slika 8).

It is distributed in the mountainous areas of central Europe as far south as southern Sweden, in the south-western and southern parts of the European part of the former Soviet Union, Crimea, Caucasus, North Africa and Asia. Recent records in Slovenia are limited to Gorenjska and Slovene Istria and trap catches (Figure 9). Hosts include *Pinus sylvestris*, *P. nigra*, *P. halepensis*, *P. pinaster*, *Pinus* spp., exceptionally *Picea abies*. In Slovenia (Prekmurje), *P. sylvestris has* been recorded as the only host. It produces 1 to 2 generations annually, swarming in March and April and in June and July. The tunnel system is longitudinally uniramous. Adult length is 2.0-2.6 mm (Figure 8).

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2016d, 26.5.2016; ibidem, lit.RPa2018d, 7.6.2018; ibidem, lit.RPa2019c, 19.6.2019; **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010b, 21.6.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014b, 23.5.2014; ibidem, lit.RPa2015b, 6.5.2015, 2.6.2015; ibidem, lit.RPa2017b, 31.5.2017; ibidem, lit.RPa2019d, 19.6.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2015a, 2.6.2015; ibidem, lit.RPa2016b, 30.6.2016; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2016b, 30.6.2016; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2017d, 4.7.2017.

GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; ibidem, lit.RPa2010a, 9.6.2010, 20.7.2010; ibidem, lit.RPa2016a, 11.5.2016, 7.6.2016; lit.RPa2017a, 25.5.2017, 8.6.2017; lit.RPa2020d, 20.5.2020, 30.6.2020; lit.RPa2023b, 1.6.2023, 14.6.2023, 28.6.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2014a, 9.7.2014; ibidem, lit.RPa2015a,



Slika 9: PIKČASTI KORENINAR *Hylastes attenuatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 9: *Hylastes attenuatus*, distribution map according to historical and recent data

13.5.2015, 10.6.2015, 8.7.2015, 22.7.2015, 18.8.2015; ibidem, lit.RPa2016a, 27.4.2016, 11.5.2016, 25.5.2016, 7.6.2016, 22.6.2016, 20.7.2016; ibidem, lit.RPa2017a, 10.5.2017, 25.5.2017, 21.6.2017, 5.7.2017, 19.7.2017; ibidem, lit.RPa2020d, 20.5.2020, 3.6.2020, 1.7.2020, 15.7.2020, 29.7.2020; ibidem, lit.RPa2022d, 2.6.2022, 29.6.2022, 13.7.2022; ibidem, lit.RPa2023b, 1.6.2023, 14.6.2023, 12.7.2023; ibidem, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, ibidem, lit.RPa2010a, 9.6.2010, 20.7.2010; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2016a, 25.5.2016; ibidem, lit.RPa2017a, 25.5.2017; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tWit, Kont, ldRPa, lit.RPa2008, 16.7.2008; ibidem, phPher, ldRPa, lit. RPa2010a, 9.6.2010; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, phChal, ldRPa, lit.RPa1991a, 12.5.1989; **Brnik, letališče, pri parkirišču**, 14°26′59″, 46°14′14″, VM52, 393 m, tThe, phPher, ldRPa, lit.RPa1991a, 12.5.1989, 2.6.1989; ibidem, phChal, lRPa dJTi, lit. RPa1991a, 28.4.1989; ibidem, Kont, ldRPa, lit.RPa1991a, 12.5.1989; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phPher, lFPo dSBr, cSBr, 21.5.1990, 4.6.1990; **Radovljica**, 14°10′, 46°20′, VM33, 500 m, ldAGs, cAGs, pred 1951; **Šenčur, Zlato polje 1,** 14°24′11″, 46°15′01″, VM52, 414 m, tThe, phChal, ldRPa, lit.RPa1991a, 26.5.1989; **Voglje 2**, 14°27′22″, 46°11′54″, VM51, 367 m, tHat, phEtan vePs, ldRPa, lit.RPa2021a, 15.6.2021; **Zgornje Bitnje 1**, 14°19′40″, 46°13′17″, VM41, 395 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 13.8.2008; **Zgornje Bitnje 2**, 14°19′37″, 46°13′19″, VM41, 396 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008.
LJUBLJANA Z OKOLICO: **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, tWit,

phGaHo, ldRPa, lit.RPa2013b, 14.8.2013; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, 23.5.1947; **Ljubljana, Večna pot**, 14°28′, 46°03′, VM50, 300 m, ldAGs, cAGs, 17.5.1917. **PREKMURJE: Mačkovci, Goričko,** 16°10′, 46°47′, WM88, 350 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 7.1977.

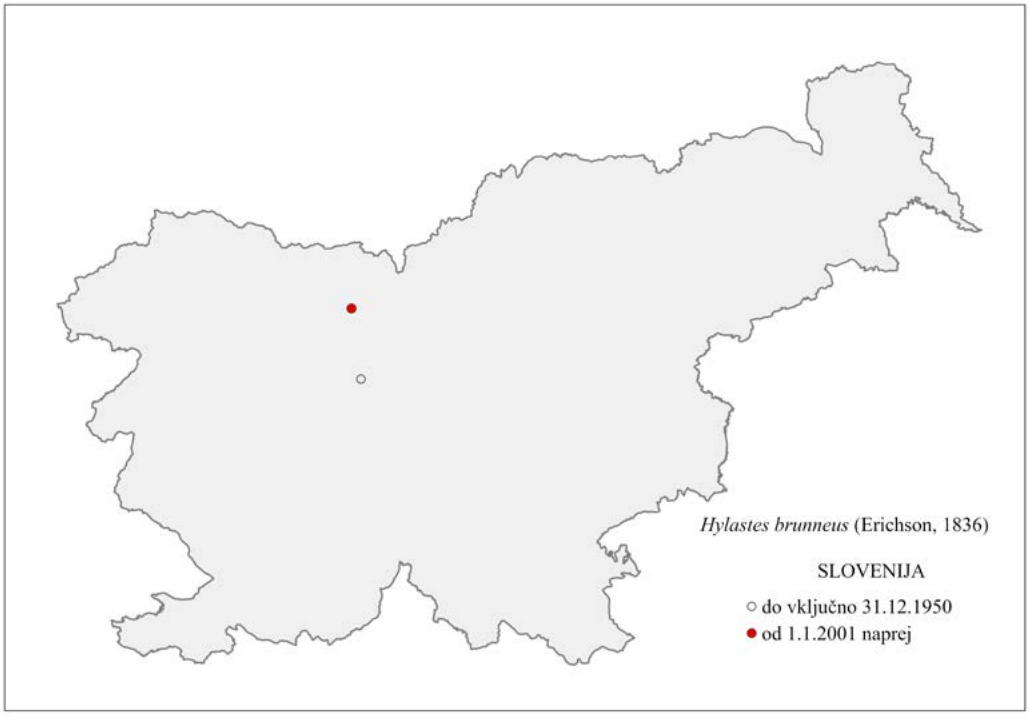
01.04. *Hylastes brunneus* (Erichson, 1836) RJAVI KORENINAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: BRUGE 1998: *Hylastes brunneus* Erichson, 1836; PFEFFER 1995: *H. brunneus* Erichson, 1836.

E: AU AZ BE BU CT CZ DE EN FI GB GE GR IR IT LA MC NR NT PL SK SL ST SV SZ **A:** ES FE HP MG NC NE SC TR UP WS »Mandžurija«

Rjavega koreninarja so dolgo zamenjevali s črnim koreninarjem *Hylastes ater* (Paykull, 1800). Vrsta je pogosta v Belgiji (BRUGE 1998), prisotna je tudi drugod po Evropi, v evropskem delu Rusije in v Aziji. Pri nas sta zabeleženi le dve najdbi, vendar je dejanska razširjenost v Sloveniji nejasna, tudi zaradi zamenjav z drugimi vrstami

H. brunneus is a species long confused with *Hylastes ater* (Paykull, 1800) (Coleoptera: Scolytidae). The species is common in Belgium (BRUGE 1998), but also occurs elsewhere in Europe, in the European part of Russia and in Asia. Only two finds have been recorded in Slovenia, but the actual distribution in Slovenia is unclear, also due to confusion with other



Slika 10: RJAVI KORENINAR *Hylastes brunneus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 10: *Hylastes brunneus*, distribution map according to historical and recent data

iz roda *Hylastes*. Edini primerek, najden v Sloveniji po letu 1950, je bil ujet v past (slika 10). Gostitelji so: *Picea abies*, *P. obovata*, *P. orientalis*, *Pinus sylvestris*, *P. strobus*, *P. nigra*, *P. heldreichii*, *P. cembra*. Dolžina adultov je 3,5–4,5 mm.

species of the genus *Hylastes*. The only specimen found in Slovenia after 1950 was caught in a trap (Figure 10). Hosts include *Picea abies*, *P. obovata*, *P. orientalis*, *Pinus sylvestris*, *P. strobus*, *P. nigra*, *P. heldreichii*, *P. cembra*. Imagoes are 3.5-4.5 mm long .

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GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010a, 20.7.2010.

LJUBLJANA Z OKOLICO: **Vikrče**, 14°26′, 46°07′, VM50, 330 m, ldAGs, cAGs, pred 1951.

01.05. *Hylastes cunicularius* Erichson, 1836 SMREKOV KORENINAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel 1866: *Hylastes cunicularius* Er.; Grüne 1979: *H. cunicularius* Erichson, 1836; Freude, Harde, Lohse 1981: *H. cunicularius* Erichson; Lucht 1987: *H. cunicularius* Er., 1836; Titovšek 1988: *H. cunicularius* Erichson; Pfeffer & Knížek 1993: *H. cunicularius* Erichson, 1836; Pfeffer 1995: *H. cunicularius* Erichson, 1836.

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LS LT MC NR NT PL PT SK SL SV ST SZ UK YU **N:** AG **A:** JA ES FE HUB LIA NC SHA SCH SY TR WS XIN YUN

Vrsta je razširjena v srednji in severni Evropi, v severni Afriki in v Aziji. Navedbo, da je vrsta »na Kranjskem redka …« (Siegel 1866), demantirajo številna starejša in novejša najdišča v vseh slovenskih pokrajinah z izjemo Prekmurja in Bele krajine (slika 12). Gostitelji so *Picea abies*, *Picea obovata*, *Picea orientalis*, manj pogosto *Larix decidua*, *Pinus sylvestris, Abies* spp., izjemoma *Pseudotsuga* sp. V Sloveniji so zabeležene najdbe na panjih in deblih *Picea abies*, še pogosteje pa so se hrošči ujeli v pasti. Ima od 1 do 2 generaciji letno, roji aprila ter julija in avgusta. Enokraki vzdolžni rovni sistem je dolg 6–12 cm. Dolžina adulta je 3,5–4,4 mm. Pokrovki se lokasto spuščata k zadnjemu sternitu, sterniti zadka potekajo ravno. Vratni ščit je najožji spredaj, glava je od zgoraj dobro vidna in podaljšana v kratek rilček. Spolni dimorfizem ni jasno izražen (slika 11). V mladih smrekovih sestojih je škodljiv zaradi zrelostnega in regeneracijskega prehranjevanja.

The species distribution is in central and northern Europe, northern Africa and Asia. The statement that the species is "rare in Carniola..." (Siegel 1866) is refuted by numerous older and more recent records in all Slovene provinces with the exception of Prekmurje and Bela Krajina (Figure 12). Hosts include *Picea abies*, *P. obovata*, *P. orientalis*, less frequently *Larix decidua*, *Pinus sylvestris, Abies* spp., exceptionally *Pseudotsuga* sp. In Slovenia, the species has been found on stumps and trunks of *P. abies*, but more frequently the beetles have been caught in traps. It has 1 to 2 generations per year, swarming in April and in July and August. The longitudinal, uniramous tunnel is 6-12 cm long. Adult length is 3.5-4.4 mm (Figure 11). The elytra arc down to the posterior sternite, the posterior sternites are straight. The neck shield is narrowest anteriorly, the head is clearly visible from above and is extended into a short snout. Sexual dimorphism is not clearly expressed. In young spruce stands it is detrimental because of maturely and regenerative eating.

Slika 11: SMREKOV KORENINAR *Hylastes cunicularius*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 11: *Hylastes cunicularius*, dorsal, lateral (Photo: Maja Jurc)

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951; *Picea abies*, ldMSi, lit.MSi1866, pred 1951; *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.
ISTRA: **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010b, 21.6.2010.
PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, 106 m, ldABi vSBr, cABi, pred 1951; **Predmeja, Trnovski gozd**, 13°52′, 45°57′, VL18, 1020 m, ldSBr, cSBr, 4.7.1985; **Soča, Trenta**, 13°40′, 46°20′, UM93, 630 m, ldSBr, cSBr, 25.7.1954.
GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 24.6.2022; **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 10.6.2022, 8.7.2022; **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″,VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit. THa2022b, 13.5.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Ambrož pod Krvavcem 6**, 14°32′10″, 46°17′26″, VM62, 1478 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022, 24.6.2022; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, phLino, lGBa dSBr, cSBr, 4.5.1993, 14.5.1993; **Blegoš, Škofjeloško hribovje**, 14°14′, 46°13′, VM31, *, ldAGs, cAGs, 4.6.1933; **Bohinj, Julijske Alpe**, (13°50′), (46°15′), VM12, ~550 m, ldAGs, cAGs, pred 1951; **Bohinjska Bistrica**, 13°58′, 46°16′, VM22, 520 m, lAKa dSBr, cAKa, 30.7.2003; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008, ibidem, lit.RPa2010a, 9.6.2010; ibidem, lit.RPa2015a, 22.7.2015, 18.8.2015; ibidem, lit.RPa2016a, 11.5.2016, 7.6.2016; ibidem, lit.RPa2018a, 9.5.2018, 18.7.2018; ibidem, lit.RPa2019a, 19.6.2019; ibidem, lit. RPa2020d, 20.5.2020; ibidem, lit.RPa2021b, 30.6.2021; ibidem, lit.RPa2022b, 2.6.2022; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2013b, 12.6.2013; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tWit, Kont, ldRPa, lit. RPa2008, 16.7.2008; **Britof, Kranj**, 14°24′05″, 46°15′13″, VM52, 413 m, tThe, phChal, lRPa dJTi, lit.RPa1991a, 5.5.1989; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, phPher, ldRPa, lit.RPa1991a, 5.5.1989; **Črna prst, Bohinjska Bistrica,** 13°56′, 46°14′, VM12, *, lJSs, cJSd, 10.6.1928, 9.7.1932; **Črnivec, Kamnik,** 14°42′, 46°15′, VM72, 820 m, *Picea abies*, ldJTi, lit. JTi1983, 8.1978; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phPher, lFPo dSBr, cSBr, 21.5.1990, 4.6.1990; **Hrastje, Kranj, Planjava 3**, 14°23′39″, 46°14′17″, VM52, 393 m,

Picea abies, deblo 25 cm, ldRPa, lit.RPa2014c, 1.6.2009; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, ~600 m, cBFG, 16.5.1953; **Kopišča ob Kamniški bistrici**, 14°37′, 46°19′, VM72, 590 m, ldSBr, cSBr, 23.5.2001; **Lubnik, Škofjeloško hribovje**, 14°16′, 46°11′, VM41, 450 m, lJSs, cJSd, 2.7.1932; **Mošenik, potok, Ljubelj**, 14°16′, 46°26′, VM44, 1000 m, ldSBr, cSBr, 19.5.1986; **Pišnica, Kranjska Gora**, 13°47′, 46°28′, VM04, 880 m, lJSs, cJSd, 19.6.1931; **Podblica, Koblarjev hrib, Blažon**, 14°12′44″, 46°15′03″, VM32, 705 m, *Picea abies*, neobeljen panj 83 cm, ldFJa, lit.FJa1997, 11.9.1995; **Pokljuka, Krnica**, 14°03′, 46°23′, VM23, 1265 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Medvedova konta**, 13°57′, 46°22′, VM13, 1395 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Mrzli Studenec**, 13°59′, 46°21′, VM23, 1250 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Pokljuka, Planina Krasca**, 13°55′, 46°21′, VM13, 1450 m, ldcAPi, lit.APi2015, 11.7.2014, 8.8.2014; **Pokljuka, Rudna dolina**, 13°57′, 46°21′, VM13, 1320 m, ldcAPi, lit.APi2015, 11.7.2014; **Ponoviče, Litija 1**, 14°51′40″, 46°04′34″, VM80, 250 m, tEco, phGaPP, ldEGr, lit.EGr2019, 2018; **Prevoje, Zabrekve, Korošc**, 14°13′37″, 46°14′52″, VM42, 610 m, *Picea abies*, neobeljen panj 50 cm, lFJa dJTi, lit.FJa1997, 27.7.1995; **Radovljica**, 14°10′, 46°20′, VM33, 500 m, ldAGs, cAGs, pred 1951; **Rateče, Planica**, 13°44′, 46°29′, VM04, 880 m, lJSs, cJSd, 10.6.1935; **Selške Lajše, Kobivnk, Jelenc**, 14°12′19″, 46°14′31″, VM32, 650 m, *Picea abies*, progasto obeljen panj 60 cm, lFJa dJTi, lit.FJa1997, 7.9.1995; **Selške Lajše, Koblarjev hrib, Bitenc**, 14°12′43″, 46°14′25″, VM32, 510 m, *Picea abies*, neobeljen panj 56 cm, lFJa dJTi, lit.FJa1997, 14.6.1995; **Selške Lajše, Selca, Jakec**, 14°11′50″, 46°14′38″, VM32, 660 m, *Picea abies*, neobeljen panj 51 cm, ldFJa, lit.FJa1997, 2.10.1995; ibidem, neobeljen panj 75 cm, ldFJa, lit.FJa1997, 6.7.1995; **Spodnja Kokra, Preddvor**, 14°28′, 46°18′, VM52, 470 m, *Picea abies*, panj, ldJTi, lit.JTi1983, 3.1973; **Spodnja Luša, Ambruški potok, Ambrušč**, 14°13′17″, 46°11′30″, VM31,530 m, *Picea abies*, neobeljen panj 52 cm, ldFJa, lit.FJa1997, 7.7.1995; ibidem, neobeljen panj 55 cm, ldFJa, lit.FJa1997, 21.8.1995; ibidem, progasto obeljen panj 40 cm, ldFJa, lit.FJa1997, 21.8.1995; ibidem, progasto obeljen panj 56 cm, ldFJa, lit. FJa1997, 7.7.1995; **Spodnja Luša, Kraj, Dolenc**, 14°14′06″, 46°11′49″, VM41, 550 m, *Picea abies*, neobeljen panj 70 cm, ldFJa, lit.FJa1997, 21.8.1995; **Stol, Karavanke**, 14°10′, 46°25′, VM34, *, dSBr, cSBr, 21.5.1953; **Vitranc, Julijske Alpe**, 13°45′, 46°29′, VM04, 1570 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Voglje 7**, 14°27′23″, 46°11′52″, VM51, 367 m, tHat, phEtan vePs, ldRPa, lit. RPa2021a, 15.6.2021; **Zagorje ob Savi**, 15°00′, 46°08′, WM00, 250 m, lJSs, cJSd, 18.6.1932; **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit.RPa2008, 16.7.2008.

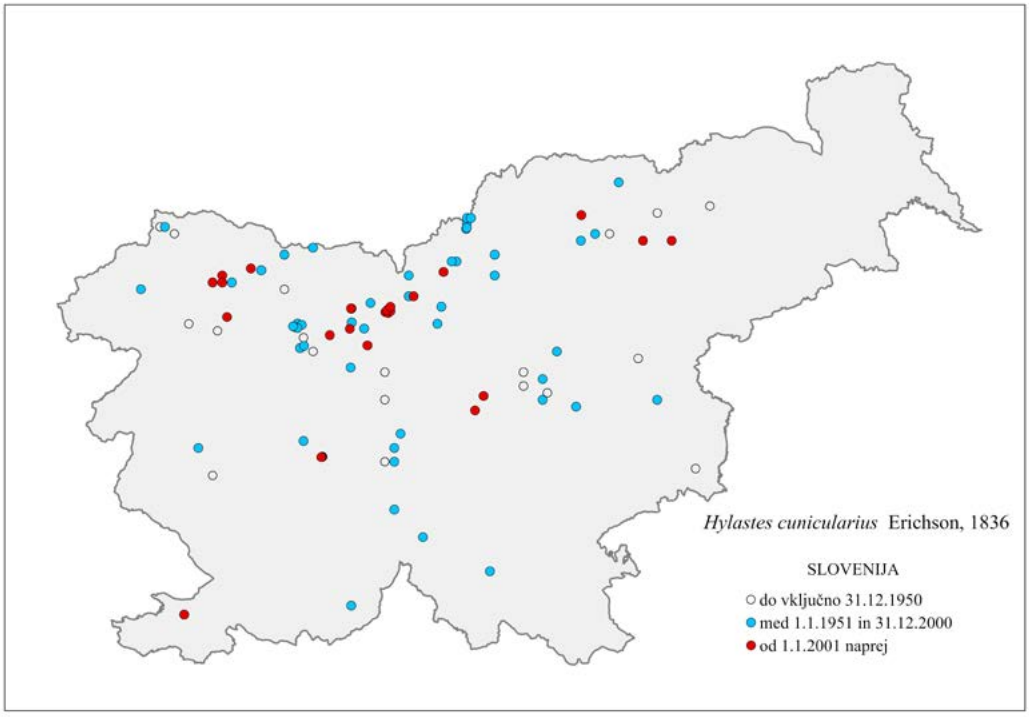
NOTRANJSKO: **Iška**, 14°31′, 45°55′, VL68, 350 m, lJSs, cJSd, 11.6.1933; **Ljubljanski vrh 1**, 14°17′57″, 45°55′44″, VL48, 753 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 2**, 14°17′55″, 45°55′41″, VL48, 729 m, *Picea abies*, deblo 10 cm, ldTHa, lit. THa2020, 29.6.2018; **Ljubljanski vrh 3**, 14°17′52″, 45°55′39″, VL48, 715 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 4**, 14°17′48″, 45°55′39″, VL48, 707 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 5**, 14°17′42″, 45°55′39″, VL48, 692 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Sviščaki, Snežnik**, 14°24′, 45°34′, VL54, 1450 m, ldSBr, cSBr, 7.7.1989; **Zaplana, Vrhnika**, 14°14′, 45°58′, VL49, 700 m, lVFu dSBr, cVFu, 27.5.1991.

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), lJSs, cJSd, 3.5.1927, 20.5.1929; **Rašica**, 14°31′, 46°08′, VM61, 480 m, ldAGs, cAGs, 19.3.1911.

DOLENJSKO: **Borovak pri Podkumu**, 15°04′, 46°04′, WM00, 710 m, lBDr dSBr, cSBr, 4.6.1988; **Brlog, Žimarice**, 14°33′, 45°48′, VL67, 600 m, lČVi dSBr, cSBr, 10.6.1992; **Dobovec, Kum**, 15°04′, 46°07′, WM00, 660 m, lBDr dSBr, cSBr, 9.7.1987; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 16.6.1977, 27.5.1978, 1.6.1978, 5.6.1978; **Grmače, Šmartno pri Litiji**, 14°49′52″, 46°02′28″, VL89, 295 m, tEco, phGaPP, ldEGr, lit.EGr2019, 2018; **Hotemež, Radeče**, 15°11′, 46°03′, WL19, 330 m, *Picea abies*, panj, ldJTi, lit.JTi1983, 3.1967; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 3.6.1982; **Kum**, 15°05′, 46°05′, WM00, *, ldSBr,

cSBr, 24.6.1948; **Šklendrovec, Podkum,** 15°00′, 46°06′, WM00, 350 m, lJSs, cJSd, 12.6.1932; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phLino, lGBa dSBr, cSBr, 21.5.1993; **Škrilje, Ig,** 14°33′, 45°55′, VL68, 570 m, lSBr, cSBr, 19.4.1980, 5.7.1980; **Travna gora, Sodražica**, 14°39′, 45°44′, VL76, ~900 m, ldSBr, cSBr, 3.6.1985; **Željne, Kočevje**, 14°53′, 45°39′, VL95, 470 m, tThe, phPher, lSDe dSBr, cSBr, 18.5.1992.

ŠTAJERSKO: Brežice, 15°36′, 45°54′, WL48, 155 m, ldVKo, cŠFS, 20.5.1933; **Bohor**, **Koča na Bohorju**, 15°28′, 46°04′, WM30, 900 m, ldSBr, cSBr, 22.6.1989; **Kalobje, Kostrivnica**, 15°24′, 46°10′, WM31, 620 m, ldVKo, cBFG, 28.5.1930; **Kašni vrh, Savinjske Alpe 2**, 14°42′49″, 46°17′29″, VM72, 1217 m, tThe, phPher, ldRPa, lit.RPa1995b, 6.8.1995; **Kope, Pohorje, Pahernikova posest**, 15°12′05″, 46°30′41″, WM15, 1350 m, tPfall, phAlfa phEtan, lTAd dTHa, lit.THa2022a, 31.7.2020; **Lobnica (potok), Pohorje**, 15°28′, 46°31′, WM35, ~480 m, ldJPe vSBr, cJPe, pred 1951; **Logarska dolina**, 14°36′, 46°22′, VM63, 1000 m, lVFu dSBr, cVFu, 1.7.1992; **Maribor, Betnava**, 15°39′, 46°32′, WM45, 280 m, ldJPe vSBr, cJPe, pred 1951; **Mislinja**, 15°12′, 46°27′, WM14, 580 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Mislinjski graben, Pohorje**, 15°15′, 46°28′, WM14, ~750 m, ldSBr, cSBr, 3.6.1992; **Mrzlica, Hrastnik**, 15°07', 46°11', WM01, 950 m, lVFu dSBr, cVFu, 13.6.1991; **Osankarica, visoko barje, Pohorje**, 15°25′, 46°27′, WM34, 1210 m, lAKa dSBr, cSBr, 11.7.2005; **Ošelj, Blažičev ribnik, Šmartno na Pohorju**, 15°31′, 46°27′, WM34, 820 m, lAKa dSBr, cSBr, 11.7.2005; **Planina Loka, Raduha, Savinjske Alpe**, 14°46′, 46°24′, VM83, 1460 m, lBDr dSBr, cSBr, 28.8.1986; **Podvelka, Brezno**, 15°19′55″, 46°35′25″, WM25, 321 m, tThe, phPher phChal, ldRPa, lit. RPa1995b, 4.8.1995; **Pohorje**, (15°18′), (46°28′), (WM24), *, ldJPe vSBr, cJPe, pred 1951; **Poljšak**



Slika 12: SMREKOV KORENINAR *Hylastes cunicularius*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 12: *Hylastes cunicularius*, distribution map according to historical and recent data

p7b, 14°43′18″, 46°22′30″, VM72, 1090 m, tThe, phPher, ldRPa, lit.RPa2021c, 2.6.2021, 9.6.2021, 23.6.2021; **Raduha, Savinjske Alpe**, 14°45′, 46°24′, VM83, 1600 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Smrekovec, Savinjske Alpe**, 14°54′, 46°25′, VM94, 1300 m, lBDr dSBr, cSBr, 26.6.1987; **Stari stani, Mozirska planina, Golte**, 14°54′, 46°22′, VM93, 1100 m, lBDr dSBr, cSBr, 6.1987.
KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994; ibidem, ldRPa vSBr, lit.RPa1994a,18.7.1994, 31.7.1994; ibidem, ldRPa, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994; ibidem, ldRPa vSBr, lit.RPa1994a, 13.8.1994; ibidem, ldRPa, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994; 22.6.1994, 5.7.1994; ibidem, lit.RPa1995a, 21.6.1995, 17.7.1995; ibidem, phCemp, ldRPa, lit. RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 31.7.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995; ibidem, ldRPa vSBr, lit.RPa1994a, 18.7.1994; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 13.8.1994; ibidem, ldRPa vSBr, lit.RPa1994a, 22.6.1994, 5.7.1994, 26.8.1994, ibidem, ldRPa, lit.RPa1995a, 21.6.1995, 17.7.1995; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994. 22.6.1994; ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994; ibidem, phCemp, lit.RPa1995a, 21.6.1995, 17.7.1995, 12.8.1995; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994.

01.06. *Hylastes linearis* Erichson, 1836 PODOLGOVATI KORENINAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Brancsik 1871: *Hylastes linearis* Er.; Grüne 1979: *H. linearis* Erichson, 1836; Freude, Harde, Lohse 1981: *H. linearis* Erichson; Lucht 1987: *H. linearis* Er., 1836; Pfeffer & Knížek 1993: *H. linearis* Erichson, 1836; Pfeffer 1995: *H. linearis* Erichson, 1836.

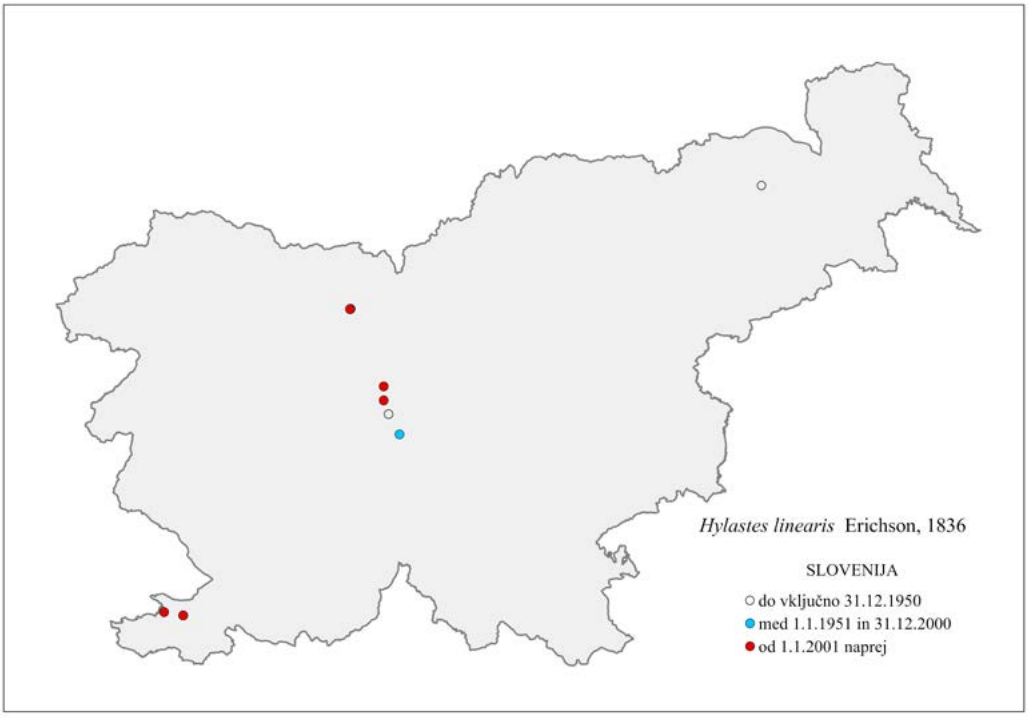
E: BE CR CZ FR GB GE GR HU IT MC PL PT SK SL SP SZ UK YU **N:** AG CI MO MR TU **A:** CY IS SY TR **AFR**

Vrsta je razširjena v južni in srednji Evropi, na Poljskem, v Ukrajini, v sredozemskih državah, v Aziji in severni Afriki. Pri redkih starejših najdbah v Sloveniji manjkajo podatki o gostiteljih. Vse novejše najdbe v Sloveniji so omejene na Brdo pri Kranju in lokacije v slovenski Istri, vsi osebki pa so bili ujeti v pasti (slika 14). Kot gostitelji so v literaturi navedeni *Pinus sylvestris*, *P. pinaster*, *P. halepensis* (*Pinus* spp.). Je stenofag. Dolžina adulta znaša 3,0–4,5 mm (slika 13). Od preostalih vrst iz roda *Hylastes*, ki jih najdemo v Sloveniji, se razlikuje zlasti po zelo dolgem vratnem ščitu.

The species is distributed in southern and central Europe, Poland, Ukraine, Mediterranean countries, Asia and North Africa. The few older records in Slovenia lack information on hosts. All recent records in Slovenia are restricted to Brdo pri Kranju and locations in the Slovene part of Istria, and all specimens were trapped (Figure 14). The hosts listed in the literature are *Pinus sylvestris*, *P. pinaster*, *P. halepensis* (and other species of the genus *Pinus*). Stenofage. Adult length is 3.0-4.5 mm (Figure 13). It differs from other species of the genus *Hylastes* found in Slovenia in particular by its very long neck shield.

Slika 13: PODOLGOVATI KORENINAR *Hylastes linearis*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 13: *Hylastes linearis*, dorsal, lateral (Photo: Maja Jurc)



Slika 14: PODOLGOVATI KORENINAR *Hylastes linearis*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 14: *Hylastes linearis*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010b, 21.6.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014b, 23.5.2014; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2014b, 1.7.2014.

GORENJSKO: **Brdo pri Kranju**, GIS 1, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2016a, 25.5.2016, 7.6.2016, 22.6.2016, 6.7.2016; ibidem, lit.RPa2017a, 25.5.2017, 8.6.2017, 21.6.2017; ibidem, lit.RPa2021b, 4.6.2021; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2017a, 25.5.2017; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2016a, 22.6.2016; ibidem, lit.RPa2017a, 25.5.2017.
LJUBLJANA Z OKOLICO: **Golovec**, 14°32′, 46°02′, VL69, ~400 m, ldAGs, cAGs, 7.6.1912, 12.6.1913;
Ljubljana, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, pred 1951; **Ljubljana, Črnuče**, 14°31′, 46°06′, VM60, 290 m, ldSBr, cSBr, 24.5.1947.
DOLENJSKO: **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phLino, lGBa dSBr, cSBr, 18.6.1993.
ŠTAJERSKO: Lenart v Slovenskih goricah, 15°50′, 46°35′, WM65, 260 m, lJNS, lit.KBr1871, pred 1951.

01.07. *Hylastes opacus* Erichson, 1836 TEMNI KORENINAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel 1866: *Hylastes opacus* Er.; Grüne 1979: *H opacus* Erichson, 1836; Freude, Harde, Lohse 1981: *H. opacus* Erichson; Lucht 1987: *H. opacus* Er., 1836; Pfeffer & Knížek 1993: *H. opacus* Erichson, 1836; Pfeffer 1995: *H. opacus* Erichson, 1836.

E: AU BE BU BY CT CZ DE EN FI FR GB GE GR HU IR IT LA LS LT MC NR NT PL SK SL ST SV SZ YU **A:** ES FE JA KZ MG NC SC WS »Mandžurija« **NAR**

Razširjen je v severni, srednji in vzhodni Evropi, Aziji in na nearktičnem območju. Na Finskem sega njegov areal do 65°N (EPPO). Siegel (1866) navaja, da vrsta »na Kranjskem ni redka, največ pod borovim in smrekovim lubjem«. Redke starejše najdbe pred letom 1951 so omejene na osrednji del Slovenije. Novejša najdišča so zlasti na Gorenjskem in v slovenskem delu Istre (slika 16), v obeh pokrajinah so bili osebki ulovljeni s pastmi. Gostitelji so *Pinus* spp., manj pogosto *Picea abies*, *P. obovata*, izjemoma *Larix decidua*. V Sloveniji (Notranjska) je edini zabeležen gostitelj *Picea abies*. Letno osnuje dve generaciji, roji marca ter junija in julija. Dolžina adulta znaša 2,9–3,5 mm. Barva telesa je črna, pokrovke so mat, čelni ščit je brez medialnega grebenčka (slika 15).

It is distributed in northern, central and eastern Europe, Asia and the Nearctic. In Finland, its range extends to 65° N (EPPO). Siegel (1866) states that the species is “not rare in Carniola, mostly under pine and spruce bark”. The few older records before 1951 are restricted to the central part of Slovenia. More recent sites are mainly in Gorenjska and the Slovene part of Istria (Figure 16), in both regions specimens were trapped with traps. Hosts include *Pinus* spp., less frequently *Picea abies*, *P. obovata*, exceptionally *Larix decidua*. In Slovenia (Notranjska), *Picea abies* is the only recorded host. It produces two generations per year, swarming in March and in June and July. Adult length is 2.9-3.5 mm. The body colour is black, the elytra are matte, the frontal shield is without a medial crest (Figure 15).

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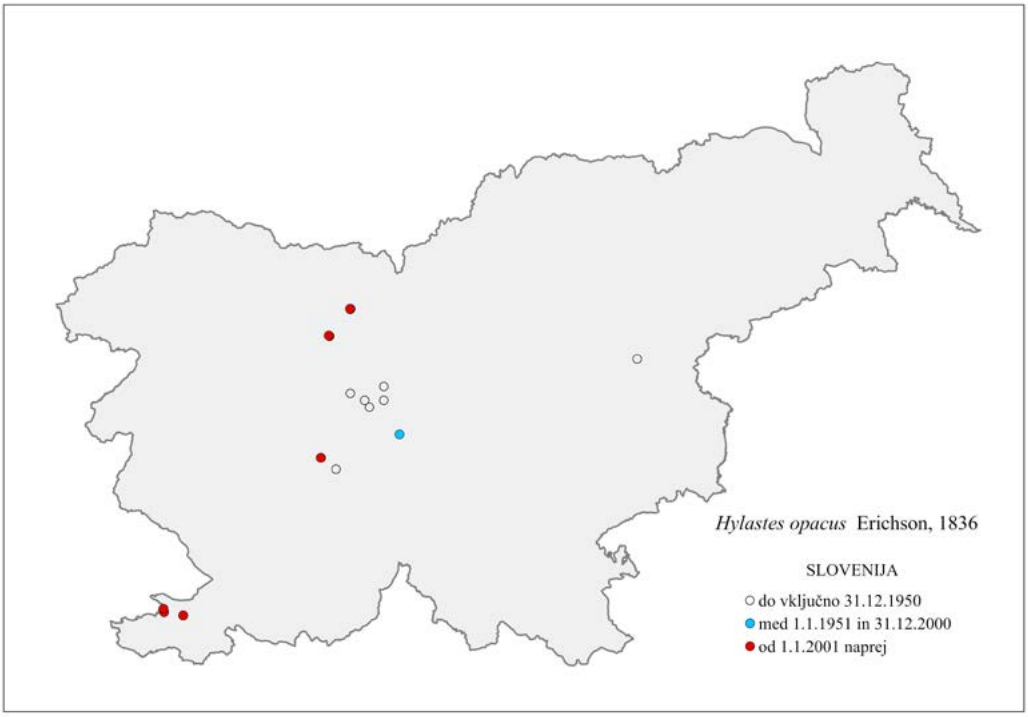
SLOVENIJA: *Picea abies*, ldMSi, lit.MSi1866, pred 1951; *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.
ISTRA: **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010b,

Slika 15: TEMNI KORENINAR *Hylastes opacus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 15: *Hylastes opacus*, dorsal, lateral (Photo: Maja Jurc)



Slika 16: TEMNI KORENINAR *Hylastes opacus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 16: *Hylastes opacus*, distribution map according to historical and recent data

21.6.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014b, 1.7.2014; ibidem, lit.RPa2017b, 31.5.2017; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 17.4.2014, 23.5.2014.
GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008; ibidem, lit.RPa2010a, 9.6.2010; **Brdo pri Kranju, GIS 2**, 14°24′00″,

46°17′12″, VM52, 469 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tWit, Kont, ldRPa, lit.RPa2008, 16.7.2008; **Zgornje Bitnje 2**, 14°19′37″, 46°13′19″, VM41, 396 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit.RPa2008, 16.7.2008.
NOTRANJSKO: **Ljubljanski vrh 3**, 14°17′52″, 45°55′39″, VL48, 715 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 4**, 14°17′48″,4 5°55′39″, VL48, 707 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Zavrh pri Borovnici**, 14°21′, 45°54′, VL58, 780 m, lJSs, cJSd, 7.5.1922.
LJUBLJANA Z OKOLICO: **Babni Dol, Staneˇziče**, 14°24′, 46°05′, VM50, 370 m, ldAGs, cAGs, pred 1951;
Ljubljana, (14°31′), (46°04′), (VM60), (295 m), lJSs, cJSd, 17.5.1918; **Ljubljana, Črnuče**, 14°31′, 46°06′, VM60, 290 m, ldAGs, cAGs, pred 1951; **Ljubljana, Večna pot**, 14°28′, 46°03′, VM50, 300 m, ldAGs, cAGs, 30.5.1944; **Podutik**, 14°27′, 46°04′, VM50, ~300 m, ldAGs, cAGs, pred 1951.
DOLENJSKO: **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phLino, lGBa dSBr, cSBr, 22.4.1993.
ŠTAJERSKO: Kalobje, Kostrivnica, 15°24′, 46°10′, WM31, 620 m, ldVKo, cBFG, 1.5.1929.

02.00. *Hylurgops* LeConte, 1876 čokatež

02.01. *Hylurgops glabratus* (Zetterstedt, 1828) smrekov čokatež

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Brancsik 1871: (*Hylastes decumanus* Er.); Grüne 1979: *H. glabratus* (Zetterstedt, 1828); Freude, Harde, Lohse 1981: *H. glabratus* Zetterstedt; Lucht 1987: *H. glabratus* (Zett., 1828); Titovšek 1988: *H. glabratus* (Zetterstedt); Pfeffer & Knížek 1993: *H. glabratus* (Zetterstedt, 1828); Pfeffer 1995: *H. glabratus* (Zetterstedt, 1828).

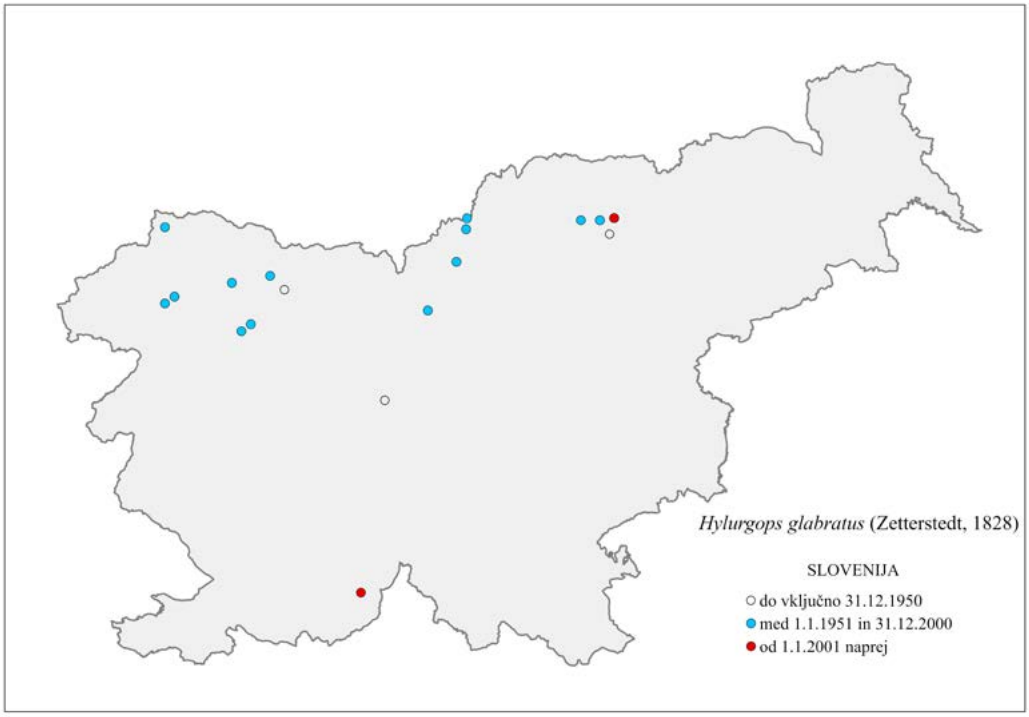
E: AU BU BH BY CT CZ DE EN FI FR GE GR HU IT LA NR NT PL SK SL SP SV SZ **A:** ES FE HEI JA JIL KZ MG NC SC TAI TR WS

Vrsta je razširjena v severni in srednji Evropi, na območju nekdanje Jugoslavije in v Aziji. V Sloveniji je največ najdišč v goratih predelih severnega dela Slovenije, zlasti nad 1000 metrov nadmorske višine (slika 18). Gostiteljske rastline so *Picea abies*, *P. obovata*, manj pogosto *Pinus sylvestris*, *P. cembra*, *P. mugo*, *P. cembra*, *Abies alba*, *Larix* spp. in *Cedrus* spp.. V Sloveniji je bil potrjen gostitelj le *P. abies*. Je monogamna vrsta, letno razvije eno generacijo, roji pozno, maja in junija. Rovni sistem je enokraki vzdolžni, dolžina materinskega hodnika znaša 4–7 cm. Telo je čokato, dolžina adulta je 4,5–5,5 mm (slika 17). Vrsta je izrazito sekundarna, brez velikega gospodarskega pomena.

The species is distributed in northern and central Europe, the countries of the former Yugoslavia and Asia. In Slovenia, most sites are found in mountainous areas of northern Slovenia, especially above 1000 m a.s.l. (Figure 18). Host plants include *Picea abies*, *P. obovata*, less frequently *Pinus sylvestris*, *P. cembra*, *P. mugo*, *P. cembra*, *Abies alba*, *Larix* spp. and *Cedrus* spp.. In Slovenia, it is found only on *P. abies*. It is a monogamous species develops one generation per year, swarming late, in May and June. The tunnel system is uniramous longitudinally, the length of the maternal gallery is 4-7 cm. The body is conical, adult length is 4.5-5.5 mm (Figure 17). The species is distinctly secondary and does not have major economic significance.

Slika 17: SMREKOV ČOKATEŽ *Hylurgops glabratus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 17: *Hylurgops glabratus*, dorsal, lateral (Photo: Maja Jurc)



Slika 18: SMREKOV ČOKATEŽ *Hylurgops glabratus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 18: *Hylurgops glabratus*, distribution map according to historical and recent data

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GORENJSKO: **Bled, skladišče lesa**, 14°07′, 46°22′, VM33, 501 m, tThe, phPher phChal, lGBa dSBr, cSBr, 28.4.1993; **Bohinjska Bistrica, Litostrojska koča**, 14°01′, 46°14′, VM22, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Komna, Julijske alpe**, 13°45′, 46°18′, VM02, 1500 m,

Picea abies, ldJTi, lit.JTi1983, 8.1974; **Mala planina, Kamniške Alpe**, 14°40′, 46°17′, VM72, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1982; **Pokljuka, Mrzli Studenec**, 13°59′, 46°21′, VM23, 1280 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Radovljica**, 14°10′, 46°20′, VM33, 500 m, ldAGs, cAGs, pred 1951; **Ribčeva planina, Jelovica**, 14°03′, 46°15′, VM32, 1200 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977; **Triglavska jezera**, 13°47′, 46°19′, VM02, 1550 m, *Picea abies*, ldJTi, lit. JTi1983, 8.1974; **Vitranc, Julijske Alpe**, 13°45′, 46°29′, VM04, 1570 m, *Picea abies*, ldJTi, lit. JTi1983, 8.1979.
NOTRANJSKO: **Snežnik**, 14°26′, 45°36′, VL54, 1389 m, tWit, phGaPr, ldRPa, lit.RPa2014c, 6.9.2011;
Ljubljana, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, 3.1911.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, 3.1911.
ŠTAJERSKO: Josipdol, Lavtar, Pohorje, 15°18′58″, 46°30′19″, WM24, 1230 m, *Picea abies*, ldJPo, lit.JPo2016, 7.2012; **Mali Črni vrh, Ribniška koča, Pohorje**, 15°16′, 46°30′, WM24, 1460 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Planina Loka, Raduha, Savinjske Alpe**, 14°46′, 46°24′, VM83, 1460 m, lBDr dSBr, cSBr, 28.8.1986; **Pohorje**, (15°18′), (46°28′), (WM24), *, ldJPe vSBr, cJPe, pred 1951; ibidem, lJNS, lit.KBr1871, pred 1951; **Velika Kopa, Pohorje**, 15°12′, 46°30′, WM14, 1410 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979.
KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa vSBr, lit.RPa1994a, 9.6.1994: **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa, lit.RPa1995a, 30.7.1995, ibidem, phCemp, ldRPa, lit.RPa1995a, 21.6.1995.

02.02. *Hylurgops palliatus* (Gyllenhal, 1813) MALI ČOKATEŽ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel 1866: *Hylastes palliatus* Gyll.; Grüne 1979: *H. palliatus* (Gyllenhal, 1813); Freude, Harde, Lohse 1981: *H. palliatus* Gyllenhal; Lucht 1987: *H. palliatus* (Gyll., 1813); Titovšek 1988: *H. palliatus* (Gyllenhal); Pfeffer & Knížek 1993: *H. palliatus* (Gyllenhal, 1813); Pfeffer 1995: *H. palliatus* (Gyllenhal, 1813).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE HU IR IT LA LS LT MC NL NR NT PL SK SL SP SV ST SZ UK YU **N:** AG **A:** ES FE HEI JA KZ NC SC SHA TR WS **NAR**

Vrsta je prisotna v Evropi, Sibiriji, Kavkazu, Mali Aziji, severni Afriki in na nearktičnem območju. Siegel (1866) navaja, da je bila vrsta »na Kranjskem pogostna, pod smrekovim lubjem«. Po letu 1950 je bila zabeležena v vseh slovenskih pokrajinah (slika 20). *H. palliatus* je polifag na iglavcih, gostitelji so zlasti *Picea* spp., manj pogosto tudi *Pinus* spp., *Abies alba*, *A. nordmanianna* in *Larix decidua*. V Sloveniji je bila vrsta zabeležena na *Picea abies*, *Pinus nigra*, *P. sylvestris*, *P. strobus* in *L. decidua*. Naseljuje srednje in zgornje dele debel ter debelejše veje. Letno razvije 1–2 generaciji, roji aprila in julija. Ima 1–2 generaciji letno. Rovni sistem je enokrak, vzdolžen, materinski hodnik

The species is found in Europe, Siberia, the Caucasus, Asia Minor, North Africa and the Nearctic. Siegel (1866) states that the species was ”common in Carniola, under spruce bark”. After 1950 it was recorded in all Slovene provinces (Figure 20). *H. palliatus* is a polyphagous species on conifers, hosts are mainly *Picea* spp., less frequently also *Pinus* spp., *Abies alba*, *A. nordmanianna* and *Larix decidua*. In Slovenia, the species has been found on *Picea abies*, *Pinus nigra*, *P. sylvestris*, *P. strobus* and *L. decidua*. It inhabits the middle and upper parts of trunks and thicker branches. It develops 1-2 generations annually, swarming in April and July. It has

Slika 19: MALI ČOKATEŽ *Hylurgops palliatus*, dorzalno, lateralno (Foto: Maja Jurc)

Slika 19: *Hylurgops palliatus*, dorsal, lateral (Photo: Maja Jurc)

je dolg 3–5 cm, pri vhodni odprtini je kljukasto zavit. Od sorodne vrste smrekovega čokateža (*H. glabratus*) je veliko manjši, dolžina adulta je 2,5–3,2 mm (slika 19). Je terciarna vrsta, ki običajno naseljuje ležeča, posekana drevesa. Pogost je v kulturah bora, napadenih z vrsto *Pissodes notatus* (Col., Curculionidae).

1-2 generations per year. The tunnel system is uniramous, elongated, the maternal gallery is 3-5 cm long, hook-shaped at the entrance opening. It is much smaller than the related species *H. glabratus,* with a length (adultus) of 2.5-3.2 mm (Figure 19). It is a tertiary species, usually inhabiting decumbent, felled trees. Common in pine cultures infested by *Pissodes notatus* (Col., Curculionidae).

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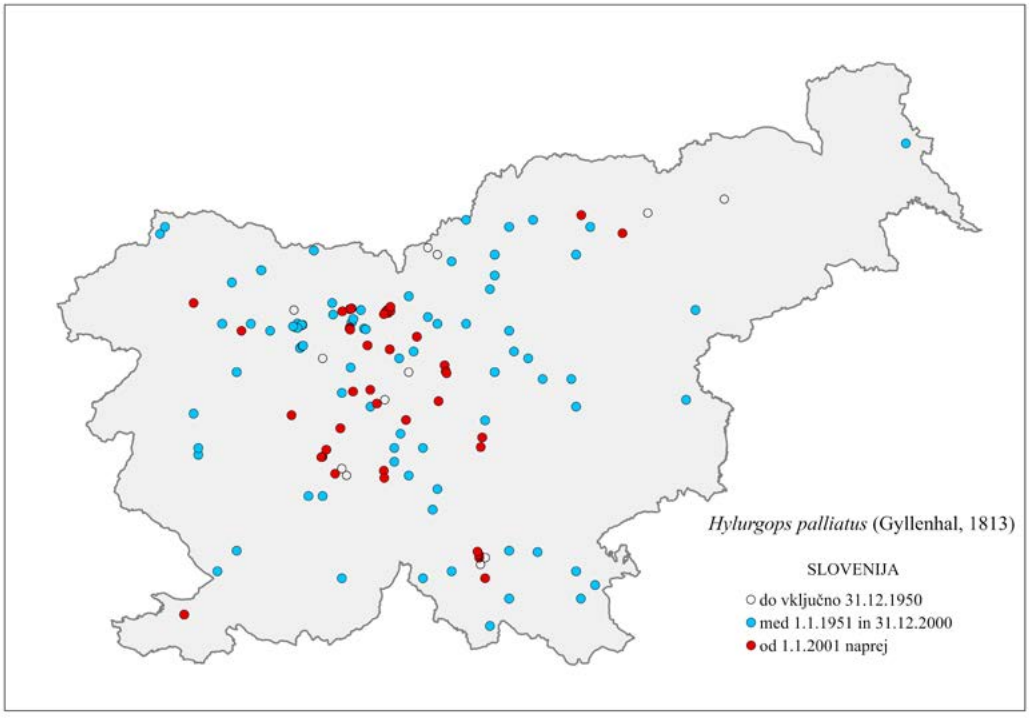
SLOVENIJA: *Picea abies*, ldMSi, lit.MSi1866, pred 1951.
ISTRA: **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010b, 21.6.2010.
PRIMORSKO: **Cerkno**, 14°00′, 46°08′, VM20, 390 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Čaven, Lokavec, Trnovski gozd**, 13°52′, 45°56′, VL18, 1220 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Čebulovica, Divača**, 14°00′, 45°42′, VL26, 570 m, *Pinus nigra*, ldJTi, lit.JTi1983, 7.1977; **Gorenja Trebuša, Čepovan**, 13°51′, 46°02′, VL19, 450 m, ldSBr, cSBr, 17.6.1992; **Predmeja, Trnovski gozd**, 13°52′, 45°57′, VL18, 1020 m, *Pinus nigra*, ldJTi, lit.JTi1983, 8.1979; **Prelože pri Lokvi, Divača**, 13°56′, 45°39′, VL15, 430 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 7.1968.
GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 29.4.2022, 13.5.2022; **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022; **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 29.4.2022, 13.5.2022, 27.5.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 29.4.2022, 13.5.2022; **Ambrož pod Krvavcem 5**, 14°31′42″, 46°17′03″, VM62, 1402 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Ambrož pod Krvavcem 6**, 14°32′10″, 46°17′26″, VM62, 1478 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, phPher phChal, lGBa dSBr, cSBr, 13.4.1993; **Bohinjska Bistrica, Litostrojska koča**, 14°01′, 46°14′, VM22, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Bohinjska Bistrica, Mencingerjeva koča**, 13°57′, 46°15′, VM12, 900 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Brdo pri Kranju 1/55**, 14°23′42″,

46°17′07″, VM52, 444 m, *Pinus sylvestris*, deblo 8 cm, ldRPa, lit.RPa2003, 20.9.7.2003; **Brdo pri Kranju 2/1**, 14°22′07″, 46°16′49″, VM52, 423 m, *Pinus sylvestris*, vrhač 10 cm, ldRPa, lit. RPa2004, 24.8.2004; ibidem, vrhač 15 cm, ldRPa, lit.RPa2004, 24.8.2004; ibidem, hlod 20 cm, ldRPa, lit.RPa2004, 24.8.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008; ibidem, lit.RPa2010a, 9.6.2010; ibidem, lit. RPa2013a, 17.4.2013, 30.4.2013; ibidem, lit.RPa2014a, 14.5.2014; ibidem, lit.RPa2015a, 18.3.2015, 1.4.2015, 10.6.2015, 24.6.2015; ibidem, lit.RPa2016a, 16.3.2016, 30.3.2016, 13.4.2016; ibidem, lit. RPa2017a, 15.3.2017, 29.3.2017, 12.4.2017; ibidem, lit.RPa2018a, 11.4.2018, 7.11.2018; ibidem, lit. RPa2019a, 13.3.2019, 27.3.2019, 22.5.2019, 19.6.2019; ibidem, lit.RPa2020d, 25.3.2020, 8.4.2020; ibidem, lit.RPa2021b, 10.3.2021, 7.4.2021, 21.4.2021, 5.5.2021; lit.RPa2022b, 23.3.2022, 6.4.2022, 20.4.2022, 4.5.2022, 2.11.2022; ibidem, lit.RPa2023b, 22.3.2023, 6.4.2023, 19.4.2023, 17.5.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2015a, 18.3.2015; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit. RPa2016a, 16.3.2016, 30.3.2016; **Britof, Kranj**, 14°24′05″, 46°15′13″, VM52, 413 m, tThe, phChal, ldRPa, lit.RPa1991a, 12.5.1989; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, phPher, lRPa dJTi, lit.RPa1991a, 5.5.1989; **Brnik, letališče, pri parkirišču**, 14°26′59″, 46°14′14″, VM52, 393 m, tThe, Kont, ldRPa, lit.RPa1991a, 8.4.1989; **Čemšeniška planina**, 14°58′, 46°11′, VM91, 1060 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977; **Črnivec, Kamnik,** 14°42′, 46°15′, VM72, 940 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; ibidem, 980 m, *Picea abies*, veja, ldJTi, lit.JTi1983, 6.1973; **Domžale**, 14°36′, 46°08′, VM60, 300 m, ldAGs, cAGs, pred 1951; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, lGBa dSBr, cSBr, 25.3.1991, 1.4.1991; ibidem, *Picea abies*, hlod, ldGBa, lit.GBa1993, 6.1992; **Hrastje, Kranj, Planjava 1**, 14°23′39″, 46°14′28″, VM52, 397 m, *Picea abies*, hlod 40 cm, ldRPa, lit.RPa2020c, 29.5.2009; **Hrastje, Kranj, Planjava 6**, 14°23′38″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2014c, 1.4.2002; **Hrastje, Kranj, Planjava 9**, 14°23′45″, 46°14′09″, VM52, 391 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2014c, 8.8.2014; **Kamnik**, 14°37′41″, 46°13′09″, VM71, 578 m, *Picea abies*, deblo 33 cm gLEŠ, lDBo dRPa, lit.NOg2019, 16.6.2017, 2.7.2017; ibidem, deblo 34 cm gLEŠ, lDBo dRPa, lit. NOg2019, 16.6.2017, 2.7.2017; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, 780 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1972; **Krivčevo, Črna pri Kamniku**, 14°40′, 46°16′, VM72, 635 m, ldSBr, cSBr, 10.11.1992; **Kropa**, 14°12′, 46°17′, VM32, 530 m, ldAGs, cAGs, 23.5.1919; **Lajnar, Zgornja Sorica**, 14°01′, 46°14′, VM22, 1450 m, lAKa dSBr, cAKa, 25.7.2003; **Ljubelj, Šentanska dolina**, 14°16′11″, 46°25′36″, VM44, 883 m, *Larix decidua*, hlod, ldRPa, lit.RPa1996, 15.6.1996; ibidem, *Picea abies*, hlod, ldRPa, lit.RPa1996, 15.6.1996; **Mengeš**, 14°34′, 46°10′, VM61, 350 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1978; **Menina planina**, 14°48′, 46°15′, VM82, 1260 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Milje 3**, 14°24′24″, 46°15′42″, VM52, 423 m, tThe, phPher phChal, ldRPa, lit. RPa1991a, 8.4.1989; **Mlaka pri Kranju, ob tekaški stezi 2**, 14°20′11″, 46°16′20″, VM42, 430 m, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa1996, 17.6.1996; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017; **Planica, Rateče**, 13°44′, 46°28′, VM04, 1000 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1981; **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit.APi2015, 17.7.2014, 18.8.2014; **Podblica, Koblarjev hrib, Blažon**, 14°12′44″, 46°15′03″, VM32, 705 m, *Picea abies*, neobeljen panj 61 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, progasto obeljen panj 68 cm, ldFJa, lit.FJa1997, 26.7.1995; **Pokljuka, Mrzli Studenec**, 13°59′, 46°21′, VM23, 1320 m, *Picea abies*, ldJTi, lit. JTi1983, 7.1977; **Prevoje, Bezovnica, Hkavšč**, 14°13′47″, 46°14′51″, VM32, 650 m, *Picea abies*, neobeljen panj 64 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, neobeljen panj 72 cm, ldFJa, lit. FJa1997, 28.7.1995; ibidem, progasto obeljen panj 56 cm, ldFJa, lit.FJa1997, 28.7.1995; progasto obeljen panj 70 cm, ldFJa, lit.FJa1997, 17.6.1995; **Prevoje, Zabrekve, Knapovc**, 14°13′32″, 46°14′45″, VM42, 600 m, *Picea abies*, progasto obeljen panj 58 cm, ldFJa, lit.FJa1997, 28.7.1995;

ibidem, progasto obeljen panj 85 cm, ldFJa, lit.FJa1997, 17.6.1995; **Prevoje, Zabrekve, Korošc**, 14°13′37″, 46°14′52″, VM42, 610 m, *Picea abies*, neobeljen panj 46 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, neobeljen panj 50 cm, ldFJa, lit.FJa1997, 27.7.1995; ibidem, neobeljen panj 80 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, progasto obeljen panj 69 cm, lFJa dJTi, lit.FJa1997, 27.7.1995; **Prtovč, Zali Log**, 14°07′, 46°14′, VM32, 820 m, *Picea abies*, ldJTi, lit.JTi1983, 4.1974; **Ribčeva planina, Jelovica**, 14°03′, 46°15′, VM32, 1230 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977; **Rudnik pri Moravčah 1**, 14°43′44″, 46°08′07″, VM70, 363 m, tPfall, phEtan veCo, lTPe dTHa, lit. THa2022c, 10.4.2020, 17.4.2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 22.5.2020; **Rudnik pri Moravčah 2**, 14°43′56″, 46°07′51″, VM70, 378 m, tPfall, phEtan veCo, lTPe dTHa, lit. THa2022c, 10.4.2020, 17.4.2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 22.5.2020, 29.5.2020, **Selške Lajše, Kobivnk, Jelenc**, 14°12′19″, 46°14′31″, VM32, 650 m, *Picea abies*, odrzan panj 70 cm, lFJa dJTi, lit.FJa1997, 12.6.1995, ibidem, progasto obeljen panj 49 cm, lFJa dJTi, lit. FJa1997, 12.6.1995; ibidem, progasto obeljen panj 64 cm, lFJa dJTi, lit.FJa1997, 13.6.1995; **Selške Lajše, Koblarjev hrib, Bitenc**, 14°12′43″, 46°14′25″, VM32, 510 m, *Picea abies,* neobeljen panj 37 cm, ldFJa, lit.FJa1997, 25.7.1995; ibidem, neobeljen panj 65 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, neobeljen panj 70 cm, ldFJa, lit.FJa1997, 9.9.1995; ibidem, progasto obeljen panj 45 cm, ldFJa, lit.FJa1997, 14.6.1995; progasto obeljen panj 57 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, progasto obeljen panj 64 cm, ldFJa, lit.FJa1997, 25.7.1995; **Selške Lajše, Selca, Jakec**, 14°11′50″, 46°14′38″, VM32, 660 m, *Picea abies*, neobeljen panj 75 cm, ldFJa, lit.FJa1997, 6.7.1995; **Spodnja Luša, Ambruški potok, Ambrušč**, 14°13′17″, 46°11′30″, VM31, 530 m, *Picea abies*, neobeljen panj 52 cm, ldFJa, lit.FJa1997, 7.7.1995; ibidem, neobeljen panj 54 cm, ldFJa, lit.FJa1997, 7.7.1995; ibidem, progasto obeljen panj 40 cm, ldFJa, lit.FJa1997, 21.8.1995; **Spodnja Luša, Kraj, Benetk 1**, 14°13′47″, 46°11′48″, VM41, 610 m, *Picea abies*, progasto obeljen panj 47 cm, ldFJa, lit.FJa1997, 7.7.1995; **Spodnja Luša, Kraj, Benetk 2**, 14°13′55″, 46°11′50″, VM41, 560 m, *Picea abies*, progasto obeljen panj 50 cm, ldFJa, lit.FJa1997, 7.7.1995; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Sveta Gora, Izlake**, 14°54′, 46°08′, VM90, 770 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978; **Škofja Loka,** 14°18′, 46°10′, VM41, 350 m, ldAGs, cAGs, pred 1951; **Tupaliče, Kranj**, 14°26′, 46°17′, VM52, 480 m, ldSBr, cSBr, 4.11.1994; **Udin boršt, Naklo**, 14°20′, 46°18′, VM42, 460 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Vitranc, Julijske Alpe**, 13°45′, 46°29′, VM04, 1570 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Vodice 3**, 14°32′01″, 46°11′19″, VM61, 330 m, *Picea abies*, deblo 24 cm gLEŠ, lDBo dRPa, lit. RPa2020b, 16.3.2017; ibidem, deblo 25 cm gLEŠ, lDBo dRPa, lit.RPa2020b, 16.3.2017; **Voglje 4**, 14°27′21″, 46°11′53″, VM51, 366 m, tHat, phEtan vePs, ldRPa, lit.RPa2021a, 15.6.2021; **Voglje 7**, 14°27′23″, 46°11′52″, VM51, 367 m, tHat, phEtan vePs, ldRPa, lit.RPa2021a, 15.6.2021; **Volčji Potok, Kamnik**, 14°37′, 46°11′, VM71, 370 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1978.

NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017; **Ivanje Selo, Rakek**, 14°18′, 45°50′, VL47, 510 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Ljubljanski vrh 1**, 14°17′57″, 45°55′44″, VL48, 753 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 2**, 14°17′55″, 45°55′41″, VL48, 729 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 3**, 14°17′52″, 45°55′39″, VL48, 715 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 4**, 14°17′48″, 45°55′39″, VL48, 707 m, *Picea abies*, deblo 10 cm, ldTHa, lit. THa2020, 29.6.2018; **Ljubljanski vrh 5**, 14°17′42″, 45°55′39″, VL48, 692 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Mašun, Snežnik**, 14°22′, 45°38′, VL55, 1080 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Pekel, Borovnica**, 14°23′, 45°53′, VL58, ~400 m, ldAGs, cAGs, 26.4.1931; **Planina, Postojna**, 14°15′, 45°50′, VL47, 650 m, *Pinus sylvestris*, deblo 35 cm, ldRPa, lit.RPa2014c, 6.8.1996; **Pokojišče, Borovnica**, 14°22′, 45°54′, VL58, 730 m, lJSs, cJSd, 5.5.1929; **Pokojišče, Borovnica 1**, 14°20′35″, 45°53′14″, VL48, 713 m, tWit, phEtan, ldTHa, lit.THa2018,

24.3.2017; **Šentjošt nad Horjulom,** 14°11′29″, 46°01′45″, VL39, 801 m, tWit, phEtan, ldTHa, lit. THa2018, 24.3.2017, 7.4.2017, 21.4.2017; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017.
LJUBLJANA Z OKOLICO: **Katarina, Polhograjsko hribovje**, 14°22′, 46°05′, VM50, 690 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 2.1974; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, pred 1951; ibidem, ldSBr, cSBr, 16.3.1949; ibidem, lJSs, cJSd, 1.5.1916; **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017; **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017; **Rožnik, Ljubljana**, 14°28′, 46°03′, VM50, 330 m, *Pinus strobus*, debelce, ldJTi, lit.JTi1983, 8.1972; **Rožnik**, **Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit. THa2018, 24.3.2017, 21.4.2017; **Toško Čelo 1**, 14°24′20″,46°05′12″,VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 10.3.2017, 24.3.2017, 7.4.2017, 5.5.2017.
DOLENJSKO: **Banjaloka**, 14°53′, 45°31′, VL94, 560 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Baza 20, Kočevski Rog**, 15°02′58″, 45°41′50″, WL06, 670 m, ldSBr, cSBr, 8.8.1986; **Bogenšperk, Črni Potok**, 14°52′, 46°01′, VL89, 450 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Dobovec, Kum**, 15°04′, 46°07′, WM00, 660 m, lBDr dSBr, cSBr, 9.7.1987; **Dobrava, Radeče**, 15°11′, 46°03″, WL19, 360 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 4.1966; **Draga, Goteniška gora**, 14°39′, 45°38′, VL75, 860 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, lDPr, cSBr, 24.8.1984; ibidem, ldSBr, cSBr, 1.6.1978, 4.4.1981, 24.8.1984; **Grčarice, Črni vrh**, 14°45′, 45°39′, VL85, 900 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Grosuplje**, 14°39′, 45°57′, VL78, 360 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1978; **Janče, Jevnica**, 14°42′14″, 46°03′48″, VM70,



Slika 20: MALI ČOKATEŽ *Hylurgops palliatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 20: *Hylurgops palliatus*, distribution map according to historical and recent data

589 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, cBFG, 10.8.1950; ibidem, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Kočevje, Koblarji 1**, 14°50′44″, 45°41′00″, VL85, 471 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 10.4.2020, 17.4.2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 22.5.2020; **Kočevje, Koblarji 2**, 14°50′42″, 45°41′26″, VL85, 470 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 10.4.2020, 17.4.2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 22.5.2020, 29.5.2020; **Kočevje, Koblarji 3**, 14°50′23″, 45°41′54″, VL86, 472 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 10.4.2020, 17.4.2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 22.5.2020, 29.5.2020; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 28.3.1981; **Mala Gora, Kočevje**, 14°52′, 45°41′, VL96, 490 m, ldSBr, cSBr, 2.8.1948; **Mokrec 1**, 14°30′49″, 45°53′41″, VL68, 860 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017; **Mokrec 2**, 14°30′53″, 45°52′39″, VL68, 900 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017; **Mozelj**, 14°57′, 45°35′, VL94, 480 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 580 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Podturjak, Turjak**, 14°36′, 45°53′, VL68, 350 m, ldSBr, cSBr, 22.5.1980; **Pugled, Stari Log**, 14°57′, 45°42′, VL96, 670 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Stara Cerkev, Kočevje**, 14°51′, 45°40′, VL85, 480 m, ldSBr, cSBr, 28.7.1948; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, Kont, lGBa dSBr, cSBr, 8.4.1993; **Škrilje, Ig,** 14°33′, 45°55′, VL68, 570 m, ldSBr, cSBr, 19.4.1980, 2.5.1980; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 24.5.2017, 31.5.2017; **Velike Češnjice 3**, 14°51′23″, 45°58′32″, VL89, 432 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 31.5.2017; **Videm, Dobrepolje**, 14°42′, 45°51′, VL77, 450 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1978.

BELA KRAJINA: **Črnomelj**, 15°12′, 45°35′, WL14, 160 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Gradac, Metlika**, 15°15′, 45°37′, WL15, 160 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1977; **Semič**, 15°11′, 45°39′, WL15, 360 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977.

ŠTAJERSKO: Boč, Poljčane, 15°36′, 46°17′, WM42, 760 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1974; **Črni vrh, Pohorje**, 15°14′, 46°29′, WM14, 1000 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Gornji Dolič, Mislinja**, 15°11′, 46°25′, WM14, 480 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Kope, Pohorje, Pahernikova posest**, 15°12′05″, 46°30′41″, WM15, 1350 m, tPfall, phAlfa phEtan, lTAd dTHa, lit.THa2022a, 31.7.2020; **Kopitnik, Gore, Rimske Toplice**, 15°10′, 46°07′, WM01, 820 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978; **Kozje, Kozjansko**, 15°34′, 46°04′, WM40, 520 m, *Picea abies*, neobeljen gradbeni les, ldJTi, lit.JTi1983, 7.1973; **Lamprehtov potok, Pohorje**, 15°26′, 46°31′, WM35, ~600 m, ldJPe vSBr, cJPe, pred 1951; **Ločica pri Vranskem**, 14°57′, 46°14′, VM91, 380 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 3.1972; ibidem *Pinus sylvestris*, hlod, ldJTi, lit.JTi1973, 3.1972; **Maribor, Malečnik**, 15°42′, 46°33′, WM55, 350 m, ldJPe vSBr, cJPe, pred 1951; **Partizanski vrh, Trbovlje**, 15°01′, 46°10′, WM01, 800 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Pesek, Koča na Pesku, Pohorje**, 15°20′41″, 46°28′05″, WM24, 1393 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2020c, 19.5.2009; **Raduha, Savinjske Alpe**, 14°45′, 46°24′, VM83, 1470 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Sele, Slovenj Gradec**, 15°02′, 46°30′, WM04, 440 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Smrekovec, Savinjske Alpe**, 14°54′, 46°25′, VM94, 1300 m, lBDr dSBr, cSBr, 26.6.1987; **Solčava**, 14°42′, 46°25′, VM74, 640 m, ldVKo, cBFG, 22.7.1931; **Stari stani, Mozirska planina, Golte**, 14°54′, 46°22′, VM93, 1100 m, lBDr dSBr, cSBr, 6.1987; **Zavratnik, Okonina, Ljubno**, 14°53′, 46°20′, VM93, 480 m, lBDr dSBr, cSBr, 1.5.1992.

KOROŠKO: **Naravske Ledine, Uršlja Gora**, 14°57′, 46°29′, VM94, 1200 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Peca, Dom na Peci**, 14°48′, 46°30′, VM84, 1450 m, *Picea abies*, ldJTi, lit. JTi1983, 7.1979; **Sveti Duh, Olševa, Karavanke**, 14°40′, 46°26′, VM74, 1230 m, ldVKo, cBFG, pred 1951.

PREKMURJE: **Bukovnica, Dobrovnik**, 16°20′, 46°41′, XM07, 230 m, *Picea abies*, ldJTi, lit. JTi1983, 5.1982.

03.00. ***Hylastinus*** Bedel, 1888 GREBENAR

03.01. *Hylastinus fankhauseri* Reitter, 1895 NAGNOJEV GREBENAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: FREUDE, HARDE, LOHSE 1981: *H. obscurus* var. *fankhauseri* Reitt.; TITOVŠEK 1988: *H. fankhauseri* (Reitter); PFEFFER & KNÍŽEK 1993: *H. frankhauseri* (Reitter, 1894); PFEFFER 1995: *H. fankhauseri* Reitter, 1894; KARAMAN 1971.

E: AU CR FR IT SL SZ

Vrsta se pojavlja v centralni, srednji in južni Evropi. Nagnojev grebenar je trofično vezan le na vrste rodu *Laburnum* (pri nas na *Laburnum anagyroides* – navadni nagnoj in *Laburnum alpinum* – alpski nagnoj). Po zaslugi sistematičnega popisa TITOVŠEK (1977) so zabeležena najdišča v celotni Sloveniji z izjemo SV dela (slika 22). Je monogamna in univoltina vrsta. Rovni sistem je dvokraki prečni. Dolžina hroščev je 2,0–2,8 mm (slika 21). Vrsta je dendrobiont in sekundarni saproksil. Pospeši in skrajša proces odmiranja in razgradnje poškodovanih osebkov vrst rodu *Laburnum*. Poveča biotsko raznovrstnost flore in favne v gozdu.

The species occurs in central, central and southern Europe. *H. fankhauseri* is trophically linked only to species of the genus *Laburnum* (in Slovenia to *Laburnum* anagyroides and *Laburnum alpinum*). Thanks to systematic inventories by TITOVŠEK (1977), records are available for the whole of Slovenia, except for the NE part (Figure 22). Monogamous and univoltine species. The tunnel system is biramous transversely. Beetle length is 2.0-2.8 mm (Figure 21). The species is a dendrobiont and a secondary saproxyle. It accelerates and shortens the process of dieback and decomposition of damaged specimens of *Laburnum* species. It increases flora and fauna biodiversity in the forest.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi, cSBr, 1951-2000; ldJTi, cŠFS, 1951-2000; ldJTi vZKa, cŠFS, 1951-2000.
PRIMORSKO: **Kambreško, Kanal**, 13°39′, 46°08′, UM90, 740 m, *Laburnum anagyroides*, ldJTi, lit.JTi1983, 7.1974;, 13°44′, 46°08′, VM00, 600 m, *Laburnum anagyroides*, ldJTi, lit.JTi1983, 7.1974;

Slika 21: NAGNOJEV GREBENAR *Hylastinus fankhauseri*, dorzalno, lateralno (Foto: Maja Jurc)

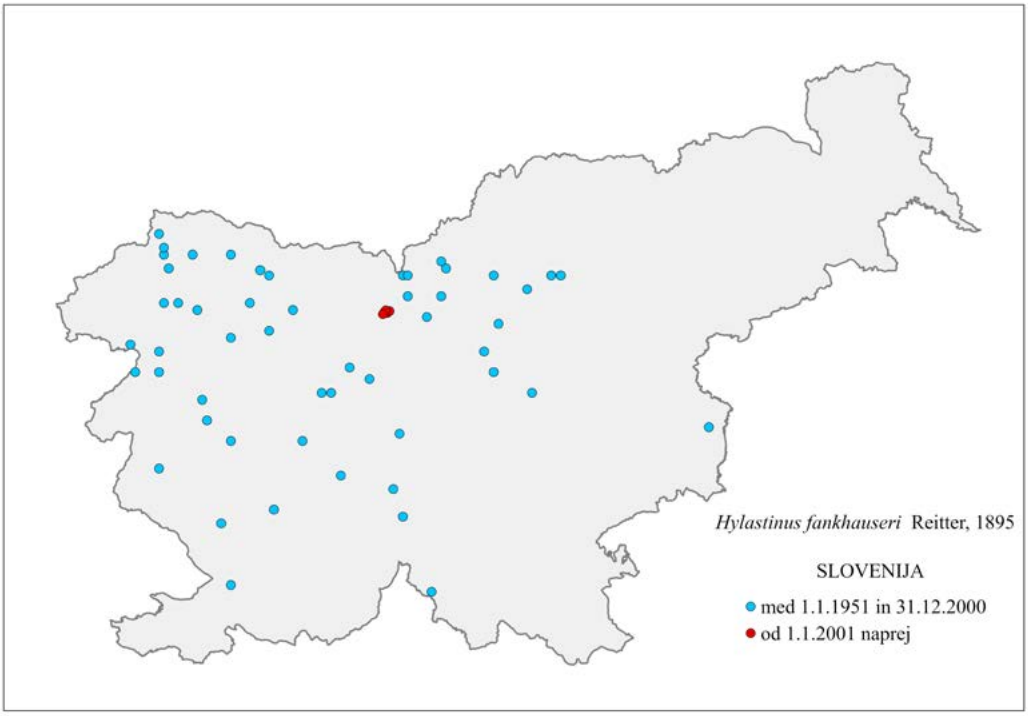
Figure 21: *Hylastinus fankhauseri*, dorsal, lateral (Photo: Maja Jurc)

Nagnoj, Dolnje Ravne, Kolovrat, 13°38′, 46°12′, UM91, 900 m, *Laburnum anagyroides*, ldJTi, lit.JTi1983, 7.1974; **Oblakov vrh, Dolenja Trebuša**, 13°53′, 46°04′, VM10, 450 m, *Laburnum* sp., debelce, ldJTi, lit.JTi1983, 5.1973; **Pungert, Čabar**, 14°41′, 45°36′, VL74, 600 m, *Laburnum alpinum*, ldJTi, lit.JTi1983, 4.1974; **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, tThe, Kont, lRJe dSBr, cSBr, 19.1.1988; **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, tThe, phLino, lRJe dSBr, cSBr, 19.1.1988; **Rodik, Brkini**, 13°59′, 45°37′, VL25, 480 m, *Laburnum anagyroides*, ldJTi, lit. JTi1983, 7.1974; **Tolmin**, 13°44′, 46°11′, VM01, 480 m, *Laburnum* sp., debelce rs, odJTi, lit.JTi1983, 6.1973; **Trenta**, 13°46′, 46°23′, VM03, 1000 m, *Laburnum alpinum*, ldJTi, lit.JTi1983, 7.1974; **Vrabče, Kras**, 13°57′, 45°46′, VL27, 370 m, *Laburnum anagyroides*, ldJTi, lit.JTi1983, 7.1974; **Vršič, Trenta**, 13°45′, 46°25′, VM04, 1400 m, *Laburnum alpinum*, ldJTi, lit.JTi1983, 7.1974.

GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 10.6.2022, 24.6.2022, 8.7.2022; **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 24.6.2022, 8.7.2022; **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 10.6.2022, 24.6.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 10.6.2022, 24.6.2022; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, Kont, lGBa, cSBr, 14.5.1993, ibidem, phLino, lGBa, cSBr, 14.5.1993; ibidem, phPher, lGBa, cSBr, 21.5.1993; **Bled, park hotela Bled**, 14°07′, 46°22′, VM33, 480 m, *Laburnum* sp., deblo, ldJTi, lit.JTi1983, 7.1972; **Bohinjsko jezero, Bohinj**, 13°52′, 46°17′, VM12, 530 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 7.1972; ibidem, veja, ldJTi, lit.JTi1983, 7.1972; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, lGBa, cSBr, 23.5.1991; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, 780 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 9.1969; **Komna, Julijske alpe**, 13°45′, 46°18′, VM02, 1500 m, *Laburnum alpinum*, ldJTi, lit. JTi1983, 8.1974; **Krivčevo, Črna pri Kamniku**, 14°40′, 46°16′, VM72, 580 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 6.1973; **Kropa**, 14°12′, 46°17′, VM32, 440 m, *Laburnum alpinum*, veja, ldJTi, lit.JTi1983, 4.1973; **Planica, Rateče**, 13°44′, 46°28′, VM04, 970 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 4.1973; **Podbrdo**, 13°59′, 46°13′, VM21, 560 m, *Laburnum alpinum*, debelce rs, odJTi, lit.JTi1983, 7.1973; **Prtovč, Zali Log**, 14°07′, 46°14′, VM32, 860 m, *Laburnum alpinum*, ldJTi, lit.JTi1983, 4.1974; **Radovna, Julijske Alpe**, 13°59′, 46°25′, VM24, 570 m, *Laburnum alpinum*, veja, ldJTi, lit.JTi1983, 7.1972; **Reber, pobočje, Trojane**, 14°52′, 46°11′, VM81, 700 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 4.1973; **Savica, Bohinj**, 13°48′, 46°18′, VM02, 820 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 7.1972; ibidem, veja, ldJTi, lit.JTi1983, 7.1972; **Soteska, Jelovica**, 14°03′, 46°18′, VM22, 620 m, *Laburnum alpinum*, ldJTi, lit. JTi1983, 8.1977; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 24.6.2022; **Sveta Gora, Izlake**, 14°54′, 46°08′, VM90, 780 m, *Laburnum* sp., ldJTi, lit.JTi1983, 9.1978; **Sveta Uršula pod Grmado, Polhograjsko hribovje**, 14°20′, 46°05′, VM40, 700 m, *Laburnum* sp., ldJTi, lit.JTi1983, 6.1982; **Vrata, Aljažev dom, Julijske Alpe**, 13°51′, 46°25′, VM14, 1100 m, *Laburnum alpinum*, ldJTi, lit.JTi1983, 8.1974; **Vršič, pod Erjavčevo kočo**, 13°45′, 46°26′, VM04, 1450 m, *Laburnum alpinum*, ldJTi, lit.JTi1983, 7.1974.

NOTRANJSKO: **Idrijska Bela, Zadlog**, 13°59′, 45°58′, VL29, 380 m, *Laburnum* sp., debelce, ldJTi, lit.JTi1983, 5.1973; ibidem, veja, ldJTi, lit.JTi1983, 5.1973; **Landol, Postojna**, 14°08′, 45°48′, VL37, 540 m, tThe, phLino, ldSBr, cSBr, 10.5.1986; **Pekel, Borovnica**, 14°22′, 45°53′, VL58, 450 m, *Laburnum* sp., veja, ldJTi, lit.JTi1983, 3.1973; **Črtnica, Polhov Gradec**, 14°18′, 46°05′, VM40, 410 m, *Laburnum* sp., debelce, ldJTi, lit.JTi1983, 2.1973; **Vojsko, Idrija**, 13°54′, 46°01′, VL19, 980 m, *Laburnum* sp., ldJTi, lit.JTi1983, 5.1976; **Zaplana, Vrhnika**, 14°14′, 45°58′, VL49, 580 m, *Laburnum* sp., veja, ldJTi, lit.JTi1983, 4.1973.

LJUBLJANA Z OKOLICO: **Šmarna gora,** 14°28′, 46°07′, VM50, 620 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 3.1972.



Slika 22: NAGNOJEV GREBENAR *Hylastinus fankhauseri*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 22: *Hylastinus fankhauseri*, distribution map according to historical and recent data

DOLENJSKO: **Medvedov graben, Gorenja Vas**, 15°02′, 46°05′, WM00, 490 m, lVFu dSBr, cVFu, 16.4.1991; **Mikunca, Žimarice**, 14°35′, 45°47′, VL67, ~800 m, tThe, lČVi dSBr, cSBr, 19.5.1992; **Pišece, Bizeljsko**, 15°39′, 46°00′, WL59, 270 m, *Laburnum anagyroides*, debelce rs, odJTi, lit. JTi1983, 11.1973; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phLino, lGBa dSBr, cSBr, 28.4.1993; **Uzmani, Rob**, 14°33′, 45°51′, VL67, 690 m, ldSBr, cSBr, 14.6.1987.
ŠTAJERSKO: Golte, Mozirska koča, 14°54′, 46°22′, VM93, 1250 m, *Laburnum* sp., ldJTi,lit. JTi1983, 8.1980; **Igla, Solčava, Savinjska dolina**, 14°44′, 46°23′, VM73, 530 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 6.1973; **Merinca, Vransko**, 14°55′, 46°15′, VM92, 380 m, *Laburnum* sp., debelce, ldJTi, lit.JTi1983, 4.1973; ibidem, veja, ldJTi, lit.JTi1983, 4.1973; **Okrešelj, Savinjske Alpe**, 14°35′, 46°22′, VM63, 1380 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 6.1973; ibidem, veja,ldJTi,lit.JTi1983,6.1973; **Podvolovljek, Savinjske Alpe**, 14°43′, 46°19′, VM72, 570 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 6.1973; veja, ldJTi, lit.JTi1983, 6.1973; **Robanov Kot, Savinjske Alpe**, 14°43′, 46°24′, VM73, 680 m, *Laburnum alpinum*, debelce rs, odJTi, lit.JTi1983, 6.1973; ibidem, veja rs, odJTi, lit.JTi1983, 6.1973; **Slap Rinka, Savinjske Alpe**, 14°36′, 46°22′, VM63, 800 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 6.1973, ibidem, veja, ldJTi, lit.JTi1983, 6.1973; **Tabor, Šmartno ob Paki**, 15°01′, 46°20′, WM03, 400 m, *Laburnum alpinum*, debelce, ldJTi, lit.JTi1983, 4.1973; ibidem, veja, ldJTi, lit.JTi1983, 4.1973; **Velenje, Pesje**, 15°06′, 46°22′, WM03, 390 m, *Laburnum* sp., debelce, ldJTi, lit.JTi1983, 9.1973; ibidem, veja, ldJTi, lit.JTi1983, 9.1973; **Velenje, Šalek**, 15°08′, 46°22′, WM13, 460 m, *Laburnum* sp., debelce, ldJTi, lit.JTi1983, 9.1973.

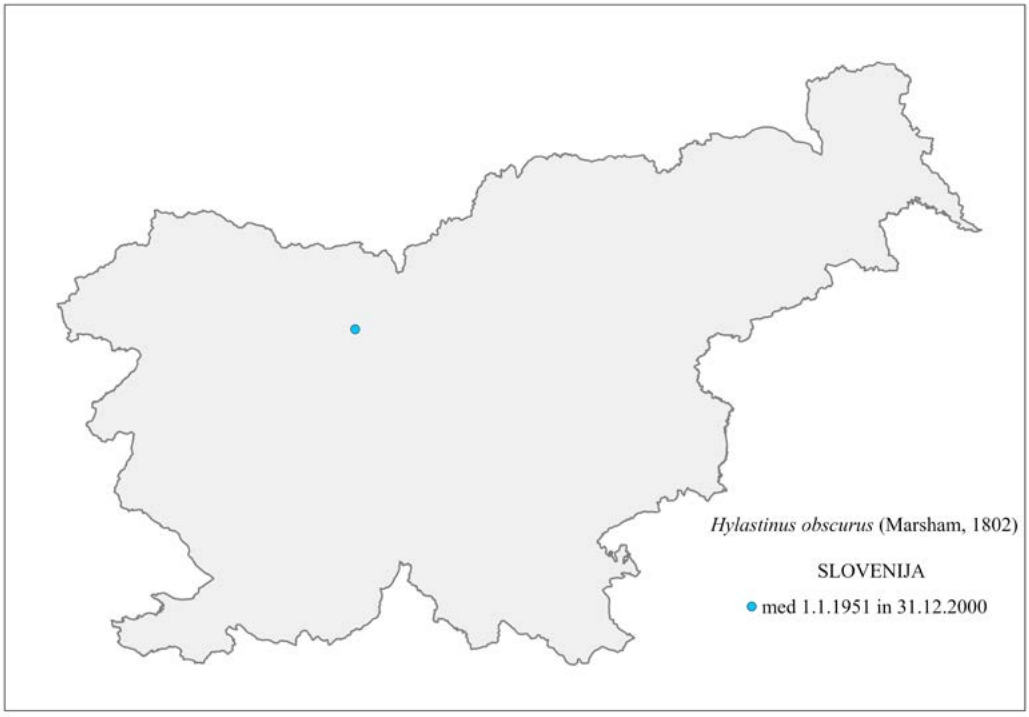
03.02. *Hylastinus obscurus* (Marsham, 1802) DETELJNI GREBENAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Hylastes Trifolii* Müll.; GRÜNE 1979: *Hylastinus obscurus* (Marsham, 1802); FREUDE, HARDE, LOHSE 1981: *H. obscurus* Marsham; PFEFFER & KNÍŽEK 1993: *H. obscurus* (Marsham, 1802); PFEFFER 1995: *H. obscurus* (Marsham, 1802).

E: AU BE CR CZ DE FR GB GE GR IR IT LA NL PL PT SK SL ST SV SP SZ UK YU **N:** AG CI MO MR **NAR NTR**

Vrsta je razširjena v Evropi, JZ delu Rusije in v severni Afriki ter na nearktičnem in neotropskem območju. V 19. stoletju so jo verjetno zamenjevali z drugimi podlubniki (»vrsta na Kranjskem ni redka, pod borovim lubjem« (SIEGEL 1866)). Edini zanesljivo določen primerek v Sloveniji je bil ujet na Gorenjskem v past s kombinacijo feromonov (Pheroprax® in Chalcoprax®) (slika 23). Gostitelji so: *Trifolium pratense*, *Ulex europaeus*, *Ononis natrix*,

The species is distributed in Europe, SW Russia, North Africa, the Nearctic and the Neotropics. In the 19th century, it was probably confused with other bark beetles ("the species is not rare in Carniola, under pine bark" (SIEGEL 1866)). The only reliably identified specimen in Slovenia was caught in Gorenjska into a trap with a combination of pheromones (Pheroprax® and Chalcoprax®) (Figure 23). Hosts include *Trifolium pratense*, *Ulex europaeus*, *Ononis natrix*, *Sarothamnus*



Slika 23: DETELJNI GREBENAR *Hylastinus obscurus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 23: *Hylastinus obscurus*, distribution map according to historical and recent data

Sarothamnus scoparius, *Laburnum alpinum*, *L. anagyroides*, *Lembotropis nigricans*, *Medicago sativa*, *Medicago* spp., in *Cytisus* spp.. Dolžina odraslega osebka je 2,0–2,5 mm.

scoparius, *Laburnum alpinum*, *L. anagyroides*, *Lembotropis nigricans*, *Medicago sativa*, *Medicago* spp., *Trifolium pratense* and *Cytisus* spp.. Adult length is 2.0-2.5 mm.

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.
GORENJSKO: **Šenčur, v Križancah,** 14°24′47″, 46°14′13″, VM52, 394 m, tThe, phPher phChal, lRPa dSBr, lit.RPa1991a, 14.4.1989.

04.00. *Hylesinus* Fabricius, 1801 JESENAR

04.01. *Hylesinus crenatus* (Fabricius, 1787) VELIKI JESENAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *H. crenatus* (Fabricius, 1787); FREUDE, HARDE, LOHSE 1981: *H. crenatus* Fabricius; TITOVŠEK 1988: *H. crenatus* Fabricius; PFEFFER & KNÍŽEK 1993: *H. crenatus* (Fabricius, 1787); PFEFFER 1995: *H. crenatus* (Fabricius, 1787).

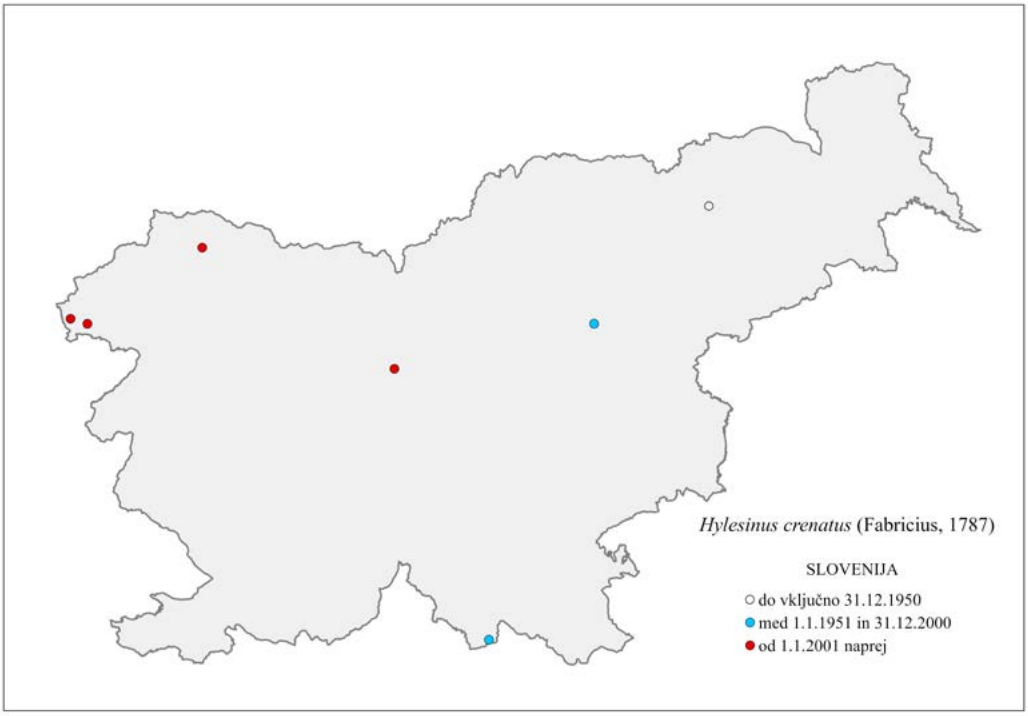
E: AU BE BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LT LU MC NR NT PL RO SK SL SP SV ST SZ UK YU **N:** AG MO **A:** KI TR

Vrsta je razširjena v centralni in južni Evropi ter na drugih sredozemskih območjih, kot so severna Afrika (Maroko, Alžirija), Kavkaz in Mala Azija. V Sloveniji se pojavlja regionalno, vendar redko (slika 25). Gostitelji so *Fraxinus excelsior*, *F. americana* in *F. angustifolia*. Izjemoma naseljuje tudi *Quercus robur*, *Quercus* spp., *Juglans nigra*, *J. regia*, *Syringa vulgaris*, *Tilia* sp. in *Acer* sp.. Naseljuje zlasti debelejša jesenova debla, v Sloveniji je zabeležen le na vrsti *F. excelsior*. Roji proti koncu aprila, razvije eno, v letih z višjimi temperaturami tudi dve generaciji. Rovni sistem je dvokrak, prečno usmerjen, dolg do 8 cm. Pogosto sta kraka materinskih rovov različno dolga, en krak lahko tudi manjka. Čokat, svodast hrošč meri v dolžino od 4 do 6 mm (slika 24). Je monogamna vrsta, razmeroma redka in nima pomembnejše gospodarske vloge. Zaradi propadanja jesena (jesenov ožig, *Hymenoscyphus fraxineus* (T. Kowalski) Baral, Queloz & Hosoya 2014) bo v prihodnosti verjetno postala še redkejša.

The species is distributed in central and southern Europe and other Mediterranean areas such as North Africa (Morocco, Algeria), the Caucasus and Asia Minor. It occurs regionally in Slovenia, but rarely (Figure 25). Hosts include *Fraxinus excelsior*, *F. americana* and *F. angustifolia*. Occasionally it also inhabits *Quercus robur*, *Quercus* spp., *Juglans nigra*, *J. regia*, *Syringa vulgaris*, *Tilia* sp. and *Acer* sp.. It inhabits mainly thicker ash trunks, in Slovenia it has been recorded only on *F. excelsior*. Swarms towards the end of April, develops one generation, in years with higher temperatures also two generations. The tunnel system is biramous, transversely oriented, up to 8 cm long. Often the two arms of the maternal gallery are of different lengths, one arm may be missing. The stocky, arched beetle measures 4 to 6 mm in length (Figure 24). A monogamous species, it is relatively rare and has no significant economic role. It is likely to become even rarer in the future due to ash dieback (*Hymenoscyphus fraxineus* (T. Kowalski) Baral, Queloz & Hosoya 2014).

Slika 24: VELIKI JESENAR *Hylesinus crenatus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 24: *Hylesinus crenatus*, dorsal, lateral (Photo: Maja Jurc)



Slika 25: VELIKI JESENAR *Hylesinus crenatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 25: *Hylesinus crenatus*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia

PRIMORSKO: **Borjana, Kobarid**, 13°29′, 46°15′, UM82, 440 m, *Fraxinus excelsior*, hlod 25 rs, odRPa, lit.RPa2023a, 29.7.2023; ibidem, hlod 30 rs, odRPa, lit.RPa2023a, 29.7.2023; ibidem, hlod 40 rs, odRPa, lit.RPa2023a, 29.7.2023; **Breginj 1**, 13°25′28″, 46°15′45″, UM72, 562 m, *Fraxinus excelsior*, hlod 55 cm rs, odRPa, lit.RPa2021a, 11.7.2021.

GORENJSKO: **Jablje, Loka pri Mengšu,** 14°33′13″, 46°08′30″, VM60, 310 m, *Fraxinus excelsior*, hlod 50 cm rs, odRPa, cBFG, 28.5.2020; **Vrata, Julijske Alpe**, 13°53′, 46°26′, VM14, ~900 m, lJSs, cJSd, 28.6.2014.
DOLENJSKO: **Fara ob Kolpi, Kostel**, 14°53′, 45°29′, VL93, 250 m, *Fraxinus excelsior*, ldJTi, lit.JTi1983, 8.1981.
ŠTAJERSKO: Celje, skladišče lesa, 15°15′, 46°15′, WM22, 240 m, lSJe dSBr, cSBr, 31.5.1991; **Maribor**, (15°39′), (46°32′), (WM55), ~270 m, ldJPe vSBr, cJPe, pred 1951.

04.02. *Hylesinus toranio* (D′Anthoine, 1788) OLJKOV JESENAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Grüne 1979: *Hylesinus oleiperda* Fabricius, 1792; Freude, Harde, Lohse 1981: *H. oleiperda* Fabricius; Titovšek 1988: *H. oleiperda* Fabricius; Pfeffer & Knížek 1993: *H. oleiperda* Fabricius, 1792; Pfeffer 1995: *H. oleiperda* (Fabricius, 1792).

E: AU BE BU CR CZ DE FR GB GE GR HU IT LA MC MD NR PL SK SL SP SV ST SZ UK YU **N:** AG MO **A:** IS JAi LE TR **NTR**

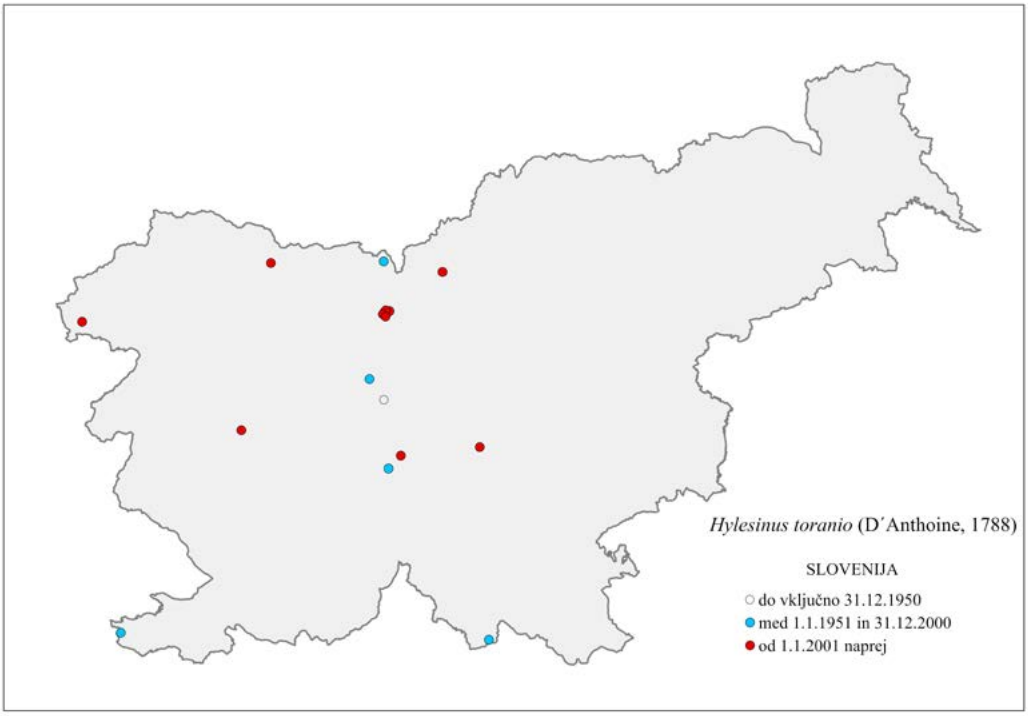
Vrsta je razširjena v južni in srednji Evropi ter v južnem delu severne Evrope, Ukrajini, na Kavkazu, Krimu, severni Afriki, Aziji in na neotropskem območju. Razmeroma redke (starejše in novejše) najdbe so razporejene po večjem delu Slovenije, manjkajo pa najdišča v vzhodnem delu države (slika 27). Gostitelji so *Olea europaea*, *Fraxinus excelsior*, *F. ornus*, manj pogosto tudi *Fagus sylvatica*, *F. orientalis*, *Robinia pseudoacacia*, *Syringa vulgaris*, *Ligustrum* spp. in *Eleagnus* spp.. V Sloveniji sta kot gostiteljski rastlini znana *Fraxinus excelsior* in *F. ornus*. Je monogamna vrsta, letno razvije eno generacijo. Roji aprila in maja, na Primorskem že marca. Naseljuje zlasti drevesne strukture srednje debeline (debelca, debelejše veje). Rovni sistem je dvokrak prečni, materinski hodniki so dolgi 3–4 cm in se zajedajo globoko v beljavo. Larvalni rovi so dolgi 5–7 cm in se končujejo 1 cm globoko v beljavi. Jeseni in spomladi se dopolnilno prehranjuje z vrtanjem v zeleno skorjo pri osnovi popkov. Dolžina hrošča je 2,5–3,2 mm (slika 26). Vrsta je zato hkrati primarna in sekundarna. Lahko škoduje oljkam.

The species is distributed in southern, central and southern parts of northern Europe, Ukraine, the Caucasus, Crimea, North Africa, Asia, and the Neotropics. Relatively few (older and recent) records are distributed throughout most of Slovenia, but records in the eastern part of the country are lacking (Figure 27). Host plants include *Olea europaea*, *Fraxinus excelsior*, *F. ornus*, less frequently also *Fagus sylvatica*, *F. orientalis*, *Robinia pseudoacacia*, *Syringa vulgaris*, *Ligustrum* spp. and *Eleagnus* spp.. In Slovenia, *F. excelsior* and *F. ornus* are known as host plants. A monogamous species, it develops one generation per year. It swarms in April and May, in Primorska already in March. It inhabits mainly medium-thickness material (trunks, thicker branches). The tunnel system is biramous transversely, the maternal gallery is 3-4 cm long and burrow deep into the sapwood. Larval tunnels are 5-7 cm long and terminate 1 cm deep in the sapwood. In autumn and spring, it feeds supplementarily by boring into the green crust at the base of the buds. Beetle length is 2.5-3.2 mm (Figure 26). The species is therefore both primary and secondary. It can damage olive trees.

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: ldJTi, cSBr, 1951-2000; ldJTi, cŠFS, 1951-2000.

Slika 26: OLJKOV JESENAR *Hylesinus toranio*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 26: *Hylesinus toranio*, dorsal, lateral (Photo: Maja Jurc)



Slika 27: OLJKOV JESENAR *Hylesinus toranio*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 27: *Hylesinus toranio*, distribution map according to historical and recent data

ISTRA: **Lucija, Portorož**, 13°36′, 45°30′, UL93, 20 m, *Olea europaea*, ldJTi, lit.JTi1983, 1.1979.
PRIMORSKO: **Stanovišče, počivališče ob cesti**, 13°27′53″, 46°15′17″, UM82, 485 m, *Fraxinus excelsior*, deblo 20 cm, ldRPa, lit.RPa2022a, 7.8.2022; ibidem, deblo 7 cm rs, odRPa, lit.RPa2022a, 7.8.2022.
GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan,

lNMa dTHa, lit.THa2022b, 24.6.2022, 8.7.2022, 22.7.2022; **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 24.6.2022; **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 8.7.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 8.7.2022; **Breg, Žirovnica**, 14°07′23″, 46°23′47″, VM33, 458 m, *Fraxinus excelsior*, deblo 12 cm rs, oKMa dRPa, lit.RPa2022a, 10.12.2022; ibidem, deblo 35 cm rs, oKMa dRPa, lit.RPa2022a, 10.12.2022; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 5.8.2022; **Stiška Vas, Krvavec 2**, 14°31′20″, 46°16′03″, VM62, 884 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 24.6.2022, 8.7.2022, 22.7.2022; **Zgornje Jezersko, Planšarsko jezero**, 14°31′, 46°24′, VM63, 900 m, ldSBr, cSBr, 12.7.1984.
NOTRANJSKO: **Idrija, Grapa**, 14°01′13″, 45°59′35″, VL29, 465 m, *Fraxinus ornus*, deblo 15 cm rs, oDMo dRPa, lit.RPa2022a, 10.12.2022.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), lJSs, cJSd, 5.7.1938; **Šmarna gora,** 14°28′, 46°07′, VM50, 580 m, *Fraxinus ornus*, ldJTi, lit.JTi1983, 7.1974.
DOLENJSKO: **Fara ob Kolpi, Kostel**, 14°53′, 45°29′, VL93, 250 m, *Fraxinus excelsior*, ldJTi, lit.JTi1983, 8.1981; **Mokrec, Sive doline**, 14°32′, 45°54′, VL68, ~900 m, ldSBr, cSBr, 6.6.1982; **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 30.6.2017; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, phEtan, ldLPa vTHa, lit.LPa2019, 31.5.2017.
ŠTAJERSKO: Poljšak p7b, 14°43′18″, 46°22′30″, VM72, 1090 m, tThe, phPher, ldRPa, lit. RPa2021c, 23.6.2021.

04.03. *Hylesinus varius* (Fabricius, 1775) PISANI JESENAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel 1866: *Hylesinus Fraxini*; Grüne 1979: *Leperesinus varius* (Fabricius, 1775); Freude, Harde, Lohse 1981: *L. varius* Fabricius; Titovšek 1988: *L. varius* (Fabricius); Pfeffer & Knížek 1993: *Leperesinus fraxini* (Panzer, 1779); Pfeffer 1995: *Hylesinus varius* (Fabricius, 1775).

E: AU BE BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LS LT LU MA MC NR NT PL PT RO SK SL SP SV ST SZ UK YU **N:** AG MO TU **A:** HEI IN JIL LIA SHA TR

Vrsta se pojavlja v centralni in južni Evropi, na Uralu, v severni Afriki in Aziji. Siegel (1866) navaja, da vrsta »na Kranjskem ni redka, na jesenih«. Danes je razširjena po vsej Sloveniji (slika 29), njena pogostost pa se bo v prihodnje verjetno zmanjšala zaradi propadanja jesenov. Gostitelji so: *Fraxinus excelsior*, *F. ornus*, *F. americana*, manj pogosto tudi *Olea europaea*, *Juglans* spp., *Quercus robur*, *Pyrus* sp., *Robinia pseudoacacia*, *Fagus* spp., *Acer* spp., *Corylus avellana*, *Carpinus betulus* in *Syringa vulgaris*. V Sloveniji je vrsta zabeležena na *Fraxinus excelsior*, *F. ornus*, *F. angustifolia* in *Olea europaea*. Napada debla in glavne

The species occurs in central and southern Europe, the Urals, northern Africa and Asia. Siegel (1866) states that the species is "not rare in Carniola, on *Fraxinus*". Today it is distributed throughout Slovenia, but its abundance is likely to decline in the future due to the ash decline (Figure 29). Hosts include *Fraxinus excelsior*, *F. ornus*, *F. americana*, and less frequently *Olea europaea*, *Juglans* spp., *Quercus robur*, *Pyrus* sp., *Robinia pseudoacacia*, *Fagus* spp., *Acer* spp., *Corylus avellana*, *Carpinus betulus* and *Syringa vulgaris*. In Slovenia, the species has been recorded on *F. excelsior*, *F. ornus*, *F. angustifolia* and *O. europaea*. It attacks trunks and main branches, exceptionally also thinner

veje, izjemoma tudi tanjši material do debeline svinčnika. Roji od marca do maja, letno razvije eno generacijo. Rovni sistem je dvokraki prečni, kotilnica, materinski rovi, rovi ličink in bubilnice so globoko v beljavi. Dolžina imaga je 2,5–3,5 mm (slika 28). Vrsta ima poleg sekundarnega tudi primarni značaj, zaradi dopolnilnega prehranjevanja in prezimovanja pod skorjo popolnoma zdravih dreves. Pri tem na deblih nastajajo razpoke in zadebelitve, ki spominjajo na rakasto rano, »jesenove rože«. V Sloveniji je to gospodarsko najpomembnejši podlubnik na jesenih.

material up to the thickness of a pencil. Swarms from March to May, developing one generation per year. The tunnel system is biramous transversely, the brood chamber, maternal gallery, larval tunnels and pupation chamber are deep in the sapwood. Adult length is 2.0-3.5 mm (Figure 28). The species is not only secondary but also primary, due to its complementary feeding and overwintering under the bark of perfectly healthy trees. This produces cracks and thickening on the trunks, resembling cankers, "ash flowers". In Slovenia it is the most economically important bark beetle on ash trees.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Fraxinus* spp., ldMSi, lit.MSi1866, pred 1951; ldJTi, cŠFS, 1951-2000.
ISTRA: Kastelec, 13°52′09″, 45°34′17″, VL14, 299 m, *Fraxinus excelsior*, deblo 10 cm rs, odRPa, lit.RPa2020c, 15.6.2009.
PRIMORSKO: **Banjščice, Banjška planota**, 13°41′32″, 46°03′27″, VM90, 700 m, *Fraxinus excelsior*, deblo rs, odRPa, lit.RPa2014b, 24.1.2006; **Griže, Štorje 2**, 13°56′35″, 45°45′32″, VL16, 416 m, *Fraxinus ornus*, veja 5 cm rs, odMOr vRPa, lit.RPa2021a, 24.10.2021; **Kambreško, Kanal**, 13°39′, 46°08′, UM90, 760 m, *Fraxinus ornus*, ldJTi, lit.JTi1983, 7.1974; **Kobjeglava, Komen**, 13°49′, 45°49′, VL07, 320 m, ldSBr, cSBr, 26.7.1985; **Lokev, Divača**, 13°56′, 45°40′, VL15, 350 m, *Fraxinus ornus*, debelce rs, odJTi, lit.JTi1983, 8.1968; **Nova Gorica, Panovec**, 13°40′, 45°57′, UL98, ~100 m, lBZa dSBr, cSBr, 16.3.2001, 23.4.2001; **Nova Gorica, Panovec 2**, 13°40′16″, 45°56′48″, UL98, 151 m, *Fraxinus excelsior*, deblo 20 cm rs, odRPa, lit.RPa2021a, 14.9.2021; **Stanovišče, počivališče ob cesti**, 13°27′53″, 46°15′17″, UM82, 485 m, *Fraxinus excelsior*, deblo 20 cm rs, odRPa, lit.RPa2022a, 7.8.2022; ibidem, *Fraxinus ornus*, deblo 10 cm rs, odRPa, lit. RPa2022a, 7.8.2022; **Temnica, Kostanjevica na Krasu**, 13°41′, 45°51′, UL97, 270 m, *Fraxinus ornus*, debelce rs, odJTi, lit.JTi1983, 5.1969; **Tolmin, Kozlov rob**, 13°44′, 46°11′, VM01, 300 m, *Fraxinus excelsior*, lNRu dRPa, lit.NRu2014, 2013; **Zatolmin, Tolmin**, 13°44′05″, 46°12′00″, VM01, 419 m, *Fraxinus ornus*, deblo 8 cm rs, odJČe vRPa, lit.RPa2022a, 10.12.2022.

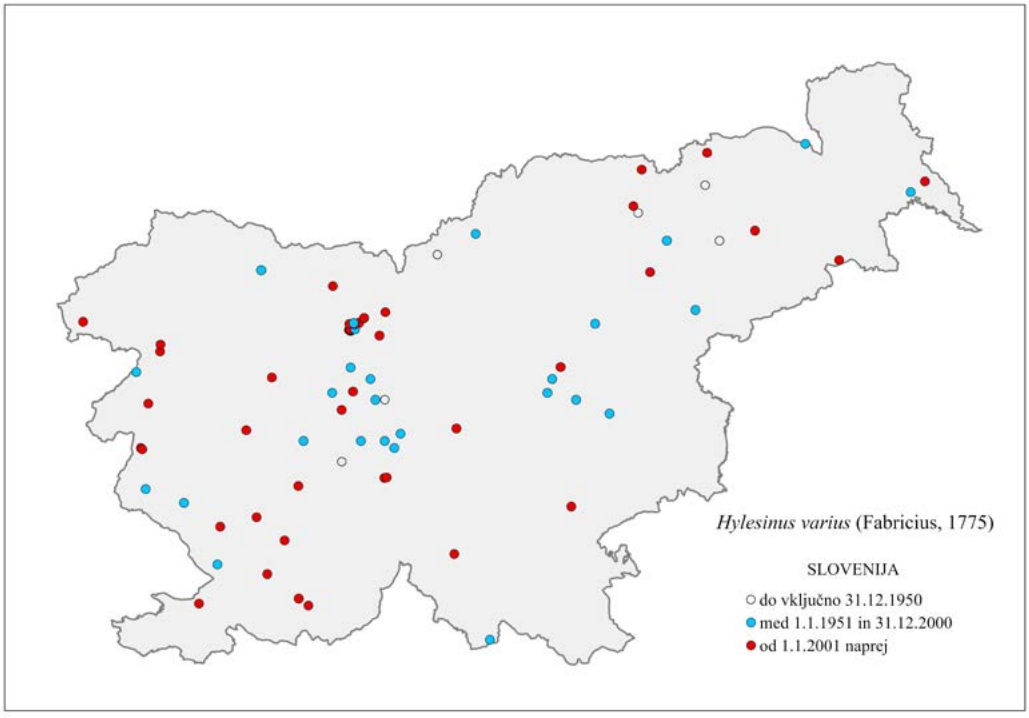
Slika 28: PISANI JESENAR *Hylesinus varius*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 28: *Hylesinus varius*, dorsal, lateral (Photo: Maja Jurc)

GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, Kont, lGBa dSBr, cSBr, 22.4.1993; ibidem, phLino, lGBa dSBr, cSBr, 22.4.1993; ibidem, phPher phChal, lGBa dSBr, cSBr, 9.4.1993, 13.4.1993; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 22.3.1991, 23.3.1991; ibidem, phPher, lFPo dSBr, cSBr, 4.6.1990, 25.3.1991, 23.5.1991; **Gozd, Golnik, kmetija Vrač 2**, 14°20′08″, 46°20′27″, VM43, 892 m, *Fraxinus excelsior*, deblo 20 cm rs, odRPa, lit.RPa2022a, 31.7.2022; **Hotavlje, Hlavče Njive**, 14°07′24″, 46°07′13″, VM30, 476 m, *Fraxinus* sp., deblo 15 cm rs, odLPe vRPa, lit.RPa2023a, 21.11.2023; **Hrastje, Kranj 3**, 14°23′52″, 46°13′58″, VM52, 387 m, *Fraxinus excelsior*, deblo 15 cm rs, odRPa, lit.RPa2020c, 3.6.2019; **Hrastje, Kranj, Klanec 4**, 14°23′34″, 46°14′07″, VM52, 388 m, *Fraxinus excelsior*, veja 3 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 5**, 14°23′30″, 46°14′07″, VM52, 388 m, *Fraxinus excelsior*, deblo 7 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Planjava 5**, 14°23′39″, 46°14′06″, VM52, 389 m, *Fraxinus excelsior*, veja 5 cm rs, odRPa, lit.RPa2020b, 28.5.2020; **Hrastje, Kranj, Planjava 8**, 14°23′50″, 46°14′12″, VM52, 384 m, *Fraxinus excelsior*, veja 3 cm, ldRPa, lit. RPa2020b, 3.6.2019; **Hrastje, Kranj, Planjava 10**, 14°23′42″, 46°14′11″, VM52, 392 m, *Fraxinus excelsior*, deblo 10 cm rs, odRPa, lit.RPa2020b, 28.5.2020; **Hudo, Kovor 1**, 14°15′38″, 46°20′14″, VM43, 528 m, *Fraxinus excelsior*, deblo 30 cm rs, odRBe vRPa, lit.RPa2021a, 22.10.2021; **Kranj, ob avtocesti 2**, 14°23′34″, 46°14′58″, VM52, 405 m, *Fraxinus excelsior*, deblo 5 cm rs, odRPa, lit.RPa2021a, 6.10.2021; **Srednja Vas pri Šenčurju 5**, 14°25′39″, 46°15′10″, VM52, 414 m, *Fraxinus excelsior*, deblo 20 cm rs, odRPa, lit.RPa2023a, 16.4.2023; **Srednja Vas pri Šenčurju 6**, 14°25′37″, 46°15′08″, VM52, 414 m, *Fraxinus excelsior*, deblo 3 cm rs, odRPa, lit.RPa2023a, 16.4.2023; ibidem, veja 1 cm rs, odRPa, lit.RPa2023a, 16.4.2023; **Sveta Uršula pod Grmado, Polhograjsko hribovje**, 14°20′, 46°05′, VM40, 700 m, *Fraxinus ornus*, ldJTi, lit.JTi1983, 6.1982; **Šenčur, v Križancah,** 14°24′47″, 46°14′13″, VM52, 394 m, tThe, phPher phChal, lRPa dJTi, lit. RPa1991a, 14.4.1989; **Šenčur, Weingerlova ulica, pri krožišču,** 14°24′41″, 46°14′55″, VM52, 409 m, *Fraxinus excelsior*, deblo 20 cm rs, oTAr dRPa, lit.RPa2022a, 31.12.2022; **Šenčur, Zlato polje 1,** 14°24′28″, 46°15′06″, VM52, 414 m, tThe, Kont, ldRPa, lit.RPa1991a, 28.7.1989; **Velesovo 7**, 14°26′41″, 46°15′50″, VM52, 425 m, *Fraxinus excelsior*, deblo 8 cm rs, odRPa, lit.RPa2021a, 20.2.2021; **Velesovo 8**, 14°26′41″, 46°15′51″, VM52, 425 m, *Fraxinus excelsior*, deblo 15 cm rs, odRPa, lit.RPa2021a, 20.2.2021; **Vopovlje 2**, 14°29′54″, 46°13′18″, VM61, 360 m, *Fraxinus excelsior*, deblo 25 cm rs, odRPa, lit.RPa2021a, 2.10.2021.

NOTRANJSKO: **Borovnica**, 14°22′, 45°55′, VL58, 300 m, lJSs, cJSd, 23.3.1918; **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017; **Drugi jez pri Prestranku**, 14°10′01″, 45°43′30″, VL36, 583 m, *Fraxinus excelsior*, deblo 10 cm rs, odDDe vRPa, lit.RPa2021a, 22.10.2021; **Grčarevec, Logatec**, 14°12′54″, 45°51′27″, VL36, 698 m, *Fraxinus excelsior*, deblo 25 cm rs, odŽKo vRPa, lit.RPa2021a, 22.10.2021; **Idrija, Vodnikova ulica 2**, 14°02′02″, 45°59′34″, VL29, 336 m, *Fraxinus excelsior*, deblo 30 cm rs, odLCu vRPa, lit. RPa2023a, 22.11.2023; **Ilirska Bistrica**, 14°15′, 45°34′, VL44, 407 m, *Fraxinus excelsior*, deblo, ldMJu, cBFG, lit.MJu2002a, 23.5.2002; **Podpeč, Ljubljansko barje**, 14°26′, 45°58′, VL59, 310 m, *Fraxinus excelsior*, hlod rs, odJTi, lit.JTi1983, 11.1971; **Suhorje, Brkini**, 14°06′26″, 45°38′35″, VL35, 363 m, *Fraxinus excelsior*, deblo 10 cm rs, odJDe vRPa, lit.RPa2023a, 18.11.2023; **Veliko Ubeljsko, Razdrto 2**, 14°04′10″, 45°46′54″, VL27, 675 m, *Fraxinus excelsior*, deblo 40 cm rs, odPČe vRPa, lit.RPa2023a, 13.11.2023; **Zaplana, Vrhnika**, 14°14′, 45°58′, VL49, 440 m, *Fraxinus ornus*, debelce rs, odJTi, lit.JTi1983, 4.1973; ibidem, veja rs, odJTi, lit.JTi1983, 4.1973; **Zarečje, Ilirska Bistrica**, 14°13′, 45°35′, VL34, 436 m, *Fraxinus ornus*, debelce, ldAKr, lit.AKr2005, 7.5.2002, 16.5.2002, 23.5.2002, 27.5.2002, 12.6.2002, 19.7.2002; ibidem, *Olea europaea*, debelce, ldAKr, lit.AKr2005, 7.5.2002, 16.5.2002, 23.5.2002, 27.5.2002, 12.6.2002, 19.7.2002.

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldSBr, cSBr, 13.9.1948; ibidem, lJSs, cJSd, 25.6.1917, 14.3.1918, 17.3.1918, 17.9.1918, 20.5.1919, 8.4.1926, 15.7.1935, 10.8.1935; **Ljubljana, Šiška**, 14°29′, 46°04′, VM60, 305 m, ldSBr, cSBr, 12.4.1983; **Šmarna gora,** 14°28′, 46°07′, VM50, 530 m, *Fraxinus ornus*, debelce rs, ldJTi, lit.JTi1983, 3.1972; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017.
DOLENJSKO: **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, *Fraxinus excelsior*, deblo rs, oVVu dRPa, lit.VVu2016, 22.11.2012; ibidem, odVVu, lit.VVu2016, 8.5.2013; **Fara ob Kolpi, Kostel**, 14°53′, 45°29′, VL93, 250 m, *Fraxinus excelsior*, ldJTi, lit.JTi1983, 8.1981; **Iška Loka**, 14°31′, 45°58′, VL69, 290 m, ldSBr, cSBr, 7.4.1982; **Kožlak, Bajda, Podkraj**, 15°06′, 46°07′, WM00, 360 m, *Fraxinus ornus*, deblo rs, odJTi, lit.JTi1983, 4.1973; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 14.4.1980, 2.5.1980, 15.8.1985, 22.8.1985, 10.8.1986; **Mali Kum, Kum**, 15°05′, 46°05′, WM00, 810 m, lVFu dSBr, cVFu, 6.5.1988; **Mokrec 2**, 14°30′53″, 45°52′39″, VL68, 900 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017; **Mokrec 3**, 14°31′24″, 45°52′42″, VL68, 941 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 21.4.2017, 5.5.2017; **Poljane pri Stični, Brigarica**, 14°45′58″, 45°59′50″, VL89, 541 m, *Fraxinus excelsior*, deblo 20 cm rs, odGLe vRPa, lit.RPa2023a, 20.11.2023; **Prnovše, Radeče**, 15°11′, 46°04′, WM10, 400 m, *Fraxinus ornus*, ldJTi, lit.JTi1969, 7.1967, ibidem, lit.JTi1983,7.1976; **Novo Mesto**, 15°10′01″, 45°48′27″, WL17, 165 m, *Fraxinus excelsior*, deblo 7 cm rs, odBAj vRPa, lit.RPa2022a, 9.12.2022; **Rakitnica, Dolenja Vas 1**, 14°45′31″, 45°41′33″, VL85, 486 m, *Fraxinus excelsior*, deblo 25 cm rs, oPOr dRPa, lit. RPa2021a, 22.10.2021; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phLino, lGBa dSBr, cSBr, 22.4.1993.



Slika 29: PISANI JESENAR *Hylesinus varius*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 29: *Hylesinus varius*, distribution map according to historical and recent data

ŠTAJERSKO: Boč, Poljčane, 15°36′, 46°17′, WM42, 680 m, *Fraxinus ornus*, ldJTi, lit.JTi1983, 8.1974; **Celje, skladišče lesa**, 15°15′, 46°15′, WM22, 240 m, lSJe dSBr, cSBr, 11.4.1991, 26.4.1991, 30.4.1991, 17.5.1991, 31.5.1991; **Gornja Radgona, Radgonski grad**, 15°58′56″, 46°40′56″, WM77, 220 m, lJMa dBDr, cZRC, 1999; **Krčevina pri Vurbergu 2**, 15°48′26″, 46°28′27″, WM64, 336 m, *Fraxinus excelsior*, deblo 35 cm rs, odŽDo vRPa, lit.RPa2023a, 16.11.2023; **Krištandol, Hrastnik, Jukič**, 15°07′45″, 46°08′44″, WM01, 415 m, *Fraxinus excelsior*, deblo 37 cm rs, odABa vRPa, lit.RPa2023a, 19.11.2023; **Lovrenc na Pohorju, potok Slepnica**, 15°23′, 46°32′, WM35, 350 m, lAKa dSBr, cAKa, 30.7.2005; **Malahorna, Oplotnica 2**, 15°26′27″, 46°22′28″, WM33, 351 m, *Fraxinus excelsior*, veja 5 cm rs, odŽBr vRPa, lit.RPa2023a, 18.11.2023; **Maribor, Vinarski potok**, 15°38′, 46°35′, WM45, 300 m, ldJPe, cJPe, pred 1951; **Markečica, Malahorna 2**, 15°26′27″, 46°22′28″, WM33, 334 m, *Fraxinus excelsior*, deblo 15 cm rs, odLSa vRPa, lit. RPa2022a, 9.12.2022; **Orešje nad Sevnico**, 15°18′, 46°02′, WL29, 220 m, *Fraxinus excelsior*, hlod rs, odJTi, lit.JTi1983, 5.1972; **Planima pod Šumikom, Močnik, Pohorje**, 15°30′, 46°27′, WM34, 810 m, *Fraxinus excelsior*, ldJTi, lit.JTi1983, 5.1978; **Pohorje**, (15°24′), (46°31′), (WM35), *, ldJPe, cJPe, pred 1951; **Rače, Dravsko polje**, 15°41′, 46°27′, WM54, 260 m, ldJPe, cJPe, pred 1951; **Solčava**, 14°42′, 46°25′, VM74, 650 m, ldAGs, cAGs, 6.1934; **Spodnja Kapla, Kozjak**, 15°24′43″, 46°37′14″, WM26, 875 m, *Fraxinus excelsior*, deblo 30 cm rs, odTRi vRPa, lit. RPa2021a, 24.10.2021; **Velika Nedelja, Ormož, vodno zbirališče**, 16°06′03″, 46°24′12″, WM83, 196 m, *Fraxinus excelsior*, deblo 20 cm rs, odRPa, lit.RPa2020c, 21.5.2015, 11.6.2015, 29.10.2015, 6.10.2017; **Zgornje Dobrenje, rezervat**, 15°38′24″, 46°39′40″, WM46, 364 m, *Fraxinus excelsior*, deblo, ldRPa, lit.RPa2020c, 19.4.2013.
KOROŠKO: **Pristava, Črna na Koroškem**, 14°50′, 46°28′, VM84, 520 m, *Fraxinus excelsior*, ldJTi, lit.JTi1983, 7.1979; **Črni log, Radmožanci**, 16°23′58″, 46°35′33″, XM06, 162 m, *Fraxinus excelsior*, deblo 20 cm rs, odRPa, lit.RPa2020c, 7.6.2016.
PREKMURJE: **Velika Polana**, 16°21′, 46°34′, XM05, 180 m, *Fraxinus angustifolia*, ldJTi, lit. JTi1983, 7.1980.

04.04 *Hylesinus wachtli orni* Fuchs, 1906 BELOLUSKASTI JESENAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Pfeffer 1995: *Leperisinus orni orni* (Fuchs, 1906).

E: AU BE BU CR CZ DE FI FR GB GE GR HU IT MC NL NR PL RO SK SL SP SV SZ UK

Podvrsta je razširjena v srednji in južni Evropi. Poleg stare najdbe iz Istre (brez lokacije in datuma), za katero ni zanesljivo, da izhaja iz Slovenije, je bila edina najdba zabeležena v insektariju entomološkega laboratorija BFG leta 2021. Material (debelce *Fraxinus* sp.) je bil verjetno nabran na Notranjskem. Gostiteljski vrsti sta *Fraxinus excelsior* in *F. ornus*. *L. wachli orni* ima enoletno generacijo, prezimujejo odrasli hrošči. Rovni sistem je sestavljen iz prečnih materinskih hodnikov, ki so na tanjših vejah lahko usmerjeni tudi

luskice, ki je bila najdena samo v Franciji.
The subspecies is distributed in central and southern Europe. Apart from an old record from Istria (no location and no date), which is not certain to be from Slovenia, the only record was made in the insectarium of the BFG entomological laboratory in 2021. The material (*Fraxinus* sp. stems) was probably collected in Notranjska. The host species include *Fraxinus excelsior* and *F. ornus*. *L. wachli orni* has an annual generation, overwintering adults. The tunnel system consists of transverse maternal gallery, which can also be oriented

vzdolžno. Dolžina adulta znaša 2,5–3,1 mm. Telo hrošča je jajčaste oblike, mat, gosto prekrito s temnejšimi in svetlejšimi luskicami. Na pokrovkah prevladujejo bele luskice. Podobna je sorodna podvrsta *H. wachtli wachtli* Reitter, 1887, pri kateri prevladujejo rožnate

longitudinally on thinner branches. Adult length is 2.5-3.1 mm. The body of the beetle is ovoid, matt, densely covered in darker and lighter scales. The elytra are dominated by white scales. If pink scales predominate, it is another subspecies, *L. wachli wachtli* Reitter, 1887*,* which has only been found in France.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: ldRSi, cŠFS, pred 1951.
LJUBLJANA Z OKOLICO: Ljubljana, Večna pot 83, (14°31′), (46°04′), (VM60), (295 m), *Fraxinus* sp., deblo 3 cm gLEŠ, ldRPa, lit.RPa2021a, 17.02.2021.

05.00. *Kissophagus* Chapuis, 1869 BRŠLJANAR

05.01. *Kissophagus vicinus* (Comolli, 1837) GLADKI BRŠLJANAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *K. hederae* (Schmidt, 1843); FREUDE, HARDE, LOHSE 1981: *K. hederae* Schmitt; PFEFFER & KNÍŽEK 1993: *K. hederae* (Schmidtt, 1843); PFEFFER 1995: *K. hederae* (Schmidtt, 1843).

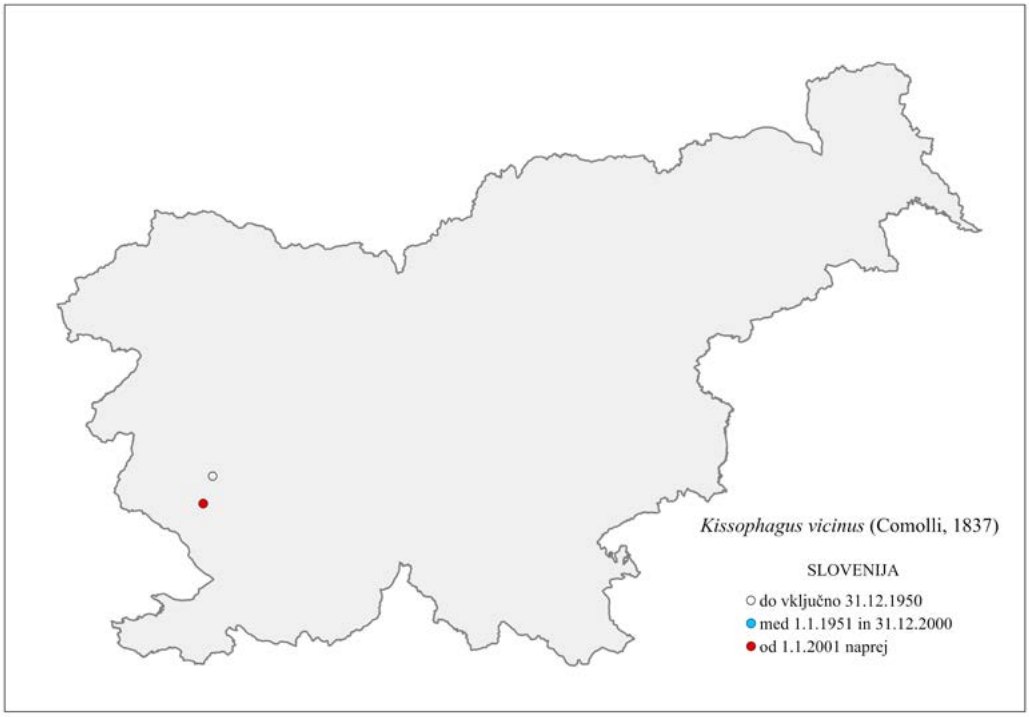
E: AU BE CR FR GB GE GR HU IT MA NL PL SL* SP ST SZ UK **A:** TR **N:** AG

Vrsta se pojavlja v južni in srednji Evropi, na Krimu, Kavkazu, v Aziji in severni Afriki. V Sloveniji sta znani le dve najdišči na Primorskem (slika 31), brez zabeleženih gostiteljskih rastlin. Po literaturi je gostitelj bršljan, vrsti *Hedera helix* in *Hedera colchia*. Dolžina adulta je 2,0–2,4 mm (slika 30). Je stenofagna vrsta.

The species occurs in southern and central Europe, the Crimea, the Caucasus, Asia and North Africa. In Slovenia, only two localities are known in Primorska, with no recorded host plants (Figure 31). According to the literature, the host plant is ivy, *Hedera helix* and *Hedera colchia*. Adult length is 2.0-2.4 mm (Figure 30). Stenophagous species.

Slika 30: GLADKI BRŠLJANAR *Kissophagus vicinus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 30: *Kissophagus vicinus*, dorsal, lateral (Photo: Maja Jurc)



Slika 31: GLADKI BRŠLJANAR *Kissophagus vicinus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 31: *Kissophagus vicinus*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: ldJTi(?), cŠFS,1951-2000.
PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, ldABi vSBr, cABi, pred 1951; **Kodreti, Štanjel**, 13°53′, 45°49′, VL17, 167 m, lAPi dSBr, cSBr, 2.5.2005.

06.00 *Pteleobius* Bedel, 1888 BRESTAR

06.01. *Pteleobius kraatzii* (Eichhoff, 1864) ČRNOBETNI BRESTAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *P. kraatzii* (Eichhoff, 1864); FREUDE, HARDE, LOHSE 1981: *P. kraatzi* Eichhoff; PFEFFER & KNÍŽEK 1993: *P. kraatzii* (Eichhoff, 1864); PFEFFER 1995: *P. kraatzii* (Eichhoff, 1864).

E: AU BE BU BY CR CT CZ FR GE GR HU IT MC NL PL SK SL* SP ST SZ UK YU **N:** AG CI **AP:** TR

Vrsta je razširjena v Evropi, Mali Aziji, Ukrajini, državah nekdanje Jugoslavije, severni Afriki in Aziji. Pri nas je znano

The species is distributed in Europe, Asia Minor, Ukraine, the countries of the former Yugoslavia, North Africa and Asia. Only one

Slika 32: ČRNOBETNI BRESTAR *Pteleobius kraatzii*, dorzalno, lateralno (Foto: Maja Jurc)

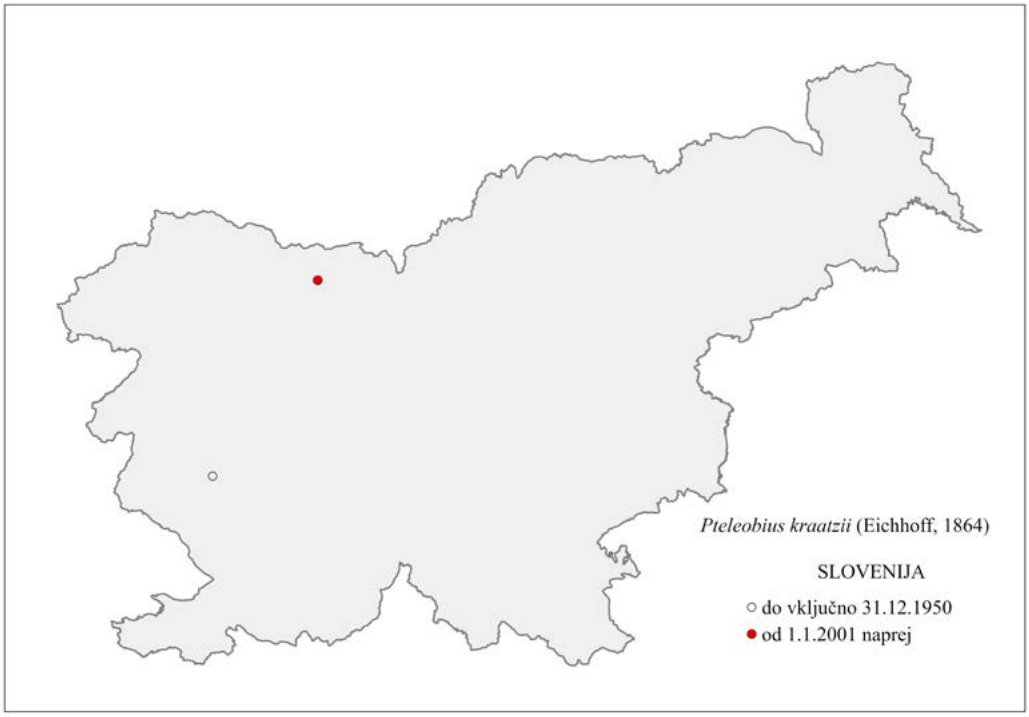
Figure 32: *Pteleobius kraatzii*, dorsal, lateral (Photo: Maja Jurc)

starejše najdišče na Primorskem, brez zabeležene gostiteljske vrste, leta 2023 pa je bil najden njen rovni sistem na jesenu (*Fraxinus* sp.) na Gorenjskem. V Sloveniji je vrsta slabo raziskana (slika 33). Monogamna vrsta, njeni gostitelji so *Ulmus laevis*, *U. carpinifolia*, manj pogosto tudi *Sorbus aucuparia*. Napada debla in veje. Rovni sistem je dvokrak prečni, materinska hodnika ležita pretežno v skorji, dolga sta 4-5 cm in običajno enako dolga. Pogosto je med njima iztegnjeni kot (180˚). Vhodni kanal se skoraj v celoti nahaja v skorji, zato je njegov odtis v beljavi komaj viden ali celo manjka. Rovi ličink so vzdolžni, dolgi do 3 cm. Dolžina adulta znaša 1,8-2,2 mm (slika 32). Prenašajo nevarni patogeni glivi *Ophiostoma ulmi* (Buisman) Nannf. (sin. *Ceratocystis ulmi* (Buism.) C. Moreau) in *Ophiostoma novo-ulmi* Brasier, ki povzročata holandsko brestovo bolezen.

older record is known from Primorska, without a recorded host species and in 2023, its tunnel system was found in ash (*Fraxinus* sp.) on Gorenjska. The species is poorly studied in Slovenia (Figure 33). A monogamous species, its hosts include *Ulmus laevis*, *U. carpinifolia*, less frequently also *Sorbus aucuparia*. Attacks trunks and branches. The tunnel system is two-armed transverse, the maternal corridors lie mainly in the cortex, they are 4-5 cm long and usually the same length. Often there is an elongated angle (180˚) between them. The entrance channel is almost entirely located in the cortex, so its imprint in the sapwood is barely visible or even missing. Tunnel systems of the larvae are longitudinal, up to 3 cm long. Adult length is 1.8-2.2 mm (Figure 32). They transmit a dangerous pathogenic fungus – Dutch elm disease *Ophiostoma ulmi* (Buisman) Nannf. (syn. *Ceratocystis ulmi* (Buism.) C. Moreau) and *Ophiostoma novo-ulmi* Brasier.

Najdišča v Sloveniji / Localities in Slovenia

PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, ldABi vSBr, cABi, pred 1951.
GORENJSKO: Brezje pri Tržiču, 14°16′58″, 46°21′21″, VM43, 628 m, *Fraxinus* sp., deblo 32 cm rs, oTRb dRPa, lit.RPa2023a, 20.12.2023.



Slika 33: ČRNOBETNI BRESTAR *Pteleobius kraatzii*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 33: *Pteleobius kraatzii*, distribution map according to historical and recent data

06.02. ***Pteleobius vittatus*** (Fabricius, 1792) RJAVOBETNI BRESTAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Hylesinus vittatus* Fab.; GRÜNE 1979: *Pteleobius vittatus* (Fabricius, 1787); FREUDE, HARDE, LOHSE 1981: *P. vittatus* Fabricius; PFEFFER & KNÍŽEK 1993: *P. vittatus* (Fabricius, 1787); PFEFFER 1995: *P. vittatus* (Fabricius, 1787).

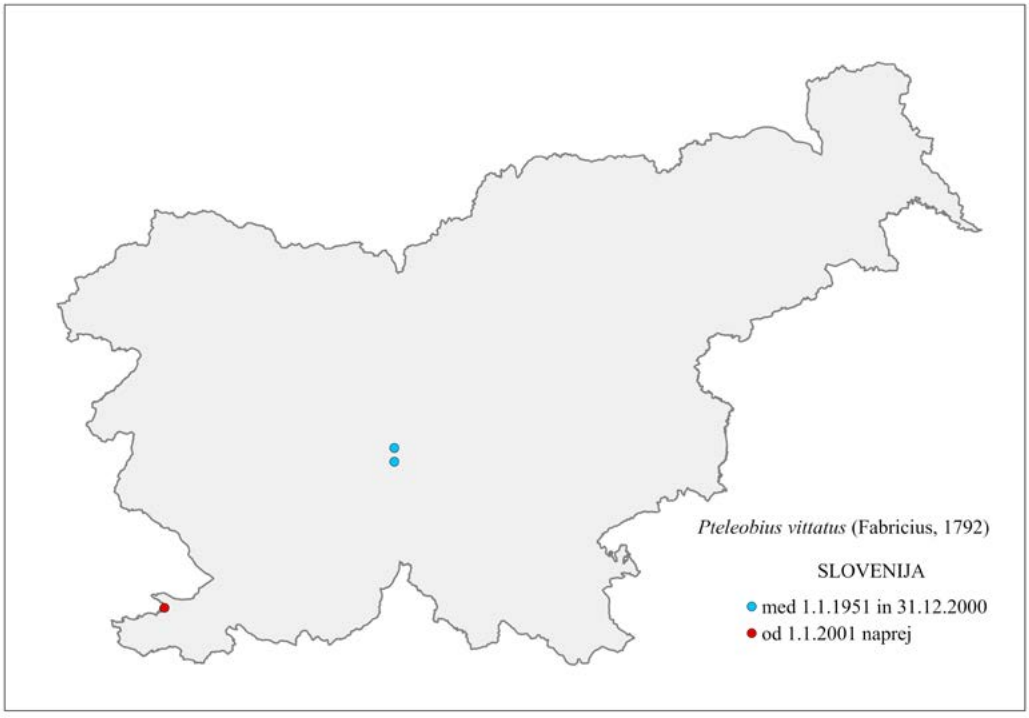
E: AU, BE, BU, BY, CR, CT, CZ, FR, GB, GE, GR, HU, IR, IT, LA, LT, MC, NL, PL, RO, SK, SL* SP, ST, SZ, UK, YU **A:** IS TR

Vrsta je razširjena v Evropi, Mali Aziji, Ukrajini, državah nekdanje Jugoslavije in Aziji. SIEGEL (1866) navaja, da vrsta »na Kranjskem ni redka, na hrastih«. V Sloveniji sta znani dve najdišči blizu Iga, brez zabeležene gostiteljske rastline, in novejše najdišče s slovenskega dela Istre, kjer se je vrsta ujela v past (slika 35). Je monogamna vrsta, po literaturi so gostitelji *Ulmus* spp. (*U. laevis*, *U. carpinifolia*, *U. glabra*), izjemoma *Acer campestre*, *Fraxinus* propadanja brestov.

The species is widespread in Europe, Asia Minor, Ukraine, former Yugoslavia, Asia. SIEGEL (1866) states that the species is "not rare in Carniola, on oaks". In Slovenia, there are two known sites near Ig, without a recorded host plant, and a more recent site in the Slovene part of Istria, where the species was trapped (Figure 35). Monogamous species, according to the literature the hosts are *Ulmus* spp. (*U. laevis*,

Slika 34: RJAVOBETNI BRESTAR *Pteleobius vittatus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 34: *Pteleobius vittatus*, dorsal, lateral (Photo: Maja Jurc)



Slika 35: RJAVOBETNI BRESTAR *Pteleobius vittatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 35: *Pteleobius vittatus*, distribution map according to historical and recent data

excelsior in *Carpinus* sp.. Dolžina adulta je 1,8–2,3 mm (slika 34). Hrošči prenašajo trose patogenih gliv, ki povzročajo odmiranje brestov ali holandsko brestovo bolezen. To

U. carpinifolia, *U. glabra*), exceptionally *Acer campestre*, *Fraxinus excelsior* and *Carpinus* sp.. Adult length is 1.8-2.3 mm (Figure 34). The beetles carry spores of pathogenic fungi

sta glivi: *Ophiostoma ulmi* (Buisman) Nannf. (sin. *Ceratocystis ulmi* (Buism.) C. Moreau) in *Ophiostoma novo-ulmi* Brasier. Vrsta je v Sloveniji verjetno postala redkejša zaradi that cause elm dieback or Dutch elm disease. These fungi are *Ophiostoma ulmi* (Buisman) Nannf. (sin. *Ceratocystis ulmi* (Buism.) C. Moreau) and *Ophiostoma novo-ulmi* Brasier. The species has probably become rarer in Slovenia due to elm dieback.

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: *Quercus* spp., ldMSi, lit.MSi1866, pred 1951.
ISTRA: **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit. RPa2014b, 17.4.2014.
DOLENJSKO: **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 3.4.1982; **Škrilje, Ig,** 14°33′, 45°55′, VL68, 570 m, ldSBr, cSBr, 2.5.1980.

07.00. ***Dendroctonus*** Erichson, 1836 ORJAKAR

07.01. ***Dendroctonus micans*** (Kugelann, 1794) SMREKOV ORJAKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Dendroctonus micans* Kugl.; GRÜNE 1979: *D. micans* (Kugelann, 1794); FREUDE, HARDE, LOHSE 1981: *D. micans* Kugelann; TITOVŠEK 1988: *D. micans* (Kugelann); PFEFFER & KNÍŽEK 1993: *D. micans* (Kugelann, 1794); PFEFFER 1995: *D. micans* (Kugelann, 1794); VEGA & HOFSTETTER 2015.

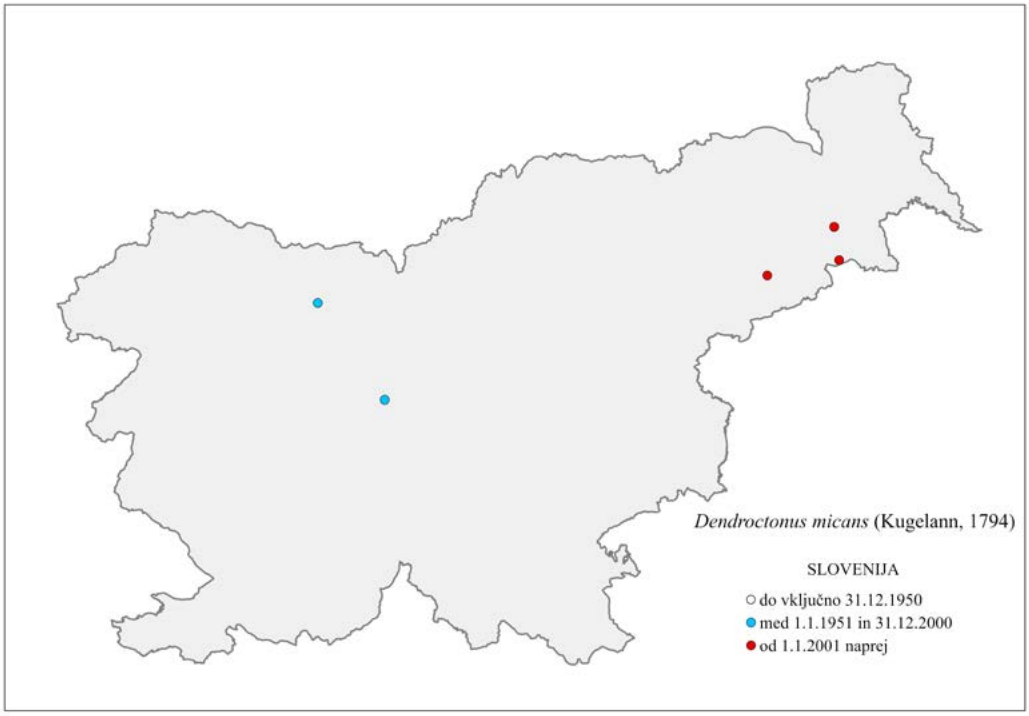
E: AU BE BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA LT LU NL NR NT PL SK SL SP SV SZ UK YU **A:** ES FE GAN HEI JA JIL KZ LIA MG NMO QIN SCH TR WS XIN XIZ

Vrsta je razširjena v centralno-severnem delu Evrope ter v Veliki Britaniji, Ukrajini, zahodnem delu Rusije in v Aziji. Pojavlja se v manjših populacijah v južnih Alpah, širi se v zahodno in južno Evropo. SIEGEL (1866) navaja, da je bila vrsta »na Kranjskem redka, pod smrekovim lubjem« (slika 37). Gostitelji so iglavci: *Picea abies*, *Picea* spp., manj pogosto *Abies alba*, *Larix decidua*, *Pinus sylvestris, Pinus montana*, *Picea breweriana*, *P. omorika*, *P. orientalis*, *P. engelmanii*, *P. sitchensis*, *Pinus contorta* in *P. mugo*. Na redkih najdiščih v Sloveniji je bila gostiteljska vrsta vedno *Picea abies*. Je monogamna vrsta z enoletno generacijo, roji od aprila do septembra. Samica odloži do 100 jajčec v notranje zidove okroglaste ploskovne izjedine ali kotilnice. V izjedini brez črvine, velikosti 6–15 cm, ličinke L1 dolbejo, razvrščene v eni vrsti, larvalni rov, ki je nadaljevanje

The species is distributed in north-central Europe, the UK, Ukraine, western Russia and Asia. It occurs in small populations in the southern Alps, spreading into western and southern Europe. SIEGEL (1866) states that the species was “rare in Carniola, under spruce bark” (Figure 37). Hosts include conifers: *Picea abies*, *Picea* spp., less frequently *Abies alba*, *Larix decidua*, *Pinus sylvestris, Pinus montana*, *Picea breweriana*, *Picea omorika*, *Picea orientalis*, *Picea engelmanii*, *Picea sitchensis*, *Pinus contorta* and *Pinus mugo*. The host species was always *P. abies* on the few sites in Slovenia. Monogamous species with annual generation, swarming from April to September. The female lays up to 100 eggs in the inner walls of a rounded flat-shaped brood chamber. In the tunnel-less chamber, 6-15 cm big, L1 larvae burrow, arranged in a single line, into a larval gallery which is a continuation

Slika 36: SMREKOV ORJAKAR *Dendroctonus micans*, dorzalno (Foto: Maja Jurc)

Figure 36: *Dendroctonus micans*, dorsal (Photo: Maja Jurc)



Slika 37: SMREKOV ORJAKAR *Dendroctonus micans*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 37: *Dendroctonus micans*, distribution map according to historical and recent data

materinskega rova. V istem rovu poteka tudi zrelostno prehranjevanje odraslih, spolno nezrelih hroščev. Smrekov orjakar je največji evropski podlubnik, dolžina samcev znaša 6,0–6,5 mm, samic pa 7,0–8,0 mm (slika 36).

of the maternal gallery. In the same tunnel, the adult, sexually immature beetles feed to maturity. *D. micans* is the largest European bark beetle, with males measuring 6.0-6.5 mm in length and females 7.0-8.0 mm in length

Odrasli hrošči običajno gostiteljsko drevo kolonizirajo v spodnjem delu debla, še zlasti če so tam prisotne mehanske poškodbe. Vhodne odprtine se jasno prepoznajo po stožcih smole. Materinski rovi ne poškodujejo beljave, zato napadena drevesa pogosto preživijo.

(Figure 36). Adults usually colonise the host tree in the lower part of the trunk, especially if there is mechanical damage. Boreholes are clearly identifiable by resin cones. Maternal galleries do not damage the sapwood, so infested trees often survive.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Picea abies*, ldMSi, lit.MSi1866, pred 1951.
GORENJSKO: **Podbrezje**, 14°17′, 46°18′, VM42, 440 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 4.1973.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), *Pinus sylvestris*, deblo, dAGs, cAGs, 3.02.1883.
ŠTAJERSKO: Lancova Vas, Kidričevo, 15°51′, 46°22′, WM63, 230 m, *Abies alba*, deblo, ldAGs, cAGs, 25.09.1884; ibidem, *Picea abies,* deblo, ldMJu, lit.MJu2003, 12.7.2002; **Sveti Tomaž, Ormož**, 16°05′, 46°29′, WM84, 300 m, *Picea abies*, deblo, lTZu dMJu, cSBr, lit.MJu2003, 12.7.2002; ibidem, cBFG, 12.7.2002; **Velika Nedelja, Ormož, vodno zbirališče**, 16°06′03″, 46°24′12″, VM83, 196 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2020c, 29.10.2015; ibidem, deblo 25 cm, ldRPa, lit.RPa2020c, 6.10.2017.

08.00. *Hylurgus* Latreille, 1806 zbitež

08.01. *Hylurgus ligniperda* (Fabricius, 1787) dolgodlaki zbitež

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel 1866: *Hylurgus ligniperda* Fab.; Brancsik 1871: *Hylurgus ligniperda* Fabr.; Grüne 1979: *Hylurgus ligniperda* (Fabricius, 1792); Freude, Harde, Lohse 1981: *Hylurgus ligniperda* Fabricius; Pfeffer & Knížek 1993: *H. ligniperda* (Fabricius, 1787); Pfeffer 1995: *H. ligniperda* (Fabricius, 1787).

E: AU AZ BE BH BU BY CR CT CZ DE EN FI FR GE GR HU IT LA LT MC MD NL NR NT PL PT RO SK SL SP ST SV SZ UK YU **N:** AG CI MO MR TU **A:** CY HEI JA TR WS **AFR AUR NAR**

Razširjen je v južni in srednji Evropi, evropskem delu Rusije, severni Afriki, Aziji, na afrotropskem, avstralskem in nearktičnem območju. Siegel (1866) navaja, da je bila vrsta »na Kranjskem redka, v borovcih«. Enako meni tudi Brancsik (1871), ki je vrsto našel v Lenartu v Slovenskih goricah. Novejše raziskave kažejo, da je vrsta razmeroma pogosta v JV delu Slovenije, zlasti v slovenskem delu Istre, kjer se je množično lovila v pasti. V drugih delih Slovenije v zadnjih 100 letih ni bilo novih najdb (slika 39). Gostitelji so: *Pinus* spp. (*P.*

It is distributed in southern and central Europe, the European part of Russia, North Africa, Asia, the Afrotropics, Australia and the Nearctic. Siegel (1866) states that the species was "rare in Carniola, in the pine forests". The same opinion is also shared by Brancsik (1871), who found the species in Lenart in Slovenske Gorice. More recent research shows that the species is relatively common in the south-eastern part of Slovenia, especially in the Slovene part of Istria, where it was widely caught in traps. No new records have been made in other parts of Slovenia in the last 100

nigra, *P. sylvestris*, *P. strobus*, *P. halepensis*, *P. pinaster* in *P. pinea*). Ima od ene do tri generacije letno. Rojijo od aprila do maja in od julija do avgusta. Rovni sistem je enokraki vzdolžni, dolžine 10–16 cm, izdolbe ga v spodnjih delih debel, v koreninskem vratu, v debelih površinskih koreninah velikih dreves in v svežih panjih. Od materinskega rova se širijo vijugasti larvalni rovi. Dolžina adultov je 5,0–5,5 mm (slika 38). Vrsta je sekundarna.

years (Figure 39). Hosts include *Pinus* spp. (*P. nigra*, *P. sylvestris*, *P. strobus*, *P. halepensis*, *P. pinaster*. It has one to three generations per year. They hatch from April to May and July to August. The tunnel system is uniramous longitudinal, 10-16 cm long, excavated in the lower parts of trunks, in the root collar, in the thick surface roots of large trees and in fresh stumps. The larval gallery extend from the maternal gallery. Adult length is 5.0-5.5 mm (Figure 38). The species is secondary.

Najdišča v Sloveniji / Localities in Slovenia

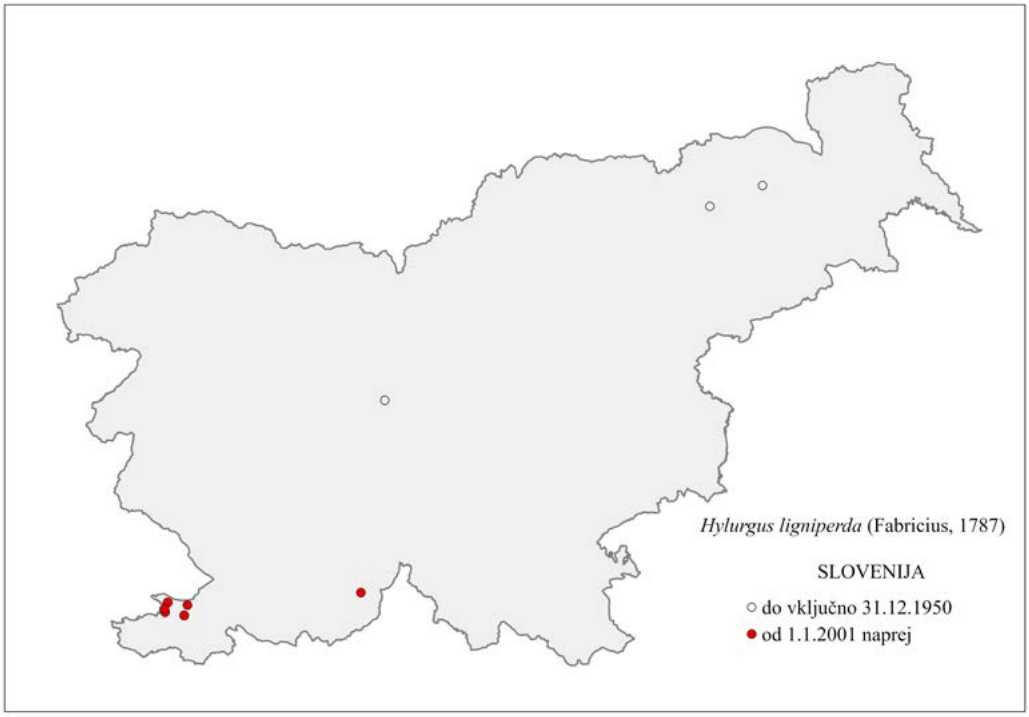
SLOVENIJA: *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.

ISTRA: **Bragеti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2016d, 26.5.2016, 28.9.2016; ibidem, lit.RPa2017c, 4.7.2017; ibidem, lit.RPa2018d, 7.6.2018, 3.9.2018, 23.10.2018; ibidem, lit.RPa2019c, 23.5.2019, 19.6.2019, 31.7.2019, 28.8.2019; **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010b, 21.6.2010, 15.7.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014b, 23.5.2014, 31.7.2014; ibidem, lit.RPa2015b, 6.5.2015, 2.7.2015 ibidem, lit.RPa2016b, 26.5.2016, 31.8.2016, 28.9.2016, 27.10.2016, 30.11.2016; ibidem, lit.RPa2017b, 31.5.2017; ibidem, lit.RPa2018b, 3.9.2018; ibidem, lit.RPa2019d, 31.7.2019, 24.10.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2014b, 23.5.2014; ibidem, lit.RPa2016b, 26.5.2016, 28.9.2016, 27.10.2016; ibidem, lit.RPa2018b, 3.9.2018, 26.9.2018, 23.10.2018; ibidem, lit.RPa2019d, 19.6.2019, 28.8.2019, 24.10.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2015b, 2.9.2015; ibidem, lit.RPa2016b, 26.5.2016, 27.10.2016, 30.11.2016; ibidem, lit.RPa2019d, 19.6.2019, 28.8.2019, 24.10.2019; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2017d, 3.10.2017; ibidem, lit.RPa2018e, 27.7.2018, 9.8.2018, 3.9.2018, 26.9.2018, 23.10.2018; ibidem, lit.RPa2019e, 23.5.2019, 19.6.2019, 31.7.2019, 28.8.2019, 25.9.2019, 24.10.2019.

NOTRANJSKO: **Snežnik**, 14°26′, 45°36′, VL54, 1389 m, tWit, phAlfa phEtan, ldRPa, lit. RPa2022a, 9.6.2011.

Slika 38: DOLGODLAKI ZBITEŽ *Hylurgus ligniperda*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 38: *Hylurgus ligniperda*, dorsal, lateral (Photo: Maja Jurc)



Slika 39: DOLGODLAKI ZBITEŽ *Hylurgus ligniperda*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 39: *Hylurgus ligniperda*, distribution map according to historical and recent data

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), lJSs, cJSd, 1.5.1916, 7.5.1916.
ŠTAJERSKO: Lenart v Slovenskih goricah, 15°50′, 46°35′, WM65, 260 m, *Pinus* spp., ldKBr, lit.KBr1871, pred 1951; **Maribor**, (15°39′), (46°32′), (WM55), ~270 m, ldJPe, cJPe, pred 1951.

08.02. *Hylurgus micklitzi* Wachtl, 1881 KRATKODLAKI ZBITEŽ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Hylurgus micklitzi* Wachtl, 1881; PFEFFER 1995: *Hylurgus micklitzi* Wachtl, 1881 (*H. ligniperda* Schedl, 1932).

E: CR FR GE GR HU IT MA SL* SP ST **N:** AG EG LB MO TU **A:** IS TR

Mediteranska vrsta, razširjena tudi v severni Afriki in v Aziji. Pri nas smo vrsto pogosto našli v pasteh na lokacijah v slovenski Istri, posamično pa tudi na dveh lokacijah na Gorenjskem (slika 40). Gostitelji so *Pinus halepensis*, *P. pinaster*, *P. pinea*, *P. nigra*. V Sloveniji še

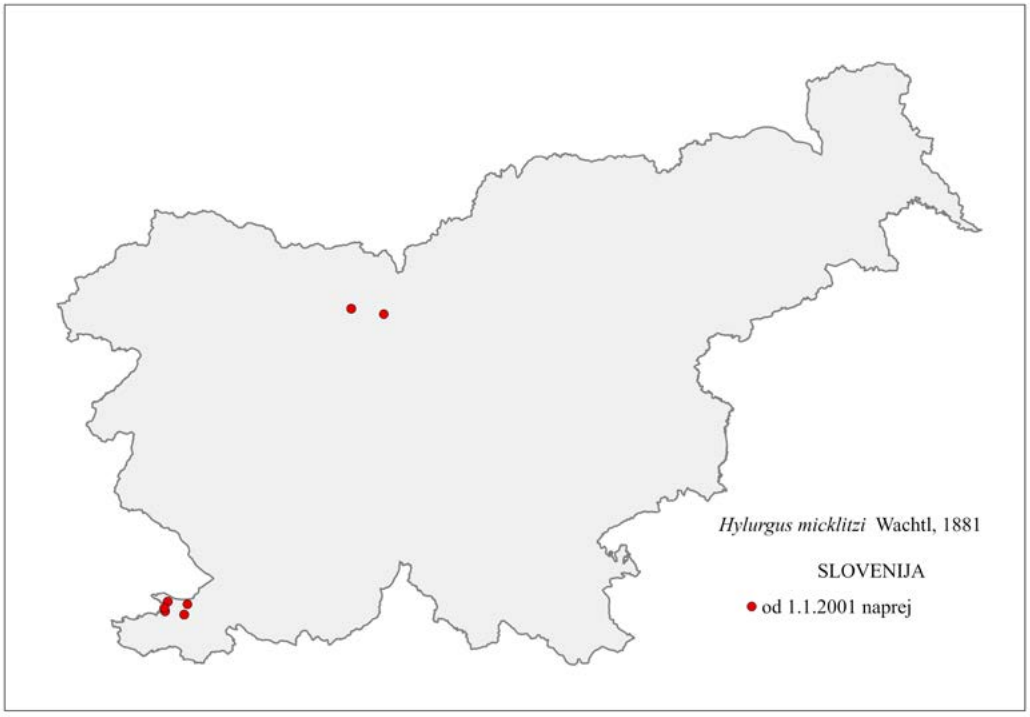
A Mediterranean species, also distributed in North Africa and Asia. In Slovenia, the species was frequently found in traps at sites in the Slovene part of Istria, and individually at two sites in Gorenjska (Figure 40). Hosts include *Pinus halepensis*, *P. pinaster*, *P. pinea*, *P. nigra*.

nismo našli primerkov na gostiteljskih rastlinah. Dolžina adulta je 3,5–4,3 mm. Za razliko od dolgodlakega je kratkodlaki zbitež manjši, dlačice na vratnem ščitu pa so krajše.

No specimens have been found on host plants in Slovenia. Adult length is 3.5-4.3 mm. It is smaller than the related species *H. ligniperda* and the hairs on the neck shield are shorter.

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Bragеti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPPt, ldRPa, lit.RPa2016d, 28.9.2016; ibidem, lit.RPa2017c, 3.8.2017, 6.9.2017, 3.10.2017; ibidem, lit.RPa2018d, 27.7.2018, 9.8.2018, 26.9.2018, 23.10.2018; ibidem, lit.RPa2019c, 23.5.2019, 19.6.2019, 31.7.2019, 28.8.2019, 24.10.2019; **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014c, 21.6.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014b, 23.5.2014; ibidem, lit.RPa2017b, 31.5.2017; ibidem, lit.RPa2017b, 3.8.2017, 6.9.2017; ibidem, lit.RPa2018b, 3.9.2018, 26.9.2018; ibidem, lit.RPa2019d, 19.6.2019, 24.10.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2014b, 27.4.2014, 23.5.2014, 1.7.2014, 31.7.2014; ibidem, lit.RPa2015b, 2.6.2015; ibidem, lit.RPa2016b, 30.6.2016; ibidem, lit.RPa2017c, 31.5.2017, 27.7.2018; ibidem, lit.RPa2018b, 9.8.2018, 3.9.2018, 26.9.2018, 23.10.2018; ibidem, lit.RPa2019d, 19.6.2019, 31.7.2019, 25.9.2019, 24.10.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 31.7.2014, 23.10.2014, 27.11.2014; ibidem, lit.RPa2016b, 30.6.2016, 27.7.2016; ibidem, lit.RPa2017b, 4.7.2017, 3.8.2017; ibidem, lit.RPa2018b, 9.8.2018; ibidem, lit.RPa2019d, 19.6.2019, 31.7.2019, 25.9.2019, 24.10.2019;



Slika 40: KRATKODLAKI ZBITEŽ *Hylurgus micklitzi*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 40: *Hylurgus micklitzi*, distribution map according to historical and recent data

Urbanci 1, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2018e, 27.7.2018, 9.8.2018, 3.9.2018; ibidem, lit.RPa2019e, 19.6.2019, 24.10.2019.
GORENJSKO: **Brdo pri Kranju**, **GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2015a, 22.7.2015; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 29.4.2022.

09.00. ***Tomicus*** Latreille, 1802 POGANJKAR

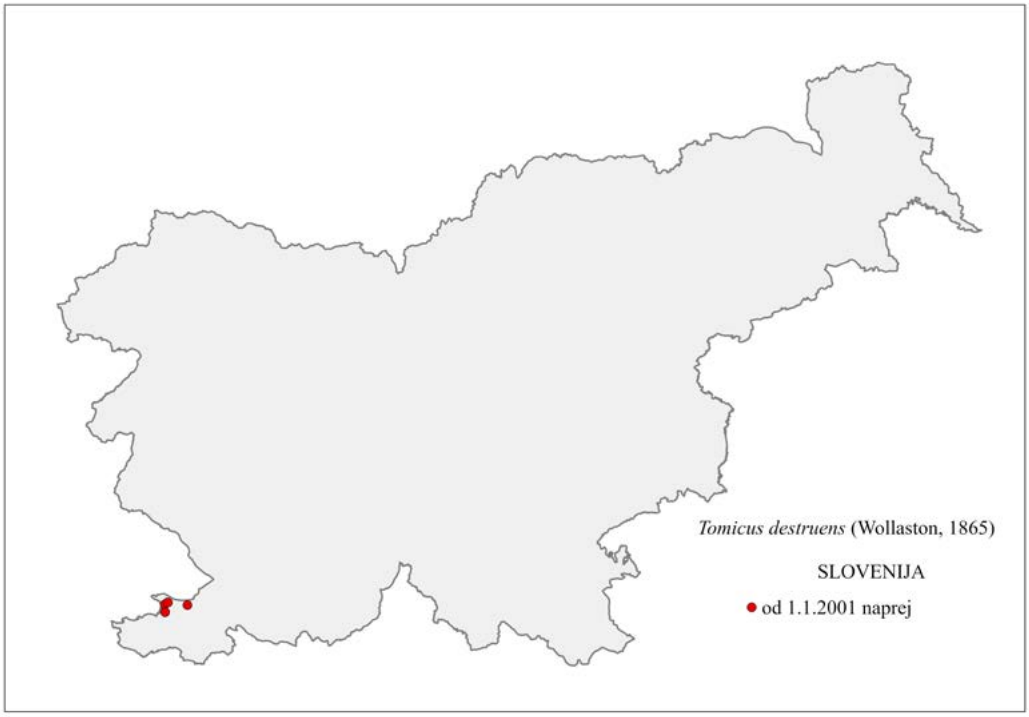
09.01. *Tomicus destruens* (Wollaston, 1865) SREDOZEMSKI POGANJKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Pfeffer 1995: *Tomicus destruens* (Wollaston, 1865) (*Hylurgus destruens* Wollaston, 1865; *Blastophagus destruens* Lekander, 1971; *B. piniperda* Schedl, 1923); Vega & Hofstetter 2015.

E: CR FR GR IT PT SL* SP ST UK **N:** AG MR **A:** CY IS TR

Kot termofilna vrsta je sredozemski poganjkar razširjen na osrednjem sredozemskem območju, na Portugalskem (Madeira), v severni Afriki in Aziji. Vrsta, ki je bila opisana že leta 1865, je bila dolgo pozabljena, zato so bile najdbe v sredozemskih deželah velikokrat napačno določene kot *Tomicus piniprеda*. Gostitelji so mediteranski bori: *Pinus halepensis*, *P. pinaster*, *P. pinea*, *P. brutia*, *P. canariensis*, *P. radiata*, redko tudi *P. nigra*. Pri nas je vrsta vezana izključno na Istro in primorski del Slovenije (slika 41), skoraj vse najdbe so rezultat ulova v pasteh. Poleg mediteranskih borovcev verjetno pri nas lokalno naseljuje tudi *P. nigra*. V srednjem in zgornjem delu debla in na debelih vejah dolbejo enokrake vzdolžne, 8–10 cm dolge materinske rove. Rovi so pretežno v skorji in se le šibko zažirajo v beljavo. Na materinske rove se navezuje 60–80 vijugastih larvalnih rovov. Podoben rovni sistem na kontinentalnih vrstah borov izdolbe veliki poganjkar (*T. piniperda*). Dolžina adultov znaša 4,0–4,8 mm. Iz Italije poročajo, da je sredozemski poganjkar zelo pogost v gostih mediteranskih gozdovih, ki jih je prizadela suša, požar ali patogene glive korenin (Faccoli 2015). Večinoma razvoj poteka pozimi. Je sekundarna in zaradi zrelostnega prehranjevanja v strženih borovih vejic tudi primarna vrsta.

As a thermophilic species, *T. destruens* is distributed in the central Mediterranean area, Portugal (Madeira), North Africa and Asia. The species, which was described as early as 1865, has long been forgotten, so that records in Mediterranean countries have often been misidentified as *Tomicus piniprеda*. Hosts include the Mediterranean pines *Pinus halepensis*, *P. pinaster*, *P. pinea*, *P. brutia*, *P. canariensis*, *P. radiata*, rarely also *P. nigra*. In Slovenia, the species is exclusively restricted to Istria and the coast, and almost all records are the result of trapping (Figure 41). In addition to Mediterranean pines, is also probably locally inhabits *P. nigra*. In the middle and upper part of the trunk and on thick branches, they burrow longitudinal, 8-10 cm long, single-armed maternal galleries. The tunnels are mainly located in the bark and only weakly embedded in the sapwood. The maternal galleries are with 60-80 sinuous larval tunnels. A similar tunnel system is excavated by *T. piniperda* on continental pine species. Imago length is 4.0-4.8 mm. In Italy, *T. destruens* has been reported to be very common in dense Mediterranean forests affected by drought, fire or root fungus pathogens (Faccoli 2015). *T. destruens* mostly develops in winter. It is a secondary and, due to maturity feeding, a primary species in the piths of pine twigs.



Slika 41: SREDOZEMSKI POGANJKAR *Tomicus destruens*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Foto 41: *Tomicus destruens*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Ankaran, pri vojašnici**, 13°44′59″, 45°34′16″, VL04, 10 m, *Pinus pinaster*, veja 5 cm rs, odRPa, lit.RPa2014c, 24.10.2004; **Brageti**,13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2018d, 27.7.2018; ibidem, 2019c, 24.10.2019; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit,phAlfa phEtan, ldRPa, lit.RPa2016b, 30.11.2016; ibidem, lit.RPa2019d, 24.10.2019; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2017d, 3.10.2017, 7.12.2017; ibidem, RPa2018e, 23.10.2018; ibidem, lit.RPa2019e, 23.5.2019, 24.10.2019.

09.02. *Tomicus minor* (Hartig, 1834) MALI POGANJKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Hylurgus minor* Hartig; GRÜNE 1979: *Blastophahus minor* (Hartig, 1834); FREUDE, HARDE, LOHSE 1981: *Blastophahus minor* Hartig; TITOVŠEK 1988: *Blastophahus minor* (Hartig); PFEFFER & KNÍŽEK 1993: *Tomicus minor* (Hartig, 1834); PFEFFER 1995: *T. minor* (Hartig, 1834) (*Myelophilus minor* Eichhoff, 1881; *Blastophahus minor* Eichhoff, 1864; *Tomicus minor* (Hartig)); VEGA & HOFSTETTER 2015; FACCOLI 2015.

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA LT LU MC NL NR NT PL PT RO SK SL SP ST SV SZ TR UK YU **A:** ANH ES CY FUJ GAN GUI GUX HEB HEI

HEN HUB HUN JA JIA JIL JIX KZ LIA MG NC NE NMO SC SCH SHA SHX SCH TR WS YUN ZHE

Vrsta se pojavlja v Evropi, v Sibiriji, na Krimu, na Kavkazu in v Mali Aziji. Siegel (1866) omenja, da *T. minor* »na Kranjskem živi skupno z vrstama veliki poganjkar (*T. piniperda*) in dolgodlakim zbitežem (*Hylurgus ligniperda*)«. V Sloveniji je pogosta v vseh slovenskih pokrajinah (slika 43). Mali poganjkar je polifagna vrsta na kontinentalnih borih, predvsem na *Pinus sylvestris* in *P. nigra* (*P. mugo*, *P. densiflora*, *P. halepensis*, *P. pinaster*, *P. pinea*, *P. brutia*, *P. strobus*, *P. heldreichii*, *P. cembra*). V večjem delu Slovenije je najpogostejši gostitelj *P. sylvestris*, na Primorskem in Notranjskem tudi *P. nigra*. Ugotovljen je tudi na *P. strobus* (Ljubljana) in *P. contorta* (drevesnica, Prekmurje). Zalega v tankolubnih delih drevesa, navadno krošnji dreves, v obrši. Je monogam, gradi dvokraki prečni rovni sistem, vsak krak je dolg 3–6 cm in širok 2 mm, oba rova naredi ena samica. Kratki larvalni hodniki potekajo pravokotno iz materinskega hodnika, bubilnica na koncu je pogreznjena globoko v beljavo. Adulti so srednje velikosti, v dolžino merijo 3,2–5,2 mm (slika 42). Je floemofagna in ksilomicetofagna vrsta. Dopolnilno ali zrelostno prehranjevanje poteka v strženih enoletnih poganjkov, zato je vrsta tudi primarna. Pogosta je v gostih borovih gozdovih, ki so bili poškodovani zaradi snega ali požara.

The species occurs in Europe, Siberia, Crimea, the Caucasus and Asia Minor. Siegel (1866) mentions that *T. minor* "lives in Carniola together with the species *T. piniperda* and *Hylurgus ligniperda*". In Slovenia, it is common, with localities in all Slovene regions (Figure 43). *T. minor* is a polyphagous species of continental pines, mainly *Pinus sylvestris* and *P. nigra* (*P. mugo*, *P. densiflora*, *P. halepensis*, *P. pinaster*, *P. pinea*, *P. brutia*, *P. strobus*, *P. heldreichii*, *P. cembra*). In most parts of Slovenia, the most common host is *P. sylvestris*, and in the Primorska and Notranjska regions, also *P. nigra*. It has also been found on *P. strobus* (Ljubljana) and *P. contorta* (nursery, Prekmurje). It infests thin-trunked parts of the tree, usually in the crown. Monogamous, bores a biramous transverse tunnel system, each arm 3-6 cm long by 2 mm wide, both arms made by a single female. The short larval tunnels run perpendicularly from the maternal tunnel, the pupation chamber at the end is sunk deep into the sapwood. Adults are medium-sized, measuring 3.2-5.2 mm in length (Figure 42). Floemophagous and xylomycetophagous species. Supplementary or maturity feeding takes place in the piths of annual shoots, hence the species is also primary. Common in dense pine forests damaged by snow or fire.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldMSi, lit.MSi1866, pred 1951.

ISTRA: **Kastelec**, 13°52′09″, 45°34′17″, VL14, 299 m, *Pinus nigra*, vrhač 3 cm, ldRPa, lit.RPa2014c, 19.5.2006; ibidem, veja 10 cm, ldRPa, lit.RPa2020c, 30.5.2011; **Kokoš, vznožje, Lokev**, 13°53′, 45°39′, VL15, 380 m, *Pinus nigra*, deblo, ldJTi, lit.JTi1983, 7.1968; ibidem, hlod, ldJTi, lit.JTi1983, 7.1968; **Podgorje, Slavnik**, 13°58′, 45°32′, VL14, 520 m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1979.

PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, 200 m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1979; **Breginj**, 13°26′, 46°16′, UM72, 620 m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Griže, Štorje 1**, 13°56′48″, 45°45′46″, VL16, 491 m, *Pinus nigra*, deblo 20 cm rs, odMOr vRPa, lit.RPa2021a, 24.10.2021; **Križ, Sežana**, 13°52′, 45°45′, VL16, 370m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1979; **Lipica, Mlave**, 13°54′, 45°40′, VL15, 400 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 23.3.2001; **Nova Gorica, Panovec**, 13°40′, 45°57′, UL98, ~100 m, lBZa dSBr, cSBr, 23.4.2020;

Slika 42: MALI POGANJKAR *Tomicus minor*, dorzalno, lateralno (Foto: Maja Jurc)

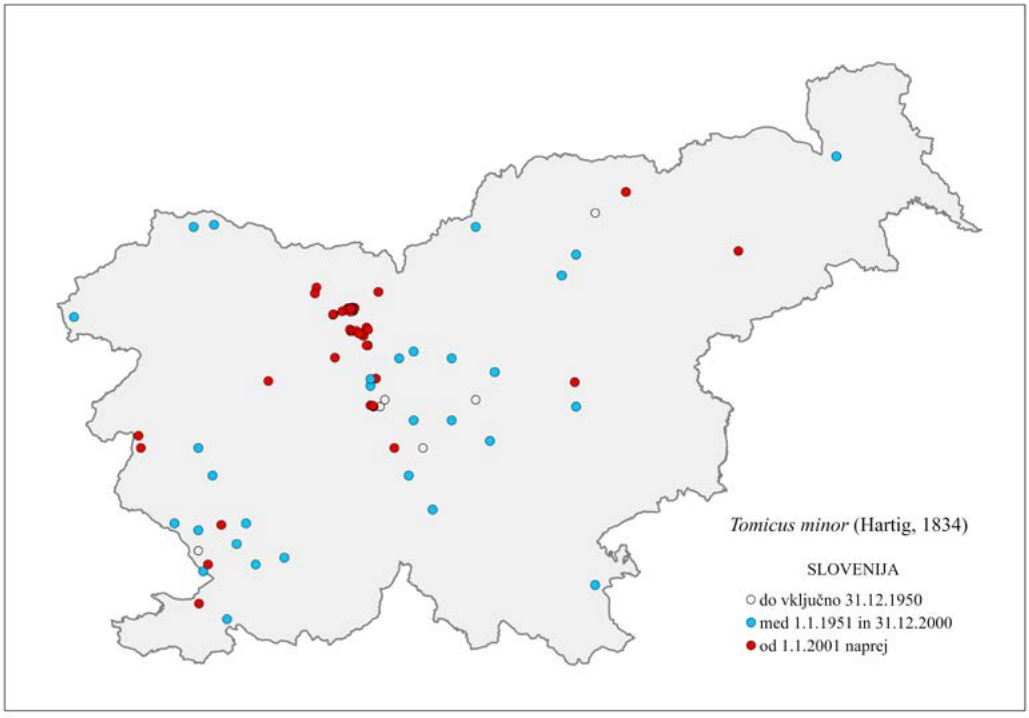
Figure 42: *Tomicus minor*, dorsal, lateral (Photo: Maja Jurc)

Pliskovica, Dutovlje, 13°47′, 45°46′, VL06, 270 m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1979; **Predmeja, Trnovski gozd**, 13°52′, 45°57′, VL18, 980 m, *Pinus nigra*, ldJTi, lit.JTi1983, 8.1979; **Sežana, skladišče lesa**, 13°52′, 45°42′, VL16, 370 m, *Pinus nigra*, ldMJu, lit.DJu2003, 2002; **Solkan, Skalniška cesta, nad kamnolomom**, 13°39′28″, 45°58′46″, UL99, 176 m, *Pinus nigra*, deblo 4 cm, odRPa, lit.RPa2021a, 15.9.2021.
GORENJSKO: **Belca (dolina), Karavanke**, 13°55′17″, 46°29′19″, VM15, 923 m, *Pinus sylvestris*, deblo rs, odRPa, lit.RPa2014c, 28.7.1995; **Brdo pri Kranju 1/22**, 14°24′05″, 46°16′59″, VM52, 450 m, *Pinus sylvestris*, sušica 30 cm rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/24**, 14°24′14″, 46°17′02″, VM52, 452 m,*Pinus sylvestris*, sušica 25 cm rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/26**, 14°24′28″, 46°17′08″, VM52, 457 m, *Pinus sylvestris*, deblo 15 cm rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/28**, 14°24′21″, 46°16′50″, VM52, 444 m, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/33**, 14°24′31″, 46°17′07″, VM52, 455 m, *Pinus sylvestris*, deblo 25 cm, ldRPa, lit.RPa2003, 6.9.2003; **Brdo pri Kranju 1/36**, 14°24′39″, 46°17′18″, VM52, 457 m, *Pinus sylvestris*, deblo 20 cm rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/46**, 14°24′13″, 46°17′21″, VM52, 477 m, *Pinus sylvestris*, sušica 10 cm rs, odRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/47**, 14°24′08″, 46°17′15″, VM52, 476 m, *Pinus sylvestris*, sušica 15 cm rs, odRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/49**, 14°24′02″, 46°17′03″, VM52, 458 m, *Pinus sylvestris*, deblo 20 cm rs, odRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/55**, 14°23′42″, 46°17′07″, VM52, 444 m, *Pinus sylvestris*, deblo 8 cm, ldRPa, lit.RPa2003, 20.9.7.2003; **Brdo pri Kranju 1/62**, 14°23′34″, 46°17′14″, VM52, 457 m, *Pinus sylvestris*, deblo 25 cm, ldRPa, lit.RPa2003, 18.7.2003; **Brdo pri Kranju 1/64**, 14°23′26″, 46°17′16″, VM52, 466 m, *Pinus sylvestris*, deblo 10 cm rs, odRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/65**, 14°23′18″, 46°17′15″, VM52, 465 m, *Pinus sylvestris*, deblo 10 cm rs, odRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/66**, 14°23′13″, 46°17′11″, VM52, 460 m, *Pinus sylvestris*, deblo 20 cm rs, odRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 2/1**, 14°22′07″, 46°16′49″, VM52, 423 m, *Pinus sylvestris*, deblo 15 cm, ldRPa, lit. RPa2004, 24.8.2004; ibidem, hlod 20 cm, ldRPa, lit.RPa2004, 24.8.2004; **Brdo pri Kranju 2/4**, 14°23′18″, 46°17′04″, VM52, 453 m, *Pinus sylvestris*, deblo 10 cm, ldRPa, lit.RPa2004, 21.7.2004; ibidem, veja 5 cm,ldRPa,lit.RPa2004,21.7.2004; **Brdo pri Kranju 2/6**, 14°24′02″, 46°17′14″, VM52, 470 m, *Pinus sylvestris*, deblo 10 cm rs, odRPa, lit.RPa2004, 22.8.2004; ibidem, deblo 20 cm, ldRPa, lit.RPa2004, 22.8.2004; ibidem, veja 5 cm, ldRPa, lit.RPa2004, 22.8.2004; **Brdo**

pri Kranju 2/7, 14°23′48″, 46°16′47″, VM52, 441 m, *Pinus sylvestris*, deblo 20 cm rs, odRPa, lit.RPa2004, 18.9.2004; ibidem, veja 5 cm, ldRPa, lit.RPa2004, 18.9.2004; **Brdo pri Kranju 2/8**, 14°24′22″, 46°17′13″, VM52, 457 m, *Pinus sylvestris*, deblo 15 cm rs, odRPa, lit.RPa2004, 23.10.2004; ibidem, sušica 20 cm rs, odRPa, lit.RPa2004, 23.10.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2013a, 17.4.2013, 30.4.2013; ibidem, lit.RPa2014a, 19.3.2014; ibidem, lit.RPa2015a, 18.3.2015, 1.4.2015, 15.4.2015, 29.4.2015; ibidem, lit.RPa2016a, 30.3.2016, 13.4.2016, 27.4.2016; ibidem, lit.RPa2017a, 15.3.2017, 29.3.2017, 12.4.2017, 10.5.2017, 25.5.2017; ibidem, lit.RPa2018a, 11.4.2018, 25.4.2018, 9.5.2018, 24.5.2018; ibidem, lit.RPa2019a, 13.3.2019, 27.3.2019, 10.4.2019, 24.4.2019; ibidem, lit.RPa2020d, 25.3.2020, 8.4.2020, 22.4.2020, 3.6.2020, 17.6.2020; ibidem, lit.RPa2021b, 7.4.2021, 5.5.2021, 4.6.2021, 16.6.2021; ibidem, lit.RPa2022b, 23.3.2022; ibidem, lit.RPa2023b, 22.3.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2016a, 30.3.2016; ibidem, lit.RPa2017a, 15.3.2017, 29.3.2017, 12.4.2017; ibidem, lit.RPa2019a, 13.3.2019, 27.3.2019; ibidem, lit.RPa2020d, 8.4.2020; **Brdo pri Kranju**, GIS 3, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2013a, 17.4.2013; ibidem, lit.RPa2014a, 19.3.2014; ibidem, lit. RPa2015a, 1.4.2015; ibidem, lit.RPa2016a, 30.3.2016; ibidem, lit.RPa2019a, 13.3.2019; **Brnik, južno od letališča**, 14°26′34″, 46°13′17″, VM51, 375 m, *Pinus sylvestris*, deblo 15 cm, ldRPa, lit.RPa2020c, 24.5.2018; **Brnik, severno od letališča**, 14°27′10″, 46°14′28″, VM52, 395 m, *Pinus sylvestris*, veja 5 cm, ldRPa, lit.RPa2014c, 6.4.2008; **Gozd Martuljek**, 13°51′, 46°29′, VM14, 860 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 3.1977; **Hotavlje**, 14°06′40″, 46°06′42″, VM30, 489 m, *Pinus sylvestris,* deblo 25 cm rs, oLPe dRPa, lit.RPa2023a, 20.11.2023; **Hrastje, Kranj 3**, 14°23′52″, 46°13′58″, VM52, 387 m, *Pinus sylvestris*, deblo 15 cm rs, odRPa, lit.RPa2020c, 3.6.2019; **Hrastje, Kranj, Planjava 10**, 14°23′42″, 46°14′11″, VM52, 392 m, *Pinus sylvestris*, deblo 15 cm rs, odRPa, lit.RPa2020b, 28.5.2020; **Kokra, Kurja Vas, skladišče lesa**, 14°29′38″, 46°19′37″, VM63, 581 m, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa2020c, 25.5.2016; **Kovor, Tržič**, 14°16′42″, 46°20′16″, VM43, 530 m, *Pinus sylvestris*, deblo 15 cm rs, odTRb vRPa, lit. RPa2023a, 24.11.2023; **Krašnja, Moravče**, 14°45′, 46°10′, VM81, 420 m, *Pinus sylvestris*, rs, odJTi, lit.JTi1983, 1.1974; **Lipica, Škofja Loka, nad pokopališčem 3**, 14°20′33″, 46°10′06″, VM41, 350 m, *Pinus sylvestris*, deblo 10 cm rs, odRPa, lit.RPa2021a, 20.1.2021; **Mengeš**, 14°34′, 46°10′, VM61, 430 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 4.1978; **Mlaka pri Kranju, Francelj**, 14°20′16″, 46°16′23″, VM42, 430 m, *Pinus sylvestris*, deblo 15 cm, ldRPa, lit.RPa2014c, 13.6.2002; **Mlaka pri Kranju, ob tekaški stezi 1**, 14°20′10″, 46°16′18″, VM42, 430 m, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa2020c, 6.6.2007; **Mlaka pri Kranju, ob tekaški stezi 4**, 14°20′12″, 46°16′22″, VM42, 429 m, *Pinus sylvestris*, deblo 20 cm rs, odRPa, lit.RPa2020c, 6.6.2007; **Sveta Gora, Izlake**, 14°54′, 46°08′, VM90, 830 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 9.1978; **Šenčur, izvoz Brnik 2**, 14°26′12″, 46°13′40″, VM51, 384 m, *Pinus sylvestris*, veja 3 cm rs, odRPa, lit.RPa2020b, 6.8.2019; **Šenčur, poslovna cona 3**, 14°24′19″, 46°13′58″, VM52, 387 m, *Pinus sylvestris*, hlod 30 cm, ldRPa, lit.RPa2020c, 4.6.2008; **Šenčur, proti Voklu 1**, 14°25′06″, 46°13′58″, VM52, 390 m, *Pinus sylvestris*, deblo 15 cm, ldRPa, lit.RPa2020c, 13.10.2017; **Voglje 3**, 14°27′24″, 46°11′53″, VM51, 367 m, *Pinus sylvestris*, vrhač 10 cm rs, odRPa, lit.RPa2021a, 15.6.2021; **Voglje 6**, 14°27′15″, 46°11′53″, VM51, 366 m, *Pinus sylvestris*, vrhač 10 cm rs, odRPa, lit.RPa2021a, 15.6.2021; **Voklo, pri Petrol BS 2**, 14°25′37″, 46°13′35″, VM51, 384 m, *Pinus sylvestris*, deblo 15 cm rs, odRPa, lit.RPa2020b, 26.7.2019; **Volčji Potok, Kamnik**, 14°37′, 46°11′, VM71, 420 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 4.1978; **Zgornji Brnik**, 14°27′29″, 46°14′10″, VM51, 367 m, *Pinus sylvestris*, veja 3 cm, ldRPa, lit.RPa2014c, 1.5.2008; **Zvirče, Tržič**, 14°16′22″, 46°19′24″, VM43, 512 m, *Pinus sylvestris*, veja 5 cm rs, odŽŠt VRPa, lit.RPa2023a, 20.11.2023.

NOTRANJSKO: **Gornje Ležeče, Vremščica**, 14°04′, 45°40′, VL25, 490 m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Nanos 1**, 14°02′, 45°46′, VL26, 630 m, *Pinus nigra*, ldJTi, lit.JTi1983, 11.1978;

Osojnica, Pivka, 14°10′, 45°41′, VL35, 710 m, *Pinus nigra*, ldJTi, lit.JTi1983, 3.1978; **Senadole, Senožeče**, 14°00′, 45°43′, VL26, 390 m, *Pinus nigra*, ldJTi, lit.JTi1983, 4.1973.
LJUBLJANA Z OKOLICO: **Češnjica, Podlipoglav**, 14°37′,46°01′,VL79,390 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 1.1978; **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, *Pinus sylvestris*, deblo 15 cm rs, odRPa, lit.RPa2020c, 4.6.2013, 25.10.2013; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), *Pinus sylvestris*, ldMJu, lit.DJu2003, 2002; **Ljubljana, Rožna dolina**, 14°28′01″, 46°03′12″, VM50, 301 m, *Pinus* sp., deblo 15 cm rs, odDSo vRPa, lit.RPa2022a, 2.12.2022; **Ljubljana, Šentvid**, 14°28′, 46°06′, VM50, 340 m, *Pinus sylvestris*, deblo, ldJTi, lit.JTi1983, 10.1971; **Ljubljana, Tivoli, Jesenkova pot**, 14°30′, 46°03′, VM60, 300 m, *Pinus* sp., deblo, ldKSe, lit.KSe2012, 2010, 2011; **Ljubljana, Večna pot 83, vrt**, 14°28′40″, 46°03′00″, VL59, 301 m, *Pinus strobus*, deblo 25 cm rs, odRPa, lit.RPa2020b, 10.9.2018; **Rožnik, Ljubljana 3**, 14°28′34″, 46°03′04″, VL59, 329 m, *Pinus sylvestris*, deblo 15 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Rožnik, Ljubljana 5**, 14°28′31″, 46°03′07″, VL59, 348 m, *Pinus sylvestris*, veja 5 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Šmarna gora**, 14°28′, 46°07′, VM50, 430 m, *Pinus sylvestris*, rs, odJTi, lit.JTi1983, 8.1973.
DOLENJSKO: **Grosuplje**, 14°39′, 45°57′, VL78, 410 m, *Pinus sylvestris*, ldJMJu, lit.DJu2003, 2002; **Litija**, 14°50′, 46°04′, VM80, 280 m, *Pinus sylvestris*, ldJMJu, lit.DJu2003, 2002; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 550 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1981; **Podturjak, Turjak**, 14°36′, 45°53′, VL68, 350 m, ldSBr, cSBr, 14.4.1980; **Radeče, Hotemež**, 15°11′, 46°03′, WM10, 270 m, *Pinus sylvestris*, deblo, ldJTi, lit.JTi1983, 7.1964; **Temenica, Šentvid pri Stični**, 14°53′, 45°58′, VL99, 330 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Veliko Trebeljevo**, 14°45′, 46°01′, VL89, 570 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 1.1978.



Slika 43: MALI POGANJKAR *Tomicus minor*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 43: *Tomicus minor*, distribution map according to historical and recent data

BELA KRAJINA: **Gradac, Metlika**, 15°15′, 45°37′, WL15, 180 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 7.1977.
ŠTAJERSKO: Cirkovce, Pragersko, peskokop, 15°44′57″, 46°25′31″, WM54, 245 m, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa2020c, 19.4.2013; **Gornji Dolič, Mislinja**, 15°11′, 46°25′, WM14, 460 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Pesnik, Ribnica na Pohorju**, 15°15′, 46°31′, WM15, 1100 m, ldVKo vZKa, cŠFS, 19.5.1929; **Rdeči Breg, Lovska koča Klančnik, Pohorje**, 15°21′26″, 46°34′01″, WM25, 860 m, *Pinus sylvestris*, hlod 25 cm rs, odRPa, lit. RPa2020b, 17.7.2019; **Velenje, Šalek**, 15°08′, 46°22′, WM13, 460 m, *Pinus sylvestris*, debelce rs, odJTi, lit.JTi1983, 9.1973.
KOROŠKO: **Podpeca, Črna na Koroškem**, 14°50′, 46°29′, VM84, 720 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979.
PREKMURJE: **Tišina, drevesnica Semesadike Mengeš**, 16°05′26″, 46°39′10″, WM86, 195 m, *Pinus contorta*, poganjki, lit.MJu1996, 1951-2000; ibidem, *Pinus nigra*, debelce, lit.MJu1996, 1951-2000; poganjki, lit.MJu1996, 1951-2000; ibidem, *Pinus sylvestris*, debelce, lit.MJu1996, 1951-2000; ibidem, poganjki, lit.MJu1996, 1951-2000.

09.03. *Tomicus piniperda* (Linnaeus, 1758) VELIKI POGANJKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel 1866: *Hylurgus piniperda* Lin.; Grüne 1979: *Blastophahus piniperda* (Linné, 1758); Freude, Harde, Lohse 1981: *Blastophahus piniperda* Linné; Titovšek 1988: *Blastophahus piniperda* (Linné); Pfeffer & Knížek 1993: *Tomicus piniperda* (Linnaeus, 1758); Pfeffer 1995: *Tomicus piniperda* (Linné, 1758) (*Myelophilus piniperda* Eichhoff, 1881; *Blastophahus piniperda* Eichhoff, 1864).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LS LT LU MC NL NR NT PL PT RO SK SL SP ST SV SZ UK YU **N:** AG MO MR TU **A:** ANH CY ES FE FUJ GAN GUI HEB HEI HEN HUB HUN IS JA JIA JIL JIX KZ LIA MG NC NMO QIN SC SCH SHA SHN SHX TAI TR WS YUN ZHE **NAR ORR**

Vrsta hladnega podnebja, razširjena v evro-azijskih borovih gozdovih, v severni Afriki, na nearktičnem in orientalskem območju. Siegel (1866) navaja, da je bila vrsta »na Kranjskem pogostnejša, v borovcih«. Vrsta je polifag na kontinentalnih borih, predvsem na *Pinus sylvestris* in *P. nigra*, poročajo tudi o napadih na *P. pinaster*, manj pogosto pa na *Pinus mugo*, *P. koraiensis*, *P. thunbergiana*, *P. strobus*, *P. heldreichii*, *P. cembra*, *P. densiflora*, *P. peuce* in *Larix decidua*. V Sloveniji je vrsta prisotna v vseh pokrajinah (slika 45), naseljuje pa *P. sylvestris*, *P. nigra* in redkeje *P. strobus*. Na nekaj najdiščih na Primorskem in v slovenskem delu Istre, kjer je bila vrsta določena na podlagi rovnega sistema na *P. nigra*, gre morda za sorodno vrsto *T. destruens*.

A cold-climate species distributed in the pine forests of Eurasia, North Africa, the Nearctic and the Orient. Siegel (1866) states that the species was "more common in Carniola, in the pine forests". The species is a polyphagous in continental pines, mainly on *Pinus sylvestris* and *P. nigra*, but attacks on *P. pinaster* have also been reported, and less frequently on *Pinus mugo*, *P. koraiensis*, *P. thunbergiana*, *P.* In Slovenia, the species is present in all regions, inhabiting *P. sylvestris*, *P. nigra* and, less frequently, *P. strobus* (Figure 45). In a few sites in Primorska and in the Slovene part of Istria, where the species was determined on the basis of the tunnel system on *P. nigra*, it may be a related species to *T. destruens*. They bore longitudinal, single-arched, up to 16 cm

Dolbe vzdolžne, enokrake, do 16 cm dolge materinske rove, ki imajo zaradi poševnega vhodnega kanala lahko obliko pipe. Vhodna odprtina je običajno obdana s prstanom smole. Rovi ličink so zelo dolgi in se medsebojno lahko križajo. Adult meri v dolžino 3,5–4,8 mm (slika 44). Od malega poganjkarja (*T. minor*) se jasno razlikuje po gladki »senčni brazdi« na koničniku. Je debelolubna vrsta, materinski rovi so v prsni višini in nižjih delih odraslih dreves. Podobno kot mali poganjkar, se veliki poganjkar zrelostno prehranjuje v strženu vejic v obrši. Vejice in poganjki se zato lomijo in jih pogosto najdemo pod drevesi. Je sekundarna in primarna vrsta.

long maternal tunnels, which may have a tap-shaped form due to the slanted entrance channel. The borehole is usually surrounded by a ring of resin. The larval tunnels are very long and may intersect. Adult *T. piniperda* measure 3.5-4.8 mm in length (Figure 44). It is clearly distinguished from *T. minor* by the smooth 'shadow furrow' at the end of the elytra. A thick-barked species, the maternal tunnels are located at breast height and in the lower parts of the adult trees. Similar to *T. minor,* it maturity feeds in the twig piths in the crown. Twigs and shoots therefore break off and are often found under trees. Secondary and primary species.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951; *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.

ISTRA: **Kastelec**, 13°52′09″, 45°34′17″, VL14, 299 m, *Pinus nigra*, deblo 20 cm rs, odRPa, lit. RPa2020c, 15.6.2009, 30.5.2011.

PRIMORSKO: **Solkan, Skalniška cesta, nad kamnolomom**, 13°39′28″, 45°58′46″, UL99, 176 m, *Pinus nigra*, deblo 20 cm rs, odRPa, lit.RPa2021a, 15.9.2021; **Sveta gora, Solkan**, 13°39′33″, 45°59′41″, UL99, 543 m, *Pinus nigra*, deblo 25 cm rs, odRPa, lit.RPa2021a, 15.9.2021; **Temnica, Kostanjevica na Krasu**, 13°41′, 45°51′, UL97, 350m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 7.1979; **Tolmin, Kozlov rob**, 13°44′, 46°11′, VM01, 300 m, *Pinus strobus*, lNRu dRPa, lit.NRu2014, 2013; **Tomajski Govec, Pod Govcem, Vrhovlje**, 13°49′55″, 45°44′06″, VL06, 296 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 26.5.2000.

GORENJSKO: **Belca (dolina), Karavanke**, 13°55′17″, 46°29′19″, VM15, 923 m, *Pinus sylvestris*, deblo rs, odRPa, lit.RPa2014c, 28.7.1995; **Brdo pri Kranju 1/22**, 14°24′05″, 46°16′59″, VM52, 450 m, *Pinus sylvestris*, sušica 30 cm rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/24**, 14°24′14″, 46°17′02″, VM52, 452 m, *Pinus sylvestris*, sušica 25 cm, ldRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/28**, 14°24′21″, 46°16′50″, VM52, 444 m, *Pinus sylvestris*, deblo 20 cm rs,

Slika 44: VELIKI POGANJKAR *Tomicus piniperda*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 44: *Tomicus piniperda*, dorsal, lateral (Photo: Maja Jurc)

odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/32**, 14°24′37″, 46°17′04″, VM52, 454 m, *Pinus sylvestris*, deblo rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/33**, 14°24′31″, 46°17′07″, VM52, 455 m, *Pinus sylvestris*, deblo 20 cm rs, odRPa, lit.RPa2003, 11.10.2003; ibidem, deblo 25 cm rs, odRPa, lit.RPa2003, 6.9.2003; **Brdo pri Kranju 1/36**, 14°24′39″, 46°17′18″, VM52, 457 m, *Pinus sylvestris*, deblo rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/47**, 14°24′08″, 46°17′15″, VM52, 476 m, *Pinus sylvestris*, sušica 15 cm rs, odRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/54**, 14°23′44″, 46°17′00″, VM52, 452 m, *Pinus sylvestris*, deblo 25 cm, ldRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/57**, 14°23′48″, 46°17′26″, VM52, 467 m, *Pinus sylvestris*, sušica 30 cm rs, odRPa, lit.RPa2003, 27.9.2003; **Brdo pri Kranju 1/62**, 14°23′34″, 46°17′14″, VM52, 457 m, *Pinus sylvestris*, sušica rs, odRPa, lit.RPa2003, 18.7.2003; **Brdo pri Kranju 1/64**, 14°23′26″, 46°17′16″, VM52, 466 m, *Pinus sylvestris*, deblo 10 cm rs, odRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/65**, 14°23′18″, 46°17′15″, VM52, 465 m, *Pinus sylvestris*, deblo 10 cm rs, odRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/66**, 14°23′13″, 46°17′11″, VM52, 460 m, *Pinus sylvestris*, deblo 20 cm rs, odRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/74**, 14°23′05″, 46°16′58″, VM52, 446 m, *Pinus sylvestris*, deblo 8 cm rs, odRPa, lit. RPa2003, 18.10.2003; **Brdo pri Kranju 2/3**, 14°22′49″, 46°16′48″, VM52, 424 m, *Pinus sylvestris*, sušica 20 cm rs, odRPa, lit.RPa2004, 3.9.2004; **Brdo pri Kranju 2/4**, 14°23′18″, 46°17′04″, VM52, 453 m, *Pinus sylvestris*, deblo 10 cm rs, odRPa, lit.RPa2004, 21.7.2004; ibidem, sušica 10 cm rs, odRPa, lit.RPa2004, 21.7.2004; **Brdo pri Kranju 2/6**, 14°24′02″, 46°17′14″, VM52, 470 m, *Pinus sylvestris*, deblo 10 cm rs, odRPa, lit.RPa2004, 22.8.2004; ibidem, deblo 25 cm rs, odRPa, lit. RPa2004, 22.8.2004; ibidem, sušica 5 cm rs, odRPa, lit.RPa2004 22.8.2004; **Brdo pri Kranju 2/7**, 14°23′48″, 46°16′47″, VM52, 441 m, *Pinus sylvestris*, deblo 20 cm rs, odRPa, lit.RPa2004, 18.9.2004; ibidem, hlod 25 cm rs, odRPa, lit.RPa2004, 18.9.2004; **Brdo pri Kranju 2/8**, 14°24′22″, 46°17′13″, VM52, 457 m, *Pinus sylvestris*, sušica 10 cm rs, odRPa, lit.RPa2004, 26.9.2004; ibidem, sušica 15 cm rs, odRPa, lit.RPa2004, 26.9.2004; ibidem, sušica 25 cm rs, odRPa, lit.RPa2004, 26.9.2004; ibidem, sušica 35 cm rs, odRPa, lit.RPa2004, 26.9.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008; ibidem, lit.RPa2010a, 9.6.2010; ibidem, lit.RPa2011a, 6.7.2011; ibidem, lit.RPa2013a, 17.4.2013, 12.6.2013, 10.7.2013; ibidem, lit.RPa2014a, 9.7.2014; ibidem, lit.RPa2015a, 18.3.2015, 1.4.2015, 15.4.2015, 10.6.2015, 24.6.2015, 8.7.2015; ibidem, lit.RPa2016a, 16.3.2016, 30.3.2016, 13.4.2016, 27.4.2016, 25.5.2016, 7.6.2016, 22.6.2016, 6.7.2016; ibidem, lit.RPa2017a, 15.3.2017, 29.3.2017, 10.5.2017, 21.6.2017; ibidem, lit.RPa2018a, 14.3.2018, 28.3.2018, 11.4.2018, 25.4.2018, 9.5.2018, 24.5.2018, 6.6.2018, 20.6.2018, 4.7.2018, 18.7.2018; ibidem, lit.RPa2019a, 13.3.2019, 10.4.2019, 24.4.2019, 8.5.2019, 22.5.2019, 3.6.2019, 29.6.2019, 3.7.2019, 31.7.2019; ibidem, lit.RPa2020d, 25.3.2020, 8.4.2020, 22.4.2020, 6.5.2020, 20.5.2020, 3.6.2020, 17.6.2020, 1.7.2020, 15.7.2020; ibidem, lit. RPa2021b, 7.4.2021, 5.5.2021, 19.5.2021, 31.5.2021, 4.6.2021, 16.6.2021; ibidem, lit.RPa2022b, 9.3.2022, 23.3.2022, 6.4.2022, 20.4.2022, 4.5.2022, 18.5.2022, 2.6.2022, 15.6.2022, 29.6.2022, 27.7.2022; ibidem, lit.RPa2023b, 22.3.2023, 6.4.2023, 3.5.2023, 17.5.2023, 1.6.2023, 14.6.2023, 28.6.2023, 12.7.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2015a, 24.6.2015; ibidem, lit.RPa2017a,15.3.2017; ibidem, lit.RPa2019a, 3.6.2019; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2015a, 18.3.2015, 10.6.2015; ibidem, lit.RPa2016a, 30.3.2016; ibidem, lit.RPa2022b, 4.6.2022; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa, cSBr, 18.5.1992; **Gozd Martuljek**, 13°51′, 46°29′, VM14, 870 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 3.1977; **Hrastje, Kranj, Planjava 1**, 14°23′39″, 46°14′28″, VM52, 397 m, *Pinus sylvestris*, hlod 30 cm, ldRPa, lit. RPa2020c, 29.5.2008; **Krašnja, Moravče**,14°45′, 46°10′, VM81, 430 m, *Pinus sylvestris*, rs, odJTi, lit.JTi1983, 1.1974; **Križ, Gornji Grad**, 14°49′55″, 46°18′14″, VM82, 442 m, *Pinus sylvestris*, hlod, ldRPa, lit.RPa1996, 16.6.1996; **Lipica, Škofja Loka, nad pokopališčem 3**, 14°20′33″, 46°10′06″,

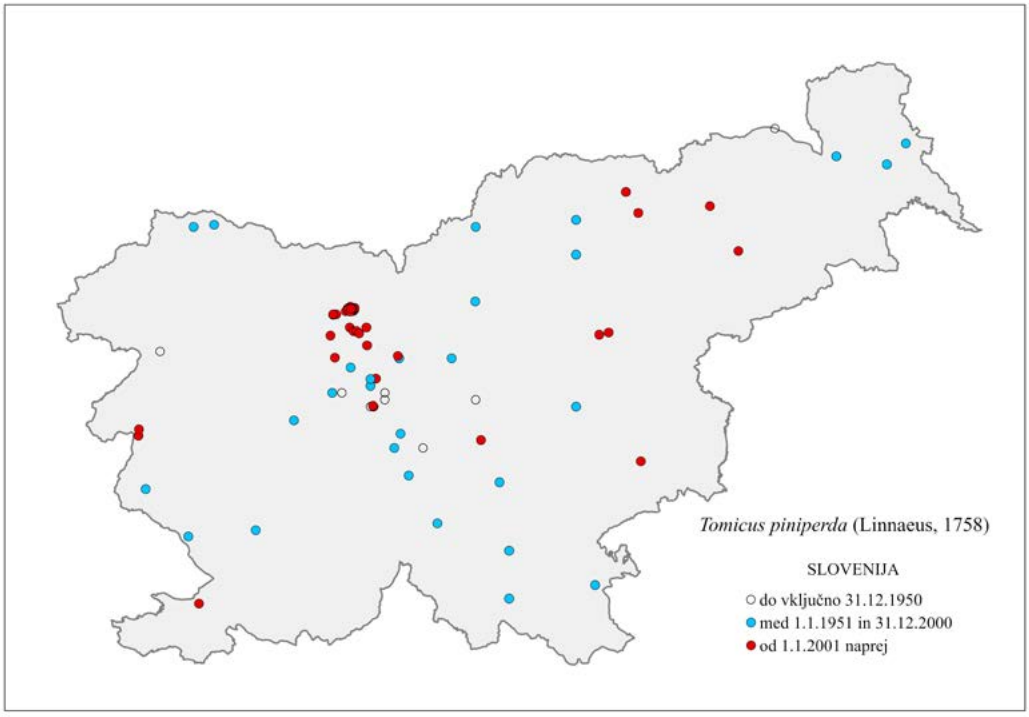
VM41, 350 m, *Pinus sylvestris*, deblo 20 cm rs, odRPa, lit.RPa2021a, 20.1.2021; **Mengeš**, 14°34′, 46°10′, VM61, 430 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 5.1978; **Mengeš, drevesnica Semesadike Mengeš**, 14°33′44″, 46°10′21″, VM61, 321 m, *Pinus nigra*, debelce, lit.MJu1996, 1951-2000; ibidem, poganjki, lit.MJu1996, 1951-2000; ibidem, *Pinus sylvestris*, debelce, lit.MJu1996, 1951-2000; ibidem, poganjki, lit.MJu1996, 1951-2000; **Mlaka pri Kranju**, 14°20′50″, 46°16′22″, VM42, 418 m, *Pinus sylvestris*, deblo 10 cm, ldRPa, lit.RPa2014c, 1.4.2002; **Mlaka pri Kranju, ob tekaški stezi 1**, 14°20′10″, 46°16′18″, VM42, 430 m, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa2020c, 6.6.2007; **Mlaka pri Kranju, ob tekaški stezi 4**, 14°20′12″, 46°16′22″, VM42, 429 cm, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa2020c, 8.5.2006, 6.6.2007; **Praprotna Polica 3**, 14°27′08″, 46°14′29″, VM52, 396 m, *Pinus sylvestris*, sušica 25 cm, ldRPa, lit.RPa2020b, 11.10.2019; **Šenčur, poslovna cona 1**, 14°24′28″, 46°13′57″, VM52, 387 m, *Pinus sylvestris*, hlod 30 cm, ldRPa, lit.RPa2020c, 4.6.2008; **Šenčur, proti Voklu 1**, 14°25′06″, 46°13′58″, VM52, 390 m, *Pinus sylvestris*, deblo 40 cm, ldRPa, lit.RPa2020c, 13.10.2017; **Voglje 5**, 14°27′16″, 46°11′53″, VM51, 366 m, *Pinus sylvestris*, deblo 25 cm rs, odRPa, lit.RPa2021a, 15.6.2021; **Voklo, pri Petrol BS 4**, 14°25′37″, 46°13′38″, VM51, 385 m, *Pinus sylvestris*, deblo 25 cm, ldRPa, lit.RPa2020b, 30.7.2019; **Zgornje Bitnje 5**, 14°19′38″, 46°13′18″, VM41, 395 m, *Pinus sylvestris*, hlod 20 cm, ldRPa, lit.RPa2020c, 29.5.2008.

NOTRANJSKO: **Razdrto**, 14°04′, 45°45′, VL26, 620 m, *Pinus nigra*, ldJTi, lit.JTi1983, 11.1978; **Setnica, Polhov Gradec**, 14°20′, 46°05′, VM40, 600 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 6.1982; **Smrečje, Rovte**, 14°12′, 46°01′, VL39, 510 m, *Pinus sylvestris*, deblo rs, odJTi, lit.JTi1983, 3.1972.

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), *Pinus sylvestris*, ldMJu, lit.DJu2003, 2002; **Ljubljana, Ježica**, 14°31′, 46°05′, VM60, 295 m, lJSs, cJSd, 25.3.1941; **Ljubljana, Šentvid**, 14°28′, 46°06′, VM50, 360 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 1.1978; **Ljubljana, Šentvid**, 14°28′, 46°06′, VM50, 380 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 7.1971; **Ljubljana, Večna pot 83, vrt**, 14°28′40″, 46°03′00″, VL59, 301 m, *Pinus strobus*, deblo 25 cm rs, odRPa, lit.RPa2020b, 10.9.2018; **Rožnik, Ljubljana**, 14°28′, 46°03′, VM50, ~390 m, ldSBr, cSBr, 20.4.1948; **Rožnik, Ljubljana 1**, 14°28′37″, 46°03′02″, VL59, 311 m, *Pinus sylvestris*, deblo 30 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Rožnik, Ljubljana 5**, 14°28′31″, 46°03′07″, VL59, 348 m, *Pinus sylvestris*, deblo 15 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Sveta Katarina, Topol, Polhograjsko hribovje**, 14°22′, 46°05′, VM50, 780 m, lJSs, cJSd, 19.6.1932; **Šmarna gora**, 14°28′, 46°07′, VM50, 470 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 10.1971.

DOLENJSKO: **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, *Pinus sylvestris*, lVVu dRPa, lit. VVu2016, 22.11.2012; ibidem, ldVVu, lit.VVu2016, 8.5.2013; ibidem, ldSBr, cSBr, 4.4.1981, 3.4.1982, 17.4.1982; **Gornji Križ, Žužemberk**, 14°55′, 45°52′, VL97, 330 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 5.1979; **Grosuplje**, 14°39′, 45°57′, VL78, 410 m, *Pinus sylvestris*, ldJMJu, lit.DJu2003, 2002; **Hotemež, Radeče**, 15°11′, 46°03′, WL19, 370 m, *Pinus sylvestris*, deblo, ldJTi, lit.JTi1973, 6.1964; ibidem, lit.JTi1983,7.1964; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 21.3.1981, 10.7.1981, 11.8.1985, 15.8.1985, 28.5.1994; **Litija**, 14°50′, 46°04′, VM80, 280 m, *Pinus sylvestris*, ldJMJu, lit.DJu2003, 2002; **Mozelj**, 14°57′, 45°35′, VL94, 530 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1981; **Podturjak, Turjak**, 14°36′, 45°53′, VL68, 350 m, ldSBr, cSBr, 14.4.1980; **Pugled, Stari Log**, 14°57′, 45°42′, VL96, 660 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 5.1979; **Rimš, Leskovec pri Krškem, drevesnica HPG Brežice**, 15°24′32″, 45°55′04″, WL38, 181 m, *Pinus nigra*, debelce, lit.MJu1996, 1951-2000; ibidem, poganjki, lit.MJu1996, 1951-2000; ibidem, *Pinus sylvestris*, debelce, lit.MJu1996, 1951-2000; ibidem, poganjki, lit.MJu1996, 1951-2000; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, lGBa, cSBr, 22.4.1993; **Velike Češnjice 2**, 14°51′07″, 45°58′08″, VL89, 381 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 3.5.2017, 10.5.2017; **Velike Lipljene**, 14°38′, 14°54′, VL78, 460 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1981; **Žlebič, Dolenji Lazi**, 14°42′, 45°46′, VL76, 530 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1981.

BELA KRAJINA: **Gradac, Metlika**, 15°15′, 45°37′, WL15, 180 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 7.1977.
ŠTAJERSKO: Celje, Breg, 15°15′52″, 46°13′26″, WM21, 262 m, tWit, phGaPP, ldTŽu, lit. TŽu2020, 27.5.2018, 10.6.2018; **Celje, Teharje**, 15°17′48″, 46°13′44″, WM23, 242 m, tWit, phGaPP, ldTŽu, lit.TŽu2020, 27.5.2018; **Cirkovce, Pragersko, peskokop**, 15°44′57″, 46°25′31″, WM54, 245 m, *Pinus sylvestris*, deblo 35 cm, ldRPa, lit.RPa2020c, 19.4.2013; **Gornji Dolič, Mislinja**, 15°11′, 46°25′, WM14, 470 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Kopa, Kremžarjev vrh**, 15°11′, 46°30′, WM15, 1220 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Maribor**, (15°39′), (46°32′), (WM55), ~270 m, ldLPe, cJPe, pred 1951; **Pohorje**, (15°24′), (46°31′), (WM35), *, ldLPe, cJPe, pred 1951; **Rdeči Breg, Lovska koča Klančnik, Pohorje 1**, 15°21′26″, 46°34′01″, WM25, 860 m, *Pinus sylvestris*, hlod 25 cm, ldRPa, lit.RPa2020b, 17.7.2019; **Žepovci, Žepovski Travniki, ob Muri**, 15°52′36″, 46°43′08″, WM67, 220 m, ldBDr, cZRC, 1999.
KOROŠKO: Podpeca, **Črna na Koroškem**, 14°50′, 46°29′, VM84, 690 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979.
PREKMURJE: **Bukovnica, Dobrovnik**, 16°20′, 46°41′, XM07, 230 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 5.1982; **Hraščica, Renkovci**, 16°16′, 46°38′, WM96, 190 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 1.1972;
Tišina, drevesnica Semesadike Mengeš, 16°05′26″, 46°39′10″, WM86, 195 m, *Pinus nigra*, debelce, lit.MJu1996, 1951-2000: ibidem, poganjki, lit.MJu1996, 1951-2000; ibidem, *Pinus sylvestris*, debelce, lit.MJu1996, 1951-2000; ibidem, poganjki, lit.MJu1996.



Slika 45: VELIKI POGANJKAR *Tomicus piniperda*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 45: *Tomicus piniperda*, distribution map according to historical and recent data

10.00. *Xylechinus* Chapuis, 1869 LUSKIČAR

10.01. *Xylechinus pilosus* (Ratzeburg, 1837) KOSMATI LUSKIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Dendroctonus pilosus* Rtzb.; GRÜNE 1979: *X. pilosus* (Ratzeburg, 1837); FREUDE, HARDE, LOHSE 1981: *X. pilosus* Ratzeburg; PFEFFER & KNÍŽEK 1993: *X. pilosus* (Ratzeburg, 1837); PFEFFER 1995: *X. pilosus* (Ratzeburg, 1837).

E: AU BE CT CZ DE EN FI FR GB GE GR HU IT LA NR NT PL RO SK SL SV ST SZ UK
A: ES FE HEI JA JIL KZ MG NC SHA WS XIN

Vrsta se pojavlja v osrednji, severni in vzhodni Evropi, v Sibiriji in v Aziji. SIEGEL (1866) navaja, da je vrsta »na Kranjskem redka, živi skupaj z vrsto *Dendroctonus micans*«. Večinoma je kosmati luskičar prisoten na *Picea abies*, *P. obovata*, redko na *Pinus*

The species occurs in central, northern and eastern Europe, Siberia and Asia. SIEGEL (1866) states that the species is "rare in Carniola, living together with *Dendroctonus micans*". *X. pilosus* is mostly found on *Picea abies*, *P. obovata*, rarely on *Pinus pumila*, *Larix decidua* and

Slika 46: KOSMATI LUSKIČAR *Xylechinus pilosus*, dorzalno, lateralno (Foto: Maja Jurc)

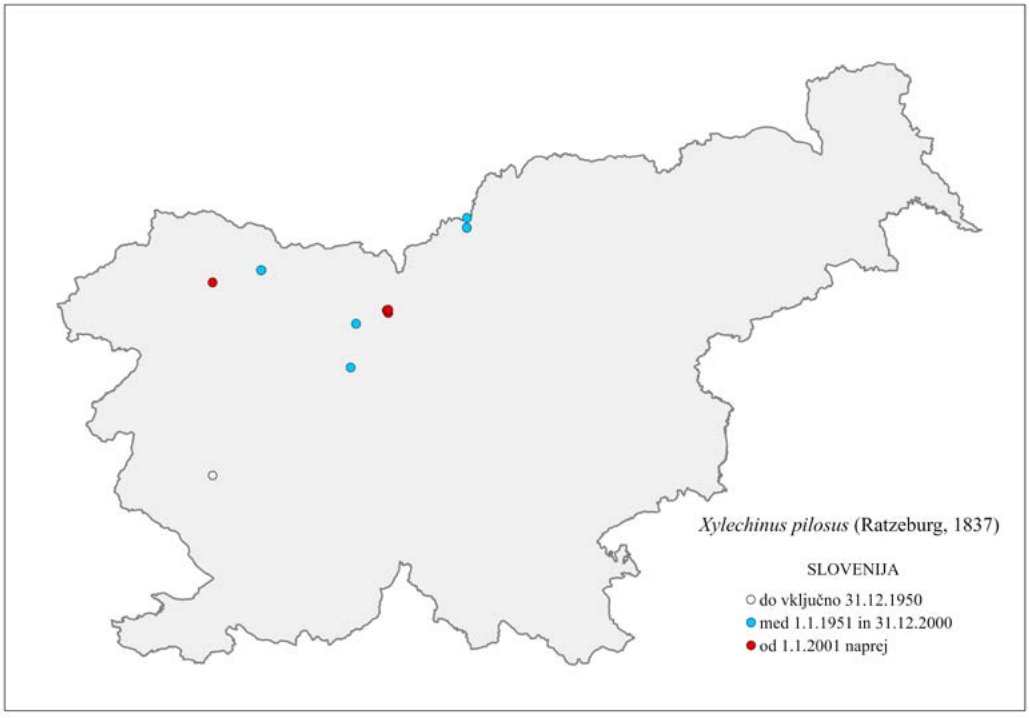
Figure 46: *Xylechinus pilosus*, dorsal, lateral (Photo: Maja Jurc)

pumila, *Larix decidua,* občasno na *Abies alba* in *A. sibirica* ter *Pinus cembra*. Po letu 1990 je bila vrsta zabeležena le na Gorenjskem in Koroškem, kjer so se osebki ujeli v pasti na nadmorskih višinah nad 1100 m ali pa na skladiščih lesa (slika 47). Je monogamna vrsta z enoletno generacijo, roji maja in junija. Dolbe asimetričen dvokrak prečni rovni sistem, dolgi larvalni rovi so v beljavi. Dolžina adulta je 2,2–2,5 mm (slika 46). Je vrsta, ki naseljuje debla mrtvih, močno razkrajajočih se dreves ali pred kratkim podrta drevesa. *X. pilosus* je sekundarni saproksil.

occasionally on *Abies alba* and *A. sibirica* and *Pinus cembra*. After 1990, the only recorded sites in Slovenia are in Gorenjska and Koroška, where specimens were trapped at altitudes above 1100 m or in timber storage sites (Figure 47). Monogamous species with annual generation, swarming in May and June. Long asymmetrical biramous transverse tunnel system, long larval tunnels located in the sapwood. Adult length is 2.2-2.5 mm (Figure 46). An unusual species, it inhabits the trunks of dead, severely decomposing trees or recently felled trees. *X. pilosus* is a secondary saproxyle.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldMSi, lit.MSi1866, pred 1951.
PRIMORSKO: Ajdovščina, 13°55′, 45°53′, VL18, ~106 m, ldABi vSBr, cABi, pred 1951.
GORENJSKO: **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022; **Ambrož pod Krvavcem 5**, 14°31′42″, 46°17′03″, VM62, 1402 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, lGBa dSBr, cSBr, 2.4.1993, 22.4.1993, 7.5.1993; **Goričane,**



Slika 47: KOSMATI LUSKIČAR *Xylechinus pilosus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 47: *Xylechinus pilosus*, distribution map according to historical and recent data

skladišče lesa, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, lFPo dSBr, cSBr, 21.5.1990, 28.6.1990; ibidem, lGBa dSBr, cSBr, 22.3.1991, 25.3.1991, 4.4.1991, 8.4.1991, 11.4.1991, 15.4.1991, 30.4.1991, 20.5.1991, 10.6.1991, 27.4.1992, 4.5.1992; **Pokljuka, Planina Krasca**, 13°55′, 46°21′, VM13,1450 m, ldcAPi, lit.APi2015, 11.7.2014; **Šenčur**, 14°25′, 46°15′, VM52, 400 m, lRPa dSBr, cSBr, 14.4.1989.
KOROŠKO: **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa vSBr, lit.RPa1994a, 22.6.1994; ibidem, phCemp, ldRPa, lit.RPa1995a, 21.6.1995; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit.RPa1995a, 8.6.1995; ibidem, phCemp, ldRPa, lit.RPa1995a, 21.6.1995.

11.00. *Hypoborus* Erichson, 1836 poraščenec

11.01. *Hypoborus ficus* Erichson, 1836 figov poraščenec

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Freude, Harde, Lohse 1981: *Hypoborus ficus* Erichson; Titovšek 1988: *H. ficus* Erichson; Pfeffer & Knížek 1993: *H. ficus* Erichson, 1836; Pfeffer 1995: *H. ficus* Erichson, 1836; Sanchez s sod. 2020b.

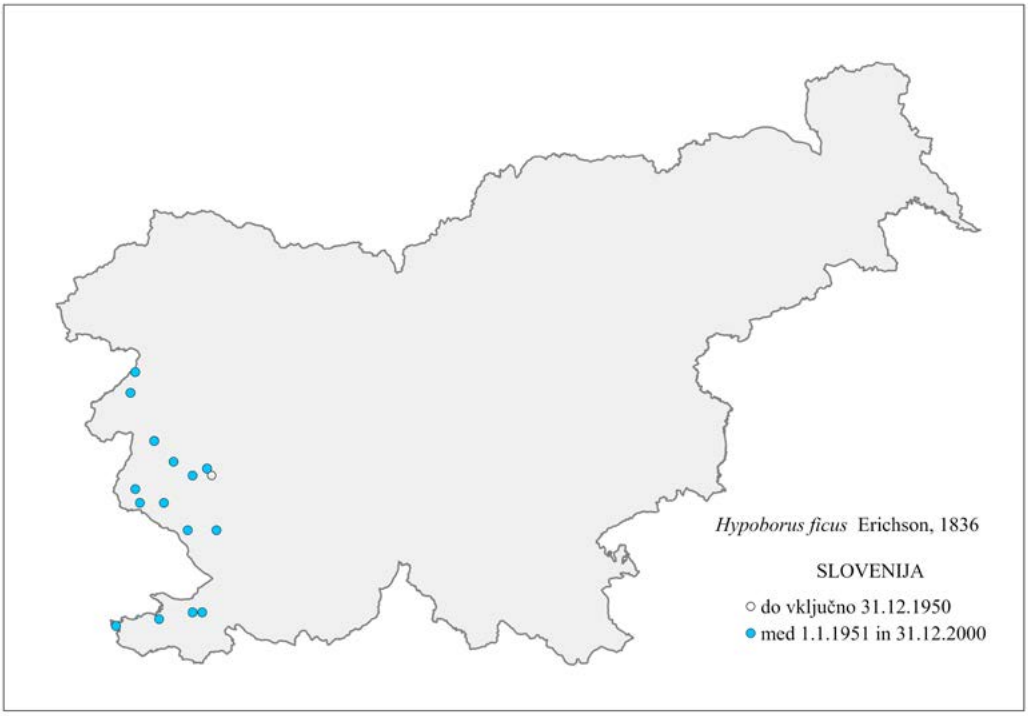
E: AB AU AZ BH BU CR FR GR HU IT MA MC PT SL SP ST SZ UK YU **N:** AG CI EG MO MR TU **A:** CY IN IQ IS JO TR

Vrsta, najdena v Evropi, v Sredozemlju, južnoevropskem delu Rusije, Ukrajini, Srbiji, Makedoniji, severni Afriki in Mali Aziji. Pri nas je prisotna na Primorskem in zahodni Sloveniji (slika 49). Po nekaterih avtorjih figov poraščenec naseljuje gostitelje iz družine Moraceae (*Ficus carica*) in redkeje tudi stebla vinske trte (*Vitis vinifera*). Po drugih avtorjih *H. ficus* najdemo tudi na *Ailanthus altissima*, *Corylus avellana*, *C. colurna*, *Eucalyptus camaldulensis*, *Morus alba* in *Styrax officinalis*.

The species is found in Europe, the Mediterranean, southern Russia, Ukraine, Serbia, Macedonia, North Africa and Asia Minor. In Slovenia it is present in Primorska and western Slovenia (Figure 49). According to some authors, *H. ficus* attacks hosts in the Moraceae family (*Ficus carica*) and, less frequently, the stems of grapevines (*Vitis vinifera*). According to other authors, *H. ficus* is also found on *Ailanthus altissima*, *Corylus avellana*, *C. colurna*, *Eucalyptus camaldulensis*, *Morus alba* and *Styrax officinalis*. There are also

Slika 48: figov poraščenec *Hypoborus ficus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 48: *Hypoborus ficus*, dorsal, lateral (Photo: Maja Jurc)



Slika 49: FIGOV PORAŠČENEC *Hypoborus ficus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 49: *Hypoborus ficus*, distribution map according to historical and recent data

Poročajo tudi o napadih na alohtona figova drevesa v Švici, kjer bi drevesa fig v zasebnih vrtovih lahko omogočila širjenje vrste na sever (SANCHEZ S SOD. 2020b). Pri nas smo jo našli le na *F. carica*. V topli sredozemski klimi lahko v enem letu razvije 3–4 generacije. Adulti so majhni 1,0-1,3 mm in močno poraščeni z dlakami (slika 48).

reports of attacks on allochthonous fig trees in Switzerland, where fig trees in private gardens may have facilitated the northward spread of *H. ficus* (SANCHEZ ET AL. 2020b). In Slovene territory it is found only on *F. carica.* In warm Mediterranean climates it can develop 3-4 generations in a year. Adults are small 1.0-1.3 mm and heavily covered with hairs (Figure 48).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi, cSBr, 1951-2000.

ISTRA: **Črni Kal**, 13°53′, 45°33′, VL14, 290 m, *Ficus carica*, ldJTi, lit.JTi1983, 12.1978; **Koper**, 13°44′, 45°32′, VL04, 20 m, *Ficus carica*, veja, ldJTi, lit.JTi1983, 8.1972; **Portorož**, 13°35′, 45°31′, UL84, 40 m, *Ficus carica*, veja, ldJTi, lit.JTi1983, 8.1972; **Rižana**, 13°51', 45°33', VL04, 50 m, *Ficus carica*, ldJTi, cŠFS, 7.8.1972; ibidem, veja,ldJTi, lit.JTi1983, 8.1972.

PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, ldABi, cABi, pred 1951; **Črniče, Šempas**, 13°47′, 45°55′, VL08, 100 m, *Ficus carica*, ldJTi, lit.JTi1983, 7.1974; **Dobravlje, Ajdovščina**, 13°51′, 45°53′, VL18, 100 m, *Ficus carica*, ldJTi, lit.JTi1983, 7.1974; **Dutovlje**, 13°50′, 45°45′, VL06, 320 m, *Ficus carica*, ldJTi, lit.JTi1983, 5.1979; **Griže, Štorje**, 13°56′, 45°45′, VL26, 370 m, *Ficus carica*, ldJTi, lit.JTi1983, 7.1974; **Izvir Lijaka, Trnovo**, 13°43', 45°58', VL09, 100 m, *Ficus carica*, lMKa dBDr, cZRC, 3.11.2000; **Kambreško, Kanal**, 13°39′, 46°08′, UM90, 710 m, *Ficus carica*, ldJTi, lit.JTi1983, 7.1974; **Kanal**, 13°38′, 46°05′, UM90, 100 m, *Ficus carica*, ldJTi,

lit.JTi1983, 7.1974; **Kanal**, 13°38', 46°05', UM90, 100 m, lMKa dBDr, cZRC, 4.5.1989; **Komen**, 13°45′, 45°49′, VL07, 270 m, *Ficus carica*, ldJTi, lit.JTi1983, 5.1979; **Kostanjevica na Krasu**, 13°39′, 45°51′, UL97, 280 m, *Ficus carica*, ldJTi, lit.JTi1983, 5.1979; **Lokavec, Ajdovščina**, 13°54′, 45°54′, VL18, 140 m, *Ficus carica*, ldJTi, lit.JTi1983, 8.1979; **Vojščica, Kostanjevica na Krasu**, 13°40′, 45°49′, VL16, 270 m, *Ficus carica*, ldJTi, lit.JTi1983, 5.1979.

12.00. ***Liparthrum*** Wollaston, 1854 DVOVRSTNEŽ

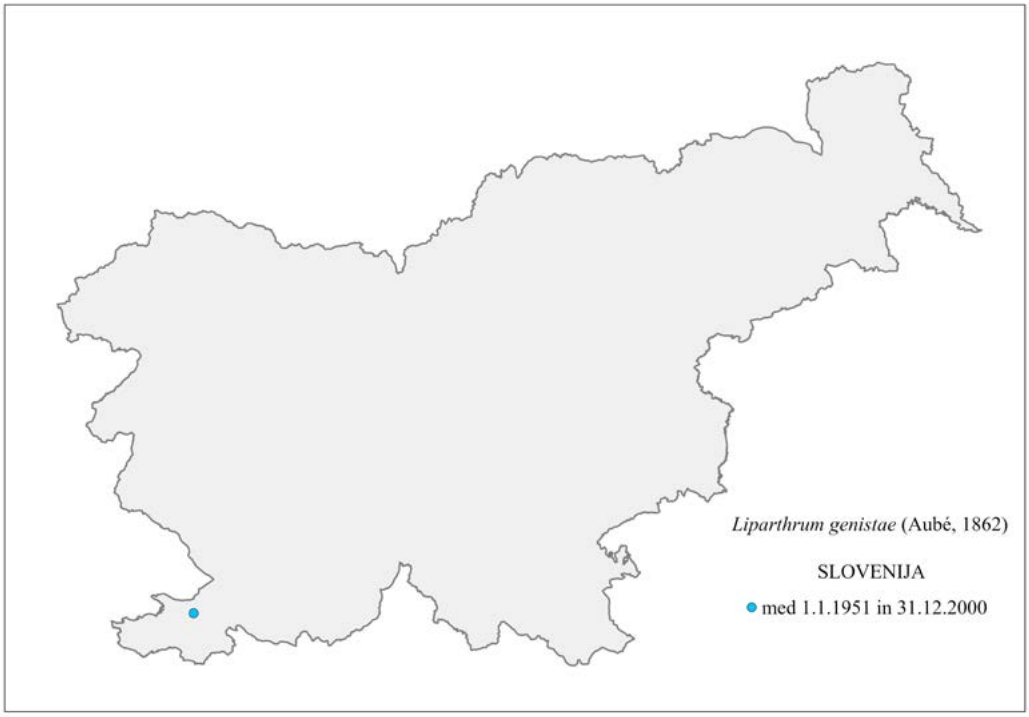
12.01. *Liparthrum genistae* (Aubé, 1862) KOŠČENIČIN DVOVRSTNEŽ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: PFEFFER & KNÍŽEK 1993: *Liparthrum genistae* (Aubé, 1862); PFEFFER 1995: *L. genistae* (Aubé, 1862).

E: FR IT SL* SP **N:** AG MO TU **A:** IS TR

Mediteranska vrsta, prisotna v Franciji, Italiji, Španiji, severni Afriki in Mali Aziji. V Sloveniji je bila najdena samo enkrat, v slovenskem delu Istre, lokacija Rižana, leta 1972, na *Spartium junceum* (slika 50). Po

A Mediterranean species found in France, Italy, Spain, North Africa and Asia Minor. In Slovenia it was found only once, in the Slovene part of Istria (Rižana, 1972), on *Spartium junceum* (Figure 50). According to literature,



Slika 50: KOŠČENIČIN DVOVRSTNEŽ *Liparthrum genistae*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 50: *Liparthrum genistae*, distribution map according to hostorical and recent data

literaturi so gostitelji *Calicotome spinosa*, *C. villosa*, *Spartium junceum*, *Genista horrida*, *G. numidica*, *G. scorpius*, *Lygos monosperma*, *L. raetam* in *L. sphaerocarpa*. Adult meri v dolžino 0,8–1,3 mm.

hosts include *Calicotoma spinosa*, *C. villosa*, *Spartium junceum*, *Genista horrida*, *G. numidica*, *G. scorpius*, *Lygos monosperma*, *L. raetam* and *L. sphaerocarpa*. Imago measures 0.8–1.3 mm in length.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Rižana**, 13°51', 45°33', VL04, 90 m, *Spartium junceum*, ldJTi, cŠFS, 7.8.1972; ibidem, debelce, ldJTi, lit.JTi1983, 7.8.1972; ibidem, veja, ldJTi, lit.JTi1983, 7.8.1972.

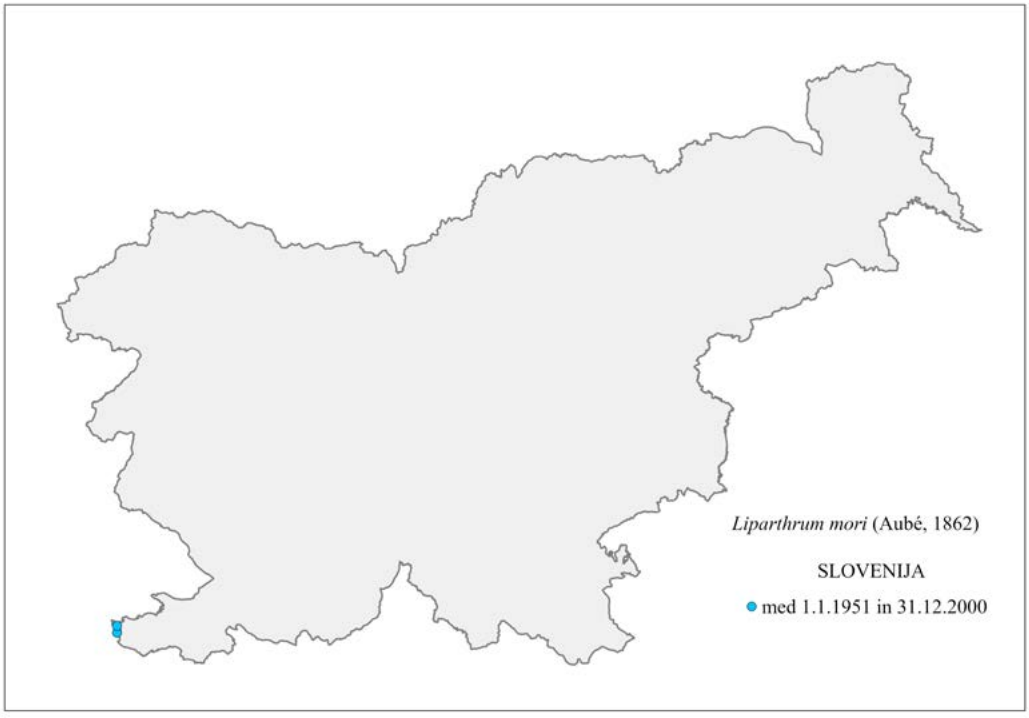
12.02. *Liparthrum mori* (Aubé, 1862) MURVOV DVOVRSTNEŽ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: FREUDE, HARDE, LOHSE 1981: *Liparthrum mori* Aubé; PFEFFER & KNÍŽEK 1993: *Liparthrum mori* (Aubé, 1862); PFEFFER 1995: *L. mori* (Aubé, 1862).

E: CR FR GR HU IT MA SL* UK **N:** AG MO TU

Vrsta je prisotna v južni Franciji, Italiji, Korziki, Dalmaciji, severni Afriki, Krimu in Kavkazu (Abhazija). V Sloveniji je bila vrsta

The species is found in southern France, Italy, Corsica, Dalmatia, North Africa, Crimea and the Caucasus (Abkhazia). In Slovenia, the species



Slika 51: MURVOV DVOVRSTNEŽ *Liparthrum mori*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 51: *Liparthrum mori*, distribution map according to historical and recent data

najdena samo enkrat, v slovenskem delu Istre (Portorož 1972), na *Morus alba* (slika 51). Imago meri v dolžino 0,9–1,2 mm.

has been recorded only once, in the Slovene part of Istria (Portorož, 1972), on *Morus alba* (Figure 51). Imago measures 0.9-1.2 mm in length.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Portorož**, 13°35', 45°30', UL94, 40 m, *Morus alba*, ldJTi, cŠFS, 7.8.1972; ibidem, veja, ldJTi, lit.JTi1983, 7.8.1972.

13.00. ***Phloeosinus*** Chapuis, 1869 zobčkar

13.01. *Phloeosinus aubei* (Perris, 1855) brinov zobčkar

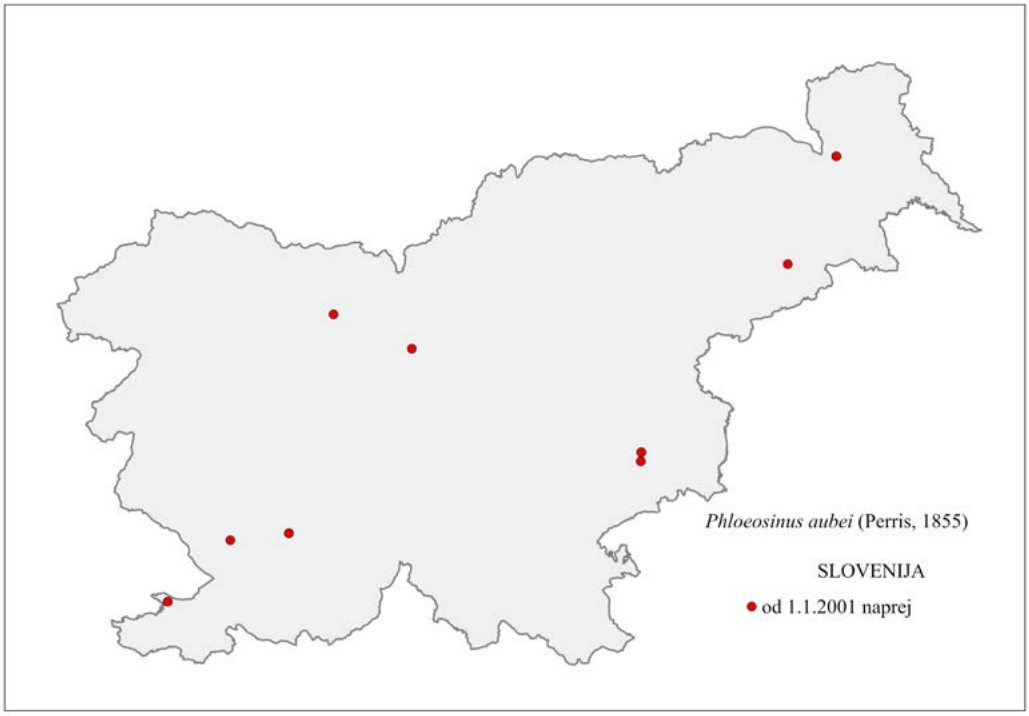
Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Freude, Harde, Lohse 1981: *Phloeosinus aubei* Perris; Pfeffer 1995: *P. aubei* (Perris, 1855).

E: AL AR AU BE BH BU CR CZ FR GB GE GR HU IT MC NL PL PT RO SK SL* SP ST SZ UK YU **N:** AG CI EG LB MO TU **A:** ANH BEI CY GAN GUI HEB HEN HUN IN IS JIA NC QIN SHA SHN SCH SHX SY TAI TM TR YUN

Vrsta je prisotna v Evropi, na Krimu, na Kavkazu, v severni Afriki in v Mali Aziji. Pri nas so najdišča v naravi razmeroma redka (na Gorenjskem in Notranjskem), ugotovljena pa je bila njena prisotnost v drevesnicah v petih slovenskih pokrajinah (slika 52). Gostitelji so *Juniperus communis*, *J. excelsa*, *J. foetidissima*, *J. macrocarpa*, *J. phoenicea*, *J. sabina*, *Tetraclinis articulata*, *Cupressus sempervirens*, *Sequoiadendron giganteum*, *Thuja occidentalis* in *T. orientalis*. V Sloveniji je bila vrsta ugotovljena na borih (*Pinus nigra*, *P. sylvestris*), v drevesnicah pa na *Chamaecyparis lawsoniana* in *Thuja* sp.. Dolžina adulta je 2,0–2,8 mm.

The species is found in Europe, Crimea, the Caucasus, North Africa and Asia Minor. In Slovenia, natural occurrences are relatively rare (in Gorenjska and Notranjska), but it has been found in nurseries in five Slovene provinces (Figure 52). Hosts include *Juniperus communis*, *J. excelsa*, *J. foetidissima*, *J. macrocarpa*, *J. phoenicea*, *J. sabina*, *Tetraclinis articulata*, *Cupressus sempervirens*, *Sequoiadendron giganteum*, *Thuja occidentalis* and *T. orientalis*. In Slovenia, the species has been found on pine (*Pinus nigra*, *P. sylvestris*), and in nurseries on *Chamaecyparis lawsoniana* and *Thuja* sp.. Adult length is 2.0-2.8 mm.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2019c, 25.9.2019.
GORENJSKO: **Mlaka pri Kranju, Francelj**, 14°20′16″, 46°16′23″, VM42, 430 m, *Pinus sylvestris*, veje, ldRPa, lit.RPa2014c, 13.6.2002; **Volčji Potok, arboretum, drevesnica 1**, 14°36′38″, 46°11′25″, VM61, 351 m, *Thuja* sp., deblo 3 cm, lVDo dRPa, lit.RPa2020a, 25.10.2012; **Volčji Potok, arboretum, drevesnica 2**, 14°36′39″, 46°11′24″, VM61, 352 m, *Chamaecyparis lawsoniana* »star dust«, deblo 3 cm, lVDo dRPa, lit.RPa2020a, 19.5.2010; ibidem, *Chamaecyparis lawsoniana "g*lobe", deblo 3 cm, lVDo dRPa, lit.RPa2020a, 25.5.2010.
NOTRANJSKO: **Senadole, pogorišče**, 13°58′41″, 45°43′33″, VL26, 518 m, *Pinus nigra*, veja 5 cm, ldRPa, lit.RPa2014c, 18.8.2001; **Štivan, Matenja Vas, drevesnica Štivan**, 14°10′58″, 45°44′35″, VL36, 534 m, *Thuja* sp., sadika, ldIRe, lit.PSm2019, 8.6.2007.
DOLENJSKO: **Rimš, Leskovec pri Krškem, drevesnica HPG Brežice**, 15°24′32″, 45°55′04″, WL38, 181 m, *Thuja* sp., sadika, ldIRe, lit.PSm2019, 17.6.2005, 9.6.2007; **Vrbina, Krško,**



Slika 52: BRINOV ZOBČKAR *Phloeosinus aubei*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 52: *Phloeosinus aubei*, distribution map according to historical and recent data

topolova drevesnica HGP Brežice, 15°24′37″, 45°56′21″, WL38, 161 m, *Thuja* sp., sadika, ldIRe, lit.PSm2019, 16.6.2006.
ŠTAJERSKO: Markovci, Ptuj, drevesnica Semesadike Mengeš, 15°55′17″, 46°23′39″, WM73, 214 m, *Chamaecyparis lawsoniana*, veja, ldIRe, lit.PSm2019, 29.6.2005 ibidem, *Thuja* sp., sadika, ldIRe, lit.PSm2019, 11.9.2007.
PREKMURJE: **Tišina, drevesnica Semesadike Mengeš**, 16°05′26″, 46°39′10″, WM86, 195 m, *Thuja* sp., sadika, ldIRe, lit.PSm2019, 8.6.2007.

13.02. *Phloeosinus thujae* (Perris, 1855) DVOBARVNI ZOBČKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: FUCHS 1905: *Phloeosinus thujae* Perris; FREUDE, HARDE, LOHSE 1981: *Phloeosinus thujae* Perris; PFEFFER & KNÍŽEK 1993: *Phloeosinus thujae* (Perris, 1855) a. *th. thujae* s. str.; PFEFFER 1995: *Phloeosinus thujae thujae* (Perris, 1855).

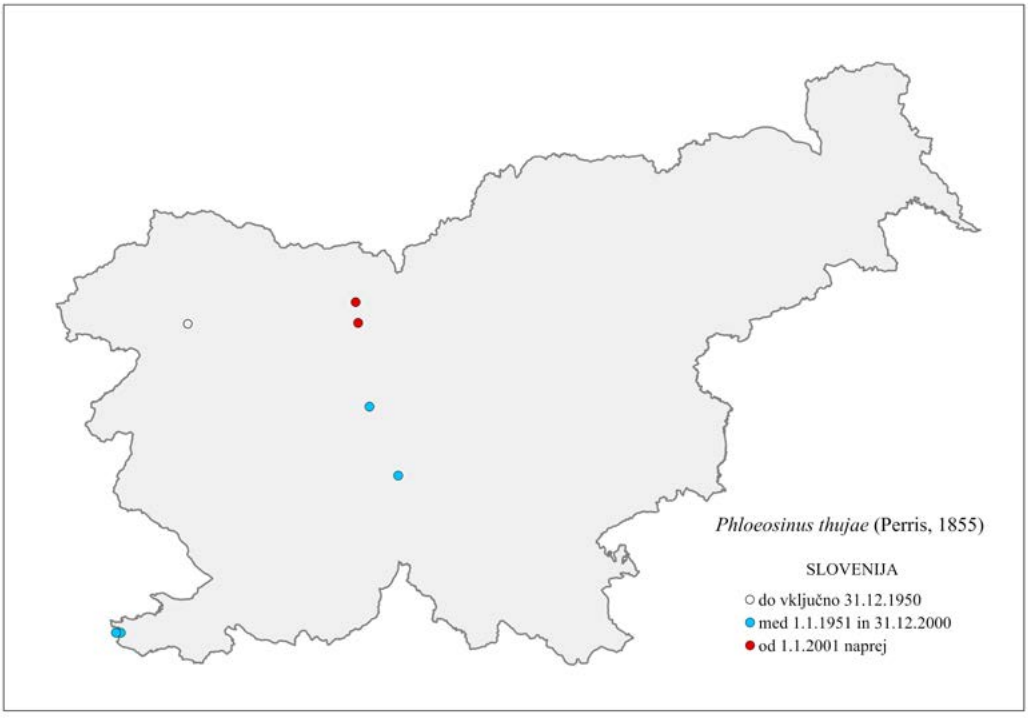
E: AL AU BE BH BU CR CZ FR GB GE GR HU IT MA MC NL PL PT RO SK SL SP ST SZ UK YU **N:** AG CI EG LB MO TU **A:** TR

Vrsta je razširjena v srednji in južni Evropi, na Krimu, Kavkazu, severni Afriki in Mali Aziji.

The species is distributed in central and southern Europe, the Crimea, the Caucasus,

Slika 53: DVOBARVNI ZOBČKAR *Phloeosinus thujae*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 53: *Phloeosinus thujae*, dorsal, lateral (Photo: Maja Jurc)



Slika 54: DVOBARVNI ZOBČKAR *Phloeosinus thujae*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 54: *Phloeosinus thujae*, distribution map according to historical and recent data

Gostitelji so *Juniperus communis*, *J. sibirica*, *J. sabina*, *Thuja occidentalis*, *T. orientalis*, *T. plicata*, *Thujopsis dolabrata*, *Chamaecyparis lawsoniana*, *C. pisifera*, *Tsuga heterophylla*

North Africa, and Asia Minor. Hosts include *Juniperus communis*, J. sibirica, *J. sabina*, *Thuja occidentalis*, *T. orientalis*, *T. plicata*, *Thujopsis dolabrata*, *Chamaecyparis*

in *Sequoiadendron giganteum*. Najdišča dvobarvnega zobčkarja so v Sloveniji redka, vendar je bila vrsta najdena na razmeroma velikem številu gostiteljskih rastlin: *Cupressus sempervirens*, *Ficus carica, Juniperus communis* in *Thuja occidentalis* (slika 54). Dolžina adulta je 1,5–2,2 mm. Kijec na koncu tipalnice je jajčast, na koncu pokrovk so zobčki, razporejeni v vrstah (slika 53).

lawsoniana, *C. pisifera*, *Tsuga heterophylla* and *Sequoiadendron giganteum*. *P. thujae* is rare in Slovenia, but the species has been found on a relatively large number of host plants: *Cupressus sempervirens*, *Ficus carica, Juniperus communis* and *Thuja occidentalis* (Figure 54). Adult length is 1.5-2.2 mm. The flagellum at the end of the antennae is ovate, and the end elytra have denticles arranged in rows (Figure 53).

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Lucija, Portorož**, 13°36′, 45°30′, UL93, 40 m, *Cupressus sempervirens*, ldJTi, lit. JTi1983, 1.1979; Portorož, 13°35', 45°30', UL94, 40 m, *Ficus carica*, ldJTi, cŠFS, 7.8.1972.
GORENJSKO: **Bohinj, Julijske Alpe**, (13°50′), (46°15′), VM12, ~550 m, ldAGs, cAGs, pred 1951; ibidem; *Juniperus communis*, ldPPe, lit.GFu1905, pred 1951; **Preddvor, Pungart 4, vrt**, 14°25′07″, 46°18′09″, VM52, 483 m, *Thuja occidentalis*, deblo 1cm, lTAr dRPa, lit.RPa2023a, 20.9.2023; ibidem, deblo 4 cm, lTAr dRPa, lit.RPa2023a, 4.10.2023; ibidem, deblo 8 cm, lTAr dRPa, lit.RPa2023a, 4.10.2023; **Srednja Vas pri Šenčurju 6**, 14°25′37″, 46°15′08″, VM52, 414 m, *Thuja occidentalis*, deblo 1cm, ldRPa, lit.RPa2023a, 16.4.2023; ibidem, deblo 3 cm, ldRPa, lit. RPa2023a, 16.4.2023.
LJUBLJANA Z OKOLICO: **Rožnik, Ljubljana**, 14°28′, 46°03′, VM50, 350 m, *Thuja* sp., ldJTi, lit.JTi1983, 8.1972.
DOLENJSKO: Kurešček, Visoko, 14°34′, 45°53′, VL68, 780 m, *Juniperus communis*, ldJTi, lit. JTi1983, 8.1978.

14.00. *Phloeotribus* Latreille, 1797 LIČAR

14.01. *Phloeotribus cristatus* (Fauvel, 1889) BRNISTROV LIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Titovšek 1988: *Phloeophthorus latus* (Wichmann), *P. geschwindti* (Seitner); Pfeffer & Knížek 1993: *Phloeophthorus latus* Wichmann, 1916, *P. geschwindti* Seitner, 1920; Pfeffer 1995: *Phloeophthorus cristatus cristatus* Fauvel, 1889 stat. n..

E: BH CR FR IT SL* SP SZ **N:** AG CI MR **A:** TR

Vrsta je razširjena v Evropi (Francija, Italija, Španija, Švica, Bosna in Hercegovina), severni Afriki in Mali Aziji. V Sloveniji sta znani le dve nahajališči v slovenski Istri (slika 56). Gostitelji so *Spartium junceum*, *Cytisus* spp., *Genista* spp.. V Sloveniji je zabeležena samo ena gostiteljska vrsta, *S. junceum*. Dolžina adulta je 1,3–2,3 mm (slika 55).

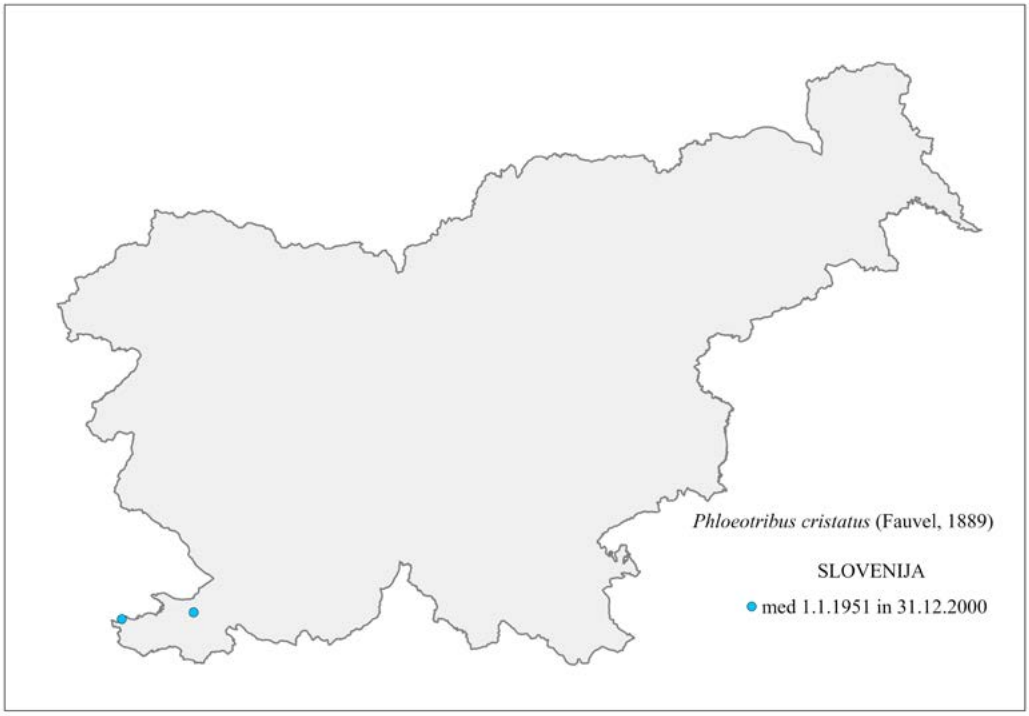
The species is distributed in Europe (France, Italy, Spain, Switzerland, Bosnia and Herzegovina), North Africa and Asia Minor. In Slovenia, only two sites are known in the Slovene Istria (Figure 56). Hosts include *Spartium junceum*, *Cytisus* spp., *Genista* spp.. Only one host species, *S. junceum*, has been recorded in Slovenia. Adult length is 1.3-2.3 mm (Figure 55).

Slika 55: BRNISTROV LIČAR *Phloeotribus cristatus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 55: *Phloeotribus cristatus*, dorsal, lateral (Photo: Maja Jurc)

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Rižana**, 13°51′, 45°33′, VL14, 100 m, *Spartium junceum*, debelce, ldJTi, lit.JTi1983, 8.1972; **Strunjan**, 13°36′, 45°32′, UL94, 40 m, lVFu dSBr, cVFu, 5.9.1991.



Slika 56: BRNISTROV LIČAR *Phloeotribus cristatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 56: *Phloeotribus cristatus*, distribution map according to historical and recent data

14.02. *Phloeotribus rhododactylus* (Marsham, 1802) ŽUKOV LIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: BRANCSIK 1871: *Phloeophthorus tarsalis* Först.; GRÜNE 1979: *Phloeophthorus rododactylus* Marsham, 1802; FREUDE, HARDE, LOHSE 1981: *Phloeophthorus rhododactylus* Marsham; PFEFFER & KNÍŽEK 1993: *Phloeophthorus rhododactylus* (Marsham, 1802) a. *rhododactylus* s. str.; PFEFFER 1995: *Phloeotribus rhododactylus rhododactylus* (Marsham, 1802).

E: AU BE CR CZ DE FI FR GB GE GR HU IR IT LA MC NL NR PL PT RO SL* SK SP SV SZ **N:** AG EG LB MO MR TU **A:** TR

Vrsta je razširjena v srednji in vzhodni Evropi, Italiji, nekdanji Jugoslaviji, Grčiji, Krimu, severni Afriki in Turčiji. BRANCSIK (1871) navaja kot najdišče Lenart v Slovenskih goricah, vendar brez datuma in gostitelja (slika 57). Današnji status vrste v Sloveniji je neznan. Gostitelji žukovega ličarja so: *Spartium junceum*, *Cytisus* spp.. Dolžina adulta je 1,5–1,8 mm. Sprednji dvakrat presega njihovo širino.

The species is distributed in central and eastern Europe, Italy, the former Yugoslavia, Greece, Crimea, North Africa and Turkey. BRANCSIK (1871) lists Lenart in Slovenske Gorice as a site, but without a date or host (Figure 57). The present status of the species in Slovenia is unknown. Hosts of *P. rhododactylus* are *Spartium junceum*, *Cytisus spp.,* Adult length is 1.5-1.8 mm. The

Slika 57: ŽUKOV LIČAR *Phloeotribus rhododactylus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 57: *Phloeotribus rhododactylus*, distribution map according to historical and recent data

rob pokrovk je zrnat, vratni ščit je poraščen z dolgimi, svetlo rjavimi nitastimi ščetinami in finimi zrnci. Telo je črno, dolžina pokrovk

anterior margin of the elytra is granular, the neck shield is covered in long, light brown filiform setae and fine granules. The body is black, the length of the elytra is twice their width.

Najdišča v Sloveniji / Localities in Slovenia

ŠTAJERSKO: Lenart v Slovenskih goricah, 15°50′, 46°35′, WM65, 260 m, ldKBr, lit.KBr1871, pred 1951.

14.03. *Phloeotribus scarabaeoides* (Bernard, 1788) OLJKOV LIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Phloeotribus scarabaeoides* (Bernard, 1788); FREUDE, HARDE, LOHSE 1981: *Phloeotribus scarabaeoides* Bernard; TITOVŠEK 1988: *P. scarabaeoides* (Bernard); PFEFFER & KNÍŽEK 1993: *P. scarabaeoides* (Bernard, 1788); PFEFFER 1995: *P. scarabaeoides scarabaeoides* (Bernard, 1788) n. stat.. 1793.

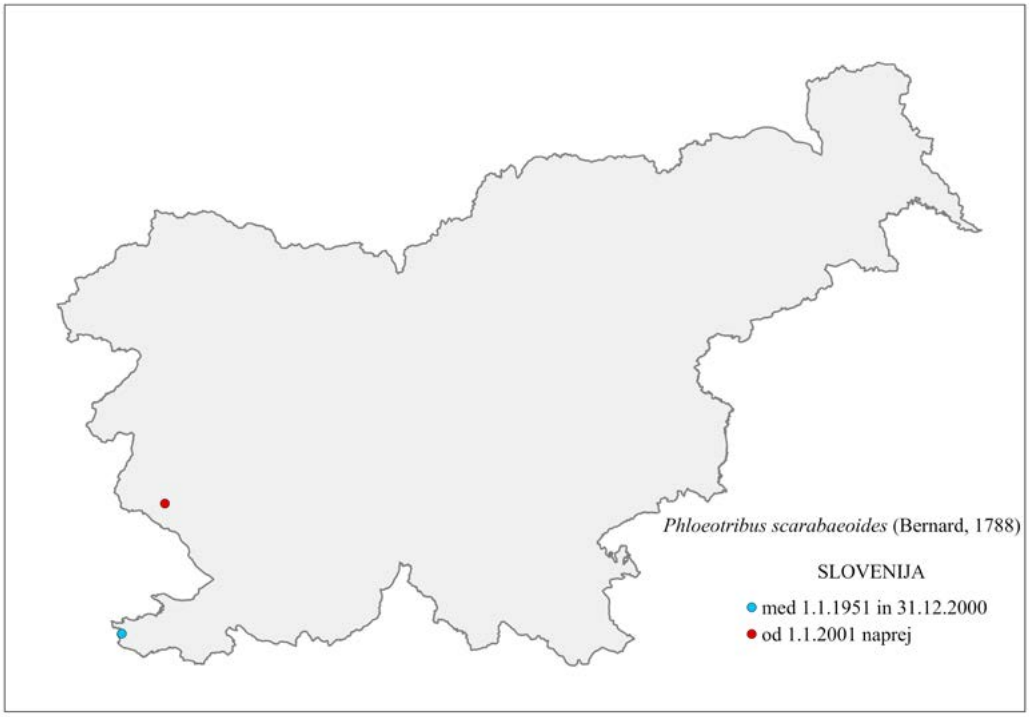
E: BU CR FR GR HU IT MA PT SL* SP SZ UK **N:** AG CI EG LB MO TU **A:** CY IQ IS JO LE SY TR

Vrsta je prisotna v sredozemskem območju Evrope, v severni Afriki in Mali Aziji, v arealu rodu *Olea*. Vrsta je pri nas redka, znani sta le dve nahajališči na Primorskem (slika 59). Gostitelji so *Olea europaea*, *Phillyrea latifolia*, *Fraxinus angustifolia*, *F. excelsior* in *Syringa* spp.. V Sloveniji smo ga našli le na *Olea europaea* in na *Fraxinus ornus.* Letno razvije 2–4 generacije. Dolžina adulta je 2,0–2,5 mm. Kijec tipalke je glavničast, sestavljen iz treh členov. Čez sredino pokrovk prečno poteka pas temnejših dlačic (slika 58).

The species is found in the Mediterranean area of Europe, in North Africa and in Asia Minor, within the range of the genus *Olea*. The species is rare in Slovenia, with only two known sites in Primorska (Figure 59). Hosts include *Olea europaea*, *Phillyrea latifolia*, *Fraxinus angustifolia*, *F. excelsior* and *Syringa* spp.. In Slovenia it has been found only on *Olea europaea* and *Fraxinus ornus.* It develops 2-4 generations per year. Adult length is 2.0-2.5 mm. The flagellum of the antennae is cephalic, composed of three segments. A band of darker hairs runs transversely across the middle of the elytra (Figure 58).

Slika 58: OLJKOV LIČAR *Phloeotribus scarabaeoides*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 58: *Phloeotribus scarabaeoides*, dorsal, lateral (Photo: Maja Jurc)



Slika 59: OLJKOV LIČAR *Phloeotribus scarabaeoides*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 59: *Phloeotribus scarabaeoides*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Lucija, Portorož**, 13°36′, 45°30′, UL93, 40 m, *Olea europaea*, ldJTi, cSBr, 1.1979.
PRIMORSKO: **Komen**, 13°45′, 45°49′, VL07, 282 m, *Fraxinus ornus*, deblo gLEŠ, lBKo dRPa, lit.RPa2014c, 15.6.2005.

14.04. *Phloeotribus spinulosus* (Rey, 1883) SMREKOV LIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Phthorophloeus spinulosus* Rey, 1883; FREUDE, HARDE, LOHSE 1981: *Phthorophloeus spinulosus* Rey; TITOVŠEK 1988: *P. spinulosus* Rey; PFEFFER & KNÍŽEK 1993: *P. spinulosus* Rey, 1883; PFEFFER 1995: *P. spinulosus* Rey, 1883.

E: AU BE BY CT CZ DE EN FI FR GE HU IT LA LS NL NR NT PL RO SL* SK SP SV SZ UK YU **A:** ES FE JA KZ MG WS

Vrsta je razširjena v Skandinaviji, srednji in južni Evropi, evropskem delu Rusije, Sibiriji in severni Afriki v arealu smreke. Vrsta pri nas ni pogosta, vendar so posamezna

The species is distributed in Scandinavia, central and southern Europe, the European part of Russia, Siberia and North Africa in the spruce range. It is not common in Slovenia, but

najdišča v večjem delu osrednje Slovenije (slika 61). Gostitelji so *Picea abies*, *P. obovata*, *P. jezoensis*, zelo redko tudi *Abies alba*. V Sloveniji je bila vrsta najdena samo na *P. abies*, na Koroškem pa tudi v pasteh. Razvije eno generacijo na leto. Dolžina adulta je 1,7–2,5 mm (slika 60).

individual sites are found in most of central Slovenia (Figure 61). Hosts include *Picea abies*, *P. obovata*, *P. jezoensis*, and very rarely also *Abies alba*. In Slovenia, the species has been found only on *P. abies*, and in Koroška also in traps. It develops one generation per year. Adult length is 1.7-2.5 mm (Figure 60).

Najdišča v Sloveniji / Localities in Slovenia

GORENJSKO: **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 10.6.2022; **Brdo pri Kranju 1/7**, 14°23′33″, 46°16′38″, VM52, 432 m, *Picea abies*, deblo 50 cm, ldRPa, lit.RPa2003, 14.6.2003; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, lGBa dSBr, cSBr, 14.6.1991; ibidem, phPher, lFPo dSBr, cSBr, 21.5.1990; **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit. APi2015, 17.7.2014; **Pokljuka, Planina Krasca**, 13°55′, 46°21′, VM13, 1450 m, ldcAPi, lit. APi2015, 11.7.2014.

NOTRANJSKO: **Iška**, 14°31′, 45°55′, VL68, 350 m, ldJSd, cJSd, 11.6.1933; **Snežnik 1**, 14°27′, 45°35′, VL54, *, cŠFS, pred 1951; **Velika Padežnica, Snežnik**, 14°27′, 45°33′, VL54, 1100 m, *Picea abies*, veja, ldRSi, lit.RSi1916, 9.6.1913, 26.6.1913, 2.2.1914, 3.3.1914, 4.5.1914, 20.5.1914, 15.6.1914, 29.4.1915, 28.5.1915, 4.6.1915, 21.6.1915, 20.7.1915.

DOLENJSKO: **Brlog, Žimarice**, 14°33′, 45°48′, VL67, 600 m, tThe, phPher, lČVi dSBr, cSBr, 10.6.1992;

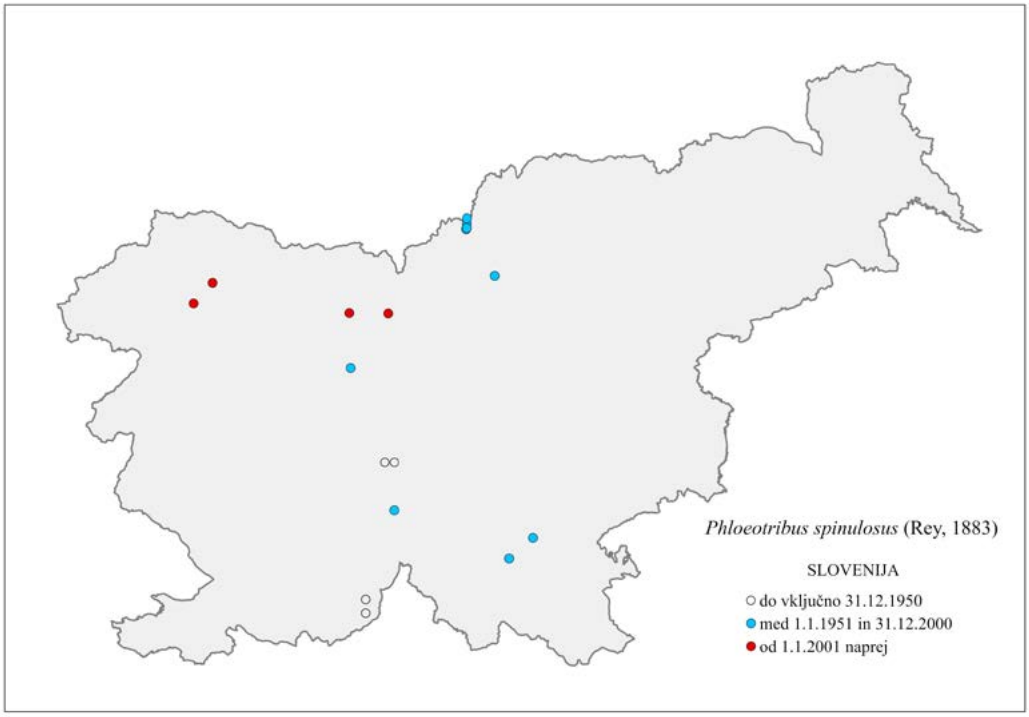
Podturn pri Dolenjskih Toplicah, 15°02′, 45°44′, WL06, 175 m, lMka dBDr, cZRC, 2.6.1996; **Škrilje, Ig**, 14°33′, 45°55′, VL68, 570 m, ldJSd, cJSd, 15.06.1918; **Trnovec, Kočevski Rog**, 14°57′, 45°41′, VL95, 570 m, ldJTi, lit.JTi1983, 5.1979.

ŠTAJERSKO: Stari stani, Mozirska planina, Golte, 14°54′, 46°22′, VM93, 1100 m, lBDr dSBr, cSBr, 6.1987.

KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1994a, 5.7.1994; ibidem, phCemp, ldRPa vcSBr, lit.RPa1994a, 5.7.1994; ibidem, ldRPa, lit.RPa1995a, 17.7.1995; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa, lit.RPa1994a, 22.6.1994; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994; ibidem, ldRPa vcSBr, lit.RPa1994a, 22.6.1994; **Peca, Riška gora, Segel Jože**, 14°48′12″,

Slika 60: SMREKOV LIČAR *Phloeotribus spinulosus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 60: *Phloeotribus spinulosus*, dorsal, lateral (Photo: Maja Jurc)



Slika 61: SMREKOV LIČAR *Phloeotribus spinulosus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 61: *Phloeotribus spinulosus*, distribution map according to historical and recent data

46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa vcSBr, lit.RPa1994a, 22.6.1994 ibidem, ldRPa,lit. RPa1995a,30.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 22.6.1994, 17.7.1995; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit.RPa1994a, 5.7.1994; ibidem, lit. RPa1995a, 17.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 5.7.1994.

15.00. *Carphoborus* Eichhoff, 1864 LINIJAŠI

15.01. *Carphoborus minimus* (Fabricius, 1798) MALI LINIJAŠ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Dendroctonus minimus* Fab.; GRÜNE 1979: *Carphoborus minimus* (Fabricius, 1801); FREUDE, HARDE, LOHSE 1981: *Carphoborus minimus* Fabricius; PFEFFER & KNÍŽEK 1993: *C. minimus* (Fabricius, 1798); PFEFFER 1995: *C. minimus* (Fabricius, 1798).

E: AL AU BH BU BY CR CT CZ EN FI FR GE GG GR HU IT MC NL NT PL RO SK SL SP ST SZ UK YU **N:** AG EG LB MO TU **A:** IS NE TR »SW Siberia«

Vrsta je razširjena v srednji in južni Evropi, na Kavkazu, Krimu, severni Afriki in Mali

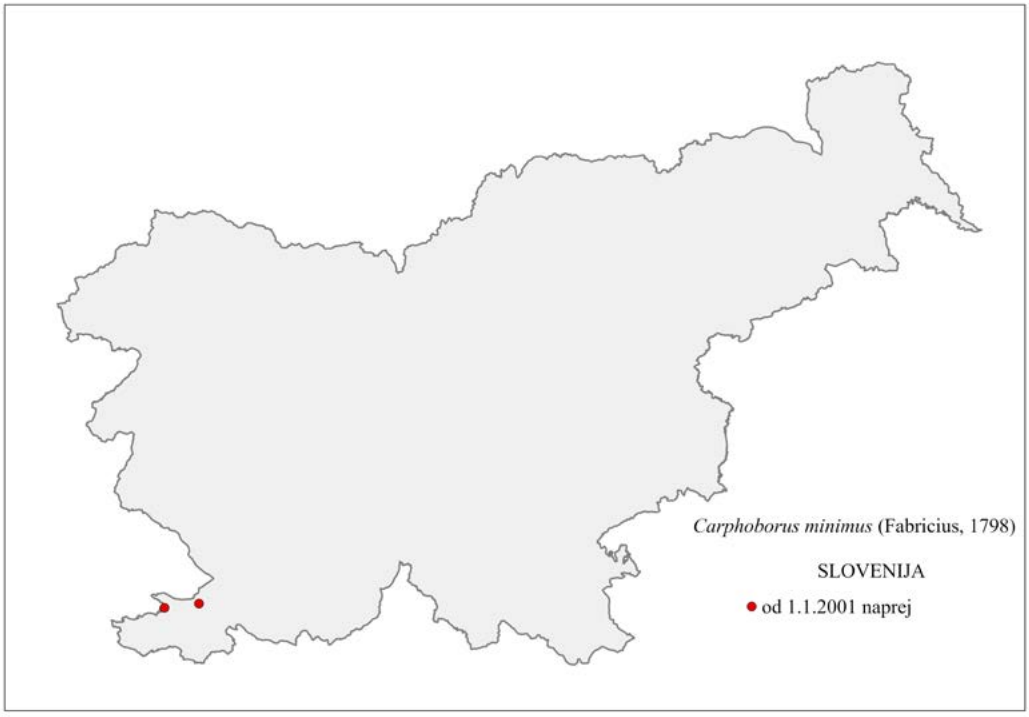
The species is distributed in central and southern Europe, the Caucasus, Crimea, North

Aziji. Siegel (1866) navaja, da je bila vrsta »na Kranjskem redka, pod borovim lubjem«. V Sloveniji sta znani samo dve novejši najdišči v slovenskem delu Istre (slika 62). Vrsta je polifag na *Pinus* spp. (*P. sylvestris*, *P. nigra*, *P. pinaster*, *P. mugo*), predvsem na celinskih vrstah. V Sloveniji je bil najden samo na *P. nigra*. Kot sekundarna vrsta se razvija na tanjših vejah odmirajočih borov, pogosto v delno suhi skorji. Izdolbe 5–6 cm dolg vzdolžni zvezdasti rovni sistem, dva zgornja in dva spodnja materinska rova oblikujeta črko X. Dolžina adulta znaša 1,2–1,7 mm. Pojavlja se skupaj z zvezdarji (*Pityogenes* spp.) in borovim lubadarjem (*Ips acuminatus*), vendar je njegov rovni sistem značilno manjši in se globlje zažira v beljavo.

Africa and Asia Minor. Siegel (1866) states that the species was “rare in Carniola, under pine bark”. In Slovenia, only two recent records are known from the Slovene part of Istria (Figure 62). Hosts: polyphagous on *Pinus* spp. (*P. sylvestris*, *P. nigra*, *P. pinaster*, *P. mugo*), mainly on continental species. In Slovenia it has been found only on *P. nigra*. *C. minimus* develops as a secondary species on thinner branches of dying pines, often in partially dry bark. It excavates a 5-6 cm long longitudinal star-shaped tunnel system, the two upper and two lower maternal galleries forming an X. Adult length is 1.2-1.7 mm. Occurs together with *Pityogenes* spp. and *Ips acuminatus*, its tunnel system is smaller and more deeply embedded in sapwood.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.



Slika 62: mali linijaš *Carphoborus minimus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 62: *Carphoborus minimus*, distribution map according to historical and recent data

ISTRA: **Kastelec**, 13°52′09″, 45°34′17″, VL14, 300 m, *Pinus nigra*, veja 3 cm, ldRPa, lit. RPa2014c, 16.5.2009;
Koper, Luka Koper 3, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2015b, 2.6.2015.

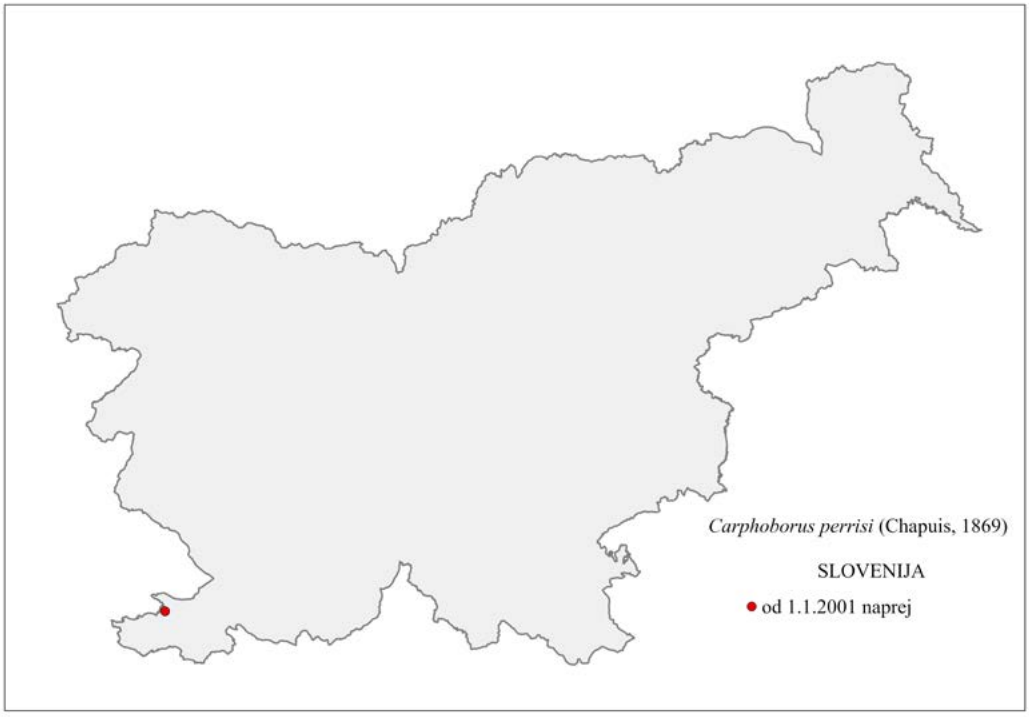
15.02. *Carphoborus perrisi* (Chapuis, 1869) PISTACIJEV LINIJAŠ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Carphoborus perrisi* (Chapuis, 1873); PFEFFER 1995: *Carphoborus perrisi* (Chapuis, 1869).

E: BH BU CR FR GR HU IT RO SL* SP ST UK YU **N:** AG TU **A:** CY IN IQ IS SY TD TM TR UP

Vrsta je prisotna v Sredozemlju, na Balkanu, Ukrajini, Krimu, Kavkazu, severni Afriki in Aziji. V Sloveniji je bila ena sama najdba iz pasti v Luki Koper (slika 63). Gostitelji: *Pistacia atlantica*, *P. lentiscus*, *P. mutica*, *P. terebinthus*, *P. vera* in *P. perera*, manj pogosto

The species is found in the Mediterranean, the Balkans, Ukraine, Crimea, the Caucasus, North Africa and Asia. In Slovenia, there is a single record from a trap in the Port of Koper (Figure 63). Hosts: *Pistacia atlantica*, *P. lentiscus*, *P. mutica*, *P. terebinthus*, *P. vera* and *P. perera*, less



Slika 63: PISTACIJEV LINIJAŠ *Carphoborus perrisi*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 63: *Carphoborus perrisi*, distribution map according to historical and recent data

tudi na *Lotinus* spp., *Olea europaea*, *Pinus* spp. in *Acer* spp.. Dolžina adulta je 1,8–2,2 mm, telo je črno z rjavimi dlačicami.

frequently also *Lotinus* spp., *Olea europaea*, *Pinus* spp. and *Acer* spp.. Adult length is 1.8-2.2 mm, body is black with brown hairs.

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2015b, 2.9.2015.

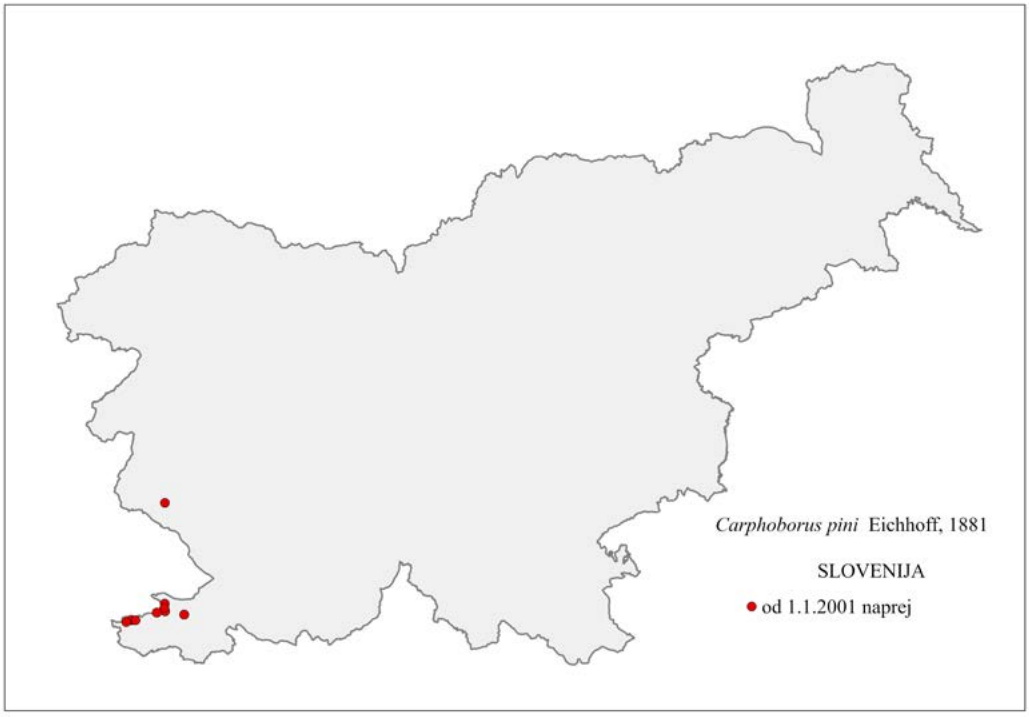
15.03. *Carphoborus pini* Eichhoff, 1881 BOROV LINIJAŠ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Carphoborus pini* Eichhoff, 1881; PFEFFER 1995: *C. pini* Eichhoff, 1881.

E: BH CR FR GR HU IT SL* SP **N:** AG TU **A:** CY TR

Vrsta je razširjena v Sredozemlju, Dalmaciji, Bosni in Hercegovini, Severni Afriki in Mali Aziji. Pri nas je razmeroma pogost v slovenskem delu Istre (slika 64). Gostitelji so

The species is distributed in the Mediterranean, Dalmatia, Bosnia and Herzegovina, North Africa and Asia Minor. In Slovenia, it is relatively common in the Slovene part of Istria



Slika 64: BOROV LINIJAŠ *Carphoborus pini*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 64: *Carphoborus pini*, distribution map according to historical and recent data

Pinus halepensis, *P. heldreichii*, *P. pinaster* in *P. pinea*. V Sloveniji je največkrat najden na *P. pinea*, le enkrat tudi na *P. nigra*. Dolžina adulta je 1,6–1,8 mm, telo je črno, pokrovki sta temno rjavi s sivimi dlačicami.

(Figure 64). Hosts include *Pinus halepensis*, *P. heldreichii*, *P. pinaster* and *P. pinea*. In Slovenia, it is mostly found on *P. pinea*, only once also on *P. nigra*. Adult length is 1.6-1.8 mm, the body is black, the elytra are dark brown with grey hairs.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi(?), cŠFS, 1951-2000.

ISTRA: **Ankaran, pri vojašnici**, 13°44′59″, 45°34′16″, VL04, 10 m, *Pinus pinea*, veja 1 cm, ldRPa, lit.RPa2014c, 24.10.2004; **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010b, 21.6.2010; **Dobrava, Izola, ob parkirišču**, 13°37′57″, 45°31′50″, UL94, 81 m, *Pinus pinea*, veja 7 cm, ldRPa, lit.RPa2021a, 30.10.2021; **Dobrava, Izola, sadovnjak**, 13°37′58″, 45°31′54″, UL94, 86 m, *Pinus pinea*, veja 2 cm, ldRPa, lit.RPa2021a, 30.10.2021; **Izola, Morova ulica, hotel Perla,** 13°38′53″, 45°31′51″, UL94, 14 m, *Pinus pinea*, veja 3 cm, ldRPa, lit.RPa2021a, 28.10.2021; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2016b, 31.8.2016, 28.9.2016; ibidem, lit.RPa2017b,4.7.2017, 3.8.2017, 6.9.2017; ibidem, lit. RPa2019d, 31.7.2019, 24.10.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2019d, 19.6.2019; **Koper, Ukmarjev trg, park**, 13°43′20″, 45°32′57″, VL04,2 m, *Pinus pinea*, veja 1 cm, ldRPa, lit.RPa2014c, 24.10.2004; **Strunjan, drevored pinij**, 13°36′54″, 45°31′34″, UL94, 5 m, *Pinus pinea*, veje 1 cm, ldRPa, lit.RPa2014c, 24.10.2004.

PRIMORSKO: **Komen**, 13°45′, 45°49′, VL07, 282 m, *Pinus nigra*, deblo gLEŠ, lBKo dRPa, lit. RPa2014c, 15.6.2005.

16.00. ***Polygraphus*** Erichson, 1836 DVOJNOOKEC

16.01. *Polygraphus poligraphus* (Linnaeus, 1758) SMREKOV DVOJNOOKEC

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Polygraphus pubescens* Er.; GRÜNE 1979: *Polygraphus poligraphus* Linné, 1758; FREUDE, HARDE, LOHSE 1981: *Polygraphus poligraphus* Linné; TITOVŠEK 1988: *Polygraphus poligraphus* (Linné); PFEFFER & KNÍŽEK 1993: *Polygraphus poligraphus* (Linnaeus, 1758); PFEFFER 1995: *Polygraphus poligraphus* (Linné, 1758).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA LS LT LU MD NR NT PL RO SL* SK ST SV SZ UK YU **A:** ES FE GAN JA KZ MG NMO QIN SCH SHA SHX TR WS XIZ YUN **AFR**

Vrsta se v srednji Evropi pojavlja z dvema, v severni Evropi pa z le eno generacijo letno. Prisotna je tudi v Aziji in na afrotropskem območju. SIEGEL (1866) navaja, da je bila vrsta »na Kranjskem redka …«, vendar je ta podatek glede na številne poznejše najdbe vprašljiv. Vrsta je danes razširjena po vsej Sloveniji, z izjemo SV in JZ dela (slika 66). Gostitelja sta *Picea abies* in *P. obovata,* redkeje *Pinus*

The species occurs with two generations per year in central Europe and only one generation per year in northern Europe. It is also present in Asia and the Afrotropical region. SIEGEL (1866) states that the species was "rare in Carniola...", but this is questionable in given the many subsequent records. The species is now distributed throughout Slovenia, with the exception of the NE and SW (Figure 66). Hosts include *Picea*

sylvestris, *P. strobus*, *P. cembra*, *Pinus* spp., *Abies alba* in *Larix sibirica*. V Sloveniji je bila vrsta najdena na *P. abies*, *P. sitkaensis* in *A. alba*. Je poligam, roji v drugi polovici aprila do maja in od julija do avgusta. Floemofagna vrsta izdolbe zvezdast rovni sistem, iz obširne kotilnice izhaja 3–8 materinskih rovov, dolgih 3–6 cm, rovi so večinoma v skorji. Po regeneracijskem hranjenju starih hroščev ob materinskem rovu in zrelostnem hranjenju mladih hroščev ob bubilnicah ostanejo le sledovi slike prvotnega rovnega sistema. Dolžina adulta je 1,8–3,0 mm. Hrošči imajo (navidezno) dvodelne oči. Pokrovke so pokrite s podolgovatimi luskicami. Bet prelomljeno betičaste tipalke je enočlen (slika 65). Poleg osmerozobega lubadarja (*Ips typographus*) in šesterozobega zvezdarja (*Pityogenes chalcographus*) je tudi smrekov dvojnookec ekonomsko najpomembnejši podlubnik na smreki. Feromon: Terpinen-4-ol (Leuze 1977).

abies and *P. obovata,* less frequently *Pinus sylvestris*, *P. strobus*, *P. cembra*, *Pinus* spp., *Abies alba* and *Larix sibirica*). In Slovenia, the species has been found on *P. abies*, *P. sitkaensis* and *A. alba*. Polygamum, swarms in the second half of April to May and from July to August. The phloemophagous species hollows out a star-shaped tunnel system, 3-8 maternal galleries 3-6 cm long arise from the extensive brood chamber, the tunnels are mostly located in the bark. After regeneration feeding of old beetles along the maternal gallery and maturity feeding of young beetles along the pupation chamber, only traces of the image of the original tunnel system remain. Adult length is 1.8-3.0 mm. The beetles have (seemingly) two-part eyes. The elytra are covered with elongated scales (Figure 65). The antenna scape is single-segmented. Apart from *Ips typographus* and *Pityogenes chalcographus, P. polygraphus* is the third most economically harmful bark beetle on spruce. Pheromone: Terpinen-4-ol (Leuze 1977).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi, cSBr, 1951-2000; *Picea abies*, ldMSi, lit.MSi1866, pred 1951.

PRIMORSKO: **Soča, Trenta**, 13°40′, 46°20′, UM93, 630 m, *Picea abies*, ldJTi, lit.JTi1983, 1.7.1974.

GORENJSKO: **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 8.7.2022; **Ambrož pod Krvavcem 5**, 14°31′42″, 46°17′03″, VM62, 1402 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 22.7.2022; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, Kont, lGBa dSBr, cSBr, 4.6.1993; ibidem, phLino, lGBa dSBr, cSBr, 4.6.1993; **Bohinj, Julijske Alpe**, (13°50′), (46°15′), VM12, 640 m, *Picea abies*,

Slika 65: smrekov dvojnookec *Polygraphus poligraphus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 65: *Polygraphus poligraphus*, dorsal, lateral (Photo: Maja Jurc)

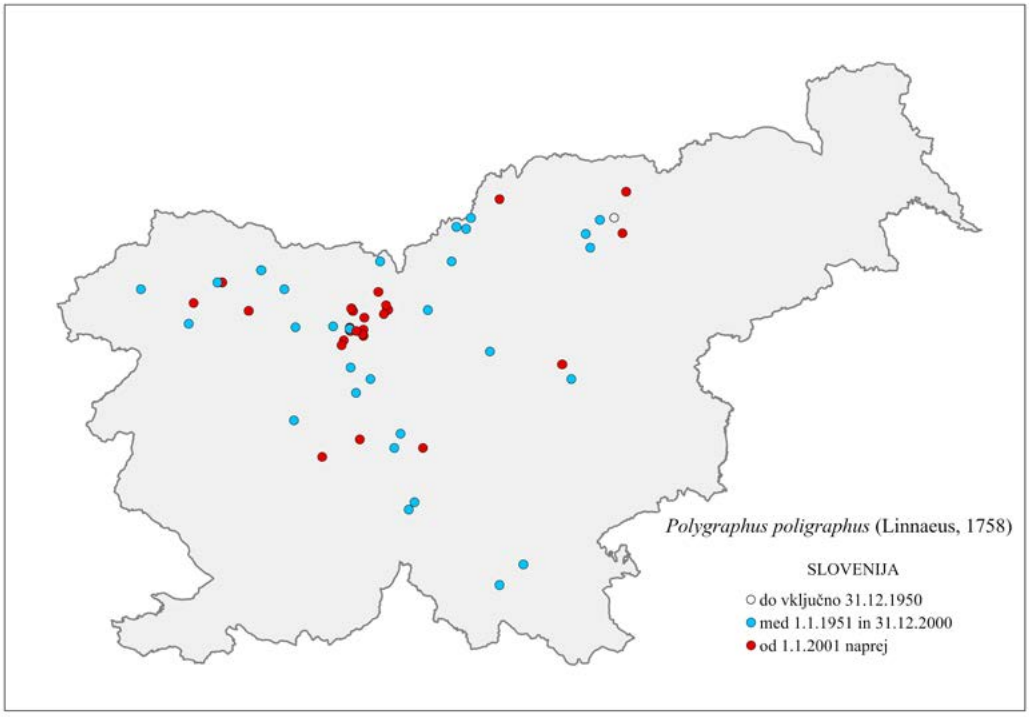
deblo, ldJTi, lit.JTi1983, 1.6.1972; **Brdo pri Kranju 1/28**, 14°24′21″, 46°16′50″, VM52, 444 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2019a, 31.7.2019; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2011a, 11.10.2011; **Breg ob Savi, Sorško polje 3**, 14°22′27″, 46°12′36″, VM51, 372 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2014c, 27.4.2008; **Brnik, južno od letališča**, 14°26′34″, 46°13′17″, VM51, 375 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2020c, 24.5.2018; **Brnik, severno od letališča**, 14°26′32″, 46°14′10″, VM52, 392 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2020c, 12.10.2018; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 17.6.1991, 25.6.1991, 28.6.1991, 13.7.1992; ibidem, phPher, lFPo dSBr, cSBr, 28.6.1990; **Hrastje, Kranj 1**, 14°23′40″, 46°14′01″, VM52, 386 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2020c, 21.5.2010, 18.10.2013; **Hrastje, Kranj 3**, 14°23′52″, 46°13′58″, VM52, 387 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2020c, 12.10.2018, 3.6.2019; ibidem, deblo 20 cm, ldRPa, lit.RPa2020c, 3.6.2019; **Hrastje, Kranj, Planjava 1**, 14°23′39″, 46°14′28″, VM52, 397 m, *Picea abies*, hlod 25 cm, ldRPa, lit.RPa2020c, 28.5.2009; **Hrastje, Kranj, Planjava 6**, 14°23′38″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa1996, 17.6.1996; **Jelovica, pod Konfinovim vrhom**, 14°02′32″, 46°16′52″, VM52, 1040 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2020c, 12.10.2018; **Jezersko**, 14°30′, 46°24′, VM63, 970 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1974; ibidem, 1030 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1974; **Kokra, Kurja Vas, skladišče lesa**, 14°29′38″, 46°19′37″, VM63, 581 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2020c, 25.5.2016, 3.11.2016; **Krvavec, zg. postaja žičnice**, 14°31′15″, 46°17′41″, VM62, 1468 m, *Picea abies*, veja 5 cm, ldJTi, lit. RPa2014c, 28.6.2009; **Mala planina, Kamniške Alpe**, 14°40′, 46°17′, VM72, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1982; **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit.APi2015, 17.7.2014; **Pokljuka, Rudna dolina**, 13°57′, 46°21′, VM13, 1320 m, ldcAPi, lit.APi2015, 11.7.2014; **Radovljica**, 14°10′, 46°20′, VM33, 500 m, ldAGs, cAGs, pred 1951; ibidem, 520 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 2.1972; **Rudno Polje, Pokljuka**, 13°56′, 46°21′, VM13, 1260 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Selške Lajše, Kobivnk, Jelenc**, 14°12′19″, 46°14′31″, VM32, 650 m, *Picea abies*, progasto obeljen panj 49 cm, lFJa dJTi, lit.FJa1997, 12.6.1995; **Sorško polje, Lumar Trade 2**, 14°21′58″, 46°11′55″, VM51, 372 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2020c, 8.5.2006; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 22.7.2022; **Šenčur, izvoz Brnik 4**, 14°26′23″, 46°13′29″, VM52, 380 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2020c, 30.10.2015; **Šenčur, proti Voklu 1**, 14°25′06″, 46°13′58″, VM52, 390 m, *Picea abies*, deblo 25 cm, ldRPa, lit. RPa2020c, 30.5.2012; **Šmarjetna gora, Kranj**, 14°20′10″, 46°14′37″, VM42, 641 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2014c, 26.2.1995; **Velesovo 9**, 14°26′45″, 46°15′53″, VM52, 425 m, *Picea abies*, deblo 15 cm rs, odRPa, lit.RPa2021a, 20.2.2021.

NOTRANJSKO: **Ljubljanski vrh 2**, 14°17′55″, 45°55′41″, VL48, 729 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Podpeč, Ljubljansko barje 1**, 14°25′47″, 45°58′15″, VL59, 314 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014c, 14.9.2011; **Smrečje, Rovte**, 14°12′, 46°01′, VL39, 450 m, *Picea abies*, neobeljen gradbeni les, ldJTi, lit.JTi1983, 3.1972; ibidem, 660 m, *Picea abies*, ldJTi, lit.JTi1983, 3.1972.

LJUBLJANA Z OKOLICO: **Šmarna gora**, 14°28′, 46°07′, VM50, 590 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 7.1973; **Toško Čelo**, 14°25′, 46°05′, VM50, 530 m, *Picea abies*, ldJTi, lit. JTi1983, 1.1978.

DOLENJSKO: **Grosuplje**, 14°39′, 45°57′, VL78, 360 m, *Picea abies*, ldMJu, lit.DJu2003, 5.2002, 11.2002; **Karlovica, Velike Lašče**, 14°36′, 45°48′, VL67, 540 m, tThe, phPher, lČVi dSBr, cSBr, 10.6.1992; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 15.8.1985; **Rajhenavski Rog, pragozd**, 15°00′, 45°40′, WL05, 850 m, lMka dBDr, cZRC, 27.6.1994; ibidem, lMka lMEg

dBDr, cZRC, 27.6.1994; **Šahen, Kočevje**, 14°55′, 45°37′, VL95, 480 m, *Picea abies*, ldJTi, lit. JTi1983, 8.1979; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, Kont, lGBa dSBr, cSBr, 2.7.1993; **Velika Slevica, Velike Lašče**, 14°37′12″, 45°49′06″, VL77, 606 m, tThe, phPher phChal, lTSt dRPa, lit.RPa2014c, 11.7.1994, 21.7.1994.
ŠTAJERSKO: Hlevše, Mala Mislinja, 15°13′, 46°28′, WM14, 1100 m, *Picea abies*, ldSHo, lit. SHo1982, 27.1.1982; **Josipdol, Lavtar, Pohorje**, 15°18′58″, 46°30′19″, WM24, 1230 m, *Picea abies*, ldJPo, lit.JPo2016, 2011; **Kopitnik, Gore, Rimske Toplice**, 15°10′, 46°07′, WM01, 820 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978; **Krištandol, Marno, Hrastnik**, 15°08′05″, 46°09′07″, WM11, 580 m, *Picea abies*, deblo 10 cm rs, oŽBo dRPa, lit.RPa2022a, 3.12.2022; **Mali Črni vrh, Ribniška koča, Pohorje**, 15°16′, 46°30′, WM24, 1130 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Pesek, Koča na Pesku, Pohorje**, 15°20′41″, 46°28′05″, WM24, 1393 m, *Picea abies*, deblo 8 cm, ldRPa, lit.RPa2014c, 19.5.2009; **Raduha, Savinjske Alpe**, 14°45′, 46°24′, VM83, 1380 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Rdeči Breg, Lovska koča Klančnik, Pohorje**, 15°21′28″, 46°34′04″, WM25, 854 m, *Picea sitkaensis*, deblo 35 cm, lUFr dRPa, lit.RPa2020b, 16.7.2019; ibidem, deblo 5 cm gLEŠ, dRPa, lit.RPa2020b, 17.7.2019; **Tolsti Vrh pri Mislinji**, 15°14′, 46°26′, WM14, 1050 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1982; ibidem, 1100 m, *Picea abies*, ldSHo, lit. SHo1982, 27.1.1982; **Trojane**, 14°53′, 46°11′, VM91, 810 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977.
KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, it.RPa1994a, 5.7.1994, 18.7.1994, 31.7.1994; ibidem, lit.RPa1995a,25.8.1995; ibidem, ldRPa vSBr, lit.RPa1994a, 22.6.1994, 13.8.1994, 8.9.1994; ibidem, phCemp, ldRPa, lit.RPa1994a,



Slika 66: SMREKOV DVOJNOOKEC *Polygraphus poligraphus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 66: *Polygraphus poligraphus*, distribution map according to historical and recent data

22.6.1994, 5.7.1994, 31.7.1994, 26.8.1994; ibidem, lit.RPa1995a, 25.8.1995; **Peca, Karavanke**, 14°46′, 46°29′, VM85, 1300 m, ldSBr, cSBr, 5.7.1994; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, Kont, ldRPa, lit.RPa1994a, 31.7.1994; **Prevalje**, 14°55′, 46°33′, VM95, 480 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014c, 13.9.2011.

16.02. *Polygraphus subopacus* Thomson, 1871 SVETLI DVOJNOOKEC

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Polygraphus subopacus* Thomson, 1871; FREUDE, HARDE, LOHSE 1981: *Polygraphus subopacus* Thomson; PFEFFER 1995: *P. subopacus* Thomson.

E: AU BE CT CZ EN FI FR GE HU IT LA NR NT PL SL* SK SV SZ YU **A:** ES FE HEI JA JIL MG NC SC WS

Vrsta je razširjena v visokogorju ter na šotnih barjih v srednji, severni in vzhodni Evropi, v evropskem delu nekdanje Sovjetske zveze, Sibiriji, Koreji in na Japonskem. TITOVŠEK (1988) navaja, da je vrsta v Sloveniji prisotna, podatki o lokaciji, gostitelju in datumu najdbe pa niso znani. V literaturi so za gostitelje navedeni *Picea abies*, *P. obovata*, *P. jezoensis*, *Pinus korainensis* in *P. pumila*. Redkeje naseljuje tudi *Pinus sylvestris*, *P. montana*, *P. cembra*, *P. maritima*, *P. strobus*, *Abies alba* in *Larix sibirica*. Napada stoječa drevesa, na leto razvije le eno generacijo, roji junija in julija. Rovni sistem je zvezdast. Dolžina adulta je 1,7–2,3 mm. Čelo je fino in gosto punktirano, pri samičkah gosto poraščeno. Vratni ščit ni poraščen, pokrit je z luskicami, pri samčku je grobo punktiran.

The species is distributed in high mountains and peat bogs in central, northern and eastern Europe, the European part of the former Soviet Union, Siberia, Korea and Japan. TITOVŠEK (1988) states that the species is present in Slovenia, but information on the location, host and date of record is not known. The literature lists *Picea abies*, *P. obovata*, *P. jezoensis*, *Pinus korainensis* and *P. pumila* as hosts. Less frequently, it also inhabits *Pinus sylvestris*, *P. montana*, *P. cembra*, *P. maritima*, *P. strobus*, *Abies alba* and *Larix sibirica*. It attacks standing trees, develops only one generation per year, swarming in June and July. The tunnel system is star-shaped. Adult length is 1.7-2.3 mm. The forehead is finely and densely punctated, densely hairy in females. The neck shield is not hairy, it is covered in scales and coarsely punctated in males.

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: ldJTi, lit.JTi1988, 1951-2000.

17.00. *Gnathotrichus* Eichhoff, 1869 PEGAR

17.01. *Gnathotrichus materiarius* (Fitch, 1858) AMERIŠKI PEGAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Gnathotrichus materiarius* (Fitch, 1859); FREUDE, HARDE, LOHSE 1981: *Gnathotrichus materiarius* Fitch; PFEFFER 1995: *Gnathotrichus materiarius* (Fitch, 1858); GEISTER 2004: *Gnathotrichus materiarius.*

E: AU BE CZ FI FR GE IT NL PL SL* SP SV SZ **NAR**

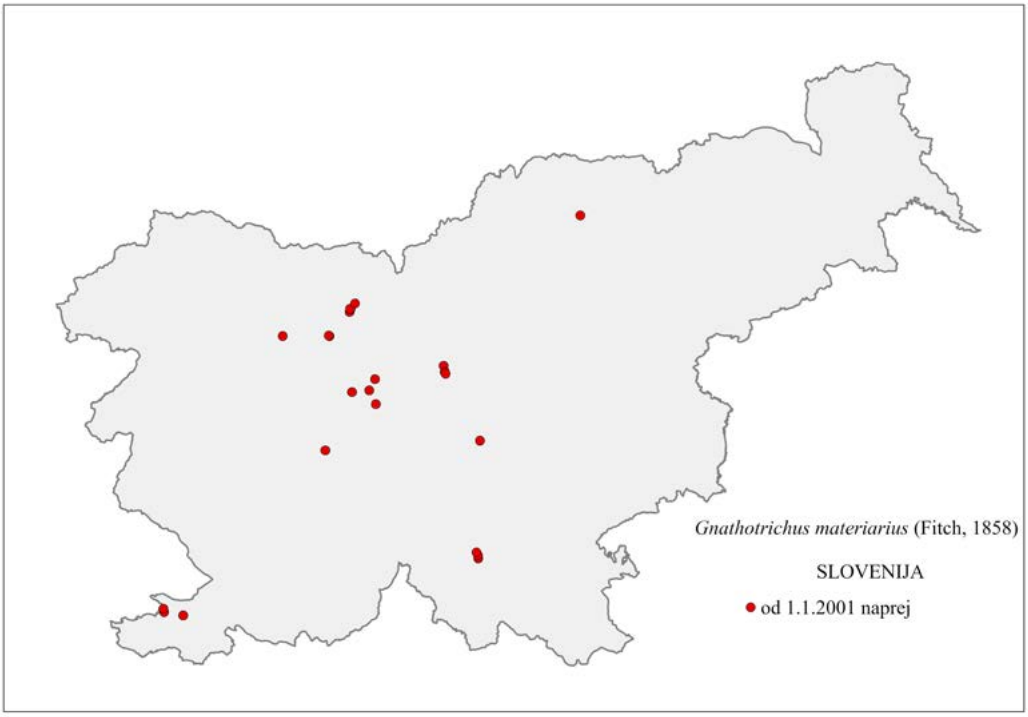
Vrsta je razširjena v Evropi in na nearktičnem območju. Domovina vrste je Amerika. V Sloveniji je bila prisotnost vrste prvič ugotovljena leta 2003 (Brdo pri Kranju), vendar je bilo v naslednjih letih ugotovljeno, da je ameriški pegar pogost v iglastih gozdovih severne in osrednje Slovenije ter v slovenskem delu Istre (slika 67). Vse najdbe v Sloveniji so rezultat ulova hroščev v pasti, vrste še nismo našli na gostiteljski rastlini. Po literaturi so gostitelji *Pinus sylvestris*, *Picea abies*, *Larix kaempferi* in *Pseudotsuga menziesii*. Je monogamna vrsta, ki roji od aprila do julija. Dolžina adulta je 3,2–3,5 mm. Na dolgem vratnem ščitu je približno na sredini vtisnjena vdolbinica v obliki trikotnika.

The species is distributed in Europe and the Nearctic and native to the Americas. It was first recorded in Slovenia in 2003 (Brdo pri Kranju), but in the following years *G. materiarius* was found to be common in coniferous forests of northern and central Slovenia and in the Slovene part of Istria. All records in Slovenia are the result of beetles caught in traps, and the species has not yet been found on a host plant (Figure 67). According to literature, the hosts include *Pinus sylvestris*, *Picea abies*, *Larix kaempferi* and *Pseudotsuga menziesii*. Monogamous species, swarming from April to July. Adult length is 3.2-3.5 mm. The long neck shield has a triangular-shaped depression about halfway down.

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010b, 21.6.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2017b, 31.5.2017; ibidem, lit.RPa2018b, 27.7.2018, 9.8.2018, 3.9.2018, 26.9.2018; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2018b, 23.10.2018; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2016b, 26.5.2016; ibidem, lit.RPa2017b, 4.7.2017.

GORENJSKO: **Brdo pri Kranju 1/1**, 14°23′50″, 46°16′46″, VM52, 439 m, tThe, phPher, ldRPa, lit.RPa2003, 8.8.2003; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008, 10.9.2008; ibidem, lit.RPa2010a, 9.6.2010, 20.7.2010, 8.9.2010; ibidem, lit.RPa2011a, 6.7.2011; ibidem, lit.RPa2012, 29.8.2012, 10.10.2012; ibidem, lit.RPa2013a, 30.4.2013, 15.5.2013, 29.5.2013, 12.6.2013, 8.8.2013, 21.8.2013; ibidem, lit. RPa2014a, 30.4.2014, 14.5.2014; ibidem, lit.RPa2015a, 29.4.2015, 13.5.2015, 8.7.2015, 22.7.2015, 4.8.2015, 18.8.2015, 2.9.2015; ibidem, lit.RPa2016a, 27.4.2016, 11.5.2016, 25.5.2016, 7.6.2016, 17.8.2016, 28.9.2016, 12.10.2016; ibidem, lit.RPa2017a, 10.5.2017, 25.5.2017, 8.6.2017, 16.8.2017; ibidem, lit.RPa2018a, 9.5.2018, 24.5.2018, 15.8.2018, 29.8.2018, 12.9.2018, 26.9.2018, 12.10.2018; ibidem, lit.RPa2019a, 24.4.2019, 8.5.2019, 22.5.2019, 3.6.2019, 19.6.2019, 14.8.2019; ibidem, lit. RPa 2020, 6.5.2020, 20.5.2020, 3.6.2020; ibidem, lit.RPa2021b, 19.5.2021, 4.6.2021, 16.6.2021, 25.8.2021; ibidem, lit.RPa2022b, 4.5.2022, 18.5.2022; ibidem, lit.RPa2023b, 17.5.2023, 1.6.2023, 28.6.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit. RPa2015a, 22.7.2015; ibidem, lit.RPa2016a, 27.4.2016, 11.5.2016, 7.6.2016; ibidem, lit.RPa2018a, 15.8.2018; ibidem, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008, 10.9.2008; ibidem, lit. RPa2010a, 9.6.2010, 20.7.2010; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2010a, 9.6.2010; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tWit, phPher, ldRPa, lit.RPa2008, 13.8.2008, 7.10.2008; ibidem, lit.RPa2010a, 9.6.2010, 8.9.2010; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017; **Preddvor**, 14°25′, 46°18′, VM52, 480 m, tWit, phPher, ldRPa, lit.RPa2010b, 8.9.2010; **Rudnik pri Moravčah 1**, 14°43′44″, 46°08′07″, VM70, 363 m, tPfall, phEtan veCo, lTPe dTHa, lit.THa2022c, 15.5.2020, 22.5.2020; **Rudnik pri Moravčah 2**, 14°43′56″, 46°07′51″,



Slika 67: AMERIŠKI PEGAR *Gnathotrichus materiarius*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 67: *Gnathotrichus materiarius*, distribution map according to historical and recent data

VM70, 378 m, tPfall, phEtan veCo, lTPe dTHa, lit.THa2022c, 10.4.2020, 17.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 22.5.2020, 29.5.2020; **Zgornje Bitnje 2**, 14°19′37″, 46°13′19″, VM41, 396 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; **Železniki, Otoki, nad Soro**, 14°09′50″, 46°13′19″, VM31, 448 m, tWit, phGaPP, ldRPa, lit.RPa2020b, 30.8.2016.
NOTRANJSKO: **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017, 19.5.2017, 25.8.2017.
LJUBLJANA Z OKOLICO: **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, tWit, phGaHo, ldRPa,l it.RPa2013b, 14.8.2013, 20.9.2013; **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017.
DOLENJSKO: **Kočevje, Koblarji 1**, 14°50′44″, 45°41′00″, VL85, 471 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 30.4.2020, 8.5.2020, 22.5.2020, 29.5.2020; **Kočevje, Koblarji 2**, 14°50′42″, 45°41′26″, VL85, 470 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020; **Kočevje, Koblarji 3**, 14°50′23″, 45°41′54″, VL86, 472 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 22.5.2020, 29.5.2020; **Velike Češnjice 2**, 14°51′07″, 45°58′08″, VL89, 381 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 17.5.2017.
ŠTAJERSKO: Kope, Pohorje, Pahernikova posest, 15°12′05″, 46°30′41″, WM15, 1350 m, tPfall, phAlfa phEtan, lTAd dTHa, lit.THa2022a, 31.7.2020.

18.00. ***Pityophthorus*** Eichhoff, 1864 VEJAR

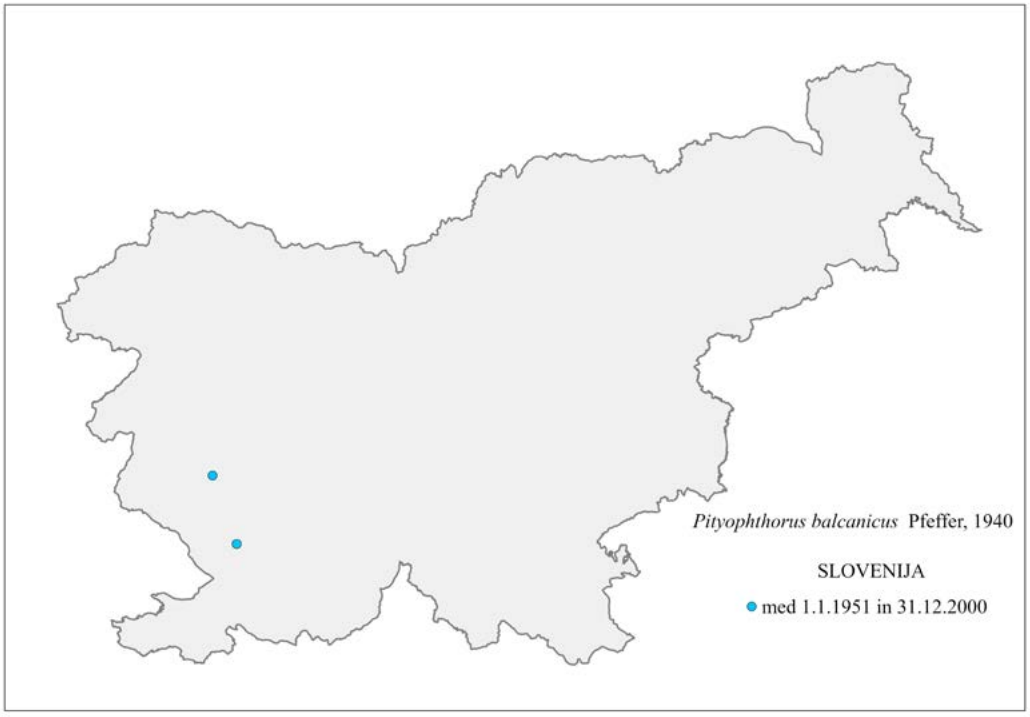
18.01. *Pityophthorus balcanicus* Pfeffer, 1940 BALKANSKI VEJAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityophthorus balcanicus* Pfeffer, 1940; FREUDE, HARDE, LOHSE 1981: *Pityophthorus henscheli* Seitner (*balcanicus* Pfeffer (1940)); TITOVŠEK 1988: *Pityophthorus balcanicus* Pfeffer; PFEFFER & KNÍŽEK 1993: *P. balcanicus* Pfeffer, 1940; PFEFFER 1995: *P. balcanicus* Pfeffer, 1940.

E: AL BH BU MC RO SL* SK YU

Vrsta je razširjena na območju nekdanje Jugoslavije, v Bolgariji in Albaniji. Pri nas je redka, znani sta samo dve najdišči (na Primorskem in Notranjskem), obakrat je bil gostitelj *Pinus nigra* (slika 68). Podatek za Srbijo: vrsta ni pogosta, populacije niso številčne (MIHAJLOVIĆ 2008). Naseljuje tanke veje v vrhačih borov (*Pinus nigra*, *P. cembra*, *P. heldreichii* in *P. mugo*). Vrhovi napadenih

The species is distributed in the former Yugoslavia, Bulgaria and Albania. It is rare in Slovenia, with only two known records (in Primorska and Notranjska), both hosted by *Pinus nigra* (Figure 68). Data for Serbia: the species is not common, populations are not numerous (MIHAJLOVIĆ 2008). It inhabits thin branches in the tops of pines (*Pinus nigra*, *P. cembra*, *P. heldreichii* and *P. mugo*). The



Slika 68: BALKANSKI VEJAR *Pityophthorus balcanicus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 68: *Pityophthorus balcanicus*, distribution map according to historical and recent data

dreves se zaradi napada sušijo. Je poligamna vrsta, letno razvije dve generaciji (prvo rojenje maja, drugo julija in avgusta). Rovni sistem je zvezdast. Adult je črno-rjave barve, dolžine je 1,8–1,9 mm.

tops of infested trees die back as a result of infestation. A polygamous species, it develops two generations annually (first generation in May, second in July and August). The tunnel system is star-shaped. The imago is blackish brown, 1.8-1.9 mm long.

Najdišča v Sloveniji / Localities in Slovenia
PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, 200 m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1979.
NOTRANJSKO: **Senadole, Senožeče**, 14°00′, 45°43′, VL26, 390 m, *Pinus nigra*, ldJTi, lit. JTi1983, 7.1977.

18.02. *Pityophthorus carniolicus* Wichmann, 1910 KRANJSKI VEJAR

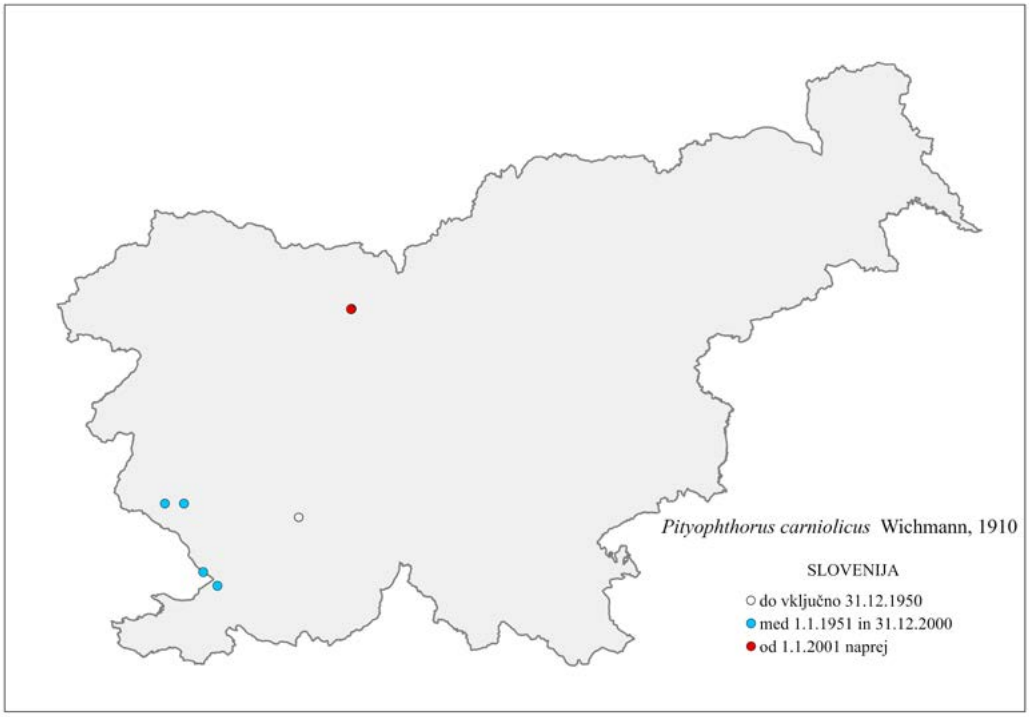
Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityophthorus carniolicus* Wichmann, 1910; FREUDE, HARDE, LOHSE 1981: *Pityophthorus carniolicus* Wichmann; TITOVŠEK 1988: *Pityophthorus carniolicus* (Wichmann); PFEFFER & KNÍŽEK 1993: *P. carniolicus* Wichmann, 1910; PFEFFER 1995: *P. carniolicus* Wichmann, 1910.

E: AU CR CZ FR GE HU IT PL SK SL SZ

Vrsta je prisotna v državah, ki mejijo na Slovenijo in v nekaterih drugih evropskih državah. V Sloveniji ni pogosta, najdišča so večinoma v zahodnem delu države (slika 69). Gostitelji so *Pinus nigra*, *P. sylvestris*, manj pogosto tudi *Picea abies* in *Pseudotsuga menziesii*. V slovenskem delu Istre in na Primorskem je bila vrsta ugotovljena na *P. nigra*, na Gorenjskem pa so bili vsi najdeni osebki ujeti v pasti. Je monogamna vrsta, dolžina adulta znaša 1,1–1,5 mm.

The species is present in countries bordering Slovenia and in some other European countries.It is not common in Slovenia, with sites mostly in the western part of the country (Figure 69). Hosts include *Pinus nigra*, *P. sylvestris*, less frequently also *Picea abies* and *Pseudotsuga menziesii*. In the Slovene part of Istria and in Primorska, the species was found on *P. nigra*, while in Gorenjska all specimens found were trapped. Monogamous species, adult length is 1.1-1.5 mm.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Kokoš, Lipica**, 13°53′, 45°39′, VL15, 450 m, *Pinus nigra*, ldJTi, lit.JTi1983, 7.1968; **Videž, Kozina**, 13°56′, 45°37′, VL15, 600 m, *Pinus nigra*, ldJTi, lit.JTi1983, 7.1968.
PRIMORSKO: **Kobjeglava, Komen**, 13°49′, 45°49′, VL07, 320 m, *Pinus nigra*, ldMJu, lit. MJu2000, 1986, 1987, 1998; **Komen**, 13°45′, 45°49′, VL07, 290 m, *Pinus nigra*, ldMJu, lit. MJu1993, 1985, 1987.
GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010a, 9.6.2010, 20.7.2010, 27.4.2016; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2016a, 27.4.2016; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2013a, 29.5.2013; ibidem, lit. RPa2015a, 15.4.2015, 13.5.2015, 8.7.2015; ibidem, lit.RPa2017a, 8.6.2017.
NOTRANJSKO: **Sovič, Postojna**, 14°13′, 45°47′, VL37, 670 m, ldAGs, cAGs, 15.6.1909.



Slika 69: KRANJSKI VEJAR *Pityophthorus carniolicus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 69: *Pityophthorus carniolicus*, distribution map according to historical and recent data

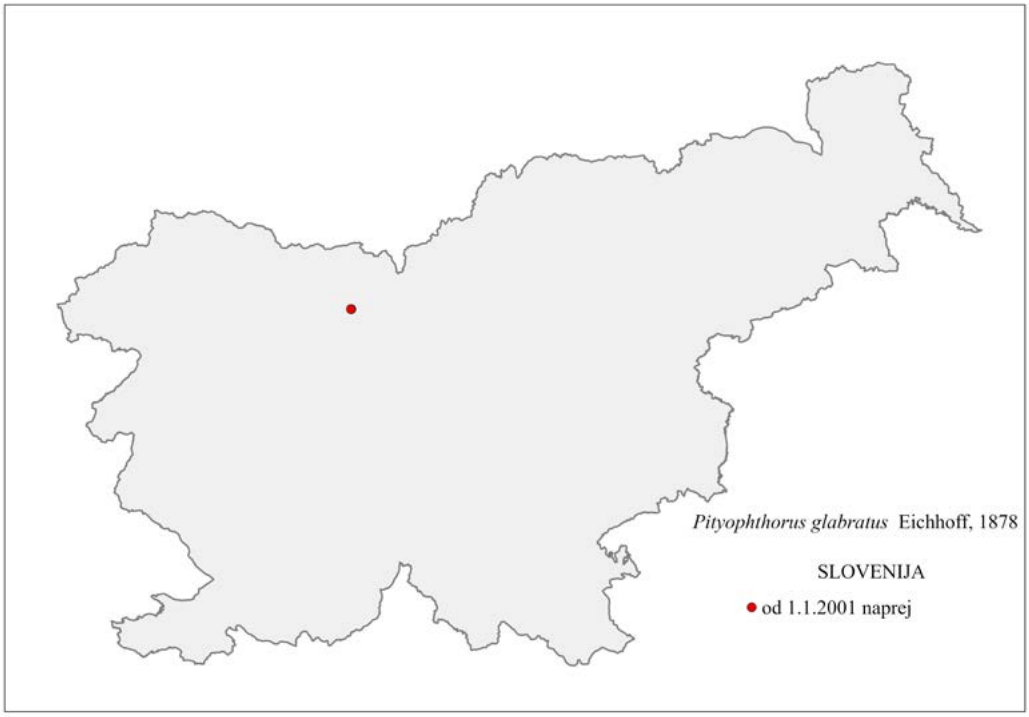
18.03. *Pityophthorus glabratus* Eichhoff, 1878 GLADKI VEJAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityophthorus glabratus* Eichhoff, 1879; FREUDE, HARDE, LOHSE 1981: *Pityophthorus glabratus* Eichhoff; PFEFFER 1995: *P. glabratus* Eichhoff, 1878.

E: AU BU BY CR CT CZ DE EN FI FR GE GR HU IT LT LU NO NR NT PL SL* SK SP ST SV SZ UK YU **N:** EG **A:** NO WS

Vrsta se pojavlja v srednji Evropi, na Švedskem, v evropskem delu Rusije, Bolgariji, nekdanji Jugoslaviji, severni Italiji, severni Afriki in Aziji (severni del Kitajske, zahodna Sibirija). V Sloveniji je bila vrsta najdena le v pasteh v sestoju rdečega bora na Brdu pri Kranju (slika 70). Po literaturi so gostitelji različni bori (*Pinus sylvestris*, *P. mugo* in *P. nigra*), izjemoma tudi *Larix decidua*. *P. glabratus* izdolbe zvezdast rovni sistem, ki ga sestavljajo 2–3 materinski rovi. Dolžina adulta je 1,5–2,2 mm. Čelo samčka je gladko.

The species occurs in Central Europe, Sweden, the European part of Russia, Bulgaria, the former Yugoslavia, northern Italy, northern Africa and Asia (northern China, western Siberia). In Slovenia, the species was found only in traps in a stand of red pine at Brdo pri Kranju (Figure 70). According to the literature, the hosts are various pines (*Pinus sylvestris*, *P. mugo* and *P. nigra*), exceptionally also *Larix decidua*. *P. glabratus* excavates a star-shaped tunnel system consisting of 2-3 maternal galleries. Adult length is 1.5-2.2 mm. The forehead of the male is smooth.



Slika 70: GLADKI VEJAR *Pityophthorus glabratus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 70: *Pityophthorus glabratus*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia

GORENJSKO: **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2012, 25.7.2012; ibidem, lit.RPa2015a, 29.4.2015, 10.6.2015, 4.8.2015; ibidem, lit.RPa2016a, 27.4.2016, 11.5.2016, 22.6.2016; ibidem, lit.RPa2018a, 25.4.2018; ibidem, lit. RPa2023b,3.5.2023, 1.6.2023; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2015a, 13.5.2015; ibidem, lit.RPa2016a, 17.8.2016; ibidem, lit.RPa2017a, 12.4.2017, 30.8.2017; ibidem, lit.RPa2018a, 24.5.2018.

18.04. *Pityophthorus lichtensteinii* (Ratzeburg, 1837) BOROV VEJAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityophthorus lichtensteini* Ratzeburg, 1837; FREUDE, HARDE, LOHSE 1981: *Pityophthorus lichtensteinii* Ratzeburg; PFEFFER 1995: *P. lichtensteinii* (Ratzeburg, 1837).

E: AU BE BH BU CT CZ DE EN FI FR GB GE GR HU IT LA LT LU MC NL NR NT PL SK SL SP ST SV SZ UK YU **A:** ES FE (Kurilski otoki) FUJ KZ MG NE NO

Vrsta je prisotna v Evropi, na Kavkazu, zahodni Sibiriji, Mongoliji in na severu | The species is present in Europe, the Caucasus, western Siberia, Mongolia and northern China.

Kitajske. Redke, večinoma starejše najdbe so v različnih pokrajinah Slovenije (slika 71). Gostitelji so *Pinus sylvestris*, *P. mugo*, *P. strobus*, *P. nigra*, *P. pinaster*, *P. sibirica* in *Pinus* spp., manj pogosto tudi *Abies alba*, *Picea obovata* in *Larix decidua*. V Sloveniji je bila vrsta najdena na *Pinus sylvestris*, *P. nigra* in *P. strobus*. *P. lichtensteinii*. Vrsta letno razvije dve generaciji, roji maja in julija. Rovni sistem je zvezdast, v njem je 2–7 razmeroma dolgih materinskih rovov. Dolžina adulta je 1,6–2,0 mm.

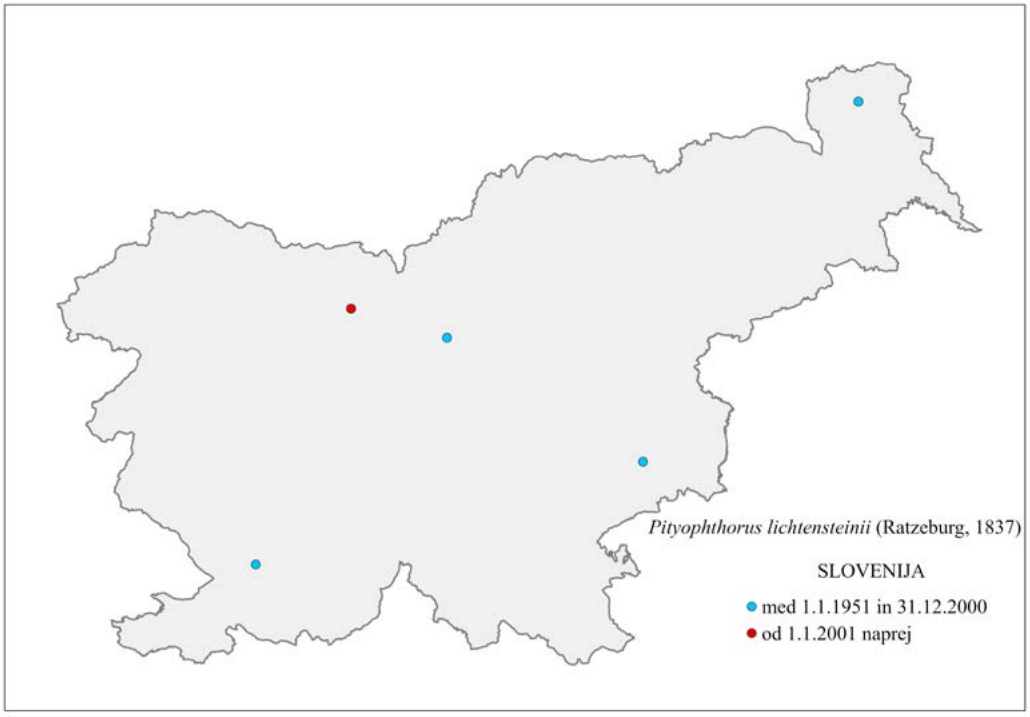
Rare, mostly older records in different regions of Slovenia (Figure 71). Hosts include *Pinus sylvestris*, *P. mugo*, *P. strobus*, *P. nigra*, *P. pinaster*, *P. sibirica* and *Pinus* spp., less frequently also *Abies alba*, *Picea obovata* and *Larix decidua*. In Slovenia, the species has been found on *Pinus sylvestris*, *P. nigra* and *P. strobus*. *P. lichtensteinii*. The species develops two generations per year, swarming in May and July. The tunnel system is star-shaped, with 2-7 relatively long maternal galleries. Adult length is 1.6-2.0 mm.

Najdišča v Sloveniji / Localities in Slovenia

GORENJSKO: **Brdo pri Kranju, GIS 3**, Gorenjsko, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2020d, 12.8.2020; **Šmartno v Tuhinju**, 14°44′, 46°13′, VM71, 470 m, *Pinus strobus*, ldJTi, lit.JTi1983, 4.1972.

NOTRANJSKO: **Gornje Ležeče, Vremščica**, 14°04′, 45°40′, VL25, 510 m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978.

DOLENJSKO: **Rimš, Leskovec pri Krškem**, 15°25′, 45°55′, WL38, 190 m, *Pinus sylvestris*, debelce, ldJTi, lit.JTi1983, 6.1971.



Slika 71: BOROV VEJAR *Pityophthorus lichtensteinii*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 71: *Pityophthorus lichtensteinii*, distribution map according to historical and recent data

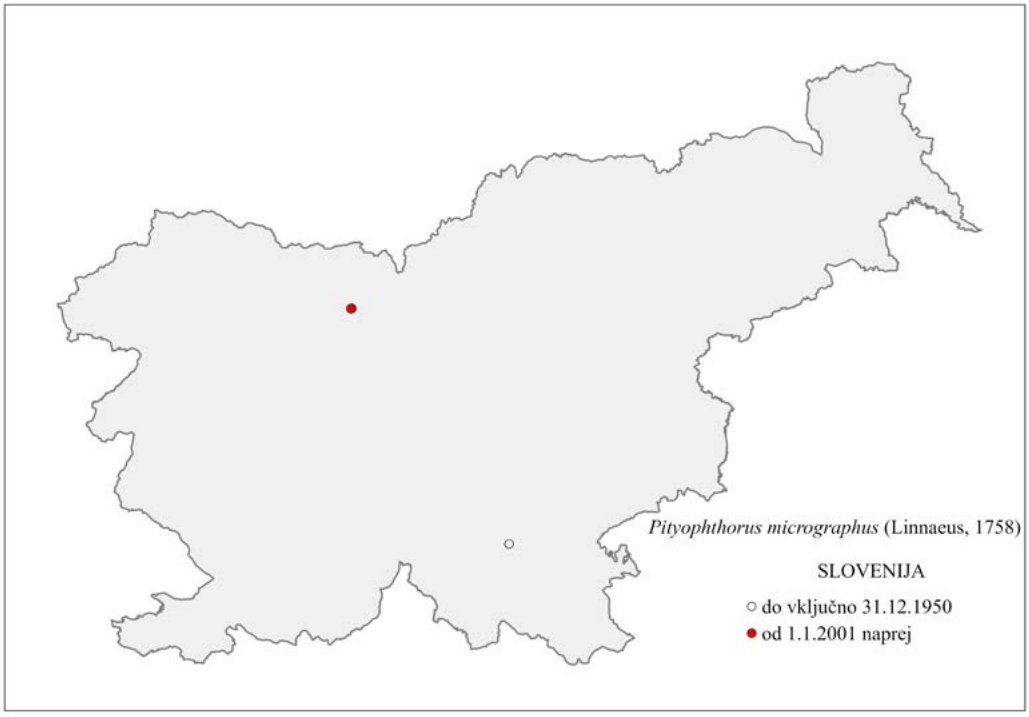
18.05. *Pityophthorus micrographus* (Linnaeus, 1758) DROBNOČRTNI VEJAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityophthorus micrographus* Linné, 1758; PFEFFER 1995: *Pityophthorus micrographus micrographus* (Linné, 1758).

E: AU BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA LT LU NR NT PL RO SL* SP SV SZ YU »Caucasus« **A**: KZ TR WS

Vrsta je razširjena v severni, srednji in vzhodni Evropi, v Kazahstanu, Turčiji, v evropskem delu nekdanje Sovjetske zveze in v zahodni Sibiriji. V Sloveniji je razmeroma redek (slika 72). Novejše najdbe z Gorenjskega so rezultat ulova v pasti. Gostitelji so *Picea abies* in *P. obovata*, redkeje *Pinus sylvestris*, *P. cembra*, *Abies sibirica* in *Larix sibirica*. O gostiteljih v Sloveniji ni podatkov. Letno razvije 1–2 generaciji. Rovni sistem je zvezdast, z dolgimi materinskimi rovi, ki

The species is distributed in northern, central and eastern Europe, Kazakhstan, Turkey, the European part of the former Soviet Union and western Siberia. It is relatively rare in Slovenia (Figure 72). Recent records from Gorenjska are the result of trapping. Hosts include *Picea abies* and *P. obovata*, less frequently *Pinus sylvestris*, *P. cembra*, *Abies sibirica* and *Larix sibirica*. No information on hosts in Slovenia. Develops 1-2 generations annually. The tunnel system is star-shaped, with long maternal



Slika 72: DROBNOČRTNI VEJAR *Pityophthorus micrographus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 72: *Pityophthorus micrographus*, distribution map according to historical and recent data

so orientirani vzdolžno. Dolžina adultov je 1,6–2,3 mm.

galleries oriented longitudinally. Adult length is 1.6-2.3 mm.

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: cBFG, pred 1951.
GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2017a, 12.4.2017; ibidem, lit.RPa2023b, 3.5.2023; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2017a, 29.3.2017.
DOLENJSKO: **Kočevski Rog**, (14°57′), (45°43′), (VL96), *, ldAGs, cAGs, 16.7.1948.

18.06. *Pityophthorus pityographus* (Ratzeburg, 1837) JELOV VEJAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityophthorus pityographus* Ratzeburg, 1837; FREUDE, HARDE, LOHSE 1981: *Pityophthorus pityographus* Ratzeburg; TITOVŠEK 1988: *Pityophthorus pityographus* (Ratzeburg); PFEFFER & KNÍŽEK 1993: *Pityophthorus pityographus* Ratzeburg, 1837 a. *P. p. pityographus* s. str.; PFEFFER 1995: *Pityophthorus pityographus pityographus* (Ratzeburg, 1837).

E: AU BE BH BU CR CZ DE EN FR GE GR HU IT MC PL RO SK SL SP SV SZ UK YU »Caucasus«

Vrsta je razširjena v srednji Evropi, Bolgariji, Romuniji, nekdanji Jugoslaviji, Ukrajini, na Krimu in Kavkazu. V Sloveniji je ena najpogostejših vrst podlubnikov na tankolubnih delih iglavcev. *P. pityographus* je prisoten v vsej državi, manjkajo le najdbe iz Prekmurja in Bele krajine (slika 74). Gostitelja sta *Picea abies* in *P. obovata*, manj pogosto *Pinus sylvestris*, *P. mugo*, *P. cembra*, *P. strobus*, *Abies alba*, *A. pectinata*, *A. nordmanniana*,

The species is distributed in Central Europe, Bulgaria, Romania, the former Yugoslavia, Ukraine, Crimea and the Caucasus. In Slovenia, it is one of the most common species of bark beetle on the thin-barked parts of conifers. *P. pityographus* is present throughout the country, with only records from Prekmurje and Bela krajina missing (Figure 74). Hosts include *Picea abies* and *P. obovata*, less frequently *Pinus sylvestris*, *P. mugo*, *P. cembra*, *P. strobus*,

Slika 73: JELOV VEJAR *Pityophthorus pityographus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 73: *Pityophthorus pityographus*, dorsal, lateral (Photo: Maja Jurc)

A. sibirica, *Larix decidua*, *Pseudotsuga menziesii* in *Tsuga canadensis*. V Sloveniji je vrsta najpogostejša na *P. abies* in *A. alba*, zabeležena pa je bila še na *P. sylvestris*, *P. mugo*, *P. strobus*, *P. halepensis in L. decidua*. Letno razvije dve generaciji, roji maja in julija ter avgusta. Naseljuje dele dreves s tankim lubjem: veje in vrhače starejših dreves, pa tudi oslabljena mlada drevesa. Rovni sistem je zvezdast, s 4–7 kraki (materinskimi rovi), ki so lahko dolgi do 15 cm in se zajedajo v beljavo. Na tanjših vejah lahko potekajo okoli vej. Larvalni rovi so kratki. V praksi se rovni sistemi jelovega vejarja pogosto zamenjujejo za rovne sisteme šesterozobega zvezdarja (*Pityogenes chalcographus),* a so rovi jelovega vejarja opazno ožji, odtis kotilnice pa je jasno viden tudi v beljavi, na mestu, kjer se stikajo materinski hodniki. Pri šesterozobem zvezdarju leži kotilnica v skorji, zato se materinski rovi navidezno ne stikajo. Na zadnji tretjini pokrovk je široka vzdolžna brazda, rob koničnika pa je dvignjen, z vrsto dlačic. Dolžina adulta je 1,6–2,3 mm (slika 73). Vrsta je sekundarna, vendar ob namnožitvi lahko pomeni nevarnost za mlajše sestoje iglavcev. V starejših sestojih izloča mlada podstojna drevesa iglavcev.

Abies alba, *A. pectinata*, *A. nordmanniana*, *A. sibirica*, *Larix decidua*, *Pseudotsuga menziesii* and *Tsuga canadensis*. In Slovenia, the species is most common on *P. abies* and *A. alba*, but has also been recorded on *P. sylvestris*, *P. mugo*, *P. strobus*, *P. halepensis and L. decidua*. It develops two generations annually, swarming in May and July and in August. It inhabits parts of trees with thin bark: branches and tops of older trees, but also weakened young trees. The tunnel system is star-shaped, with 4-7 branches (maternal galleries), which can be up to 15 cm long and burrow into the sapwood. On thinner branches they may run around the branches. The larval tunnels are short. In practice, the straight tunnel systems of *P. pityographus* are often confused with the straight systems of *Pityogenes chalcographus*. The tunnels are noticeably narrower in *P. pityographus*, and the impression of the brood chamber is also clearly visible in the sapwood, where the maternal galleries meet. In *P. chalcographus,* the brood chamber is located in the bark, so that the maternal galleries do not seem to meet. There is a broad longitudinal furrow on the posterior third of the elytra, and the margin of the apex is raised, with a row of hairs. Adult length is 1.6-2.3 mm (Figure 73). The species is secondary, but may pose a threat to younger conifer stands if it multiplies. In older stands, it crowds out young coniferous understorey trees.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi, cSBr.

PRIMORSKO: **Lokve, Trnovski gozd**, 13°48′, 46°01′, VL09, 1100 m, *Abies alba*, ldJTi, lit. JTi1983, 8.1979;

Na Skali, Vrsnik, Julijske Alpe, 13°42’, 46°20’, UM93, 950 m, ldSBr, cSBr, 11.6.1997; **Nova Gorica, Panovec 1**, 13°39′57″, 45°56′33″, UL98, 100 m, *Abies alba*, veja 5 cm, ldRPa, lit. RPa2021a, 14.9.2021; **Tolmin, Kozlov rob**, 13°44′, 46°11′, VM01, 300 m, *Picea abies*, lNRu dRPa, lit.NRu2014, 2013; **Trenta, Mlinarica**, 13°45′, 46°25′, VM04, 950 m, *Pinus mugo*, ldJTi, lit.JTi1983, 7.1974; **Volče, Tolmin**, 13°43′, 46°10′, VM01, 290 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Vršič, Trenta**, 13°45′, 46°26′, VM04, 1650 m, *Pinus mugo*, ldJTi, lit.JTi1983, 7.1974.

GORENJSKO: **Brdo pri Kranju 1/5**, 14°23′22″, 46°16′46″, VM52, 436 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2003, 18.9.2003; **Brdo pri Kranju 1/8**, 14°23′26″, 46°16′37″, VM52, 429 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/10**, 14°23′13″, 46°16′34″, VM52, 427 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/13**, 14°23′36″, 46°16′39″, VM52, 433 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/14**, 14°23′34″, 46°16′41″, VM52, 434 m, *Picea abies*, sušica 5 cm

rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/15**, 14°23′57″, 46°16′49″, VM52, 441 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2003, 19.9.2003; **Brdo pri Kranju 1/16**, 14°24′20″, 46°17′07″, VM52, 454 m, *Picea abies*, deblo 7 cm, ldRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/28**, 14°24′21″, 46°16′50″, VM52, 444 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/36**, 14°24′39″, 46°17′18″, VM52, 457 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/40**, 14°24′30″, 46°17′30″, VM52, 464 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2003, 6.9.2003; **Brdo pri Kranju 1/49**, 14°24′02″, 46°17′03″, VM52, 458 m, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/53**, 14°23′48″, 46°17′09″, VM52, 459 m, *Pinus sylvestris*, sušica 10 cm, ldRPa, lit. RPa2003, 10.10.2003; **Brdo pri Kranju 1/55**, 14°23′42″, 46°17′07″, VM52, 444 m, *Pinus sylvestris*, deblo 8 cm, ldRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/58**, 14°23′44″, 46°17′23″, VM52, 456 m, *Pinus sylvestris*, veja 5 cm, ldRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/59**, 14°23′45″, 46°17′20″, VM52, 453 m, *Pinus sylvestris*, veja 3 cm, ldRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/63**, 14°23′30″, 46°17′13″, VM52, 461 m, *Pinus sylvestris*, deblo 10 cm, ldRPa, lit.RPa2003, 8.8.2003; **Brdo pri Kranju 1/64**, 14°23′26″, 46°17′16″, VM52, 466 m, *Pinus sylvestris*, deblo 15 cm, ldRPa, lit.RPa2003, 8.8.2003; **Brdo pri Kranju 1/73**, 14°23′02″, 46°16′54″, VM52, 439 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2003, 19.8.2003; **Brdo pri Kranju 1/74**, 14°23′05″, 46°16′58″, VM52, 446 m, *Pinus sylvestris*, deblo 8 cm, ldRPa, lit. RPa2003, 18.10.2003; **Brdo pri Kranju 1/75**, 14°23′09″, 46°16′58″, VM52, 449 m, *Pinus sylvestris*, veja 6 cm, ldRPa, lit.RPa2003, 15.8.2003; **Brdo pri Kranju 2/1**, 14°22′07″, 46°16′49″, VM52, 423 m, *Picea abies*, sušica 10 cm rs, odRPa, lit.RPa2004, 24.8.2004; ibidem, *Pinus sylvestris*, veja 5 cm rs, odRPa, lit.RPa2004, 24.8.2004; **Brdo pri Kranju 2/4**, 14°23′18″, 46°17′04″, VM52, 453 m, *Abies alba*, veja 5 cm, ldRPa, lit.RPa2004, 21.7.2004; ibidem, *Picea abies*, veja 3 cm, ldRPa, lit.RPa2004, 21.7.2004; **Brdo pri Kranju 2/5**, 14°23′45″, 46°17′22″, VM52, 469 m, *Picea abies*, veja 5 cm, ldRPa, lit.RPa2004, 30.7.2004; **Brdo pri Kranju 2/6**, 14°24′02″, 46°17′14″, VM52, 470 m, *Pinus sylvestris*, sušica 1 cm, ldRPa, lit.RPa2004, 22.8.2004; **Brdo pri Kranju 2/7**, 14°23′48″, 46°16′47″, VM52, 441 m, *Abies alba*, veja 2 cm, ldRPa,l it.RPa2004, 18.9.2004; ibidem, veja 3 cm, ldRPa, lit.RPa2004, 18.9.2004; ibidem, vrhač 3 cm, ldRPa, lit.RPa2004, 18.9.2004; ibidem, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2004, 18.9.2004; ibidem, sušica 2 cm, ldRPa, lit.RPa2004, 18.9.2004; **Brdo pri Kranju 2/8**, 14°24′22″, 46°17′13″, VM52, 457 m, *Picea abies*, deblo 4 cm, ldRPa, lit.RPa2004, 26.9.2004; ibidem, sušica 10 cm rs, odRPa, lit. RPa2004, 26.9.2004; ibidem, *Pinus sylvestris*, veja 3 cm, ldRPa, lit.RPa2004, 23.10.2004; ibidem, vrhač 3 cm, ldRPa, lit.RPa2004, 23.10.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2015a, 15.4.2015, 10.6.2015; ibidem, lit. RPa2016a, 27.4.2016; ibidem, lit.RPa2019a, 24.4.2019; ibidem, lit.RPa2020d, 22.4.2020; ibidem, lit.RPa2021b, 7.4.2021, 5.5.2021; ibidem, lit.RPa2023b, 3.5.2023, 23.8.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2016a, 13.4.2016; ibidem, lit.RPa2023b, 17.5.2023; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2015a, 8.7.2015, 2.9.2015; ibidem, lit.RPa2016a, 22.6.2016; ibidem, lit. RPa2017a, 30.8.2016; **Breg ob Savi, Sorško polje 1**, 14°22′26″, 46°12′38″, VM51, 372 m, *Picea abies*, deblo 5 cm, ldRPa, lit.RPa2014c, 10.5.2008: **Breg ob Savi, Sorško polje 2**, 14°22′25″, 46°12′38″, VM51, 372 m, *Picea abies*, veja 2 cm, ldRPa, lit.RPa2014c, 10.5.2008; **Britof, Gorenje, Kranj**, 14°22′34″, 46°15′26″, VM52, 401 m, *Picea abies*, deblo 8 cm, ldRPa, lit.RPa2014c, 19.3.1995; ibidem, veja 2 cm, ldRPa, lit.RPa2014c, 19.3.1995; **Brnik, južno od letališča**, 14°26′34″, 46°13′17″, VM51, 375 m, *Picea abies*, deblo 5 cm, ldRPa, lit.RPa2020c, 24.5.2018; **Brnik, krožišče pri letališču**, 14°28′02″, 46°13′39″, VM51, 374 m, *Picea abies*, veja 4 cm, ldRPa, lit. RPa2022a, 24.5.2022; **Brnik, letališče, krožišče Cargo 2**, 14°26′42″, 46°14′22″, VM52, 396 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 3**,

14°26′43″, 46°14′07″, VM52, 392 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2021a, 16.8.2021; ibidem, deblo 10 cm rs, odRPa, lit.RPa2021a, 15.10.2021; ibidem,veja 1 cm rs, odRPa, lit. RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 6**, 14°27′07″, 46°14′11″, VM52, 390 m, *Picea abies*, vejni kup rs, odRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 7**, 14°27′18″, 46°14′11″, VM52, 390 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 8**, 14°26′43″, 46°14′08″, VM52, 392 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2022a, 28.10.2022; **Brnik, letališče, krožišče Cargo 10**, 14°26′39″, 46°14′09″, VM52, 392 m, *Pinus sylvestris*, veja 3 cm, ldRPa, lit.RPa2022a, 28.10.2022; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, lGBa dSBr, cSBr, 16.4.1991, 15.5.1991; **Gozd, Golnik 3**, 14°20′05″, 46°20′30″, VM43, 918 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2022a, 31.7.2022; **Hrastje, Kranj 1**, 14°23′40″, 46°14′01″, VM52, 386 m, *Picea abies*, veja 5 cm, ldRPa, lit. RPa2020c, 21.5.2010, 12.10.2012, 18.10.2013; ibidem, veja 3 cm rs, odRPa, lit.RPa2023a, 20.10.2023; **Hrastje, Kranj 2**, 14°23′41″, 46°14′01″, VM52, 387 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2021a, 31.5.2021; **Hrastje, Kranj 3**, 14°23′52″, 46°13′58″, VM52, 387 m, *Picea abies*, deblo 5 cm, ldRPa, lit.RPa2020c, 3.6.2019; **Hrastje, Kranj, Agromehanika 1**, 14°23′49″, 46°13′39″, VM51, 380 m, *Picea abies*, veja 2 cm rs, odRPa, lit.RPa2021a, 27.5.2021; **Hrastje, Kranj, Agromehanika 4**, 14°23′46″, 46°13′46″, VM51, 381 m, *Picea abies*, deblo 8 cm rs, odRPa, lit.RPa2021a, 27.5.2021; **Hrastje, Kranj, Klanec 4**, 14°23′34″, 46°14′07″, VM52, 388 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 6**, 14°23′30″, 46°14′08″, VM52, 388 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2023a, 29.5.2023; ibidem, deblo 7 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 7**, 14°23′24″, 46°14′07″, VM52, 388 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 8**, 14°23′23″, 46°14′09″, VM52, 388 m, *Picea abies*, deblo 7 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 9**, 14°23′20″, 46°14′07″, VM52, 388 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 10**, 14°23′18″, 46°14′08″, VM52, 388 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Planjava 4**, 14°23′41″, 46°14′07″, VM52, 389 m, *Picea abies*, veja 2 cm, ldRPa, lit.RPa2014c, 3.6.2004; **Hrastje, Kranj, Planjava 5**, 14°23′39″, 46°14′06″, VM52, 389 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2020b, 28.5.2020; **Hrastje, Kranj, Planjava 10**, 14°23′42″, 46°14′11″, VM52, 392 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2021a, 27.5.2021; **Jeprca, Medvode, odcep za Podrečo**, 14°23′19″, 46°10′11″, VM51, 352 m, *Picea abies*, veja 8 cm rs, odRPa, lit. RPa2023a, 24.3.2023; **Kokra, Kurja Vas, skladišče lesa**, 14°29′38″, 46°19′37″, VM63, 581 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 3.11.2016; **Kranj**, 14°21′, 46°15′, VM42, 400 m, *Pinus halepensis*, veja, ldRPa, lit.RPa2014c, 10.4.2006; **Kranj, ob avtocesti 1**, 14°23′36″, 46°14′58″, VM52, 405 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2021a, 6.10.2021; **Kranj, ob avtocesti 3**, 14°23′29″, 46°14′56″, VM52, 405 m, *Picea abies*, veja 2 cm rs, odRPa, lit.RPa2021a, 6.10.2021; **Kranj, ob avtocesti 5**, 14°23′36″, 46°14′56″, VM52, 405 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2021a, 6.10.2021; **Kranj, ob avtocesti 7**, 14°23′36″, 46°14′49″, VM52, 402 m, *Picea abies*, deblo 7 cm rs, odRPa, lit.RPa2021a, 6.10.2021; ibidem, veja 4 cm rs, odRPa, lit. RPa2021a, 6.10.2021; **Kranj, ob avtocesti 8**, 14°23′43″, 46°14′45″, VM52, 402 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2021a, 6.10.2021; **Lipica, Škofja Loka, nad pokopališčem 1**, 14°20′30″, 46°10′07″, VM41, 351 m, *Picea abies*, veja, 5 cm rs, odRPa, lit.RPa2021a, 20.1.2021; **Lipica, Škofja Loka, nad pokopališčem 2**, 14°20′32″, 46°10′05″, VM41, 350 m, *Picea abies*, veja, 3 cm rs, odRPa, lit.RPa2021a, 20.1.2021; **Mavčiče, Sorško polje**, 14°24′, 46°11′, VM51, 350 m, *Picea abies*, ldJTi, lit.JTi1983, 2.1974; **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit.APi2015, 17.7.2014, 18.8.2014; **Pokljuka, Krnica**, 14°03′, 46°23′, VM23, 1265 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Medvedova konta**, 13°57′, 46°22′, VM13, 1395 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Planina Krasca**, 13°55′, 46°21′, VM13,

1450 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Mrzli Studenec 1**, 13°59′30″, 46°20′57″, VM23, 1212 m, *Picea abies*, hlod, ldRPa, lit.RPa2020c, 19.10.2007; **Preddvor**, 14°25′, 46°18′, VM52, 480 m, tWit, phPher, ldRPa, lit.RPa2010b, 8.9.2010; **Ratitovec, Zali Log**, 14°05′, 46°14′, VM22, 1600 m, *Pinus mugo*, ldJTi, lit.JTi1983, 8.1977; **Sorško polje, Lumar Trade 2**, 14°21′58″, 46°11′55″, VM51, 372 m, *Picea abies*, drva, ldRPa, lit.RPa2020c, 8.5.2006; **Sorško polje, Lumar Trade 3**, 14°21′47″, 46°11′53″, VM51, 374 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 9.6.2006; **Sorško polje, Lumar Trade 5**, 14°22′09″, 46°12′11″, VM51, 372 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2014c, 7.6.2006; **Srednja Vas pri Šenčurju 1**, 14°26′18″, 46°14′52″, VM52, 407 m, *Picea abies*, veja 2 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Srednja Vas pri Šenčurju 2**, 14°26′28″, 46°14′25″, VM52, 398 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Srednja Vas pri Šenčurju 3**, 14°26′31″, 46°14′23″, VM52, 398 m, *Picea abies*, veja 2 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Srednja Vas pri Šenčurju 5**, 14°25′39″, 46°15′10″, VM52, 414 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2023a, 16.4.2023; **Srednja Vas pri Šenčurju 7**, 14°25′38″, 46°15′08″, VM52, 414 m, *Picea abies*, deblo 4 cm rs, odRPa, lit.RPa2023a, 16.4.2023; **Šenčur, izvoz Brnik 4**, 14°26′23″, 46°13′29″, VM52, 380 m, *Picea abies*, deblo 10 cm, ldRPa, lit. RPa2020c, 31.5.2011; **Šenčur, izvoz Brnik 4**,14°26′23″, 46°13′29″, VM52, 380 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 30.10.2015; **Šenčur, poslovna cona 1**, 14°24′28″, 46°13′57″, VM52, 387 m, *Picea abies*, vejni kup, ldRPa, lit.RPa2020c, 4.6.2008; **Šenčur, poslovna cona 2**, 14°24′21″, 46°13′59″, VM52, 388 m, *Picea abies*, vrhač 5 cm, ldRPa, lit.RPa2020c, 4.6.2008; **Šenčur, proti Voklu 1**, 14°25′06″, 46°13′58″, VM52, 390 m, *Picea abies*, deblo 15 cm, ldRPa, lit. RPa2020c, 30.5.2012; **Šenčur, proti Voklu 2**, 14°25′10″, 46°13′58″, VM52, 390 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 13.10.2017; **Velesovo 4**, 14°26′43″, 46°15′47″, VM52, 424 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2021a, 20.2.2021; **Velesovo 5**, 14°26′44″, 46°15′51″, VM52, 424 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2021a, 20.2.2021; **Velesovo 6**, 14°26′46″, 46°15′55″, VM52, 425 m, *Picea abies*, vrhač 5 cm rs, odRPa, lit.RPa2021a, 20.2.2021; **Voglje 7**, 14°27′23″, 46°11′52″, VM51, 367 m, *Picea abies*, veja 2 cm rs, odRPa, lit.RPa2021a, 15.6.2021; **Voglje 8**, 14°27′18″, 46°11′47″, VM51, 363 m, *Picea abies*, veja 2 cm rs, odRPa, lit.RPa2021a, 15.6.2021; **Voglje 9**, 14°27′14″, 46°11′47″, VM51, 363 m, *Picea abies*, deblo 10 cm rs, odRPa, lit. RPa2021a, 15.6.2021; **Volčji Potok, arboretum, drevesnica 2**, 14°36′39″, 46°11′24″, VM61, 352 m, *Pinus strobus* "soft touch", veja 1 cm, lVDo dRPa, lit.RPa2020a, 3.5.2011; **Zgornji Brnik**, 14°27′46″, 46°14′20″, VM52, 368 m, *Picea abies*, deblo 3 cm, ldRPa, lit.RPa2014c, 1.5.2008.

NOTRANJSKO: **Golobičevec, Planina**, 14°15′, 45°47′, VL47, 690 m, *Picea abies*, hlod 15 cm, ldRPa, lit.RPa2020c, 28.10.2011; **Lož**, 14°29′, 45°44′, VL56, 680 m, *Abies alba*, ldJTi, lit.JTi1983, 11.1979; **Osojnica, Pivka**, 14°10′, 45°41′, VL35, 670 m, *Abies alba*, ldJTi, lit.JTi1983, 3.1978; **Razdrto**, 14°04′, 45°45′, VL26, 590 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Senadole, Senožeče**, 14°00′, 45°43′, VL26, 390 m, *Abies alba*, ldJTi, lit.JTi1983, 7.1977; **Setnica, Polhov Gradec**, 14°20′, 46°05′, VM40, 600 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 6.1982.

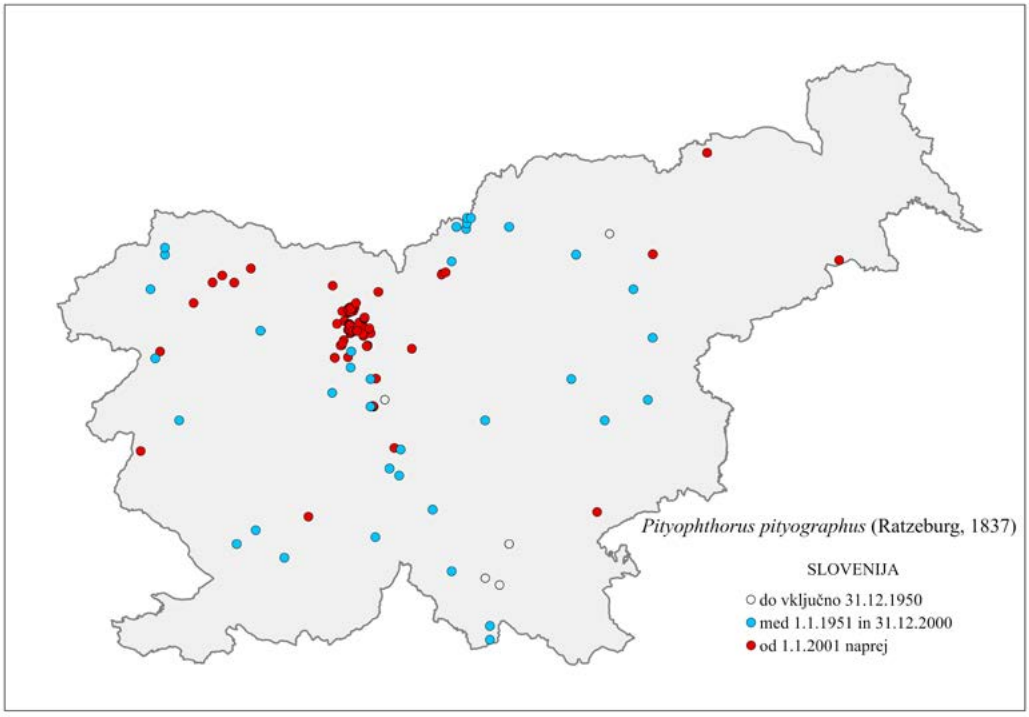
LJUBLJANA Z OKOLICO: **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, *Pinus sylvestris*, veja 5 cm, ldRPa, lit.RPa2020c, 4.6.2013, 25.10.2013; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, 7.9.1911; **Ljubljana, Večna pot 83, vrt**, 14°28′40″, 46°03′00″, VL59, 301 m, *Pinus strobus,* veja 5 cm rs, odRPa, lit.RPa2020b, 10.9.2018; **Rožnik, Ljubljana 2**, 14°28′35″, 46°03′03″, VL59, 319 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Rožnik, Ljubljana 4**, 14°28′31″, 46°03′06″, VL59, 342 m, *Picea abies*, veja 5 cm rs, odRPa, lit. RPa2020c, 9.10.2009; **Rožnik, Ljubljana, nasad**, 14°28′, 46°03′, VM50, 370 m, *Pinus strobus*, debelce, ldJTi, lit.JTi1983, 8.1972; **Šmarna gora**, 14°28′, 46°07′, VM50, 480 m, *Abies alba*, veja, ldJTi, lit.JTi1983, 3.1972; ibidem, vrhač, ldJTi, lit.JTi1983, 3.1972.

DOLENJSKO: **Banjaloka**, 14°53′, 45°31′, VL94, 560 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1981; **Bogenšperk, Črni Potok**, 14°52′, 46°01′, VL89, 460 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979;

Boštanj, Sevnica, 15°17′, 46°01′, WL29, 310 m, *Picea abies*, ldJTi, lit.JTi1983, 4.1974; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, *Abies alba*, lVVu dRPa, lit.VVu2016, 22.11.2012; ibidem, ldVVu, lit. Vu2016, 8.5.2013; **Fara ob Kolpi, Kostel**, 14°53′, 45°29′, VL93, 260 m, *Abies alba*, ldJTi, lit. JTi1983, 8.1981; **Grčarice, Črni vrh**, 14°45′, 45°39′, VL85, 850 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1981; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, ldAGs, cAGs, 16.7.1948, 17.7.1948; ibidem, ldSBr, cSBr, 17.7.1948; **Kočevski Rog**, (14°57′), (45°43′), (VL96), *, ldAGs, cAGs, 16.7.1948; **Kurešček, Visoko**, 14°34′, 45°53′, VL68, 770 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1978; **Mokrec**, 14°32′, 45°54′, VL68, ~900 m, ldSBr, cSBr, 9.5.1981; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 700 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1981; **Pijava Gorica, Šmarje-Sap**, 14°34′19″, 45°56′47″, VL68, 401 m, *Abies alba*, veja, ldRPa, lit.RPa2014c, 23.6.1994; ibidem, vrhač,ldRPa,lit. RPa2014c,23.6.1994; **Šahen, Kočevje**, 14°55′, 45°37′, VL95, 480 m, ldAGs, cAGs, 16.7.1948; **Velike Brusnice**, 15°15′24″, 45°47′39″, WL17, 296 m, *Picea abies*, deblo 5 cm rs, odRPa, lit. RPa2020c, 30.1.2005.

ŠTAJERSKO: Bohor, 15°26′, 46°04′, WM30, 800 m, *Abies alba*, veja, ldJTi, lit.JTi1983, 5.1972; ibidem, vrhač, ldJTi, lit.JTi1983, 5.1972; **Gornji Dolič, Mislinja**, 15°11′, 46°25′, WM14, 530 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Grobelno, Šentjur**, 15°27′, 46°13′, WM31, 320 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979;

Konjiška gora, Slovenske Konjice,15°23′, 46°20′, WM23, 830 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1974; ibidem, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1974; **Kopitnik, Gore, Rimske Toplice**, 15°10′, 46°07′, WM01, 780 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978; **Nadgrad, Slovenska**



Slika 74: JELOV VEJAR *Pityophthorus pityographus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 74: *Pityophthorus pityographus*, distribution map according to historical and recent data

Bistrica 2, 15°27′05″, 46°25′04″, WM34, 915 m, *Picea abies*, deblo 7 cm rs, odMŽv vRPa, lit. RPa2022a, 2.10.2022; **Pohorje**, (15°18′), (46°28′), (WM24), *, ldJPe vSBr, cJPe, pred 1951; **Poljšak 4**, 14°42′59″, 46°22′12″, VM72, 1118 m, *Picea abies*, veja 2 cm rs, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak 5**, 14°42′53″, 46°22′08″, VM72, 1137 m, *Picea abies*, deblo 10 cm rs, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak p6a**, 14°43′41″, 46°22′26″, VM72, 888 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021c, 26.5.2021; **Raduha, Savinjske Alpe**, 14°45′, 46°24′, VM83, 1250 m, *Larix decidua*, ldJTi, lit.JTi1983, 7.1974; ibidem, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Velika Nedelja, Ormož, vodno zbirališče**, 16°06′03″, 46°24′12″, WM83, 196 m, *Picea abies*, deblo 5 cm, ldRPa, lit. RPa2020c, 21.5.2015, 11.6.2015, 29.10.2015; ibidem, deblo 10 cm, ldRPa, lit.RPa2020c, 6.10.2017; **Zgornje Dobrenje, rezervat**, 15°38′24″, 46°39′40″, WM46, 364 m, *Picea abies*, deblo, ldRPa, lit. RPa2020c, 19.4.2013.
KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, phCemp, ldRPa vcSBr, lit.RPa1994a, 22.6.1994; ibidem, ldRPa vSBr, Lit.RPa1994b, 9.6.1994; **Peca, Karavanke**, 14°46′, 46°29′, VM84, 960 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa, lit.RPa1995a, 17.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 5.7.1994; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, Kont, ldRPa vcSBr, lit.RPa1994a, 13.8.1994; **Uršlja Gora**, 14°57′, 46°29′, VM94, 1100 m, *Abies alba*, ldJTi, lit.JTi1983, 5.1979; ibidem, *Pinus sylvestris*, ldJTi, lit.JTi1983, 5.1979.

18.07. *Pityophthorus pubescens* (Marsham, 1802) PUHASTI VEJAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: BRANCSIK 1871: *Pityophthorus ramulorum* Per.; GRÜNE 1979: *Pityophthorus pubescens* Marsham, 1802; FREUDE, HARDE, LOHSE 1981: *Pityophthorus pubescens* Marsham; PFEFFER 1995: *Pityophthorus pubescens* (Marsham, 1802).

E: AU BE CR CZ DE FR GB GE GR HU IR IT NL NR PL SK SL SP SV SZ **N:** AG EG LB MO TU **A:** CY IS TR

Vrsta je razširjena na jugu Švedske, na Danskem v južni in srednji Evropi ter v zahodnem evropskem delu nekdanje Sovjetske zveze. BRANCSIK (1871) navaja, da je bila vrsta najdena na Pohorju, vendar ne pove datuma in gostitelja (slika 75). Današnjega statusa vrste v Sloveniji ne poznamo. Po literaturi so gostitelji smreke (*Picea* spp.), redkeje bori (*Pinus* spp.). Telo adultov je črno-rjavo, bleščeče. Na pokrovkah so goste, močne, nepravilne punktirane linije. Vzdolžna brazda na koničniku je mat, z mrežastim vzorcem. Dolžina adultov je 1,0–1,2 mm.

The species is distributed in southern Sweden, Denmark, southern and central Europe and the western, European part of the former Soviet Union. BRANCSIK (1871), states that the species was found in Pohorje, but does not give a date or host (Figure 75). The present status of the species in Slovenia is unknown. According to the literature, the hosts are spruces (*Picea* spp.), less frequently pines (*Pinus* spp.). The body of the adults is blackish brown, shiny. On the elytra there are dense, strong, irregular punctate lines. The longitudinal furrow on the apex is matt, with a reticulate pattern. Adult length 1.0-1.2 mm.

Najdišča v Sloveniji / Localities in Slovenia
ŠTAJERSKO: Pohorje, (15°18′), (46°28′), (WM24), *, veja, ldKBr cKBr, lit.KBr1871, pred 1951.

Slika 75: PUHASTI VEJAR *Pityophthorus pubescens*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 75: *Pityophthorus pubescens*, distribution map according to historical and recent data

19.00. ***Cryphalus*** Erichson, 1836 ZRNAR

19.01. *Cryphalus asperatus* (Gyllenhal, 1813) SMREKOV ZRNAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL, 1866: *Cryphalus asperatus* Gyll., *Cryphalus Abietis* Rtzb.; GRÜNE 1979: *Trypophloeus asperatus* Gyllenhal, 1813; FREUDE, HARDE, LOHSE 1981: *Trypophloeus asperatus* Gyllenhal; TITOVŠEK 1988: *Cryphalus abietis* (Ratzeburg); PFEFFER & KNÍŽEK 1993: *Cryphalus abietis* (Ratzeburg, 1837); PFEFFER 1995: *Trypophloeus asperatus asperatus* (Gyllenhal, 1813).

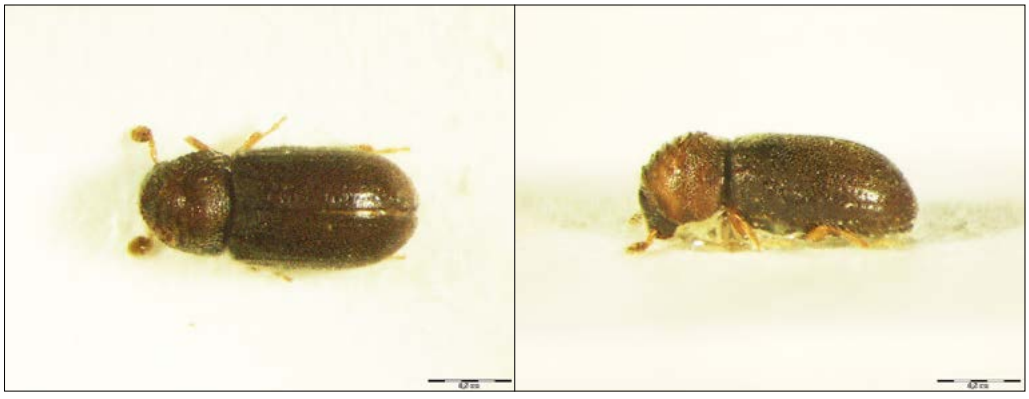
E: AU BE BH BU BY CT CZ CR DE EN FI FR GB GE GR HU IR IT LA LT LU MC NL NR NT PL RO SK SL SP ST SV SZ YU **N:** AG MO **A:** ES FE JA NC TR

Vrsta je razširjena v srednji in vzhodni Evropi, Skandinaviji, evropskem delu nekdanje SZ, na Kavkazu, v severni Afriki in Aziji (Mala Azija, vzhodna Sibirija, vzhodna Rusija). SIEGEL (1866) navaja, da je bila vrsta »na Kranjskem redka, pod smrekovim in borovim lubjem«. Poznejše najdbe kažejo, da

The species is distributed in central and eastern Europe, Scandinavia, the European part of the former Soviet Union, the Caucasus, northern Africa and Asia (Asia Minor, eastern Siberia, eastern Russia). SIEGEL (1866) states that the species was "rare in Carniola, under spruce and pine bark". Later records show that the species is

je vrsta prisotna v vseh slovenskih pokrajinah z izjemo slovenskega dela Istre in Bele krajine (slika 77). Gostitelji so *Picea abies*, *P. omorica*, *P. obovata*, *P. orientalis*, *Pinus sylvestris*, *P. strobus*, *Pinus* spp., *Abies alba*, *A. bornmülleriana* in *Abies* spp., manj pogosto tudi *Pseudotsuga menziesii*, *Chamaecyparis lawsoniana* in *Larix* spp.. V Sloveniji je bila vrsta najdena na *Abies alba* in *Picea abies*, enkrat tudi na *Pinus sylvestris*. Naseljuje starejša drevesa. Je monogamna vrsta, letno razvije dve generaciji, roji marca in avgusta. Samice odlagajo 25–30 jajčec v notranje zidove okroglaste ploskovne izjedine, ki nadomešča tako kotilnico kot materinske hodnike. Iz ploskovne izjedine jajčne larve (L1) dolbejo kratke rove v različnih smereh in povečujejo izjedino. Starejše larve dolbejo iz izjedine 1–4 cm (do 6 cm) dolge larvalne rove, ki se zaključujejo z v beljavo pogreznjenimi bubilnicami. Na prvi pogled se rovni sistem zdi zvezdast, vendar krake zvezde tukaj predstavljajo larvalni rovi (ne materinski!), zato ta sistem imenujemo nepravi (»lažni«) zvezdast rovni sistem. Tovrstni rovni sistem lahko zamenjamo le s tistimi, ki jih dolbejo drugi podlubniki iz rodu zrnarjev (*Cryphalus*). Na sprednjem delu vratnega ščita je polje grobih, koncentrično razporejenih grbic. Dolžina adulta je 1,2–1,7 mm (slika 76).

present in all Slovene regions except the Slovene part of Istria and Bela Krajina (Figure 77). Hosts include *Picea abies*, *P. omorica*, *P. obovata*, *P. orientalis*, *Pinus sylvestris*, *P. strobus*, *Pinus* spp., *Abies alba*, *A. bornmülleriana* and *Abies* spp., and less frequently *Pseudotsuga menziesii*, *Chamaecyparis lawsoniana* and *Larix* spp.. In Slovenia the species has been found on *A. alba* and *P. abies*, and once also on *P. sylvestris.* Inhabits older trees. Monogamous species, develops two generations per year, swarms in March and August. Females deposit 25-30 eggs in the inner walls of a rounded flat-shaped excavation, which replaces both the brood chamber and the maternal passages. From the flat-topped excavation, the egg larvae (L1) excavate short tunnels in different directions and enlarge the excavation. Older larvae excavate 1-4 cm (up to 6 cm) long larval tunnels from the pupation chamber which terminate in pupation chambers excavated in the sapwood. At first glance, the tunnel system appears star-shaped, but the arms of the star here are the larval tunnels (not the maternal chamber!), so we call this system a quasi ("false") star-shaped straight system. This type of straight system can only be confused with those of other *Cryphalus* sp.. On the anterior part of the neck shield there is a field of coarse, concentrically arranged humps. Adult length is 1.2-1.7 mm (Figure 76).



Slika 76: SMREKOV ZRNAR *Cryphalus asperatus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 76: *Cryphalus asperatus*, dorsal, lateral (Photo: Maja Jurc)

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Picea abies*, ldMSi, lit.MSi1866, pred 1951; *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.

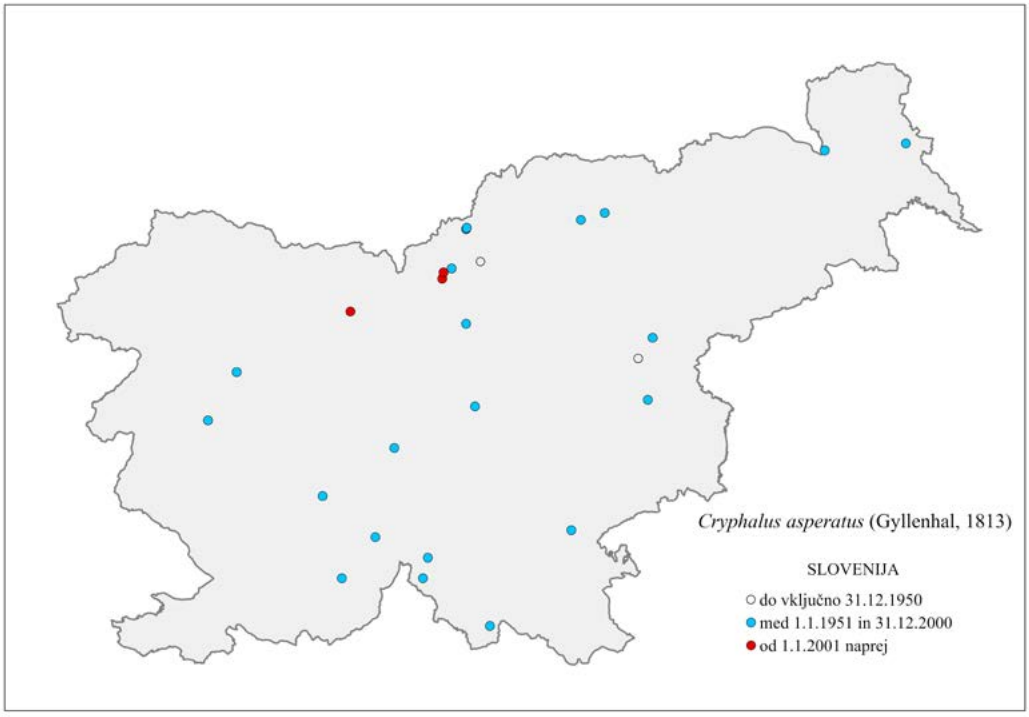
PRIMORSKO: **Cerkno**, 14°00′, 46°08′, VM20, 430 m, *Abies alba*, ldJTi, lit.JTi1983, 6.1978.

GORENJSKO: **Brdo pri Kranju 2/7**, 14°23′48″, 46°16′47″, VM52, 441 m, *Abies alba*, veja 2 cm, ldRPa, lit.RPa2004, 18.9.2004; ibidem, veja 3 cm, ldRPa, lit.RPa2004, 18.9.2004; ibidem, vrhač 3 cm, ldRPa, lit.RPa2004, 18.9.2004; **Menina planina**, 14°48′, 46°15′, VM82, 1140 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1978.

NOTRANJSKO: **Ivanje Selo, Rakek**, 14°18′, 45°50′, VL47, 530 m, *Abies alba*, ldJTi, lit.JTi1983, 6.1978; **Lož**, 14°29′, 45°44′, VL56, 620 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 11.1979; **Mašun, Snežnik**, 14°22′, 45°38′, VL55, 980 m, *Abies alba*, ldJTi, lit.JTi1983, 6.1978; **Vojsko, Idrija**, 13°54′, 46°01′, VL19, 890 m, *Abies alba*, ldJTi, lit.JTi1983, 5.1976.

DOLENJSKO: **Banjaloka**, 14°53′, 45°31′, VL94, 560 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1981; **Debeli vrh, Glažuta, Goteniška gora**, 14°40′, 45°41′, VL75, 1120 m, *Abies alba*, ldJTi, lit. JTi1983, 8.1981; **Draga, Goteniška gora**, 14°39′, 45°38′, VL75, 800 m, *Abies alba*, ldJTi, lit. JTi1983, 8.1981; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 27.3.1982; **Sitarjevec, Šmartno pri Litiji**, 14°49′53″, 46°03′02″, VL89, 325 m, tEco, phGaPP, ldEGr, lit.EGr2019, 2018; **Stranska Vas**, 15°10′, 45°45′, WL16, 170 m, *Abies alba*, ldJTi, lit.JTi1983, 7.1977.

ŠTAJERSKO: Bohor, 15°26′, 46°04′, WM30, 830 m, *Abies alba*, ldJTi, lit.JTi1983, 7.1977; **Grobelno, Šentjur**, 15°27′, 46°13′, WM31, 340 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979;



Slika 77: SMREKOV ZRNAR *Cryphalus asperatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 77: *Cryphalus asperatus*, distribution map according to historical and recent data

Josipdol, Pohorje, 15°17″, 46°31″, WM25, 720 m, *Abies alba*, ldJTi, lit.JTi1983, 7.1977; **Kalobje, Kostrivnica**, 15°24′, 46°10′, WM31, 620 m, ldVKo vZKa, cŠFS, 17.4.1928; **Poljšak 2**, 14°43′00″, 46°21′32″, VM72, 794 m, *Picea abies*, veja 1 cm, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak 6**, 14°43′17″, 46°22′27″, VM72, 1158 m, *Picea abies*, veja 1 cm, ldRPa, lit.RPa2021a, 23.6.2021; **Planina, Komen**, 14°51′, 46°24′, VM83, ~1100 m, ldAGs, cAGs, pred 1951; **Raduha, Savinjske Alpe**, 14°45′, 46°23′, VM84, 1050 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Velika Kopa, Pohorje**, 15°12′, 46°30′, WM14, 1400 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979.
KOROŠKO: **Peca, Jakobe, konec ceste**, 14°48′00″, 46°28′41″, VM85, 1360 m, tThe, phCemp, ldRPa vSBr, lit.RPa1997, 27.5.1994; **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1995a, 8.6.1995; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994.
PREKMURJE: **Bukovnica, Dobrovnik**, 16°20′, 46°41′, XM07, 230 m, *Picea abies*, ldJTi, lit. JTi1983, 5.1982; **Murski Petrovci, ribniki**, 16°03′, 46°40′, WM86, 200 m, LdSBr, cSBr, 1.8.1998.

19.02. *Cryphalus intermedius* Ferrari, 1867 MACESNOV ZRNAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Cryphalus intermedius* Ferrari, 1867; FREUDE, HARDE, LOHSE 1981: *Cryphalus intermedius* Ferrari; TITOVŠEK 1988: *C. intermedius* Ferrari; PFEFFER & KNÍŽEK 1993: *C. intermedius* Ferrari, 1867; PFEFFER 1995: *C. intermedius* Ferrari, 1867.

E: AU CZ GE HU IT LS PL RO SK SL SZ UK

Vrsta je razširjena na območju Alp, v Romuniji in Ukrajini. Pri nas so edina najdišča v alpskem delu Slovenije, na Gorenjskem in na Koroškem. Novejše raziskave kažejo, da *C. intermedius* daje prednost montanskim (900–1500 m) in še višje ležečim legam, vse do alpinskega pasu (nad 2000 m). Najdbe v Sloveniji to potrjujejo, saj so najdišča večinoma na nadmorski višini

The species is distributed in the Alps, Romania, and Ukraine. In Slovenia, the only sites are in the Alpine regions, in Gorenjska and Koroška. Recent surveys show that *C. intermedius* prefers montane (900-1500 m) and even higher elevations, up to the alpine zone (above 2000 m). Records in Slovenia confirm this, with sites mostly at altitudes above 1000 m,

Slika 78: MACESNOV ZRNAR *Cryphalus intermedius*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 78: *Cryphalus intermedius*, dorsal, lateral (Photo: Maja Jurc)

nad 1000 m, najvišje na Peci (1317 m) (slika 79). Gostitelji so *Larix decidua*, manj pogosto *Pinus sylvestris, P. mugo* in *Picea abies*. V Sloveniji je bil najden le na *L. decidua* in v pasteh. Letno razvije dve generaciji. Dolžina adulta je 2 mm (slika 78).

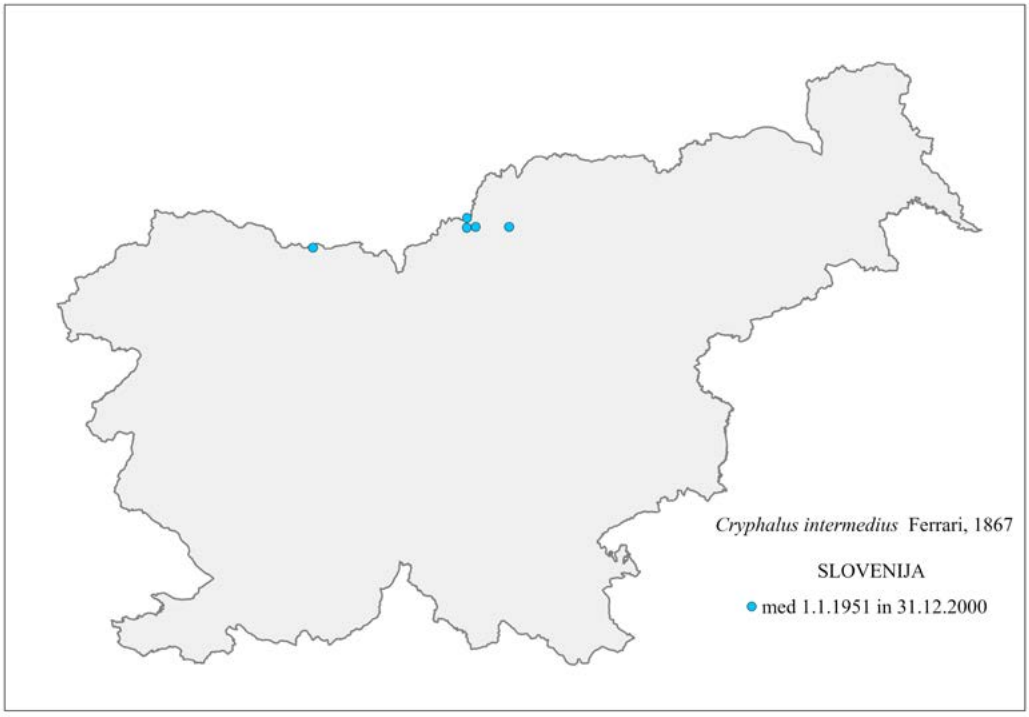
the highest being at Peca (1317 m) (Figure 79). Hosts include *Larix decidua*, less frequently *Pinus sylvestris, P. mugo* and *Picea abies*. In Slovenia, it has been found only on *L. decidua* and in traps. It develops two generations per year. Adult length is 2 mm (Figure 78).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi, cŠFS, 1951-2000.

GORENJSKO: **Mošenik, Ljubelj**, 14°16′, 46°26′, VM44, 1000 m, ldSBr, cSBr, 19.5.1986.

KOROŠKO: **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa vSBr, lit.RPa1995b, 5.7.1994; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, phCemp, ldRPa, lit.RPa1995a, 30.7.1995; **Podpeca, Črna na Koroškem**, 14°50′, 46°29′, VM84, 690 m, *Larix decidua*, ldJTi, lit.JTi1983, 7.1979; **Uršlja gora**, 14°57′, 46°29′, VM94, 1100 m, *Larix decidua*, ldJTi, lit.JTi1983, 5.1979.



Slika 79: MACESNOV ZRNAR *Cryphalus intermedius*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 79: *Cryphalus intermedius*, distribution map according to historical and recent data

19.03. *Cryphalus piceae* (Ratzeburg, 1837) JELOV ZRNAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Cryphalus piceae* (Ratzeburg, 1837); FREUDE, HARDE, LOHSE 1981: *Cryphalus piceae* Ratzeburg; TITOVŠEK 1988: *Cryphalus piceae* (Ratzeburg); PFEFFER & KNÍŽEK 1993: *C. piceae* (Ratzeburg, 1837); PFEFFER 1995: *C. piceae* (Ratzeburg, 1837).

E: AU BH BU BY CR CT CZ FR GE GR HU IT LA LT MC PL RO SK SL SP ST SZ UK YU **N:** AG **A:** FE JA NC NE SC TR »Mandžurija«

Vrsta je razširjena v srednji in severni Evropi, na Balkanskem polotoku, Kavkazu, Mali Aziji in severni Afriki. V Sloveniji je jelov zrnar razmeroma pogost, manjkajo le najdbe iz Prekmurja, Bele krajine in slovenskega dela Istre (slika 81). Najdišča so v kolinskem in montanskem pasu, najvišje zabeleženo je na nadmorski višini 1470 m (Vodični vrh, Julijske Alpe). Najpogosteje živi v starih jelovih gozdovih, ki so v slabši zdravstveni kondiciji. Gostitelji so *Abies alba*, *A. nordmanniana*, *A. borisii regis*, *A. cephalonica* in *A. bornmülleriana*, manj pogosto tudi *Picea abies*, *Pinus sylvestris*, *Larix decidua*, *Thuja* spp., v severni Afriki na *Cedrus* sp.. V Sloveniji je edini znani gostitelj *A. alba*. Letno razvije dve generaciji, prvič roji marca in aprila, drugič junija. Napada starejša debla, naseli lahko tudi majhne veje in vejice. Rovni sistem je nepravi (lažni) zvezdast. Jeseni se hrošči zavrtajo v lubje navidezno zdravih dreves, kjer prezimijo. Jelov zrnar je v Sloveniji gospodarsko pomembna vrsta, ki skupaj z vrstami iz rod u jelkarjev (*Pityokteines*) ogroža jelove gozdove. V primerjavi s sorodno vrsto smrekovega zrnarja (*C. asperatus*) je običajno svetlejši, dolžina adulta je 1,1–1,8 mm (slika 80).

The species is distributed in central and northern Europe, the Balkan Peninsula, the Caucasus, Asia Minor and North Africa. In Slovenia, *C. piceae* is relatively common, with only records from Prekmurje, Bela Krajina and the Slovene part of Istria missing (Figure 81). The sites are located in the colline and montane zone, the highest recorded being at 1470 m above sea level (Vodični Vrh, Julian Alps). It lives most often in old fir forests which are in poorer health. Hosts include *Abies alba*, *A. nordmanniana*, *A. borisii regis*, *A. cephalonica* and *A. bornmülleriana*, less frequently also *Picea abies*, *Pinus sylvestris*, *Larix decidua*, *Thuja* spp., and in North Africa *Cedrus* sp.. In Slovenia the only known host is *A. alba*. It develops two generations annually, the first swarming in March and April, the second in June. It attacks older trunks and can also colonise small branches and twigs. The tunnel system is quasi ("false") star-shaped. In autumn, the beetles burrow into the bark of apparently healthy trees, where they overwinter. *C. piceae* is an economically important species in Slovenia and, together with species of the genus *Pityokteines,* is a threat to fir forests. Compared to the related species *C. asperatus, it is* usually lighter, with an adult length of 1.1-1.8 mm (Figure 80).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951.

PRIMORSKO: **Gospodova senožet, Trnovski gozd**, 13°50′04″, 45°57′59″, VL09, 1120 m, *Abies alba*, hlod, ldRPa, lit.RPa2014c, 9.8.1996; **Lokve, Trnovski gozd**, 13°48′, 46°01′, VL09, 1120 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1979; **Nova Gorica, Panovec**, 13°40′, 45°57′, UL98, ~100 m, lBZa dSBr, cSBr, 23.4.2000.

GORENJSKO: **Blagovica**, 14°48′, 46°11′, VM81, 570 m, *Abies alba*, ldJTi, lit.JTi1983, 3.1971; **Brdo pri Kranju 2/7**, 14°23′48″, 46°16′47″, VM52, 441 m, *Abies alba*, veja 2 cm, ldRPa, lit.

Slika 80: JELOV ZRNAR *Cryphalus piceae*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 80: *Cryphalus piceae*, dorsal, lateral (Photo: Maja Jurc)

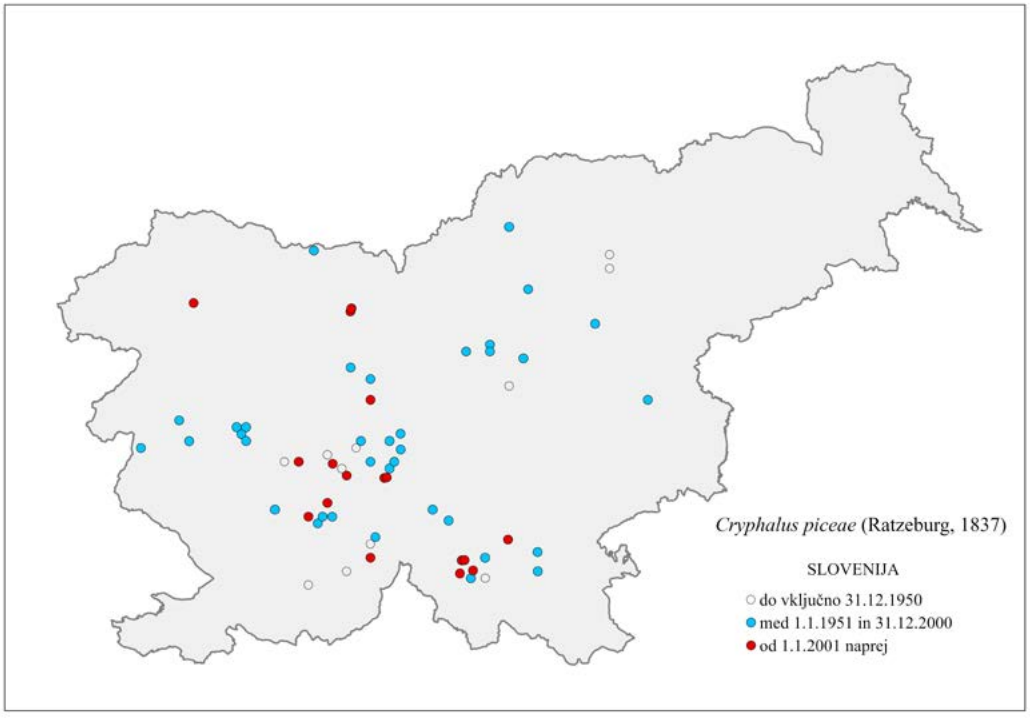
RPa2004, 18.9.2004; ibidem, veja 3 cm, ldRPa, lit.RPa2004, 18.9.2004; ibidem, vrhač 3 cm, ldRPa, lit.RPa2004, 18.9.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2013a, 17.4.2013; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2018a, 9.5.2018; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phPher, lFPo dSBr, cSBr, 21.5.1990, 28.6.1990; ibidem, phLino, lGBa dSBr, cSBr, 8.4.1991, 13.5.1991; **Kotredež, Zagorje ob Savi**, 15°00′, 46°10′, WM01, 530 m, *Abies alba*, ldJTi, lit.JTi1983, 7.1980; **Ljubelj, Šentanska dolina**, 14°16′11″, 46°25′36″, VM44, 883 m, *Abies alba*, hlod, ldRPa, lit.RPa1996, 15.6.1996; **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit.APi2015, 17.7.2014; **Požarje, Zagorje ob Savi**, 14°57′, 46°06′, VM90, 680 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002.

NOTRANJSKO: **Bistra, Vrhnika**, 14°19′, 45°56′, VL48, 620 m, *Abies alba*, ldMJu, lit. MJu2002b, 2002; **Dedna gora, Javorniki**, 14°23′, 45°39′, VL55, ~1100 m, *Abies alba*, ldMJu, lit. MJu2002b, 2002; **Dolenja Vas, Cerknica**, 14°20′, 45°47′, VL47, 600 m, ldSBr, cSBr, 8.5.1996; **Golobičevec, Planina**, 14°15′, 45°47′, VL47, 690 m, *Abies alba*, hlod 25 cm, ldRPa, lit.RPa2020c, 28.10.2011; **Idrija, okolica**, (14°02′), (46°00′), (VL29), *, *Abies alba*, lovno drevo, ldFUl, lit. FUl1957, 18.4.1952; **Javornik, Javorniki**, 14°17′, 45°46′, VL46, 1000 m, *Abies alba*, sečni ostanki, ldJTi, lit.JTi1983, 4.1972; **Knežak, Ilirska Bistrica**, 14°15′, 45°37′, VL45, 600 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Kozarišče, Grad Snežnik**, 14°28′, 45°41′, VL55, 600 m, ldSBr, cSBr, 13.7.2001; **Krim**, 14°28′, 45°55′, VL58, 900 m, *Abies alba*, ldJTi, lit.JTi1983, 11.1971; **Landol, Postojna**, 14°08′, 45°48′, VL37, 540 m, ldSBr, cSBr, 10.5.1986; **Logatec**, 14°13′, 45°55′, VL38, 480 m, ldAGs, cAGs, pred 1951; **Lož**, 14°29′, 45°44′, VL56, 630 m, *Abies alba*, ldJTi, lit. JTi1983, 11.1979; **Idrija, Mrzli studenec**, 14°00′, 46°00′, VL29, 490 m, *Abies alba*, lovno drevo, ldFUl, lit.FUl1957, 18.4.1952, 15.5.1952, 12.6.1952, 11.7.1952, 12.8.1952, 31.8.1952; **Idrija, Riže, Oglarska dolina**, 14°00′, 46°00′, VL29, 410 m, *Abies alba*, lovno drevo, ldFUl, lit.FUl1957, 18.4.1952, 14.5.1952, 12.6.1952, 11.7.1952, 12.8.1952, 31.8.1952, 18.4.1952, 14.5.1952, 12.6.1952, 11.7.1952, 12.8.1952, 31.8.1952, 18.4.1952, 14.5.1952, 12.6.1952, 11.7.1952, 12.8.1952, 31.8.1952; **Idrija, Pringl, Rupa**,14°01′, 45°59′, VL29, 380 m, *Abies alba,* lovno drevo, ldFUl, lit.FUl1957, 24.4.1952, 14.5.1952, 13.6.1952, 11.7.1952, 12.8.1952, 31.8.1952, 24.4.1952, 14.5.1952, 13.6.1952, 11.7.1952, 12.8.1952, 31.8.1952, 24.4.1952, 14.5.1952, 13.6.1952, 11.7.1952, 12.8.1952, 31.8.1952; **Pekel, Borovnica**, 14°23′, 45°53′, VL58, ~400 m, ldAGs, cAGs, pred 1951; **Podpeč, Ljubljansko barje**, 14°26′, 45°58′, VL59, 350 m, *Abies alba*, ldJTi, lit.JTi1983, 11.1971; **Pokojišče, Borovnica**,

14°22′, 45°54′, VL58, 730 m, lJSd, cJSd, 22.5.1932; **Preserje, Kamnik pod Krimom**, 14°25′, 45°57′, VL58, 360 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Rakek**, 14°19′, 45°49′, VL47, 525 m, lHEg, cJSs, pred 1951; **Rakov Škocjan, Javorniki**, 14°18', 45°47', VL47, 600 m, *Abies alba*, veja, ldJTi, lit.JTi1973, 4.1972; **Ravnik pri Hotedrščici**, 14°10′, 45°55′, VL38, 680 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Smrekovec, Pevc, Idrija**, 14°02′, 45°58′, VL29, 580 m, *Abies alba*, lovno drevo, ldFUl, lit.FUl1957, 25.4.1952, 13.5.1952, 11.6.1952, 1.7.1952, 12.8.1952, 31.8.1952, 25.4.1952, 13.5.1952, 11.6.1952, 11.7.1952, 12.8.1952, 31.8.1952; **Stari Trg pri Ložu**, 14°28′, 45°43′, VL56, 600 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017.

LJUBLJANA Z OKOLICO: **Ljubljana, Koseze**, 14°28′, 46°04′, VM50, 310 m, ldAGs, cAGs, pred 1951; **Pijava Gorica, Šmarje-Sap**, 14°34′19″, 45°56′47″, VL68, 401 m, *Abies alba*, veje, ldRPa, lit.RPa2014c, 23.6.1994; bidem, vrhač, ldRPa, lit.RPa2014c, 23.6.1994; **Šmarna gora**, 14°28′, 46°07′, VM50, 520 m, *Abies alba*, veja, ldJTi, lit.JTi1983, 3.1972; ibidem, vrhač, ldJTi, lit. JTi1983, 3.1972.

DOLENJSKO: **Baza 20, Kočevski Rog**, 15°02′58″, 45°41′50″, WL06, 670 m, ldSBr, cSBr, 8.8.1986; **Grčarice, Kočevje**, 14°46′44″, 45°38′41″, VL85, 670 m, *Abies alba*, deblo, lSPl dIRe, lit.IRe2002, 22.7.2002; ibidem, veja, lSPl dIRe, lit.IRe2002, 22.7.2002; **Ig**, 14°32′, 45°58′, VL68, 350 m, *Abies alba*, ldJTi, lit.JTi1983, 11.1971; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Ložinski vrh, Gornje Ložine 1**, 14°47′04″, 45°40′36″, VL85, 820 m, *Abies alba*, veja, lSPl dIRe, lit.IRe2002, 22.7.2002; **Ložinski vrh, Gornje Ložine 2**, 14°47′41″, 45°40′38″, VL85, 840 m, *Abies alba*, deblo, lAVi dIRe, lit.IRe2002, 22.7.2002; ibidem,



Slika 81: JELOV ZRNAR *Cryphalus piceae*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 81: *Cryphalus piceae*, distribution map according to historical and recent data

veja, lAVi dIRe, lit.IRe2002, 22.7.2002; **Ledenik, Kočevje, pragozd Strmec**, 14°49′, 45°38′, VL95, 875 m, lMKa dBDr, cZRC, 26.6.1994; **Mahovnik, Kočevje**, 14°49′29″, 45°39′08″, VL85, 675 m, *Abies alba*, veja, lAVi dIRe, lit.IRe2002, 22.7.2002; **Mala Gora, Kočevje**, 14°52′, 45°41′, VL96, 490 m, *Abies alba*, deblo 40 cm, ldRPa, lit.RPa2014c, 21.7.1994; **Mala gora, Ribnica**, 14°44′21″, 45°46′26″, VL76, 744 m, *Abies alba*, deblo, ldRPa, lit.RPa2014c, 17.6.1994; **Mokrec**, 14°32′, 45°54′, VL68, ~900 m, ldSBr, cSBr, 19.4.1980; **Mokrec 2**, 14°30′53″, 45°52′39″, VL68, 900 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017; **Mokrec 3**, 14°31′24″, 45°52′42″, VL68, 941 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 650 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1981; **Podstenice, Stari Log**, 14°56′48″, 45°43′38″, VL96, 630 m, *Abies alba*, deblo, lFGl dIRe, lit.IRe2002, 22.7.2002; **Ribnik, Črmošnjice, Kočevski Rog**, 15°03′, 45°39′, WL05, 780 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1979; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, *Abies alba*, ldMJu, lit.DJu2002, 2002; ibidem, tThe, Kont, lGBa dSBr, cSBr, 9.7.1993; ibidem, phPher, lGBa dSBr, cSBr, 22.4.1993; **Škrilje, Ig**, 14°33′, 45°55′, VL68, 570 m, ldSBr, cSBr, 19.4.1980, 2.5.1980.
ŠTAJERSKO: Bohor, 15°26′, 46°04′,WM30, 800 m, *Abies alba*, veja rs, odJTi, lit.JTi1983, 5.1972; **Celje, skladišče lesa**, 15°15′, 46°15′, WM22, 240 m, lSJe dSBr, cSBr, 4.6.1991; **Hudinja, Pohorje**, 15°18′, 46°25′, WM24, 680 m, *Abies alba*, ldJTi, lit.JTi1983, 1967; **Jasovnik, Motnik**, 14°53′, 46°12′, VM91, ~760 m, *Abies alba*, gradbeneni les rs, odJTi, lit.JTi1973, 3.1971; **Tabor, Šmartno ob Paki**, 15°01′, 46°20′, WM03, 360 m, *Abies alba*, vejni kup, ldJTi, lit.JTi1983, 4.1973; **Trojane**, 14°53′, 46°11′,VM91, 570 m, *Abies alba*, ldJTi, lit.JTi1983, 3.1971; **Vitanje**, 15°18′, 46°23′,WM23, 500 m, *Abies alba*, vrhač, ldJTi, lit.JTi1973, 1967; **Uršlja Gora**, 14°57′, 46°29′, VM94, 1150 m, *Abies alba*, ldJTi, lit.JTi1983, 5.1979.
KOROŠKO: **Uršlja Gora**, 14°57′, 46°29′, VM94, 1150 m, *Abies alba*, ldJTi, lit.JTi1983, 5.1979.
Slika 81: JELOV ZRNAR *Cryphalus piceae*, karta razširjenosti

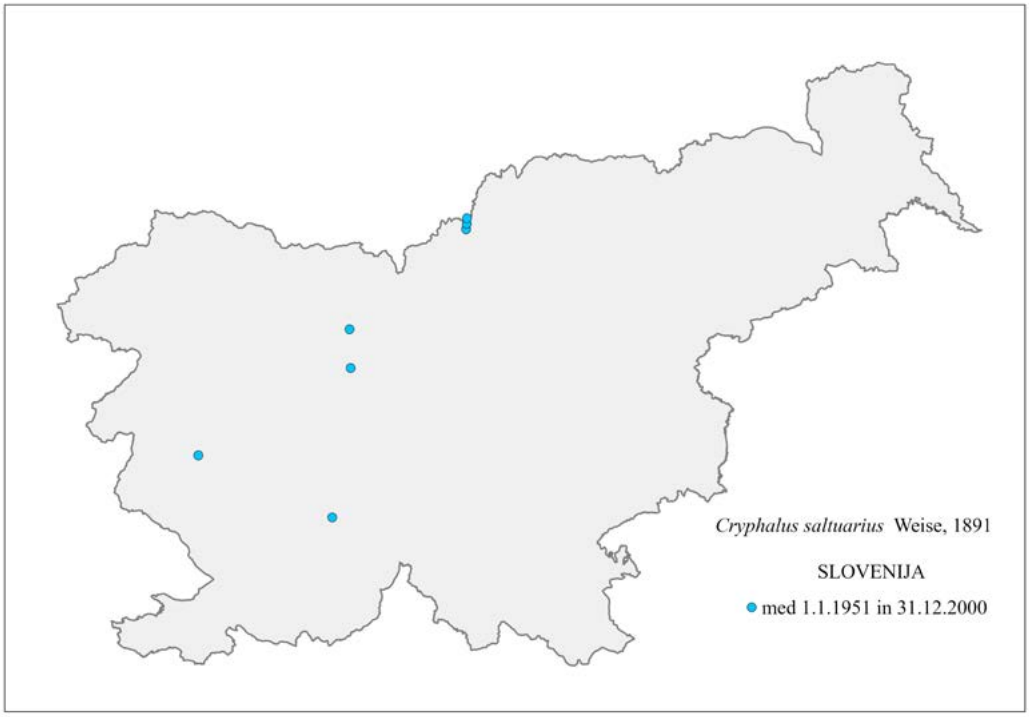
19.04. *Cryphalus saltuarius* Weise, 1891 RAHLOČRTNI ZRNAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Cryphalus saltuarius* Weise, 1891; FREUDE, HARDE, LOHSE 1981: *Cryphalus saltuarius* Weise; PFEFFER & KNÍŽEK 1993: *C. saltuarius* Weise, 1891; PFEFFER 1995: *C. saltuarius* Weise, 1891.

E: AU BU BY CT CZ DE EN FI GE HU IT LS NR NT PL SK SL* SV SZ YU **A:** ES FE GUX SCH WS

Vrsta je razširjena v srednji Evropi, Skandinaviji, na Škotskem, evropskem delu nekdanje SZ, Kavkazu, zahodni Sibiriji in severni Afriki. Najdišča vrste so v Sloveniji omejena na severni in zahodni del države, največ jih je na višjih nadmorskih višinah ali na skladiščih lesa (slika 82). Gostitelji so *Picea abies*, *P. obovata* in *P. orientalis*, manj pogosto tudi *Pinus sibirica*, *Abies nordmanniana*, *A. sibirica*, *Juniperus communis*, *Pinus strobus* in *Pinus nigra*. V Sloveniji je edini zabeležen gostitelj *Picea abies*. Je saproksilna vrsta, dolžina adulta je 1,5–2,0 mm.

The species is distributed in central Europe, Scandinavia, Scotland, the European part of the former Soviet Union, the Caucasus, western Siberia and northern Africa. In Slovenia, the species' distribution is restricted to the northern and western parts of the country, mostly at higher altitudes or in timber storage areas (Figure 82). Hosts include *Picea abies*, *P. obovata* and *P. orientalis*, less frequently also *Pinus sibirica*, *Abies nordmanniana*, *A. sibirica*, *Juniperus communis*, *Pinus strobus* and *Pinus nigra*. *Picea abies* is the only recorded host in Slovenia.Saproxylic species, imago length 1.5-2.0 mm.



Slika 82: RAHLOČRTNI ZRNAR *Cryphalus saltuarius*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 82: *Cryphalus saltuarius*, distribution map according to hostorical and recent data

Najdišča v Sloveniji / Localities in Slovenia

PRIMORSKO: **Čaven, planinska koča Antona Bavčerja, Trnovski gozd**, 13°52′, 45°56′, VL18, 1240 m, ldSBr, cSBr, 7.5.1999.

GORENJSKO: **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 22.3.1991, 25.3.1991, 23.5.1991; **Hrastje, Kranj, Planjava 6**, 14°23′38″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa1996, 17.6.1996.

NOTRANJSKO: **Dolenja Vas, Cerknica**, 14°20′, 45°47′, VL47, 600 m, ldSBr, cSBr, 8.5.1996.

KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, phCemp, ldRPa, lit.RPa1995a, 21.6.1995; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, phCemp, ldRPa vcSBr, lit.RPa1994a, 9.6.1994; ibidem, ldRPa, lit.RPa1995a, 30.7.1995; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, lRPa dcSBr, lit.RPa1994a, 5.7.1994; ibidem, ldRPa, lit.RPa1995a, 5.8.1995.

20.00. *Ernoporicus* Berger, 1917 ŠTRLEČKAR

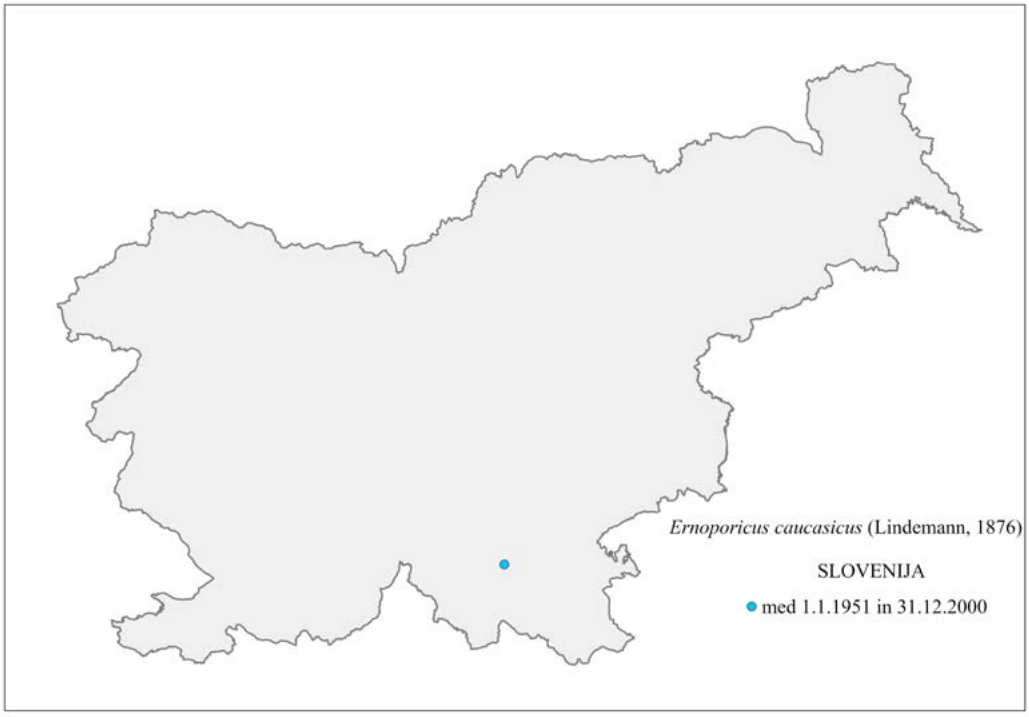
20.01. *Ernoporicus caucasicus* (Lindemann, 1876) KAVKAŠKI ŠTRLEČKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Ernoporus caucasicus* Lindemann, 1876; FREUDE, HARDE, LOHSE 1981: *Ernoporus caucasicus* Lindemann; PFEFFER & KNÍŽEK 1993: *Ernoporicus caucasicus* (Lindemann, 1876); PFEFFER 1995: *E. caucasicus* (Lindemann, 1876).

E: AB AU BE CZ DE FI FR GB GE GR HU IT NR PL RO SK SL SP ST SV SZ UK **A:** TR

Vrsta je razširjena v srednjem in južnem delu severne Evrope, v Romuniji, Krimu, Kavkazu in Mali Aziji. Pri nas je zabeležena samo ena najdba na Dolenjskem, leta 1994 (slika 83). Gostitelji so *Tilia cordata*, *T. platyphyllos* in *T. tomentosa*, po nekaterih virih tudi *Ulmus glabra* in *Hibiscus syriacus*. Je saproksil, dolžina adulta znaša 1,5–2,0 mm.

The species is distributed in central and southern northern Europe, Romania, Crimea, the Caucasus and Asia Minor. There is one record in Slovenia, in Dolenjska in 1994 (Figure 83). Hosts include *Tilia cordata*, *T. platyphyllos* and *T. tomentosa*, and according to some sources also *Ulmus glabra* and *Hibiscus syriacus*. Saproxyl, adult length 1.5-2.0 mm.



Slika 83: KAVKAŠKI ŠTRLEČKAR *Ernoporicus caucasicus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 83: *Ernoporicus caucasicus*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia
DOLENJSKO: **Kren, Kočevje**, 14°56′, 45°40′, VL95, 575 m, veja, lMKa dBDr, cZRC, 1.7.1994.

20.02. *Ernoporicus fagi* (Fabricius, 1798) BUKOV ŠTRLEČKAR

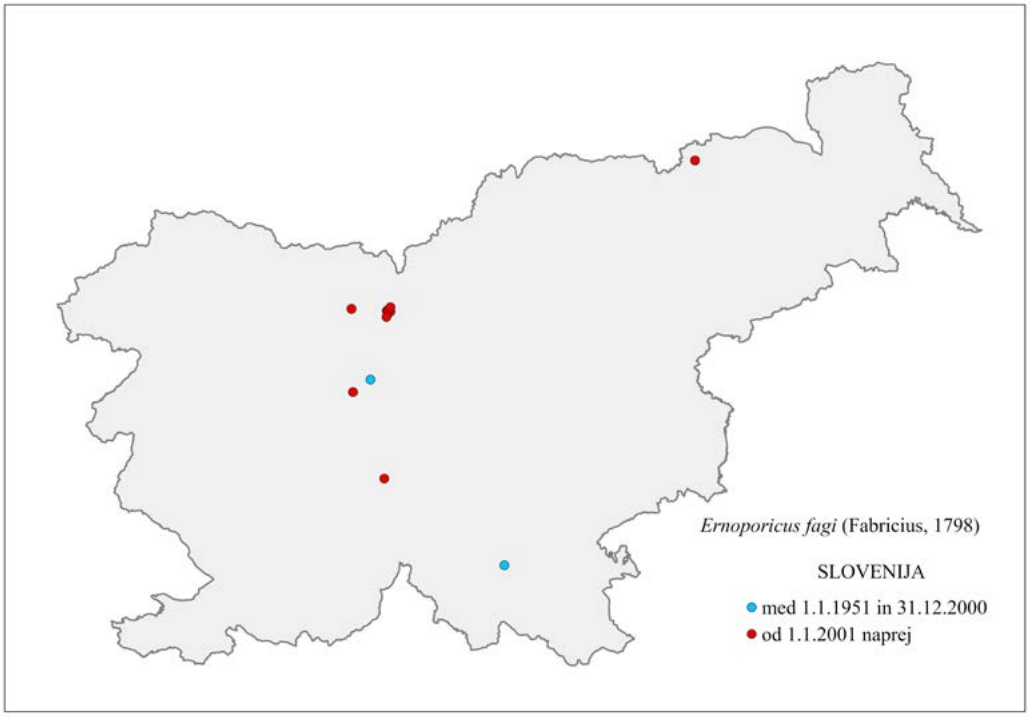
Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Ernoporus fagi* Fabricius, 1778; FREUDE, HARDE, LOHSE 1981: *Ernoporus fagi* Fabricius; TITOVŠEK 1988: *Ernoporus fagi* (Fabricius); PFEFFER & KNÍŽEK 1993: *Ernoporicus fagi* (Fabricius, 1798); PFEFFER 1995: *E. fagi* (Fabricius, 1798).

E: AL AU BE BU CR CT CZ DE FR GB GE GR HU IT MC NL NR PL RO SK SL* SP ST SV SZ UK YU **A:** TR

Vrsta je razširjena v srednji Evropi, v Skandinaviji (razen Finske), na južnem območju evropskega dela nekdanje Sovjetske zveze, Romuniji, na območju nekdanje Jugoslavije in v Aziji (Turčija). V Sloveniji so najdišča le na Gorenjskem, v okolici Ljubljane, na Dolenjskem in na Štajerskem. Na Gorenjskem se je vrsta lovila v pasti na višjih nadmorskih višinah, do 1478 m (slika 84). Gostitelja sta *Fagus sylvatica* in *F. orientalis*, redko tudi *Carpinus betulus*, *Quercus* spp. in *Betula* spp.. Pri nas je najdena samo na *F. sylvatica*. Letno razvije dve generaciji, prvo aprila in maja, drugo julija in avgusta. Samice pogosto naselijo suhe veje ali fiziološko zelo oslabljena drevesa bukve. Vzdolžno orientiran rovni sistem je nepravilne oblike. Ozek, podolgovat hrošč je temno rjav do črn, tipalke in noge so rumenorjave. Dolžina adulta je 1,5–2,0 mm, rovni sistem so nepravilno vzdolžni. Bukov štrlečkar je izrazito sekundarna saproksilna vrsta.

The species is distributed in Central Europe, Scandinavia (except Finland), the southern European part of the former Soviet Union, Romania, the former Yugoslavia and Asia (Turkey). In Slovenia, records are restricted to the Gorenjska region, the vicinity of Ljubljana, Dolenjska and Štajerska. In Gorenjska, the species was trapped at higher altitudes, up to 1478 m (Figure 84). Hosts include *Fagus sylvatica* and *F. orientalis*, rarely also *Carpinus betulus*, *Quercus* spp. and *Betula* spp.. In Slovenia, it is found only on *F. sylvatica*. It develops two generations annually, the first in April and May, the second in July and August. Females often colonise dry branches or physiologically very weak beech trees. The longitudinally oriented tunnel system is irregularly shaped. The narrow, elongate beetle is dark brown to black, the antennae and legs are yellow-brown. Adult length is 1.5-2.0 mm, the tunnel system is irregularly longitudinal. *E. fagi* is a distinctly secondary saproxylic species and is of no economic importance.

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: cBFG, pred 1951.
GORENJSKO: **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022, 10.6.2022; **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 5.8.2022; **Ambrož pod Krvavcem 5**, 14°31′42″, 46°17′03″, VM62, 1402 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022, 10.6.2022; **Ambrož pod Krvavcem 6**, 14°32′10″, 46°17′26″, VM62, 1478 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022, 10.6.2022, 24.6.2022; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52,



Slika 84: BUKOV ŠTRLEČKAR *Ernoporicus fagi*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 84: *Ernoporicus fagi*, distribution map according to historical and recent data

470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014a, 9.7.2014; **Stiška Vas, Krvavec 2**, 14°31′20″, 46°16′03″, VM62, 884 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022.
LJUBLJANA Z OKOLICO: **Šmarna gora**, 14°28′, 46°07′, VM50, 560 m, *Fagus sylvatica*, veja, ldJTi, lit.JTi1983, 5.1973, 6.1973; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017, 5.5.2017.
DOLENJSKO: **Kren, Kočevje**, 14°56′, 45°40′, VL95, 575 m, veja, lMKa dBDr, cZRC, 1.7.1994; **Mokrec 2**, 14°30′53″, 45°52′39″, VL68, 900 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 19.5.2017.
ŠTAJERSKO: Jedlovnik, Zgornja Kungota, Ruklperg, 15°35′54″, 46°38′36″, WM46, 360 m, *Fagus sylvatica,* veja 3 cm rs, oLPl dRPa, lit.RPa2023a, 20.11.2023.

21.00. ***Ernoporus*** C. G. Thomson, 1859 GRBIČAR

21.01. *Ernoporus tiliae* (Panzer, 1793) LIPOV GRBIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL, 1866: *Cryphalus Tiliae* Fabr.; BRANCSIK, 1871: *Cryphalus Tiliae* Fabr.; GRÜNE 1979: *Cryphalops tiliae* (Panzer, 1793); FREUDE, HARDE, LOHSE 1981: *Cryphalops tiliae* Panzer; TITOVŠEK 1988: *Cryphalops tiliae* (Panzer); PFEFFER & KNÍŽEK 1993: *Ernoporus tiliae* (Panzer, 1793; PFEFFER 1995: *E. tiliae* (Panzer, 1793).

E: AU BE BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA NR NT PL RO SK SL SP ST SV SZ UK YU **A:** FE NC SC TR

Vrsta je razširjena v Evropi, na Kavkazu in v zahodni Sibiriji. Siegel (1866) navaja, da je bila vrsta »na Kranjskem redka, pod bukovim, lipovim in brestovim lubjem«. Vrsta je bila pri nas po letu 1950 najdena le na lokacijah na Gorenjskem in v okolici Ljubljane (slika 86). Gostitelji so *Tilia cordata*, *T. platyphyllos* in *T. tomentosa*. Vrsta je bila v Sloveniji najdena na *T. cordata*, *Hibiscus* sp. in *Syringa vulgaris*. V srednji Evropi razvije dve generaciji na leto, v severni Evropi le eno. Dolžina adulta je 1,0–1,3 mm (slika 85). Je saproksilna vrsta, ki nima večjaga ekonomskega pomena.

The species is distributed in Europe, the Caucasus and western Siberia. Siegel (1866) states that the species was "rare in Carniola, under beech, lime and elm bark". The species was found in Slovenia after 1950 only in sites in Gorenjska and in the vicinity of Ljubljana (Figure 86). Hosts include *Tilia cordata*, *T. platyphyllos* and *T. tomentosa*. In Slovenia the species has been found on *T. cordata*, *Hibiscus* sp. and *Syringa vulgaris*. It develops two generations per year in central Europe, only one in northern Europe. Adult length is 1.0-1.3 mm (Figure 85). Saproxylic species of no major economic importance.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Fagus sylvatica*, ldMSi, lit.MSi1866, pred 1951; *Tilia* spp., ldMSi, lit.MSi1866, pred 1951; *Ulmus* spp., ldMSi, lit.MSi1866, pred 1951.

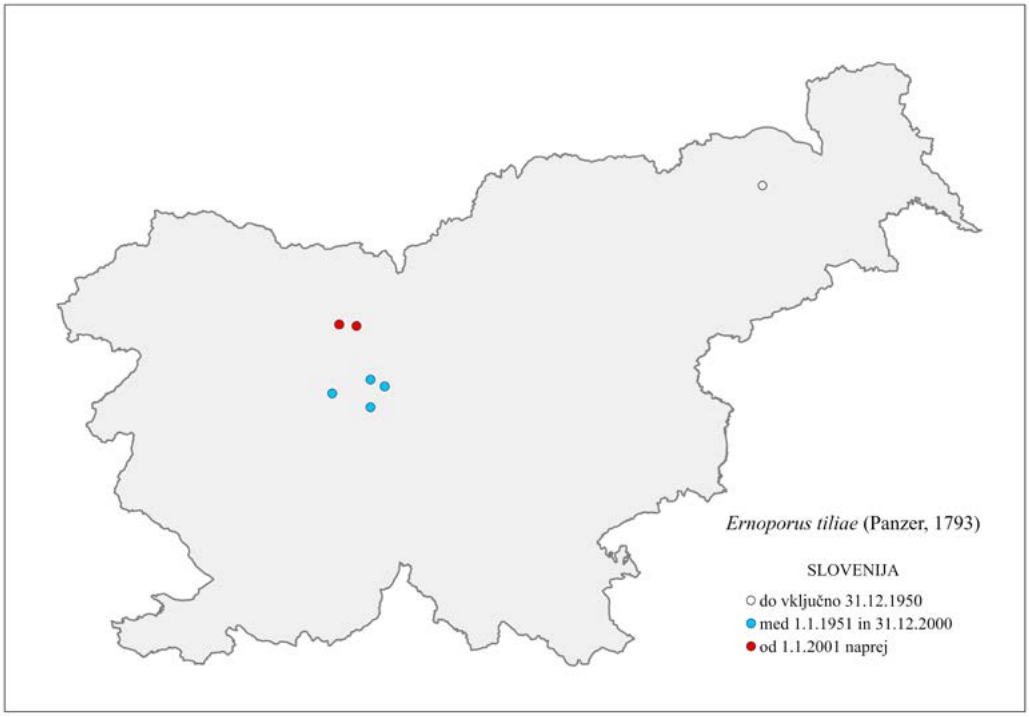
GORENJSKO: **Kranj, Zoisova ulica 22, vrt**, 14°21′28″, 46°14′59″, VM52, 400 m, *Hibiscus* sp., debelce, ldRPa, lit.RPa2014c, 15.7.2005; **Sveta Uršula pod Grmado, Polhograjsko hribovje**, 14°20′, 46°05′, VM40, 700 m, *Tilia* sp., ldJTi, lit.JTi1983, 6.1982; **Šenčur, Štefetova 24b, vrt**, 14°25′04″, 46°14′46″, VM52, 406 m, *Syringa vulgaris*, debelce, ldRPa, lit.RPa2014c, 15.7.2005.

LJUBLJANA Z OKOLICO: **Ljubljana, Črnuče**, 14°31′, 46°06′, VM60, 300 m, *Tilia cordata*, veja, ldJTi, lit.JTi1983, 5.1972; **Rožnik, Ljubljana**, 14°28′, 46°03′, VM50, ~390 m, ldSBr, cSBr, 10.4.1954; **Šmarna gora**, 14°28′, 46°07′, VM50, 540 m, *Tilia cordata*, ldJTi, lit.JTi1983, 1.1975.

ŠTAJERSKO: Lenart v Slovenskih goricah, 15°50′, 46°35′, WM65, 260 m, lJNS, lit.KBr1871, pred 1951.

Slika 85: lipov grbičar *Ernoporus tiliae*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 85: *Ernoporus tiliae*, dorsal, lateral (Photo: Maja Jurc)



Slika 86: LIPOV GRBIČAR *Ernoporus tiliae*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 86: *Ernoporus tiliae*, distribution map according to historical and recent data

22.00. ***Hypothenemus*** Westwood, 1834 DROBNEŽ

22.01. *Hypothenemus eruditus* (Westwood, 1834) LUSKASTI DROBNEŽ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Hypothenemus eruditus* (Westwood, 1836); PFEFFER 1995: *Hypothenemus eruditus* Westwood, 1836.

E: AB AZ CR FR IT MA SL* SP ST TR UK **N:** AG CI EG MO MR **A:** FUJ GUA GUI GUX HEB HUN IN IS JA SC SCH SD SHN TAI TR UP YUN **AFR AUR NAR NTR ORR**

Vrsta je razširjena v subtropskih in tropskih območjih Azije, Afrike, Amerike in na sredozemskem območju, od Krima do Kanarskih otokov. Edini primerek v Sloveniji smo našli med čiščenjem insektarija, v katerih je bilo debelce jesena (*Fraxinus* sp.), ki je verjetno izviralo iz Notranjske. Je polifagna vrsta, po literaturi so njeni gostitelji *Robinia pseudoacacia*, *Salix* spp., *Acer platanoides*,

The species is distributed in subtropical and tropical areas of Asia, Africa, the Americas and in the Mediterranean area, from the Crimea to the Canary Islands. The only specimen in Slovenia was found during the cleaning of an insectarium containing the trunk of an ash tree (*Fraxinus* sp.), which probably originated in Notranjska. A polyphagous species, according to the literature its hosts are *Robinia pseudoacacia*,

Aesculus hippocastanum, *Corylus avellana*, *Alnus incana*, *Carpinus betulus*, manj pogosto pa *Pinus* spp., *Cryptomeria japonica*, *Alnus* sp. in *Pterocarya fraxinifolia*. Skupaj z figovim poraščencem (*Hypoborus ficus*) se pogosto pojavlja na vejah fige. Je zelo majhen podlubnik, samice merijo v dolžino 1,0–1,3 mm, samci pa 0,7–0,8 mm.

Salix spp., *Acer platanoides*, *Aesculus hippocastanum*, *Corylus avellana*, *Alnus incana*, *Carpinus betulus*, and less frequently *Pinus* spp., *Cryptomeria japonica*, *Alnus* sp. and *Pterocarya fraxinifolia*. Together with *Hypoborus ficus,* it often occurs on fig branches. A very small bark beetle, with females measuring 1.0-1.3 mm in length and males 0.7-0.8 mm.

Najdišča v Sloveniji / Localities in Slovenia

LJUBLJANA Z OKOLICO: **Ljubljana, Večna pot 83**, 14°28′, 46°07′, VM50, 300 m, *Fraxinus* sp., deblo 3 cm gLEŠ, ldRPa, lit.RPa2021a, 17.02.2021.

23.00. *Crypturgus* Erichson, 1836 PODALJŠKAR

23.01. *Crypturgus cinereus* (Herbst, 1794) BOROV PODALJŠKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Brancsik, 1871: *Crypturgus cinereus* (Herbst); Grüne 1979: *Crypturgus cinereus* Herbst, 1793; Freude, Harde, Lohse 1981: *Crypturgus cinereus* Herbst; Titovšek 1988: *Crypturgus cinereus* (Herbst); Pfeffer & Knížek 1993: *Crypturgus cinereus* Herbst, 1793; Pfeffer 1995: *C. cinereus* Herbst, 1793.

E: AU BE BU BY CR CT CZ DE EN FI FR GE GR HU IT LA LS LT LU MC NR NT PL RO SK SL SP ST SV SZ UK YU **A:** ES FE HEI JIL MG NC TR WS

Vrsta je razširjena v Evropi, na območju nekdanje Jugoslavije, Korziki, Kavkazu, Mali Aziji in Sibiriji. Naseljuje severni del Slovenije, pogost je zlasti v okolici Kranja, kjer se je pogosto lovil v pasti (slika 88). Gostitelji so *Pinus halepensis*, *P. heldreichii*, *P. nigra*, *P. strobus*, *P. pinaster*, *P. pinea*, *P. mugo*, *P. sylvestris*, *Picea abies*, *P. obovata*, *P. orientalis*, *Abies alba*, *A. sibirica* in *Juniperus* spp.. Je monogamna vrsta, ki letno razvije dve generaciji, roji aprila in maja. Rovni sistem je nepravilne oblike, materinski hodniki izhajajo kot podaljšek z materinskega hodnika večjega podlubnika, ki je že prej naselil gostiteljsko drevo. Borovega podaljškarja (in druge vrste iz tega rodu) zato imenujemo tudi »parazit prostora«. V Sloveniji smo vrsto našli samo na *P. abies*, kjer je podaljševala rovne sisteme osmerozobega lubadarja (*Ips typographus*), šesterozobega zvezdarja (*Pityogenes chalcographus*) in smrekovega dvojnookca (*Polygraphus poligraphus*).

The species is distributed in Europe, the former Yugoslavia, Corsica, the Caucasus, Asia Minor and Siberia. It inhabits the northern part of Slovenia, and is particularly common around Kranj, where it is often caught in traps (Figure 88). Hosts include *Pinus halepensis*, *P. heldreichii*, *P. nigra*, *P. strobus*, *P. pinaster*, *P. pinea*, *P. mugo*, *P. sylvestris*, *Picea abies*, *P. obovata*, *P. orientalis*, *Abies alba*, *A. sibirica*, and *Juniperus* spp.. Monogamous, it develops two generations per year, swarming in April and May. The tunnel system is irregularly shaped, the maternal galleries an extension of the maternal gallery of a larger bark beetle that has previously colonised the host tree. *C. cinereus* (and other species in this genus) are therefore also called "space parasites". In Slovenia, the species has been found only on *P. abies*, where it extended the tunnel systems of the *Ips typographus*, *Pityogenes chalcographus* and *Polygraphus poligraphus*. The body is black to brown, matt. Adult length is 1.1-1.3 mm, the largest specimens may reach 1.4-1.6 mm. The

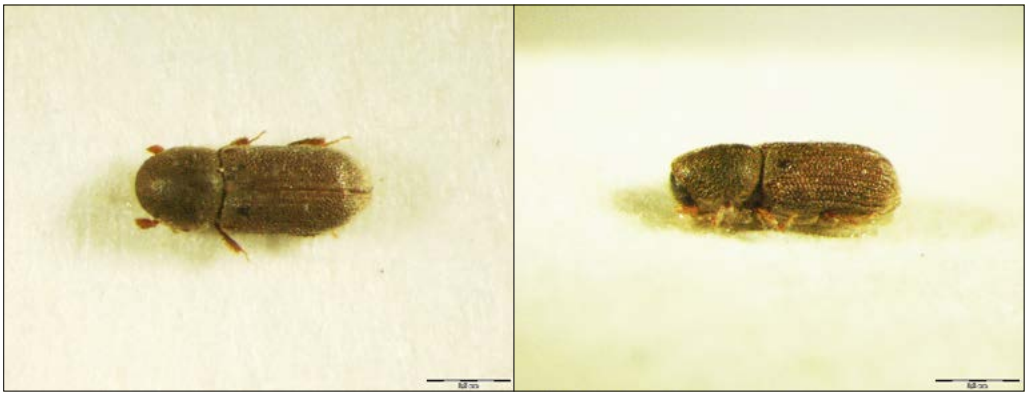
Telo je črno do rjavo, mat. Dolžina adulta je 1,1–1,3 mm, največji osebki lahko dosežejo dolžino 1,4–1,6 mm. Vratni ščit je razločno mrežasto strukturiran (slika 87). Kot izrazito sekundarna vrsta naseli le odmirajoča in že odmrla drevesa in pomombno prispeva k razkroju odmrlega drevja.

neck shield is distinctly reticulate (Figure 87). As a distinctly secondary species, it only colonises dying and dead trees that have already been destroyed by other bark beetles and is therefore of no economic importance. *C. cinereus* is an important decomposer of dead trees as a secondary saproxyle.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951.

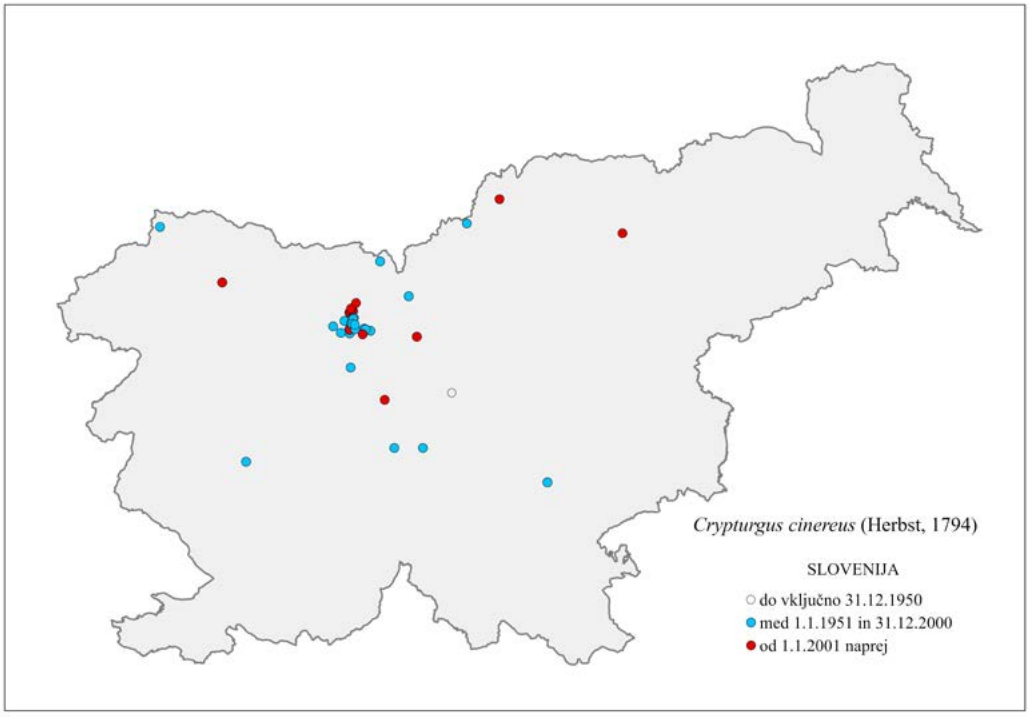
GORENJSKO: **Brdo pri Kranju 1/7**, 14°23′33″, 46°16′38″, VM52, 432 m, *Picea abies*, deblo 50 cm nrs *Ips typographus*, ldRPa, lit.RPa2003, 14.6.2003; **Brdo pri Kranju 1/16**, 14°23′49″, 46°16′43″, VM52, 438 m, *Picea abies*, deblo 15 cm nrs *Ips typographus*, ldRPa, lit.RPa2003, 15.8.2003; **Brdo pri Kranju 1/28**, 14°24′21″, 46°16′50″, VM52, 444 m, *Picea abies*, deblo 20 cm nrs *Polygraphus poligraphus*, ldRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2015a, 10.6.2015; ibidem, lit.RPa2016a, 7.6.2016; ibidem, lit.RPa2017a, 25.5.2017; ibidem, lit.RPa2018a, 25.4.2018, 6.6.2018, 1.8.2018; ibidem, lit.RPa2019a, 24.4.2019, 3.6.2019; lit.RPa2020d, 20.5.2020, 17.6.2020; ibidem, lit.RPa2021b, 14.7.2021; ibidem, lit.RPa2022b, 15.6.2022, 7.9.2022; ibidem, lit.RPa2023b, 1.6.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaPr, ldRPa, lit.RPa2010a, 20.7.2011; ibidem, lit.RPa2013a, 30.4.2013; ibidem, lit.RPa2017a, 25.5.2017, 8.6.2017; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2015a, 8.7.2015; ibidem, lit.RPa2019a, 3.6.2019; ibidem, lit.RPa2022b, 2.6.2022; **Britof, Gorenje, Kranj**, 14°22′34″, 46°15′26″, VM52, 401 m, *Picea abies*, deblo 10 cm nrs *Pityogenes chalcographus*, ldRPa, lit.RPa2014c, 19.3.1995; **Britof, Kranj**, 14°24′05″, 46°15′13″, VM52, 413 m, tThe, phChal, ldRPa, lit.RPa1991a, 26.5.1989, 9.6.1989, 23.6.1989; **Brnik**, 14°28′, 46°14′, VM52, 390 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 4.1971; ibidem, nrs *Pityogenes chalcographus*, ldJTi, lit.JTi1983, 4.1971; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, phPher, ldRPa, lit.RPa1991a, 26.5.1989, 2.6.1989, 23.6.1989; **Brnik, letališče, pri parkirišču**, 14°26′59″, 46°14′14″, VM52, 393 m, tThe, Kont, ldRPa, lit.RPa1991a, 19.5.1989, ibidem, phChal, lRPa dJTi, lit.RPa1991a, 12.5.1989; ibidem, ldRPa, lit.RPa1991a, 19.5.1989, 2.6.1989, 9.6.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 23.6.1989, 30.6.1989, 28.7.1989; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″,



Slika 87: BOROV PODALJŠKAR *Crypturgus cinereus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 87: *Crypturgus cinereus*, dorsal, lateral (Photo: Maja Jurc)

VM51, 323 m, tThe, phPher, lFPo dSBr, cSBr, 21.5.1990; ibidem, lGBa dSBr, cSBr, 30.4.1991, 3.6.1991; **Hrastje, Kranj 1**, 14°23′40″, 46°14′01″, VM52, 386 m, *Picea abies*, deblo 35 cm nrs *Ips typographus*, ldRPa, lit.RPa2020c, 12.10.2012; ibidem, deblo 35 cm nrs *Ips typographus*, ldRPa, lit.RPa2020c, 18.10.2013; **Hrastje, Kranj, Agromehanika 6**, 14°23′39″, 46°13′38″, VM51, 378 m, *Picea abies*, deblo 25 cm nrs *Ips typographus*, ldRPa, lit.RPa2014c, 17.6.1996; **Hrastje, Kranj, Planjava 6**, 14°23′38″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa1996, 17.6.1996; **Hrastje, Kranj, Planjava 11**, 14°23′41″, 46°14′07″, VM52, 389 m, *Picea abies*, deblo 30 cm nrs *Ips typographus*, ldRPa, lit.RPa2014c, 7.6.2004; **Jezersko**, 14°30′, 46°24′, VM63, 1030 m, *Picea abies*, nrs *Polygraphus poligraphus*, ldJTi, lit.JTi1983, 1.1974; **Kamnik**, 14°37′41″, 46°13′09″, VM71, 578 m, *Picea abies*, deblo 33 cm nrs *Ips typographus* gLEŠ, lDBo dRPa, lit.NOg2019, 16.6.2017, 2.7.2017; ibidem, deblo 34 cm nrs *Ips typographus* gLEŠ, lDBo dRPa, lit.NOg2019, 16.6.2017, 2.7.2017; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, 540 m, *Picea abies*, talni vzorci gEZ, ldJŠl, lit.JŠl1958, 24.4.1952; **Kranj, Čirče, nad Kokro**, 14°21′51″, 46°13′43″, VM51, 357 m, *Picea abies*, deblo 30 cm nrs *Ips typographus*, ldRPa, lit.RPa2014c, 7.6.1995; **Milje 1**, 14°24′23″,46°15′50″, VM52, 425 m, tThe, phPher phChal, ldRPa, lit.RPa1991a, 14.4.1989, 28.4.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989; **Milje 2**, 14°24′30″, 46°15′52″, VM52, 428 m, tThe, phPher phChal, ldRPa, lit. RPa1991a, 19.5.1989, 26.5.1989, 2.6.1989, 12.5.1989, 2.6.1989; **Milje 3**, 14°24′24″, 46°15′42″, VM52, 423 m, tThe, phPher phChal, ldRPa, lit.RPa1991a, 14.4.1989, 26.5.1989, 2.6.1989; **Pokljuka, Rudna dolina**, 13°57′, 46°21′, VM13, 1320 m, ldcAPi, lit.APi2015, 11.7.2014; **Preddvor**, 14°25′, 46°18′, VM52, 480 m, tWit, phPher, ldRPa, lit.RPa2010b, 8.9.2010; **Rateče, Planica**, 13°44′, 46°29′,



Slika 88: BOROV PODALJŠKAR *Crypturgus cinereus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 88: *Crypturgus cinereus*, distribution map according to historical and recent data

VM04, 880 m, ldSBr, cSBr, 29.4.1993; Šenčur, izvoz Brnik 4, 14°26′23″, 46°13′29″, VM52, 380 m, *Picea abies*, deblo 15 cm nrs *Polygraphus poligraphus*, ldRPa, lit.RPa2020c, 30.10.2015; **Šenčur, v Križancah**, 14°24′47″, 46°14′13″, VM52, 394 m, tCev, phPher phChal, ldRPa, lit.RPa1991a, 26.5.1989; **Šenčur, Zlato polje 1,** 14°24′11″, 46°15′01″, VM52, 414 m, tThe, Kont, ldRPa, lit. RPa1991a, 9.6.1989, 30.6.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 19.5.1989, 2.6.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 19.5.1989, 2.6.1989, 30.6.1989; **Šenčur, Zlato polje 2,** 14°24′42″, 46°14′53″, VM52, 408 m, tThe, phChal, ldRPa, lit.RPa1991a, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 21.7.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989; **Šmarjetna gora, Kranj**, 14°20′10″, 46°14′37″, VM42, 641 m, *Picea abies*, deblo 20 cm nrs *Ips typographus*, ldRPa, lit.RPa2014c, 26.2.1995.
NOTRANJSKO: **Črni Vrh, Idrija**, 14°02′, 45°55′, VL28, 730 m, *Picea abies*, ldJTi, lit.JTi1983, 10.1977.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, pred 1951.
DOLENJSKO: **Grosuplje**, 14°39′, 45°57′, VL78, 340 m, *Picea abies*, talni vzorci gEZ, ldJŠl, lit. JŠl1958, 29.3.1952; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 3.7.1977, 4.5.1987; **Ivanja Vas, Mirna Peč**, 15°05′, 45°52′, WL07, 328 m, *Picea abies*, talni vzorci gEZ, ldJŠl, lit.JŠl1958, 16.4.1952; **Jevnica, Litija**, 14°45′, 46°05′, VM80, 260 m, ldSBr, cSBr, 7.9.1948.
ŠTAJERSKO: Pesek, Koča na Pesku, Pohorje, 15°20′41″, 46°28′05″, WM24, 1393 m, *Picea abies*, deblo 20 cm nrs *Ips typographus*, ldRPa, lit.RPa2014c, 19.5.2009.
KOROŠKO: **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, phCemp, ldRPa vSBr, lit.RPa1994a, 18.7.1994; **Prevalje**, 14°55′, 46°33′, VM95, 480 m, tWit, phGaPr, ldRPa, lit.RPa2014c, 17.10.2011.

23.02. *Crypturgus cribrellus* Reitter, 1895 DROBNI PODALJŠKAR

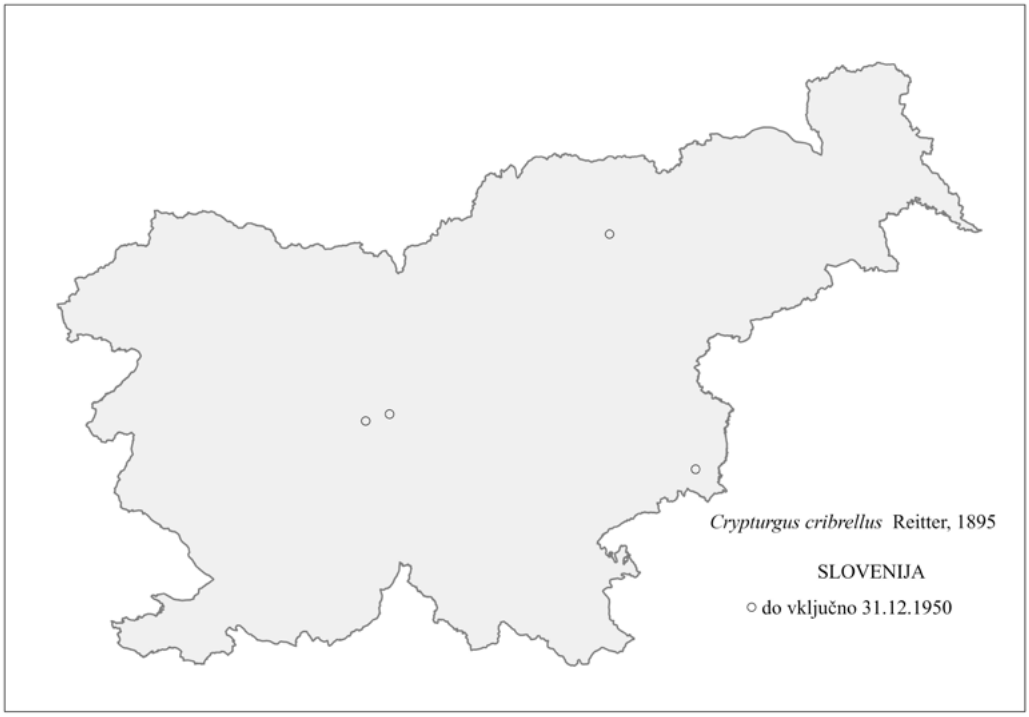
Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: PFEFFER 1995: *Crypturgus cribrellus* Reitter, 1894.

E: BU CR FR IT MC PT SL SP UK YU

Vrsta je prisotna v Evropi, na območju nekdanje Jugoslavije, v Bolgariji in Ukrajini. Njena prisotnost v Sloveniji je vprašljiva. Za nekaj starejših najdb je bilo pozneje ugotovljeno, da pripadajo vrsti *C. pusillus* (slika 89). Preostale najdbe spadajo v obdobje pred letom 1950. Gostitelji so *Pinus halepensis*, *P. pinaster*, *P. pinea* in *P. nigra*. So monogamna vrsta. Dolžina adulta je 1,0–1,2 mm. Podobno kot borov podaljškar (*C. cinereus*) se razvija na drevesih, ki so jih prej naselili večji podlubniki, in podaljšuje njihove rovne sisteme (»parazitiranje prostora«).

The species is found in Europe, in the former Yugoslavia, Bulgaria and Ukraine. Its occurrence in Slovenia is questionable. Some older records were later found to belong to *C. pusillus* (Figure 89). The remaining records are from the pre-1950 period. Hosts include *Pinus halepensis*, *P. pinaster*, *P. pinea* and *P. nigra*. Monogamous species. Adult length is 1.0-1.2 mm. Similar to *C. cinereus,* it develops on trees previously infested by larger bark beetles and extends their tunnel systems (“space parasitism”).

Najdišča v Sloveniji / Localities in Slovenia
LJUBLJANA Z OKOLICO: **Golovec, Ljubljana**, 14°32′, 46°02′, VL69, ~400 m, ldAGs, cAGs, pred 1951; **Ljubljana, Mestni log**, 14°27′, 46°01′, VL59, 293 m, ldAGs, cAGs, pred 1951.



Slika 89: DROBNI PODALJŠKAR *Crypturgus cribrellus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 89: *Crypturgus cribrellus*, distribution map according to historical and recent data

ŠTAJERSKO: Brežice, 15°36′, 45°54′, WL48, 162 m, lVKo, cAGs, pred 1951; **Pohorje**, (15°18′), (46°28′), (WM24), *, ldKBr cKBr, lit.KBr1871, pred 1951.

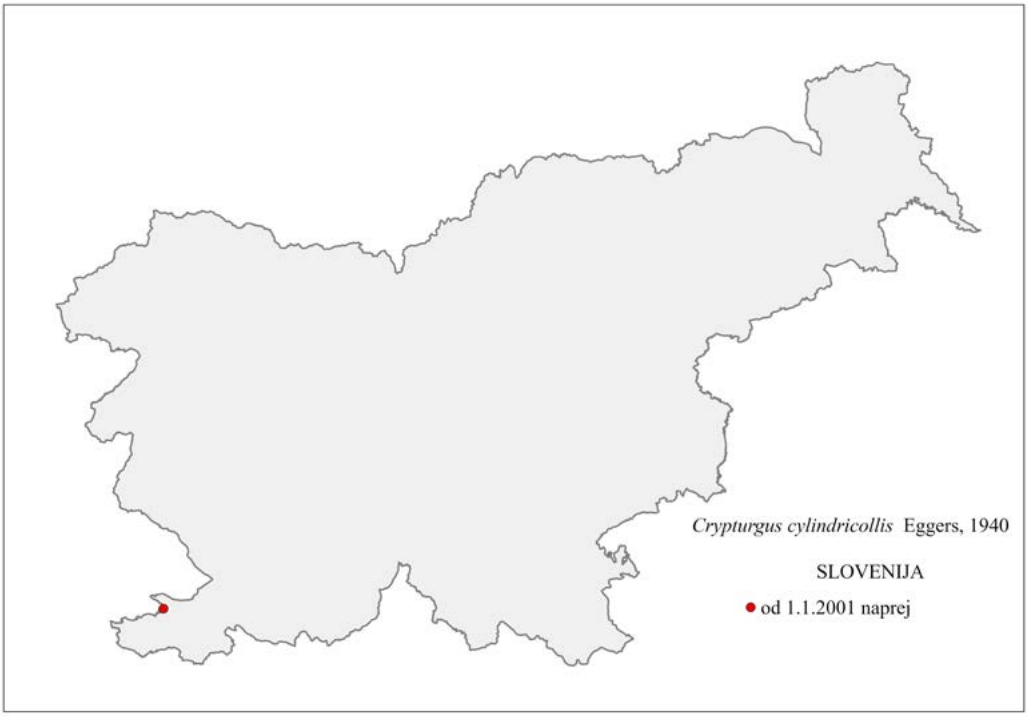
23.03. *Crypturgus cylindricollis* Eggers, 1940 VALJASTI PODALJŠKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: PFEFFER 1995: *Crypturgus cylindricollis* Eggers, 1940.

E: BH BU CR GR MA SL* **A:** TR

Vrsta je prisotna v Dalmaciji, Bolgariji, Grčiji in Mali Aziji. Gostitelji so *Pinus nigra*, *P. heldreichii* in *Picea orientalis*. Edini najdeni primerek v Sloveniji se je leta 2016 ujel v past v Luki Koper (slika 90). Tako kot drugi podaljškarji (*Crypturgus*) določen čas živi kot »parazit prostora«, tako da podaljšuje že izdolbene rovne sisteme drugih vrst

The species is found in Dalmatia, Bulgaria, Greece and Asia Minor. Hosts include *Pinus nigra*, *P. heldreichii* and *Picea orientalis*. The only specimen found in Slovenia was trapped in 2016 in the Port of Koper (Figure 90). Like other members of the genus *Crypturgus, it* lives for a certain period of time as a "space parasite", extending the already bored tunnel



Slika 90: VALJASTI PODALJŠKAR *Crypturgus cylindricollis*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 90: *Crypturgus cylindricollis*, distribution map according to historical and recent data

podlubnikov. Dolžina adulta je 1,0–1,2 mm. Od preostalih podaljškarjev, ki so bili najdeni v Sloveniji, se razlikuje po dolgem vratnem ščitu, pri katerem znaša razmerje med dolžino in širino 1,15–1,20.

systems of other species of bark beetle. Adult length is 1.0-1.2 mm. It differs from other species of the genus *Crypturgus* found in Slovenia by its long neck shield, with a length to width ratio of 1.15 – 1.20.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit. RPa2016b, 30.6.2016.

23.04. *Crypturgus hispidulus* C. G. Thomson, 1870 ŠČETINASTI PODALJŠKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Crypturgus hispidulus* Thomson, 1870; FREUDE, HARDE, LOHSE 1981: *Crypturgus hispidulus* Thomson; PFEFFER & KNÍŽEK 1993: *Crypturgus hispidulus* C. G. Thomson, 1836; PFEFFER 1995: *Crypturgus hispidulus* Thomson, 1870.

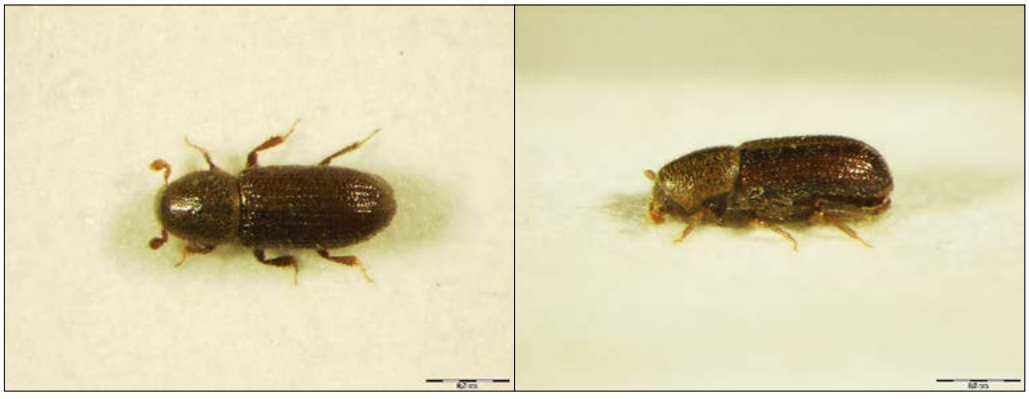
E: AU BU BY CT CZ DE EN FI GE HU IT LA LT NL NR NT PL SK SL* SV SZ UK **A:** ES FE HEI LIA NC WS

Vrsta je prisotna v srednji, zahodni in severni Evropi, v evropskem delu nekdanje SZ in v Aziji. Prisotna je v večjem delu Slovenije, z izjemo SV dela države, Primorske in Bele krajine (slika 92). Gostitelji so *Picea abies*, *P. obovata*, *P. jezoensis*, *Pinus sylvestris*, *P. mugo*, *Abies sibirica* in *Larix decidua*. V Sloveniji je bila najdena le na *P. abies*, kjer je podaljševala rovne sisteme vrst osmerozobi lubadar (*Ips typographus*), smrekov dvojnookec (*Polygraphus poligraphus*), jelov jelkar (*Pityophthorus pityographus*) in smrekov kosmatinec (*Dryocoetes autographus*). Dolžina adulta je 1,1–1,3 mm. Na bleščečih pokrovkah so močne punktirane linije, med katerimi izraščajo rumeno-bele dlačice (slika 91). Kot parazit prostora je brez ekonomskega pomena.

The species is present in central, western and northern Europe, in the European part of the former Soviet Union and in Asia. It is present in most of Slovenia, with the exception of NE part of the country, Primorska and Bela Krajina (Figure 92). Hosts include *Picea abies*, *P. obovata*, *P. jezoensis*, *Pinus sylvestris*, *P. mugo*, *Abies sibirica* and *Larix decidua*. In Slovenia it has been found only on *P. abies*, where it extended the tunnel systems of *Ips typographus*, *Polygraphus poligraphus*, *Pityophthorus pityographus* and *Dryocoetes autographus*. Adult length is 1.1 to 1.3 mm. The shiny elytra have strong punctate lines between which yellowish-white hairs grow (Figure 91). As a space parasite, it is of no economic importance.

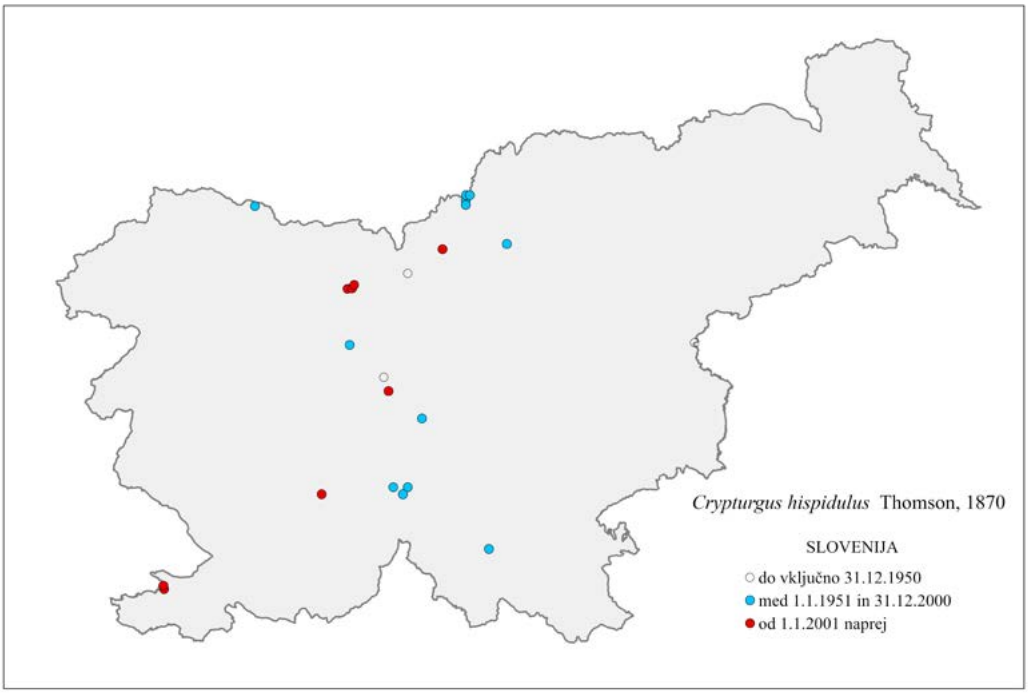
Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2017b, 31.5.2017; ibidem, lit.RPa2019d, 24.10.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2019d, 25.9.2019.
GORENJSKO: **Brdo pri Kranju 1/5**, 14°23′22″, 46°16′46″, VM52, 436 m, *Picea abies*, deblo 20 cm nrs *Pityophthorus pityographus*, ldRPa, lit.RPa2003, 18.9.2003; **Brdo pri Kranju 1/28**, 14°24′21″, 46°16′50″, VM52, 444 m, *Picea abies*, deblo 20 cm nrs *Polygraphus poligraphus*, ldRPa, lit. RPa2003, 11.10.2003; **Brdo pri Kranju 1/38**, 14°24′47″, 46°17′22″, VM52, 462 m, *Picea abies*, deblo 25 cm nrs *Ips typographus*, ldRPa, lit.RPa2003, 18.10.2003; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phPher, lFPo dSBr, cSBr, 21.5.1990; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, ~600 m, ldSBr, cSBr, 21.5.1950; **Savske jame, ob poti na Golico, Karavanke**, 14°04′01″, 46°28′42″, VM25, 1206 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa1995b, 11.8.1995.
NOTRANJSKO: **Rakov Škocjan, Javorniki**, 14°18’, 45°47’, VL47, 600 m, ldSBr, cSBr, 5.6.2001.



Slika 91: ŠČETINASTI PODALJŠKAR *Crypturgus hispidulus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 91: *Crypturgus hispidulus*, dorsal, lateral (Photo: Maja Jurc)



Slika 92: ŠČETINASTI PODALJŠKAR *Crypturgus hispidulus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 92: *Crypturgus hispidulus*, distribution map according to historical and recent data

LJUBLJANA Z OKOLICO: **Golovec, Ljubljana**,14°32′, 46°02′, VL69, ~400 m, ldAGs, cAGs, pred 1951;
Ljubljana, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, 5.3.1911, 17.2.1912.
DOLENJSKO: **Hrastje pri Grosupljem**, 14°39′, 45°58′, VL79, 360 m, ldSBr, cSBr, 24.5.1987; **Karlovica, Velike Lašče**, 14°36′, 45°48′, VL67, 540 m, tThe, phPher, lČVi dSBr, cSBr, 3.6.1992, 10.6.1992; **Mikunca, Žimarice**, 14°35′, 45°47′, VL67, ~800 m, tThe, phPher, lČVi dSBr, cSBr, 12.5.1992, 3.6.1992, 10.6.1992; **Mramorovo pri Lužarjih**, 14°33′, 45°48′, VL67, 760 m, tThe, phPher, lČVi dSBr, cSBr, 12.5.1992; **Željne, Kočevje**, 14°53′, 45°39′, VL95, 470 m, tThe, phPher, lSDe dSBr, cSBr, 18.5.1992.
ŠTAJERSKO: Bele Vode, kmetija Kovač, 14°56′44″, 46°23′15″, VM93, 738 m, *Picea abies*, deblo 15 cm nrs *Dryocoetes autographus*, ldRPa, lit.RPa1995b, 4.8.1995; **Podčetrtek, vrt**, 15°36′, 46°09′, WM41, 220 m, *Picea abies*, deblo, ldEJe vSBr, cEJa,1.5.1930; **Poljšak p7b**, 14°43′18″, 46°22′30″, VM72, 1090 m, tThe, phPher, ldRPa, lit.RPa2021c, 9.6.2021, 16.6.2021.
KOROŠKO: **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa, lit.RPa1995a, 17.7.1995; ibidem, phCemp, ldRPa, lit.RPa1995a, 17.7.1995, 12.8.1995; ibidem, ldRPa vcSBr, lit.RPa1994a, 27.5.1994, 9.6.1994; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa, lit.RPa1995a, 21.6.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 31.7.1994; ibidem, lit.RPa1995a, 21.6.1995; **Peca, Začnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, phCemp, ldRPa, lit.RPa1995a, 17.7.1995; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, Kont, ldRPa, lit.RPa1994a, 22.6.1994; ibidem, phCemp, ldRPa, lit.RPa1994a, 31.7.1994; ibidem, phCemp, ldRPa vcSBr, lit.RPa1994a, 9.6.1994.

23.05. *Crypturgus mediterraneus* Eichhoff, 1869 SREDOZEMSKI PODALJŠKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Crypturgus mediterraneus* Eichhoff, 1869; PFEFFER 1995: *Crypturgus mediterraneus* Eichhoff, 1871.

E: CR FR GR IT PT SL* SP ST **N:** AG MO TU **A:** CY IS TR

Vrsta je prisotna v sredozemskih državah Evrope, na Portugalskem, Kavkazu in Mali Aziji. Edini najdeni primerek v Sloveniji se je leta 2014 ujel v past v Luki Koper (slika 93). Gostitelji: *Pinus pinaster*, *P. pinea* in *P. halepensis*. Dolžina adulta je 1,2–1,5 mm. Od drugih podaljškarjev, zabeleženih v Sloveniji, se razlikuje po skoraj kvadratno oblikovanem vratnem ščitu.

The species is found in Mediterranean Europe, Portugal, the Caucasus and Asia Minor. The only specimen found in Slovenia was caught in a trap at the Port of Koper in 2014 (Figure 93). Hosts include *Pinus pinaster*, *P. pinea* and *P. halepensis*. Adult length is 1.2-1.5 mm. It differs from other species of the genus *Crypturgus recorded* in Slovenia by its almost square-shaped neck shield.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit. RPa2014b, 23.5.2014.

Slika 93: SREDOZEMSKI PODALJŠKAR *Crypturgus mediterraneus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 93: *Crypturgus mediterraneus*, distribution map according to historical and recent data

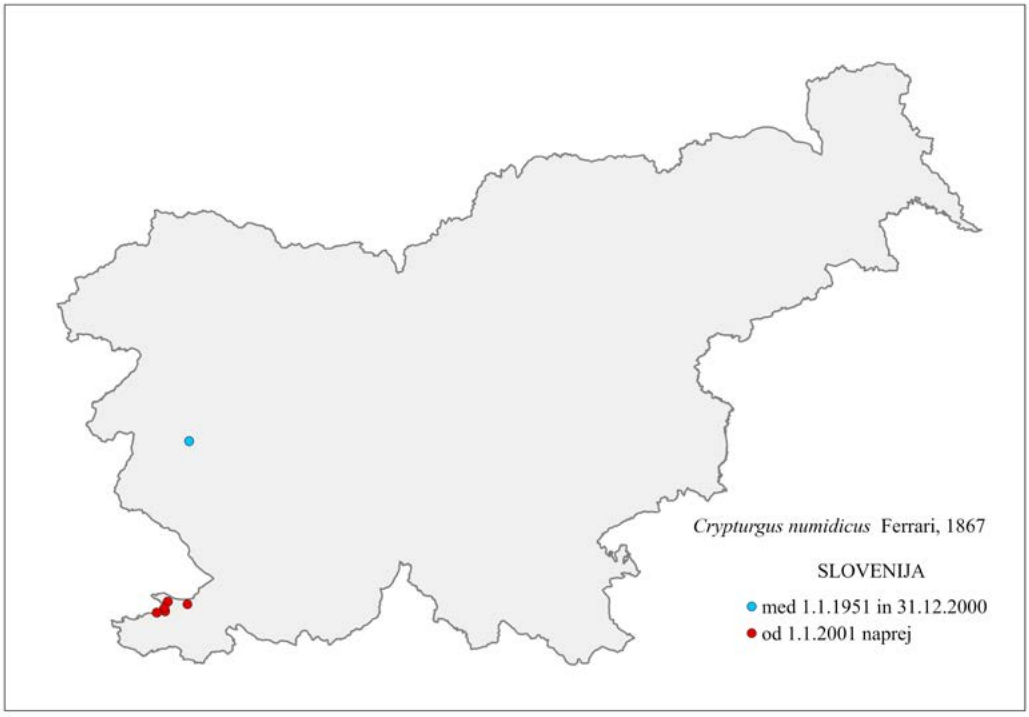
23.06. *Crypturgus numidicus* Ferrari, 1867 NOMADSKI PODALJŠKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Crypturgus mediterraneus* Eichhoff, 1869; PFEFFER 1995: *C. mediterraneus* Eichhoff, 1871.

E: BH BU CR FR GR HU IT MA SL* SP ST **N:** AG TU **A:** TR

Vrsta je razširjena na mediteranskem območju Evrope in Kavkazu. Gostitelji so *Pinus halepensis*, *P. pinaster*, *P. pinea*, *P. nigra, P. heldreichii,* manj pogosto tudi Abies *pinsapo*. V Sloveniji so bile z izjemo najdb v Trnovskem gozdu (na *Abies alba*, v podaljšanem rovnem sistemu vrste *Pityokteines spinidens*) in v Kopru (na *P. pinea*, v podaljšanem rovnem sistemu vrste *Orthotomicus erosus*) vse preostale najdbe posledica ulova v pasteh na različnih lokacijah v slovenski Istri (slika 94). Razvije 1–3 generacije letno, prvič roji marca. Dolžina adulta je 1,4–1,6 mm.

The species is distributed in the Mediterranean area of Europe and the Caucasus. Hosts include *Pinus halepensis*, *P. pinaster*, *P. pinea*, *P. nigra, P. heldreichii,* and less commonly Abies *pinsapo*. In Slovenia, with the exception of the records in Trnovo Forest (on *Abies alba*, in the extended tunnel system of *Pityokteines spinidens*) and in Koper (on *P. pinea*, in the extended straight system of *Orthotomicus erosus*), all other records were the result of trapping at various locations in the Slovene part of Istria (Figure 94). Develops 1-3 generations per year, first swarming in March. Adult length is 1.4-1.6 mm.



Slika 94: NOMADSKI PODALJŠKAR *Crypturgus numidicus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 94: *Crypturgus numidicus*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2018d, 7.6.2018, 27.7.2018; ibidem, lit.RPa2019c,19.6.2019, 31.7.2019, 24.10.2019; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2015b, 6.5.2015, 4.8.2015; ibidem, ldRPa,lit.RPa2017b, 6.9.2017; ibidem, lit.RPa2018b, 23.10.2018; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2014b, 23.5.2014, 1.7.2014; ibidem, lit.RPa2015b, 6.5.2015, 2.6.2015; ibidem, lit.RPa2018b, 9.8.2018; ibidem, lit.RPa2019d, 28.8.2019, 24.10.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2016b, 27.10.2016; ibidem, lit.RPa2017b, 3.8.2017, 6.9.2017; ibidem, lit.RPa2018b, 9.8.2018; ibidem, lit. RPa2019d, 19.6.2019, 24.10.2019; **Koper, Ukmarjev trg, park**, 13°43′20″, 45°32′57″, VL04, 2 m, *Pinus pinea*, veja 1 cm nrs *Orthotomicus erosus*, ldRPa, lit.RPa2014c, 24.10.2004; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2017d, 7.12.2017; ibidem, lit. RPa2018e, 23.10.2018; ibidem, lit.RPa2019e, 31.7.2019, 28.8.2019, 24.10.2019, 28.11.2019.
PRIMORSKO: **Gospodova senožet, Trnovski gozd**, 13°50′04″, 45°57′59″, VL09, 1120 m, *Abies alba*, hlod nrs *Pityokteines spinidens*, ldRPa, lit.RPa2014c, 9.8.1996.

23.07. *Crypturgus pusillus* (Gyllenhal, 1813) SMREKOV PODALJŠKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel, 1866: *Crypturgus pusillus* Gyll.; Grüne 1979: *C. pusillus* (Gyllenhal, 1813); Titovšek 1988: *Crypturgus pusillus* (Gyllenhal); Freude, Harde, Lohse 1981: *Crypturgus pusillus* Gyllenhal; Pfeffer & Knížek 1993: *C. pusillus* (Gyllenhal, 1813); Pfeffer 1995: *C. pusillus* (Gyllenhal, 1813).

E: AU BE BH BY CR CT CZ DE EN FI FR GE GR HU IT LA LT LU MC NL NR NT PL PT RO SK SL SP ST SV SZ UK YU **N:** AG EG LB MO TU **A:** ES FE HEI HP JA JIL KA NC NP PA SC SCH TR UP WS XIZ YUN »NW Himalaja« **NAR**

Vrsta se pojavlja v Evropi, severni Afriki in na nearktičnem območju. Siegel (1866) navaja, da je bila vrsta »na Kranjskem redka, pod smrekovim lubjem«. Danes je vrsta prisotna in pogosta po vsej Sloveniji z izjemo Prekmurja (slika 96). Gostitelji so *Picea abies*, *P. obovata*, *P. orientalis*, *Pinus sylvestris*, *P. mugo*, *P. nigra*, *P. cembra* in *P. strobus*, redko tudi *Abies alba, Larix decidua in Pseudotsuga menziesii*. V Sloveniji je bila vrsta najdena na *P. abies* (nadaljevanje rovnega sistema vrst osmerozobega lubadarja – *Ips typographus*, šesterozobega zvezdarja – *Pityogenes chalcographus*, smrekovega dvojnookca – *Polygraphus poligraphus*, smrekovega kosmatinca – *Dryocoetes autographus* in mnogozobega borarja – *Orthotomicus laricis*), na *P. sylvestris* (nadaljevanje rovnega sistema vrst borovega lubadarja – *Ips*

The species is present in Europe, North Africa and the Nearctic. Siegel (1866) states that the species was "rare in Carniola, under the bark of spruce trees". Today, the species is present and common throughout Slovenia, with the exception of Prekmurje (Figure 96). Hosts include *Picea abies*, *P. obovata*, *P. orientalis*, *Pinus sylvestris*, *P. mugo*, *P. nigra*, *P. cembra* and *P. strobus*, rarely also *Abies alba, Larix decidua and Pseudotsuga menziesii*. In Slovenia, the species has been found on *P. abies* (continuation of the straight system of *Ips typographus*, *Pityogenes chalcographus*, *Polygraphus poligraphus*, *Dryocoetes autographus* and *Orthotomicus laricis*), on *P. sylvestris* (continuation of the tunnel system of *Ips acuminatus*, *Dryocoetes autographus*, *Pityogenes bistridentatus* and *P. chalcographus*) on *P. nigra* (continuation

acuminatus, smrekovega kosmatinca – *Dryocoetes autographus*, krivozobega zvezdarja – *Pityogenes bistridentatus* in šesterozobega zvezdarja – *P. chalcographus*), na *P. nigra* (nadaljevanje rovnega sistema vrst malega poganjkarka –*Tomicus minor*, šesterozobega zvezdarja – *P. chalcographus* in mnogozobega borarja – *O. laricis*) in na *L. decidua* (nadaljevanje rovnega sistema vrste macesnovega lubadarja *Ips cembrae* – *Ips cembrae*). Materinski hodnik je kratek, iz njega v različnih smereh izhajajo larvalni hodniki, ki se pogosto prepletajo. Letno razvije dve generaciji, prvič roji aprila in maja, drugič julija. Vrsta je izrazito sekundarna, naseljuje drevesa, ki so bila že naseljena z drugimi podlubniki. Dolžina adulta je 1,0–1,1 mm. Pokrovki sta bleščeči, iz medlinijskih prostorov izraščajo redke vrste kratkih dlačic (slika 95).

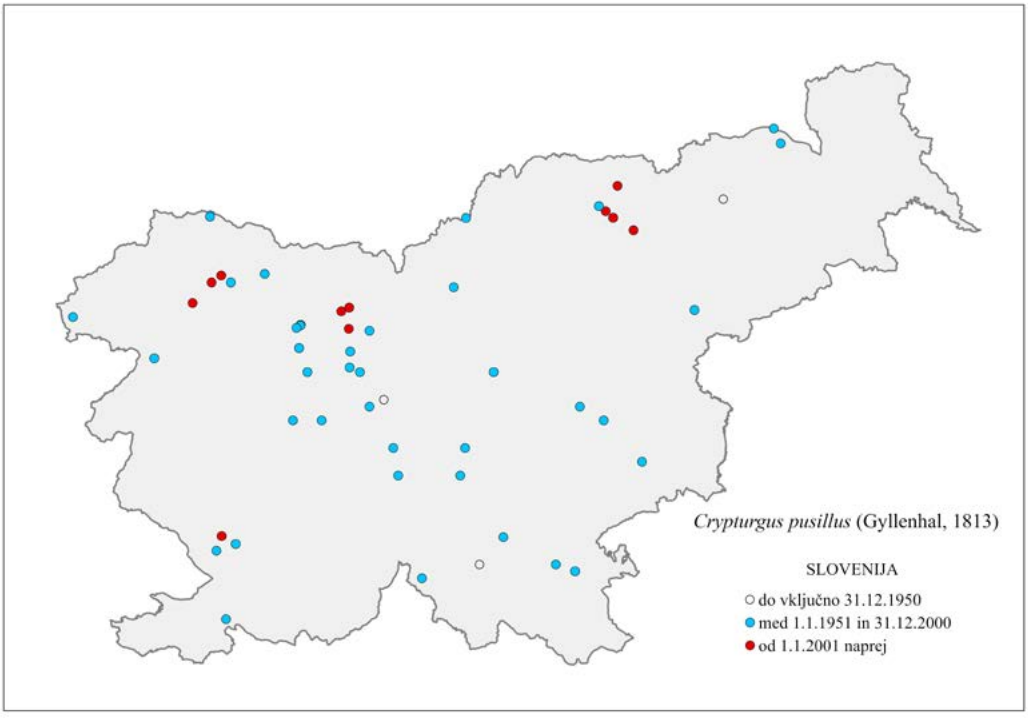
of the tunnel system of *Tomicus minor*, *P. chalcographus* and *O. laricis*) and on *L. decidua* (continuation of the tunnel system of *Ips cembrae*). The maternal gallery is short, with larval galleries arising from it in different directions, often intertwining. It develops two generations per year, the first swarming in April and May, the second in July. The species is highly secondary, inhabiting trees that have already been colonised by other bark beetles. Adult length is 1.0-1.1 mm. The elytra are shiny, with rare rows of short hairs emerging from the interlinear spaces (Figure 95).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951; *Picea abies*, ldMSi, lit.MSi1866, pred 1951.
ISTRA: **Podgorje, Slavnik**, 13°58′, 45°32′, VL14, 650 m, *Pinus nigra*, nrs *Orthotomicus erosus*, ldJTi, lit.JTi1983, 10.1977.
PRIMORSKO: **Breginj**, 13°26′, 46°16′, UM72, 800 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 6.1978; **Povir, Divača**, 13°56′, 45°42′, VL16, 440 m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1978; **Senadolice, Štorje 1**, 13°57′04″, 45°44′09″, VL16, 441 m, *Pinus sylvestris*, veja 7 cm nrs *Pityogenes bistridentatus*, ldRPa, lit.RPa2014c, 18.8.2001; **Volče, Tolmin**, 13°43′, 46°10′, VM01, 360 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 7.1974.
GORENJSKO: **Bled, pod gradom 1**, 14°06′06″, 46°22′12″, VM33, 555 m, *Pinus nigra*, deblo rs *Pityogenes chalcographus*, ldRPa, lit.RPa2014c, 16.2.1995; **Brdo pri Kranju 2/1**, 14°22′07″, 46°16′49″, VM52, 423 m, *Picea abies*, deblo 10 cm nrs *Pityogenes chalcographus*, ldRPa, lit. RPa2004, 24.8.2004; ibidem, *Pinus sylvestris*, vrhač 10 cm nrs *Pityogenes chalcographus*, ldRPa, lit.RPa2004, 24.8.2004; ibidem, vrhač 15 cm nrs *Pityogenes chalcographus*, ldRPa, lit. RPa2004, 24.8.2004; **Brdo pri Kranju 2/5**, 14°23′45″, 46°17′22″, VM52, 469 m, *Picea abies*, deblo 20 cm nrs *Pityogenes chalcographus*, ldRPa, lit.RPa2004, 30.7.2004; **Brnik**, 14°28′, 46°14′, VM52, 380 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 4.1971; ibidem, nrs *Pityogenes chalcographus*, ldJTi, lit.JTi1983, 4.1971; **Brode, Poljanska dolina**, 14°15′,46°08′, VM40, 410 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 3.1972; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phPher, lGBa dSBr, cSBr, 17.6.1992; **Hrastje, Kranj, Planjava 3**, 14°23′39″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 50 cm nrs *Orthotomicus laricis*, ldRPa, lit.RPa2014c, 21.5.2010; **Mavčiče, Sorško polje**, 14°24′, 46°11′, VM51, 350 m, *Picea abies*, panj nrs *Dryocoetes autographus*, ldJTi, lit.JTi1983, 5.1972; ibidem, panj nrs *Orthotomicus laricis*, ldJTi, lit.JTi1983, 5.1972; **Mikulovica, pobočje**, 13°54′41″, 46°30′28″, VM15, 1270 m, *Larix decidua*, deblo 10 cm nrs *Ips cembrae*, ldRPa, lit.RPa1995b, 19.8.1995; **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit.APi2015, 17.7.2014; **Pokljuka, Medvedova konta**, 13°57′, 46°22′, VM13, 1395 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Mrzli Studenec**, 13°59′, 46°21′, VM23, 1320 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Pokljuka, Planina Krasca**, 13°55′, 46°21′,

Slika 95: SMREKOV PODALJŠKAR *Crypturgus pusillus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 95: *Crypturgus pusillus*, dorsal, lateral (Photo: Maja Jurc)



Slika 96: SMREKOV PODALJŠKAR *Crypturgus pusillus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 96: *Crypturgus pusillus*, distribution map according to historical and recent data

VM13, 1450 m, ldcAPi, lit.APi2015, 8.8.2014; **Prevoje, Zabrekve, Knapovc**, 14°13′32″, 46°14′45″, VM42, 600 m, *Picea abies*, progasto obeljen panj 85 cm nrs *Dryocoetes autographus*, ldFJa, lit.FJa1997, 17.6.1995; **Prevoje, Zabrekve, Korošc**, 14°13′37″, 46°14′52″, VM42, 610 m, *Picea*

abies, neobeljen panj 68 cm nrs *Dryocoetes autographus*, lFJa dJTi, lit.FJa1997, 27.7.1995; **Selške Lajše, Kobivnk, Jelenc**, 14°13′32″, 46°14′45″, VM32, 640 m, *Picea abies*, progasto obeljen panj 58 cm nrs *Dryocoetes autographus*, ldFJa, lit.FJa1997, 24.7.1995; **Selške Lajše, Koblarjev hrib, Bitenc**, 14°12′43″, 46°14′25″, VM32, 510 m, *Picea abies*, neobeljen panj 65 cm nrs *Dryocoetes autographus*, lFJa dJTi, lit.FJa1997, 14.6.1995; **Spodnja Luša, Ambruški potok, Ambrušč**, 14°13′17″, 46°11′30″, VM31, 530 m, *Picea abies*, neobeljen panj 51 cm, ldFJa, lit.FJa1997, 3.10.1995; ibidem, neobeljen panj 52 cm, ldFJa, lit.FJa1997, 7.7.1995; ibidem, neobeljen panj 54 cm, ldFJa, lit. FJa1997, 7.7.1995; ibidem, progasto obeljen panj 56 cm, ldFJa, lit.FJa1997, 7.7.1995; **Sveta Gora, Izlake**, 14°54′, 46°08′, VM90, 680 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 9.1978.
NOTRANJSKO: **Horjul**, 14°18′, 46°01′, VL49, 400 m, *Picea abies*, hlod nrs *Ips typographus*, ldJTi, lit.JTi1983, 4.1972; **Senadole, Senožeče**, 14°00′, 45°43′, VL26, 390 m, *Pinus nigra*, nrs *Tomicus minor*, ldJTi, lit.JTi1983, 4.1973; **Smrečje, Rovte**, 14°12′, 46°01′, VL39, 660 m, *Picea abies*, neobeljen gradbeni les nrs *Polygraphus poligraphus*, ldJTi, lit.JTi1983, 3.1972.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cJSd, 5.1916, 5.1918;
Rožnik, Ljubljana, 14°28′, 46°03′, VM50, 360 m, *Picea abies*, panj nrs *Dryocoetes autographus*, ldJTi, lit.JTi1983, 1965; ibidem, panj nrs *Ips typographus*, ldJTi, lit.JTi1983, 1965; **Šmarna gora**, 14°26′, 46°08′, VM50, 570 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 4.1972.
DOLENJSKO: **Boštanj, Sevnica**, 15°17′, 46°01′, WL29, 260 m, *Pinus sylvestris*, nrs *Dryocoetes autographus*, ldJTi, lit.JTi1983, 7. 1974; **Črmošnjice, Semič**, 15°07′, 45°40′, WL05, 420 m, *Picea abies*, nrs *Pityogenes chalcographus*, ldJTi, lit.JTi1983, 8.1979; **Draga, Goteniška gora**, 14°39′, 45°38′, VL75, 800 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 8.1981; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 17.4.1976, 8.8.1976; **Hotemež, Radeče 1**, 15°12′, 46°03′, WL19, 260 m, *Abies alba*, hlod nrs *Pityokteines spinidens*, ldJTi, lit.JTi1983, 10.1972; **Krka, Muljava**, 14°47′, 45°53′, VL88, 280 m, *Picea abies*, veja nrs *Pityogenes chalcographus*, ldJTi, lit.JTi1983, 10.1972; **Kurešček, Visoko**, 14°34′, 45°53′, VL68, 760 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 8.1978; **Rimš, Leskovec pri Krškem**, 15°25′, 45°55′, WL38, 190 m, *Pinus sylvestris*, nrs *Ips acuminatus*, ldJTi, lit.JTi1973, 6.1971; **Stara Cerkev, Kočevje**, 14°51′, 45°40′, VL85, 480 m, ldSBr, cSBr, 28.7.1948; **Stari Log, Kočevski Rog**, 14°56′, 45°44′, VL96, 510 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Stična**, 14°48′, 45°57′, VL88, 470 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 6.1978.
BELA KRAJINA: **Semič,** 15°11′, 45°39′, WL15, 210 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 7.1977; ibidem, 570 m, *Picea abies*, nrs *Dryocoetes autographus*, ldJTi, lit.JTi1983, 3.1972; ibidem, nrs *Ips typographus*, ldJTi, lit.JTi1983, 3.1972.
ŠTAJERSKO: Apaško polje, Gornja Radgona, 15°54′, 46°41′, WM67, 220 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 7.1977; ibidem, nrs *Orthotomicus laricis*, ldJTi, lit. JTi1983, 7.1977; **Boč, Poljčane**, 15°36′, 46°17′, WM42, 780 m, *Picea abies*, ldJTi, lit.JTi1983, 8. 1974; **Javorski vrh, Kladje, Pohorje**, 15°23′12″, 46°28′32″, WM24, 1304 m, *Picea abies*, ldJPo, lit.JPo2016, 2009; **Josipdol, Lavtar, Pohorje**, 15°18′58″, 46°30′19″, WM24, 1230 m, *Picea abies*, ldJPo, lit.JPo2016, 7.2011; **Josipdol, Pohorje**, 15°17′24″, 46°31′16″, WM25, 700 m, *Picea abies*, ldJPo, lit.JPo2016, 2011, 2012; **Krnica, ob Rogačniku, Haber**, 14°45′38″, 46°20′18″, VM83, 751 m, *Larix decidua*, hlod nrs *Ips cembrae*, ldRPa, lit.RPa1995b, 6.8.1995; **Maribor, Malečnik**, 15°42′, 46°33′, WM55, 350 m, ldJPe vSBr, cJPe, pred 1951; **Rdeči Breg, Pohorje**, 15°19’54″, 46°34’55″, WM25, 450 m, *Picea abies*, ldJPo, lit.JPo2016, 2011, 2012; **Ribnica na Pohorju**, 15°16′, 46°32′, WM25, 960 m, *Picea abies*, nrs *Ips typographus*, ldJTi, lit.JTi1983, 7.1977; **Žepovci, Žepovski Travniki, ob Muri**, 15°52′36″, 46°43′08″, WM67, 220 m, ldBDr, cZRC,1999.
KOROŠKO: **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, *Picea abies*, deblo 30 cm nrs *Ips typographus*, ldRPa, lit.RPa1995b, 12.8.1995.

24.00. *Dryocoetes* Eichhoff, 1864 KOSMATINEC

24.01. *Dryocoetes alni* (Georg, 1856) JELŠEV KOSMATINEC

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Dryocoetes alni* (Georg, 1856); FREUDE, HARDE, LOHSE 1981: *Dryocoetes alni* Georg; PFEFFER & KNÍŽEK 1993: *D. alni* (Georg, 1856); PFEFFER 1995: *D. alni* (Georg, 1856).
E: AU BE BU BY CT CZ DE EN FI FR GB GE GR HU IT LA LS MD NL NR NT PL RO SK SL ST SV SZ UK »Caucasus« **A:** ES TR WS

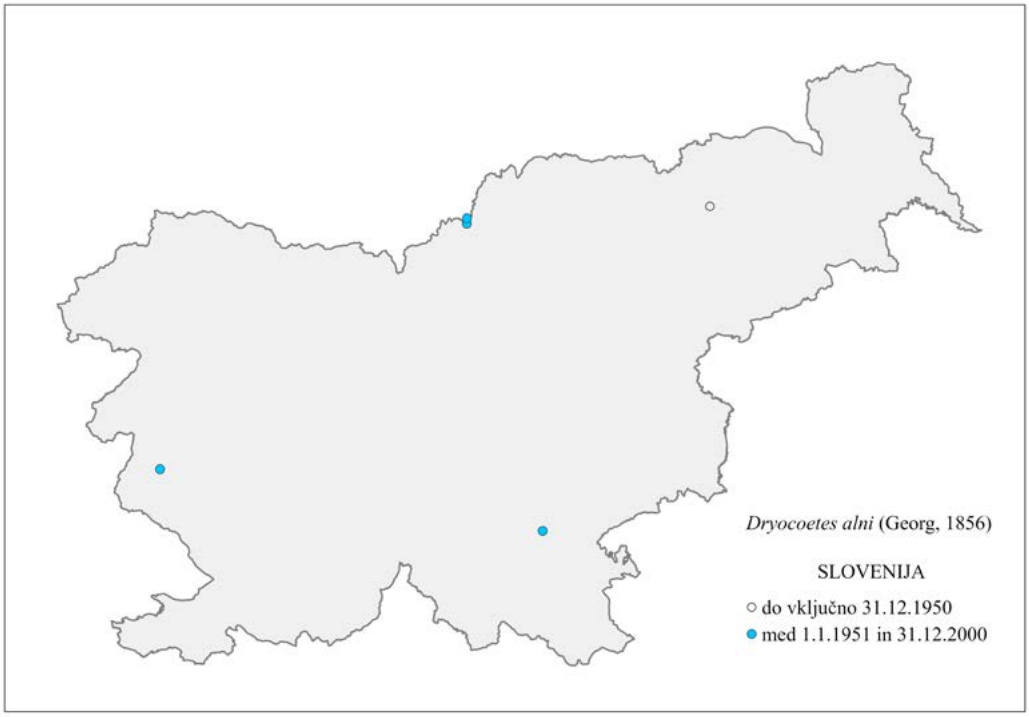
Vrsta je razširjena v zahodni, srednji, vzhodni in južni Evropi, na Krimu, Kavkazu, Mali Aziji in Japonskem. Pri nas so redka najdišča v različnih delih države, gostiteljske vrste niso bile zabeležene (slika 98). V literaturi so kot gostitelji navedeni *Alnus glutinosa*, *A. incana*, *A. viridis* in *A. alnobetula*, redkeje tudi *Fagus orientalis* in *Corylus avellana*. Razvije 1–2 generaciji letno, prvič roji aprila. Dolžina adulta je 2,0–2,3 mm (slika 97).

The species is distributed in western, central, eastern and southern Europe, the Crimea, the Caucasus, Asia Minor and Japan. In Slovenia, there are few sites in different parts of the country, and no host species have been recorded (Figure 98). *Alnus glutinosa*, *A. incana*, *A. viridis* and *A. alnobetula*, and more rarely *Fagus orientalis* and *Corylus avellana,* are listed as hosts in the literature. It develops 1-2 generations per year, the first swarming in April. Adult length is 2.0-2.3 mm (Figure 97).

Najdišča v Sloveniji / Localities in Slovenia
PRIMORSKO: **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, lRJe dSBr, cSBr, 26.5.1992.
DOLENJSKO: **Dolenjske Toplice**, 15°04′, 45°45′, WL06, 180 m, ldJSd, cJSd, 10.4.1954.
ŠTAJERSKO: Maribor, Betnava, 15°39′, 46°32′, WM45, 280 m, ldJPe vSBr, cJPe, pred 1951.
KOROŠKO: **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa vSBr, lit.RPa1994a, 22.6.1994; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa, lit.RPa1995a, 17.7.1995.

Slika 97: JELŠEV KOSMATINEC *Dryocoetes alni*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 97: *Dryocoetes alni*, dorsal, lateral (Photo: Maja Jurc)



Slika 98: JELŠEV KOSMATINEC *Dryocoetes alni*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 98: *Dryocoetes alni*, distribution map according to historical and recent data

24.02. *Dryocoetes autographus* (Ratzeburg, 1837) SMREKOV KOSMATINEC

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL, 1866: *Bostrychus autographus* Rtzb.; GRÜNE 1979: *Dryocoetes autographus* Ratzeburg, 1837; FREUDE, HARDE, LOHSE 1981: *Dryocoetes autographus* Ratzeburg; TITOVŠEK 1988: *Dryocoetes autographus* (Ratzeburg); PFEFFER & KNÍŽEK 1993: *D. autographus* (Ratzeburg, 1837); PFEFFER 1995: *D. autographus* (Ratzeburg, 1837).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LS LT MD NL NR NT PL RO SK SL SP ST SV SZ UK YU **N:** AG MR **A:** ES FE GAN HAI HEI JA LIA MG NC SC SHA SHX TAI WS »Mandžurija« **NAR NTR**

Vrsta je prisotna v Evropi, na Kavkazu, v severni Afriki, Aziji (Sibirija), na nearktičnem in neotropskem območju. SIEGEL (1866) navaja, da vrsta »na Kranjskem ni redka, v smrekah«. Danes je vrsta pogosta in razširjena po vsej Sloveniji (slika 100). Gostitelji so *Picea abies*, *P. glehnii*, *P. jezoensis*, *P. obovata*, *P. omorica*, *P. orientalis*, *Pinus cembra*, *P. koraiensis*, *P.*

The species is found in Europe, the Caucasus, North Africa, Asia (Siberia), the Nearctic and the Neotropics. SIEGEL (1866) states that the species is "not rare in Carniola, in spruces". The species is common and widespread throughout Slovenia (Figure 100). Hosts include *Picea abies*, *P. glehnii*, *P. jezoensis*, *P. obovata*, *P. omorica*, *P. orientalis*, *Pinus cembra*, *P. koraiensis*, *P.*

sibirica, *P. strobus*, *P. sylvestris*, *Abies alba*, *A. sibirica*, *Larix decidua*, *L. gmelinii* in *L. sibirica*. V Sloveniji je zelo pogosta na *P. abies*, zlasti na panjih. Redkejše pa so najdbe na *Pinus sylvestris* in *L. decidua*. Monogamna vrsta razvije letno dve generaciji, roji maja in julija. Rovni sistem je nepravilne oblike, materinski rov je pogosto vijugast ali razvejan. Larvalni rovi so orientirani v vseh smereh, bubilnica je nekoliko pogreznjena v beljavo. Adult je rdeče-rjave barve, prekrit s sivimi dlačicami, dolžine 3,0–4,0 mm (slika 99). Kot izrazito sekundarno-terciarna vrsta nima ekonomskega pomena.

sibirica, *P. strobus*, *P. sylvestris*, *Abies alba*, *A. sibirica*, *Larix decidua*, *L. gmelinii* and *L. sibirica*. In Slovenia, it is very common on *P. abies*, especially on stumps. However, records on *P. sylvestris* and *L. decidua* are rarer. This monogamous species develops two generations per year, swarming in May and July. The tunnel system is irregularly shaped, the maternal gallery is often sinuous or branched. The larval tunnels are oriented in all directions, the brood chamber is slightly sunken into the sapwood. The adult is red-brown, covered in grey hairs, 3.0-4.0 mm long (Figure 99). As a distinctly secondary-tertiary species, it has no economic importance.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951; ldJSs, cJSs, pred 1951, *Picea abies*, ldMSi, lit.MSi1866, pred 1951. **PRIMORSKO**: **Ajdovščina, župnija Šturje**, 13°55′, 45°53′, VL18, 106 m, ldABi vSBr, cABi, pred 1951; **Breginj**, 13°26′, 46°16′, UM72, 880 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Čaven, Lokavec, Trnovski gozd**, 13°52′, 45°56′, VL18, 1250 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Na Logu, Trenta**, 13°45′, 46°23′, VM03, 740 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974.
GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 22.7.2022; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, Kont, lGBa dSBr, cSBr, 7.5.1993, 15.7.1993; ibidem, phLino, lGBa dSBr, cSBr, 7.5.1993, 15.7.1993; **Bohinjska Bistrica, Litostrojska koča**, 14°01′, 46°14′, VM22, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Bohinjska Bistrica, Mencingerjeva koča**, 13°57′, 46°15′, VM12, 900 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Brdo pri Kranju 1/7**, 14°23′33″, 46°16′38″, VM52, 432 m, *Picea abies*, deblo 50 cm, ldRPa, lit.RPa2003, 18.9.2003; **Brdo pri Kranju 2/5**, 14°23′45″, 46°17′22″, VM52, 469 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2004, 30.7.2004; ibidem, panj 30 cm, ldRPa, lit.RPa2004, 30.7.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008, 10.9.2008; ibidem,

Slika 99: SMREKOV KOSMATINEC *Dryocoetes autographus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 99: *Dryocoetes autographus*, dorsal, lateral (Photo: Maja Jurc)

lit.RPa2010a, 9.6.2010, 8.9.2010; **Brnik**, 14°28′, 46°14′, VM52, 380 m, *Picea abies*, ldJTi, lit. JTi1983, 4.1971; **Brnik, krožišče pri letališču**, 14°28′02″, 46°13′39″, VM51, 374 m, *Picea abies*, veja 4 cm, ldRPa, lit.RPa2022a, 24.5.2022; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, Kont, ldRPa, lit.RPa1991a, 5.5.1989, 12.5.1989, 19.5.1989; ibidem, phChal, ldRPa, lit. RPa1991a, 5.5.1989, 12.5.1989, 26.5.1989, 25.8.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 5.5.1989, 12.5.1989, 19.5.1989, 11.8.1989; **Brnik, letališče, pri parkirišču**, 14°26′59″, 46°14′14″, VM52, 393 m, tThe, Kont, ldRPa, lit.RPa1991a, 28.4.1989, 5.5.1989, 12.5.1989; ibidem, lRPa dJTi, lit. RPa1991a, 21.4.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 12.5.1989, 26.5.1989, 7.7.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 5.5.1989, 12.5.1989, 26.5.1989; **Čemšeniška planina**, 14°58′, 46°11′, VM91, 880 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977; **Črna prst, Bohinjska Bistrica,** 13°56′, 46°14′, VM12, *, ldJSd, cAGs, 10.6.1928; ibidem, ldJSd, cJSd, 10.6.1928, 19.6.1928; **Črnivec, Kamnik,** 14°42′, 46°15′, VM72, 970 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Dražgoše**, 14°11′, 46°15′, VM32, 830 m, *Picea abies*, ldJTi, lit.JTi1983,4.1974; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phPher, lFPo dSBr, cSBr, 4.6.1990; **Grpišca, Karavanke**, 13°48′01″, 46°30′06″, VM05, 1330 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994; **Hrastje, Kranj, Planjava 1**, 14°23′39″, 46°14′28″, VM52, 397 m, *Picea abies*, hlod 40 cm, ldRPa, lit.RPa2014c, 29.5.2009; **Hrastje, Kranj, Planjava 3**, 14°23′39″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2014c, 1.6.2009; ibidem, deblo 50 cm, ldRPa, lit.RPa2014c, 21.5.2010; **Jureževa planina, pod Vošco, Karavanke**, 13°48′47″, 46°29′57″, VM05, 1415 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994; **Kamnik**, 14°37′41″, 46°13′09″, VM71, 578 m, *Picea abies*, deblo 33 cm gLEŠ, lDBo dRPa, lit.NOg2019, 16.6.2017, 2.7.2017; ibidem, deblo 34 cm gLEŠ, lDBo dRPa, lit.NOg2019, 16.6.2017, 2.7.2017; **Katarija, Moravče**, 14°44′41″, 46°07′07″, VM80, 529 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 19.5.2017, 2.6.2017; **Krma, Zasipska planina**, 13°54′53″, 46°23′36″, VM14, 916 m, *Larix decidua*, deblo 15 cm, ldRPa, lit.RPa1995b, 28.7.1995; **Krvavec, Kamniške Alpe**, 14°32′, 46°17′, VM62, 1560 m, ldSBr, cSBr, 24.5.2001; **Lajnar, Zgornja Sorica**, 14°01′, 46°14′, VM22, 1540 m, lAKa dSBr, cAKa, 30.7.2003; **Macesnovec, nad karavlo, Planica**, 13°42′18″, 46°29′02″, VM05, 1104 m, tThe, phCemp, ldRPa, lit.RPa1995b, 14.7.1994; **Mala planina, Kamniške Alpe**, 14°40′, 46°17′, VM72, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1982; **Mavčiče, Sorško polje**, 14°24′, 46°11′, VM51, 350 m, *Picea abies*, ldJTi, lit.JTi1983, 2.1974; **Menina planina**, 14°48′, 46°15′, VM82, 1130 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Milje 2**, 14°24′30″,46°15′52″, VM52, 428 m, tThe, phPher phChal, ldRPa, lit.RPa1991a, 12.5.1989; **Mošenik, Ljubelj**, 14°16′, 46°26′, VM44, 1000 m, ldSBr, cSBr, 19.5.1986; **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit.APi2015, 17.7.2014; **Podblica, Koblarjev hrib, Blažon**, 14°12′44″, 46°15′03″, VM32, 705 m, *Picea abies*, neobeljen panj 55 cm, ldFJa, lit.FJa1997, 27.7.1995; ibidem, neobeljen panj 61 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, neobeljen panj 70 cm, ldFJa, lit.FJa1997, 25.7.1995; ibidem, neobeljen panj 83 cm, ldFJa, lit.FJa1997, 11.9.1995; ibidem, neobeljen panj 84 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, neobeljen panj 88 cm, ldFJa, lit.FJa1997, 11.9.1995; ibidem, odrzan panj 84 cm, ldFJa, lit.FJa1997, 27.7.1995; ibidem, progasto obeljen panj 68 cm, ldFJa, lit.FJa1997, 26.7.1995; ibidem, progasto obeljen panj 74 cm, ldFJa, lit. FJa1997, 11.9.1995; ibidem, progasto obeljen panj 78 cm, ldFJa, lit.FJa1997, 27.7.1995; ibidem, progasto obeljen panj 84 cm, ldFJa, lit.FJa1997, 11.9.1995; ibidem, progasto obeljen panj 92 cm, ldFJa, lit.FJa1997, 14.6.1995; **Podbrezje**, 14°17′, 46°18′, VM42, 440 m, *Picea abies*, korenina, ldJTi, lit.JTi1983, 4.1973; ibidem, panj, ldJTi, lit.JTi1983, 4.1973; **Podvolovjek, Mali Rogatec, Savinjske Alpe**, 14°42′52″, 46°18′27″, VM72, 940 m, *Larix decidua*, hlod 15 cm, ldRPa, lit. RPa1996, 16.6.1996; **Pokljuka, Medvedova konta**, 13°57′, 46°22′, VM13, 1395 m, ldcAPi, lit. APi2015, 11.7.2014; **Pokljuka, Mrzli Studenec**, 13°59′, 46°21′, VM23, 1280 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Pokljuka, Mrzli Studenec 1**, 13°59′30″, 46°20′57″, VM23, 1212 m, *Picea abies*, hlod 40 cm, ldRPa, lit.RPa2020c, 19.10.2007; **Pokljuka, Planina Krasca**, 13°55′, 46°21′,

VM13, 1450 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Rudna dolina**, 13°57′, 46°21′, VM13, 1320 m, ldcAPi, lit.APi2015, 18.10.2013; **Prevoje, Bezovnica, Hkavšč**, 14°13′47″, 46°14′51″, VM32, 650 m, *Picea abies*, neobeljen panj 64 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, neobeljen panj 72 cm, ldFJa, lit.FJa1997, 28.7.1995; ibidem, progasto obeljen panj 56 cm,ldFJa,lit. FJa1997,28.7.1995; ibidem, progasto obeljen panj 70 cm, ldFJa, lit.FJa1997, 17.6.1995; ibidem, neobeljen panj 34 cm, ldFJa, lit.FJa1997, 17.6.1995; ibidem, neobeljen panj 69 cm, ldFJa, lit. FJa1997, 12.9.1995; ibidem, progasto obeljen panj 58 cm, ldFJa, lit.FJa1997, 28.7.1995; ibidem, progasto obeljen panj 85 cm, ldFJa, lit.FJa1997, 17.6.1995; ibidem, **Prevoje, Zabrekve, Korošc**, 14°13′37″, 46°14′52″, VM42, 610 m, *Picea abies*, progasto obeljen panj 69 cm, ldFJa, lit.FJa1997, 27.7.1995; ibidem, neobeljen panj 46 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, neobeljen panj 47 cm, ldFJa, lit.FJa1997, 12.9.1995; ibidem, neobeljen panj 50 cm, ldFJa, lit.FJa1997, 27.7.1995; ibidem, neobeljen panj 58 cm, ldFJa, lit.FJa1997, 12.9.1995; ibidem, neobeljen panj 60 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, neobeljen panj 65 cm, lFJa dJTi, lit.FJa1997, 11.9.1995; ibidem, neobeljen panj 68 cm, lFJa dJTi, lit.FJa1997, 27.7.1995; ibidem, neobeljen panj 75 cm, ldFJa, lit. FJa1997, 27.7.1995; ibidem, neobeljen panj 80 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, progasto obeljen panj 70 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, progasto obeljen panj 72 cm, ldFJa, lit. FJa1997, 11.9.1995; **Rovtarica, Jelovica**, 14°06′, 46°17′, VM32, 1150 m, *Picea abies*, ldJTi, lit. JTi1983, 8.1977; **Rudnik pri Moravčah 2**, 14°43′56″, 46°07′51″, VM70, 378 m, tPfall, phEtan veCo, lTPe dTHa, lit.THa2022c, 29.5.2020; **Selške Lajše, Kobivnk, Jelenc**, 14°12′19″, 46°14′31″, VM32, 650 m, *Picea abies*, odrzan panj 52 cm, ldFJa, lit.FJa1997, 7.9.1995; ibidem, odrzan panj 68 cm, ldFJa, lit.FJa1997, 24.7.1995; ibidem, progasto obeljen panj 41 cm, lFJa dJTi, lit.FJa1997, 13.6.1995; ibidem, progasto obeljen panj 48 cm, ldFJa, lit.FJa1997, 24.7.1995; ibidem, progasto obeljen panj 49 cm, lFJa dJTi, lit.FJa1997, 12.6.1995; ibidem, progasto obeljen panj 56 cm, ldFJa, lit.FJa1997, 7.9.1995; ibidem, progasto obeljen panj 58 cm, ldFJa, lit.FJa1997, 24.7.1995; ibidem, progasto obeljen panj 60 cm, lFJa dJTi, lit.FJa1997, 7.9.1995; ibidem, progasto obeljen panj 62 cm, lFJa dJTi, lit.FJa1997, 13.6.1995; ibidem, progasto obeljen panj 64 cm, lFJa dJTi, lit.FJa1997, 13.6.1995; ibidem, progasto obeljen panj 65 cm, ldFJa, lit.FJa1997, 24.7.1995; ibidem, progasto obeljen panj 68 cm, ldFJa, lit.FJa1997, 7.9.1995; **Selške Lajše, Koblarjev hrib, Bitenc**, 14°12′43″, 46°14′25″, VM32, 510 m, *Picea abies*, neobeljen panj 37 cm, ldFJa, lit.FJa1997, 25.7.1995; ibidem, neobeljen panj 45 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, neobeljen panj 55 cm, ldFJa, lit. FJa1997, 25.7.1995; ibidem, neobeljen panj 65 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, neobeljen panj 70 cm, ldFJa, lit.FJa1997, 9.9.1995; ibidem, neobeljen panj 76 cm, ldFJa, lit.FJa1997, 25.7.1995; ibidem, neobeljen panj 77 cm, ldFJa, lit.FJa1997, 9.9.1995; ibidem, progasto obeljen panj 45 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, progasto obeljen panj 52 cm, ldFJa, lit.FJa1997, 9.9.1995; ibidem, progasto obeljen panj 55 cm, ldFJa, lit.FJa1997, 9.9.1995; ibidem, progasto obeljen panj 57 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, progasto obeljen panj 58 cm, ldFJa, lit.FJa1997, 25.7.1995; ibidem, progasto obeljen panj 64 cm, ldFJa, lit.FJa1997, 25.7.1995; **Selške Lajše, Selca, Jakec**, 14°11′50″, 46°14′38″, VM32, 660 m, *Picea abies*, neobeljen panj 57 cm, ldFJa, lit.FJa1997, 6.7.1995; ibidem, neobeljen panj 71 cm, ldFJa, lit.FJa1997, 2.10.1995; ibidem, progasto obeljen panj 59 cm, ldFJa, lit.FJa1997, 6.7.1995; ibidem, progasto obeljen panj 68 cm, ldFJa, lit.FJa1997, 2.10.1995; ibidem, progasto obeljen panj 77 cm, ldFJa, lit.FJa1997, 2.10.1995; **Selške lajše, Selca, Plajba**, 14°11′57″, 46°14′13″, VM32, 530 m, *Picea abies*, neobeljen panj 59 cm, ldFJa, lit.FJa1997, 4.10.1995; **Soriška planina, Lajnar, Julijske Alpe**, 14°00′, 46°14′, VM22, 1450 m, ldAKa, cAKa, 25.7.2003; ibidem, 1540 m, ldAKa, cAKa, 30.7.2003; **Sorško polje**, 14°22′, 46°11′, VM51, 360 m, *Picea abies*, panj, ldJTi, lit.JTi1983, 5.1972; **Spodnja Kokra, Preddvor**, 14°28′, 46°18′, VM52, 490 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 3.1973; **Spodnja Luša, Ambruški potok, Ambrušč**, 14°13′17″, 46°11′30″, VM31, 530 m, *Picea abies*, neobeljen panj 34 cm, ldFJa, lit.FJa1997, 21.8.1995; ibidem, neobeljen panj 41 cm, ldFJa, lit.FJa1997, 3.10.1995; ibidem, neobeljen panj 51 cm, ldFJa, lit.

FJa1997, 3.10.1995; ibidem, neobeljen panj 52 cm, ldFJa, lit.FJa1997, 7.7.1995; ibidem, neobeljen panj 55 cm, ldFJa, lit.FJa1997, 21.8.1995; ibidem, neobeljen panj 54 cm, ldFJa, lit.FJa1997, 7.7.1995; ibidem, progasto obeljen panj 40 cm, ldFJa, lit.FJa1997, 21.8.1995; ibidem, progasto obeljen panj 52 cm, ldFJa, lit.FJa1997, 21.8.1995; ibidem, progasto obeljen panj 56 cm, ldFJa, lit.FJa1997, 7.7.1995; ibidem, progasto obeljen panj 57 cm, ldFJa, lit.FJa1997, 3.10.1995; **Spodnja Luša, Kraj, Benetk 1**, 14°13′47″, 46°11′48″, VM41, 610 m, *Picea abies*, neobeljen panj 58 cm, ldFJa, lit.FJa1997, 7.7.1995; ibidem, progasto obeljen panj 47 cm, ldFJa, lit.FJa1997, 7.7.1995; **Spodnja Luša, Kraj, Dolenc**, 14°14′06″, 46°11′49″, VM41, 550 m, *Picea abies*, neobeljen panj 36 cm, ldFJa, lit.FJa1997, 21.8.1995; ibidem, neobeljen panj 70 cm, ldFJa, lit.FJa1997, 21.8.1995; ibidem, obeljen panj 44 cm, ldFJa, lit.FJa1997, 8.7.1995; **Sveta Gora, Izlake**, 14°54′, 46°08′, VM90, 780 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1970; **Šenčur, Zlato polje 1,** 14°24′11″, 46°15′01″, VM52, 414 m, tThe, phChal, ldRPa, lit.RPa1991a, 5.5.1989, 12.5.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 12.5.1989; **Tamar, Planica**, 13°43′, 46°27′, VM14, 1000 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1981; **Triglav, Julijske Alpe**, 13°50′, 46°22′, VM13, *, ldAGs, cAGs, 30.7.1927; **Triglavska jezera**, 13°47′, 46°19′, VM02, 1580 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1974; **Udin boršt, Naklo**, 14°20′, 46°18′, VM42, 430 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Velika planina, Kamniške Alpe**, 14°39′, 46°18′, VM72, ~1600 m, ldJSd, cJSd, 19.6.1930; **Vitranc, Julijske Alpe**, 13°45′,46°29′, VM04, 1570 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Vodice 3**, 14°32′01″, 46°11′19″, VM61, 330 m, *Picea abies*, deblo 24 cm gLEŠ, lDBo dRPa, lit.RPa2020b, 16.3.2017; ibidem, deblo 25 cm gLEŠ, lDBo dRPa, lit. RPa2020b, 16.3.2017; **Voglje 4**, 14°27′21″, 46°11′53″, VM51,366 m, tHat, phEtan vePs, ldRPa, lit. RPa2021a, 15.6.2021; **Voglje 7**, 14°27′23″, 46°11′52″, VM51, 367 m, tHat, phEtan vePs, ldRPa, lit. RPa2021a, 15.6.2021; **Vršič, Koča na Gozdu**, 13°45′55″, 46°26′08″, VM04, 1364 m, tThe, phCemp, ldRPa, lit.RPa1995b, 14.7.1994; **Zgornja Luša, Pustote, Tavčar**, 14°12′48″, 46°10′29″, VM31, 550 m, *Picea abies*, neobeljen panj 68 cm, ldFJa, lit.FJa1997, 21.8.1995; **Zgornje Bitnje 1**, 14°19′40″, 46°13′17″, VM41, 395 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 13.8.2008; **Zgornje Jezersko**, 14°30′25″, 46°23′25″, VM63, 973 m, *Larix decidua*, hlod 15 cm, ldRPa, lit.RPa1996, 8.6.1996; **Zgornje Jezersko, ob Jezernici**, 14°31′, 46°24′, VM63, 800 m, ldSBr, cSBr, 26.5.1993; **Zgornji Log, Poljanska dolina**, 14°14′, 46°08′, VM40, 430 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 3.1972.

NOTRANJSKO: **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017; **Črni Vrh, Idrija**, 14°02', 45°55', VL28, 760 m, *Picea abies*, ldJTi, lit. JTi1983, 10.1977; **Godovič**, 14°06′, 45°57′, VL29, 595 m, *Picea abies*, ldJTi, lit.JTi1983, 10.1977; **Horjul**, 14°18′, 46°01′, VL49, 410 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 3.1972; **Hotedršica**, 14°09′, 45°56′, VL38, 545 m, *Picea abies*, ldJTi, lit.JTi1983, 10.1977; **Ivanje Selo, Rakek**, 14°18′, 45°50′, VL47, 550 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Mašun, Snežnik**, 14°22′, 45°38′, VL55, 900 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Pekel, Borovnica**, 14°23′, 45°53′, VL58, 430 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 3.1973; **Pokojišče, Borovnica 1**, 14°20′35″, 45°53′14″, VL48, 713 m, tWit, phEtan, ldTHa, lit.THa2018, 11.8.2017; **Razdrto**, 14°04′, 45°45′, VL26, 590 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Samotorica, Horjul**, 14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017; **Veliko Ubeljsko, Razdrto**, 14°05′, 45°46′, VL26, 620 m, *Picea abies*, ldJTi, lit.JTi1983, 11.1978; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 16.6.2017.

LJUBLJANA Z OKOLICO: **Babni Dol, Stanežiče**, 14°24′, 46°05′, VM50, 370 m, ldAGs, cAGs, pred 1951; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldHEg, cAGs, pred 1951; ibidem, cJSs, pred 1951; ibidem, ldJSd, cJSd, 16.9.1941, 10.5.1943, 28.5.1943; **Ljubljana, Črnuče**, 14°31′, 46°06′, VM60, 290 m, ldAGs, cAGs, pred 1951; **Ljubljana, Koseze**, 14°28′, 46°04′, VM50, 310 m, ldAGs, cAGs, pred 1951; **Ljubljana, Večna pot**, 14°28′, 46°03′, VM50, 300 m, ldAGs, cAGs, 20.5.1943; **Rožnik, Ljubljana**, 14°28′, 46°03′, VM50, 360 m, *Picea abies*, panj, ldJTi, lit.JTi1983, 1965;

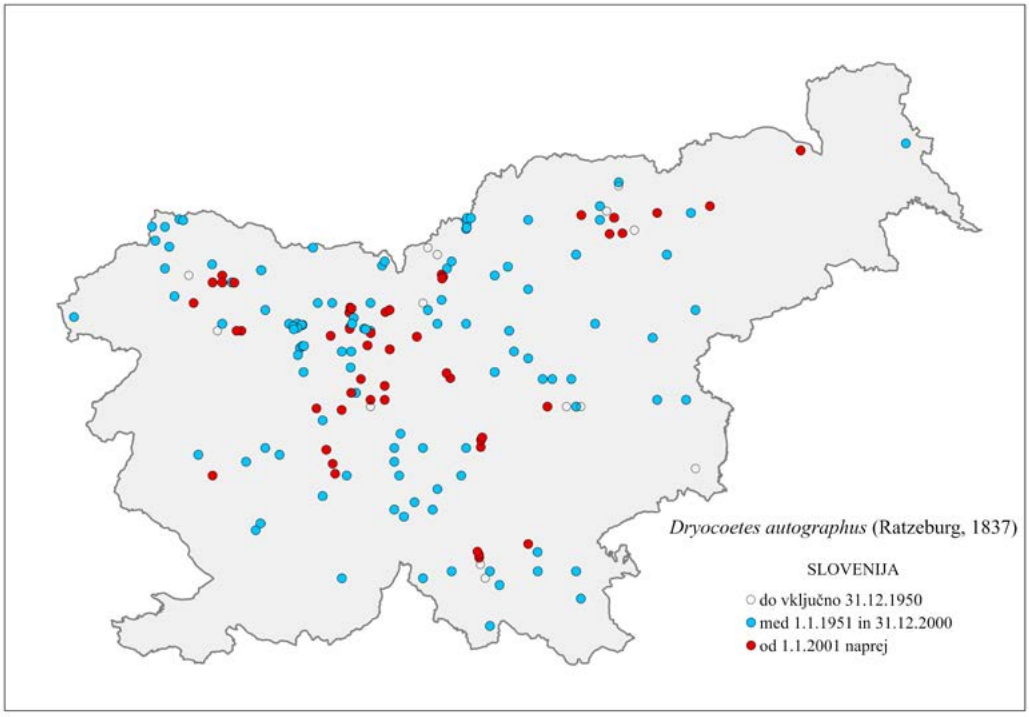
Toško Čelo, 14°25′, 46°05′, VM50, 480 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 2.1974; **Vikrče**, 14°26′, 46°07′, VM50, 330 m, lHEg, cJSs, pred 1951.

DOLENJSKO: **Banjaloka**, 14°53′, 45°31′, VL94, 350 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Baza 20, Kočevski Rog**, 15°02′58″, 45°41′50″, WL06, 670 m, ldSBr, cSBr, 8.8.1986; **Brežice**, 15°36′, 45°54′, WL48, 155 m, ldVKo, cŠFS, 20.5.1933; **Grčarice, Črni vrh**, 14°45′, 45°39′, VL85, 950m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Dobovec, Kum**, 15°04′, 46°07′, WM00, 660 m, lBDr dSBr, cSBr, 9.7.1987; **Dobrava, Radeče**, 15°11′, 46°03″, WL19, 390 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 6.1966; **Draga, Goteniška gora**,14°39′, 45°38′, VL75, 750 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 27.5.1978, 1.6.1978; **Grosuplje**, 14°39′, 45°57′, VL78, 410 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1978; **Hotemež, Radeče 1**, 15°12′, 46°03′, WL19, 240 m, *Picea abies*, deblo, ldJTi, lit.JTi1969, 1966; **Jatna, Podkum**, 15°05′, 46°03′, WL09, 570 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 6.1966; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, ldSBr, cSBr, 28.8.1948; **Kočevje, Koblarji 1**, 14°50′44″, 45°41′00″, VL85, 471 m, tPfall, phEtan veCo, ldSBu, lit. SBu2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 22.5.2020, 29.5.2020; **Kočevje, Koblarji 2**, 14°50′42″, 45°41′26″, VL85, 470 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 17.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 22.5.2020, 29.5.2020; **Kočevje, Koblarji 3**, 14°50′23″, 45°41′54″, VL86, 472 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 17.4.2020, 24.4.2020, 8.5.2020, 15.5.2020, 22.5.2020, 29.5.2020; **Kožlak, Bajda, Podkraj**, 15°06′, 46°07′, WM00, 420 m, *Picea abies*, panj, ldJTi, lit. JTi1983, 4.1973; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 15.8.1980; **Krka, Muljava**, 14°47′, 45°53′, VL88, 320 m, *Picea abies*, panj, ldJTi, lit.JTi1983, 10.1972; **Kurešček, Visoko**, 14°34′, 45°53′, VL68, 750 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Mikunca, Žimarice**, 14°35′, 45°47′, VL67, ~800 m, tThe, phPher, lČVi dSBr, cSBr, 12.5.1992; **Močilno, Radeče**, 15°09′, 46°03′, WL19, 540 m, *Picea abies*, deblo, ldJTi, lit.JTi1969, 1966; **Mramorovo pri Lužarjih**, 14°33′, 45°48′, VL67, 760 m, tThe, phPher, lČVi dSBr, cSBr, 12.5.1992, 26.5.1992; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 600 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Podstenice, Kočevski Rog**, 15°01′, 45°43′, WL06, 600 m, ldAGs, cAGs, pred 1951; **Ribnik, Črmošnjice, Kočevski Rog**, 15°03′, 45°39′, WL05, 850 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Stara Cerkev, Kočevje**, 14°51′, 45°40′, VL85, 480 m, ldSBr, cSBr, 28.7.1948; **Stična**,14°48′, 45°57′, VL88, 420 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Šahen, Kočevje**, 14°55′, 45°37′, VL95, 480 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phPher, lGBa dSBr, cSBr, 14.5.1993; **Škrilje, Ig**, 14°33′, 45°55′, VL68, 570 m, ldSBr, cSBr, 2.5.1980, 22.3.1981; **Velika Slevica, Velike Lašče**, 14°37′12″, 45°49′06″, VL77, 606 m, tThe, phPher phChal, lTSt dRPa, lit.RPa2014c, 11.7.1994, 21.7.1994; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 3.5.2017, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 7.6.2017; **Velike Češnjice 2**, 14°51′07″, 45°58′08″, VL89, 381 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 3.5.2017, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 14.6.2017, 20.6.2017; **Velike Češnjice 3**, 14°51′23″, 45°58′32″, VL89, 432 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 17.5.2017, 24.5.2017; ibidem, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 3.5.2017, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; **Velike Lipljene**, 14°38′, 14°54′, VL78, 460 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Zdenska Vas, Dobrepolje**, 14°42′, 45°51′, VL77, 420m, *Picea abies*, ldJTi, lit.JTi1983, 7.1978; **Željne, Kočevje**, 14°53′, 45°39′, VL95, 470 m, lSDe dSBr, cSBr, 18.5.1992.

BELA KRAJINA: **Črnomelj**, 15°12′, 45°35′, WL14, 170 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Semič**, 15°11′, 45°39′, WL15, 260 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977.

ŠTAJERSKO: Bele vode, kmetija Kovač, 14°56′44″, 46°23′15″, VM93, 738 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa1995b, 4.8.1995; **Boč, Poljčane**, 15°36′, 46°17′, WM42, 830 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1974; **Bohor, Koča na Bohorju**, 15°28′, 46°04′, WM30, 900 m, ldSBr, cSBr, 22.6.1989; **Brežice**, 15°36′, 45°54′, WL48, 155 m, ldVKo, cŠFS, 20.5.1933; **Celje, skladišče lesa**,

15°15′, 46°15′, WM22, 240 m, lSJe dSBr, cSBr, 7.6.1991; **Golte, Mozirska koča**, 14°54′, 46°22′, VM93, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1980; **Gornji Dolič, Mislinja**, 15°11′, 46°25′, WM14, 450m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Grobelno, Šentjur**, 15°27′, 46°13′, WM31, 320m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Igla, Solčava, Savinjska dolina**, 14°44′, 46°23′, VM73, 570 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 7.1973; **Josipdol, Lavtar, Pohorje**, 15°18′58″, 46°30′19″, WM24, 1230 m, *Picea abies*, ldJPo, lit.JPo2016, 7.2011, 7.2012; **Josipdol, Pohorje**, 15°17′24″, 46°31′16″, WM25, 700 m, *Picea abies*, ldJPo, lit.JPo2016, 2011, 2012; **Javorski vrh, Kladje, Pohorje**, 15°23′12″, 46°28′32″, WM24, 1304 m, *Picea abies*, ldJPo, lit.JPo2016, 2009; **Kope, Pohorje, Pahernikova posest**, 15°12′05″, 46°30′41″, WM15, 1350 m, tPfall, phAlfa phEtan, lTAd dTHa, lit.THa2022a, 31.7.2020; **Kopitnik, Gore, Rimske Toplice**, 15°10′, 46°07′, WM01, 840 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978; **Kozje, Kozjansko**, 15°34′, 46°04′, WM40, 520 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 7.1973; ibidem, neobeljen gradbeni les, ldJTi, lit.JTi1983, 7.1973; **Lobnica (potok), Pohorje**, 15°28′, 46°31′, WM35, ~480 m, ldJPe vSBr, cJPe, pred 1951; **Ločica pri Vranskem**, 14°57′, 46°14′, VM91, 380 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 3.1972; ibidem, *Pinus sylvestris,* hlod, ldJTi, lit.JTi1973, 3.1972; **Mali Črni vrh, Ribniška koča, Pohorje**, 15°16′, 46°30′, WM24, 1100 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; ibidem, 1400 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Maribor**, (15°39′), (46°32′), (WM55), ~270 m, ldJPe vSBr, cJPe, pred 1951; **Partizanski vrh, Trbovlje**, 15°01′, 46°10′, WM01, 750 m, *Picea abies*, ldJTi, lit. JTi1983, 7.1980; **Pesek, Koča na Pesku, Pohorje**, 15°20′41″, 46°28′05″, WM24, 1393 m, *Picea abies*, deblo 8 cm, ldRPa, lit.RPa2014c, 19.5.2009; ibidem, deblo 20 cm, ldRPa, lit.RPa2014c,



Slika 100: SMREKOV KOSMATINEC *Dryocoetes autographus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 100: *Dryocoetes autographus*, distribution map according to historical and recent data

19.5.2009; **Podvelka, Brezno**, 15°19′55″, 46°35′25″, WM25, 321 m, tThe, phPher phChal, ldRPa, lit.RPa1995b, 4.8.1995; **Pohorje**, (15°18′), (46°28′), (WM24), *, dHKr, cJPe, pred 1951; ibidem, ldEJa vSBr, cEJa, 19.5.1929; ibidem, ldJPe vSBr, cJPe, pred 1951; **Police, Gornja Radgona**, 15°58′, 46°40′, WM76, 300 m, lBDr dSBr, cBDr, 14.6.2002; **Poljšak 5**, 14°42′53″, 46°22′08″, VM72, 1137 m, *Picea abies*, žlebljeno deblo 35 cm, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak p3a**, 14°43′13″, 46°21′48″, VM72, 754 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021c, 29.6.2021; **Poljšak p2c**, 14°42′58″, 46°21′33″, VM72, 813 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2021c, 28.7.2021, 4.8.2021, 11.8.2021; ibidem, lTHa dRPa, lit.RPa2021c, 1.9.2021; **Raduha, Savinjske Alpe**, 14°45′, 46°24′, VM83, 1320 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Rdeči Breg, Pohorje**, 15°19’54″, 46°34’55″, WM25, 450 m, *Picea abies*, ldJPo, lit.JPo2016, 2011, 2012; **Ribnica na Pohorju**, 15°16′, 46°32′, WM25, 780 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Solčava**, 14°42′, 46°25′, VM74, 650 m, ldAGs, cAGs, 12.5.1932; ibidem, 640 m, ldVKo, cBFG, 22.7.1931; **Stari stani, Mozirska planina, Golte**, 14°54′, 46°22′, VM93, 1100 m, lBDr dSBr, cSBr, 6.1987; **Sveti Bolfenk, Hočko Pohorje**, 15°35′, 46°31′, WM45, 1030 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1979; **Tabor, Šmartno ob Paki**, 15°01′, 46°20′, WM03, 290 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 6.1973; **Veliko Tinje, Pohorje**, 15°30′, 46°25′, WM34, 680 m, ldSBr, cSBr, 27.5.1990.
KOROŠKO: **Peca, Dom na Peci**, 14°48′, 46°30′, VM84, 1450 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit. RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994; ibidem, ldRPa vcSBr, lit.RPa1994a, 13.8.1994; ibidem, ldRPa, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 12.8.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994, 21.9.1994; ibidem, lit. RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994; ibidem, lit.RPa1995a, 17.7.1995, 30.7.1995; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 13.8.1994, 8.9.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 13.8.1994, 8.9.1994; ibidem, lit.RPa1995a, 4.7.1995, 17.7.1995; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994; ibidem, lit.RPa1995a, 21.6.1995, 7.9.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994; **Plešivec, Poštarski dom**, 15°01′, 46°30′, WM04, 1140 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 31.7.1994; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 5.7.1994, 31.7.1994; ibidem, lit.RPa1995a, 4.7.1995; **Sveti Duh, Olševa, Karavanke**, 14°40′, 46°26′, VM74, 1230 m, ldVKo, cBFG, 22.7.1931.
PREKMURJE: **Bukovnica, Dobrovnik**, 16°20′, 46°41′, XM07, 230 m, *Picea abies*, ldJTi, lit. JTi1983, 5.1982.

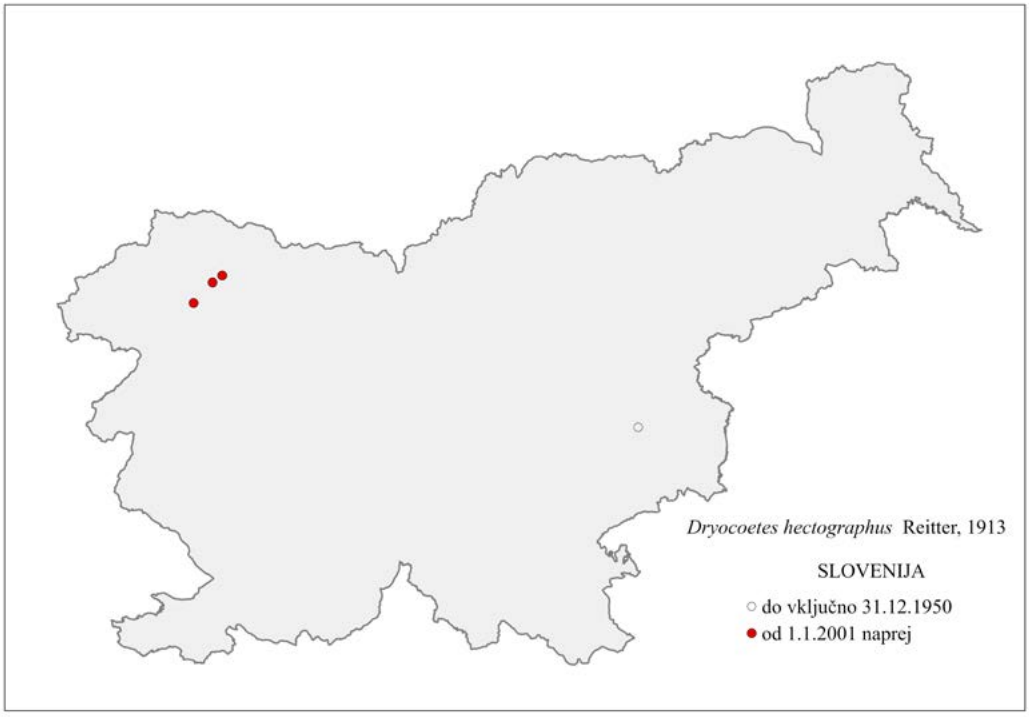
24.03. *Dryocoetes hectographus* Reitter, 1913 STOČRTNI KOSMATINEC

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Freude, Harde, Lohse 1981: *Dryocoetes hectographus* Reitter (1913) = *D. autographus* Ratzeburg; Pfeffer 1995: *D. hectographus* Reitter, 1913.

E: BE BU BY CT CZ EN FI FR GE HU IT LA LT NR NT PL SK SL SV SZ **A:** ES FE GAN HEI JA JIL KZ LIA MG NC QIN SCH SHA SHX TAI WS XIZ YUN

Vrsta je prisotna v visokogorju srednje in severne Evrope ter v Sibiriji. Poleg stare najdbe na Dolenjskem so tri novejša najdišča na Gorenjskem, na nadmorskih višinah od 1395 do 1460 m (slika 101). Razširjenost v Sloveniji je slabo raziskana. Ker vrsta ni bila vsebovana v nekaterih starejših determinacijskih ključih, je bilo verjetno več osebkov, zlasti tistih, ki so bili nabrani na višjih nadmorskih višinah, napačno določenih kot *D. autographus*. Gostitelji so *Picea abies*, *P. obovata*, *Abies sibirica*, *A. nephrolepis*, *A. holophylla*, *Larix sibirica* in *L. gmelinii*. Gostitelji v Sloveniji niso zabeleženi. Dolžina adulta je 3,0–4,0 mm. Od smrekovega kosmatinca (*D. autographus*) se razlikuje po razločno vbočenem drugem medprostoru na koncu pokrovk in po manjših punktacijah na koničniku.

The species is found in the high mountains of central and northern Europe and Siberia. In addition to old record in Dolenjska, three more recent records are located in Gorenjska, at altitudes ranging from 1395 to 1460 m (Figure 101). The distribution in Slovenia is poorly studied. As the species was not included in some of the older determination keys, it is likely that several specimens, especially those collected at higher altitudes, were misidentified as *D. autographus*. Hosts include *Picea abies*, *P. obovata*, *Abies sibirica*, *A. nephrolepis*, *A. holophylla*, *Larix sibirica* and *L. gmelinii*. Hosts from Slovene sites are not recorded. Adult length is 3.0-4.0 mm. It differs from the related species *D. autographus* by a distinctly concave second interspace at the end of the elytra and by smaller punctures on the apex .



Slika 101: STOČRTNI KOSMATINEC *Dryocoetes hectographus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 101: *Dryocoetes hectographus*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia
GORENJSKO: **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit.APi2015, 17.7.2014; **Pokljuka, Medvedova konta**, 13°57′, 46°22′, VM13, 1395 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Planina Krasca**, 13°55′, 46°21′, VM13, 1450 m, ldcAPi, lit. APi2015, 11.7.2014.
DOLENJSKO: **Blanca, Krško**, 15°24′, 46°00′, WL39, 200 m, ldVKo vZKa, cŠFS, 6.5.1933.

24.04. *Dryocoetes villosus* (Fabricius, 1792) KOCASTI KOSMATINEC

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL, 1866: *Bostrychus villosus* Fab.; GRÜNE 1979: *Dryocoetes villosus* (Fabricius, 1792); FREUDE, HARDE, LOHSE 1981: *Dryocoetes villosus* Fabricius; PFEFFER & KNÍŽEK 1993: *D. villosus* (Fabricius, 1792); PFEFFER 1995: *Dryocoetes villosus villosus* (Fabricius, 1792).

E: AU BE BU BY CR CZ DE EN FR GB GE GR IR IT (Sardegne, Sicilia) LA LT MC NR PL PT SK SL SP ST SV SZ UK YU **N:** AG MR TU **A:** TR

Vrsta je prisotna v Evropi, na Krimu, Kavkazu, severni Afriki in Turčiji. SIEGEL (1866) navaja, da je bila vrsta »na Kranjskem redka, v smrekovem lubju«. Številne novejše najdbe v osrednji Sloveniji so rezultat ulova v pasteh (slika 103). Gostitelji so *Quercus petraea*, *Q. robur*, *Quercus* spp., manj pogosto tudi *Fagus sylvatica*, *Castanea sativa*, *Prunus* spp. in *Carpinus* spp. V Sloveniji sta kot gostitelja zabeležena *Q. petraea* in *Q. robur*, na Ljubljanskem vrhu pa je bil leta 2018 ugotovljen tudi na debelcih *Picea abies* in *Abies alba*. Vrsta razvije letno 1–2 generaciji. Rovni sistem je prečno orientiran, nepravilne oblike. Dolžina adultov je 2,5–3,5 mm (slika 102).

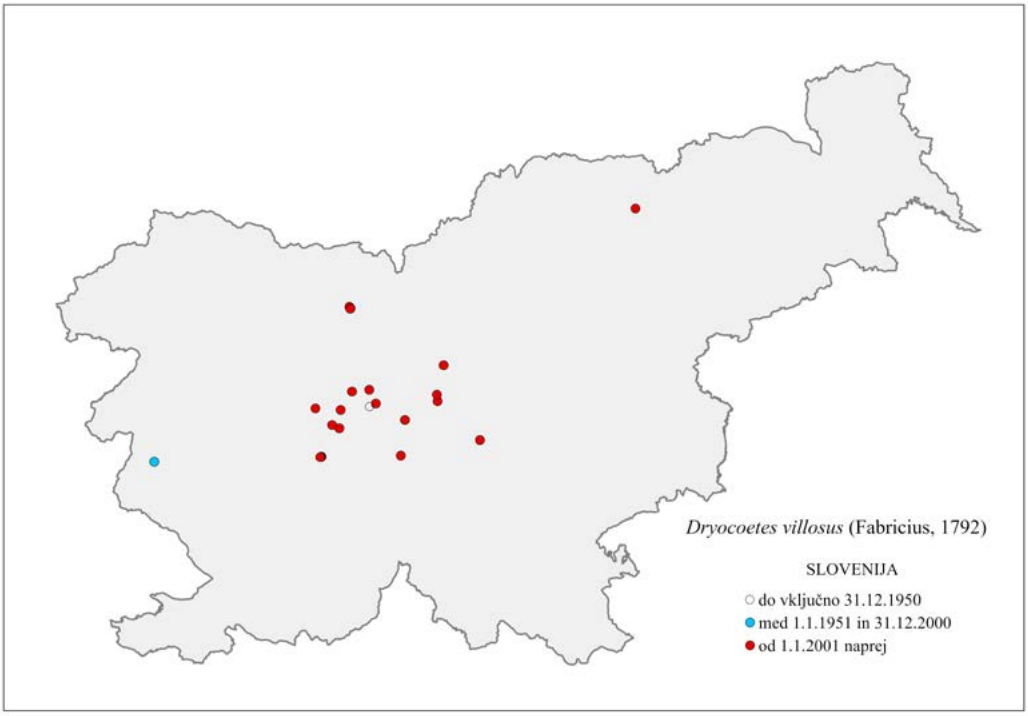
The species is found in Europe, the Crimea, the Caucasus, North Africa and Turkey. SIEGEL (1866) states that the species was "rare in Carniola, in the bark of spruce trees". Many recent records in central Slovenia are the result of trapping (Figure 103). Hosts include *Quercus petraea*, *Q. robur*, *Quercus* spp., less frequently also *Fagus sylvatica*, *Castanea sativa*, *Prunus* spp. and *Carpinus* spp.). In Slovenia, *Q. petraea* and *Q. robur* are recorded as hosts, and in 2018 an infestation of the trunks of *Picea abies* and *Abies alba was also* recorded at Ljubljanski Vrh. The species develops 1-2 generations per year. The tunnel system is transversely oriented, irregular in shape. Adult length is 2.5-3.5 mm (Figure 102).

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: *Picea abies*, ldMSi, lit.MSi1866, pred 1951.
PRIMORSKO: **Kurnik, Vogrsko**, 13°43′, 45°55′, VL08, 60 m, lRJe dSBr, cSBr, 16.4.1987.
GORENJSKO: **Brdo pri Kranju 1/57**, 14°23′48″, 46°17′26″, VM52, 467 m, *Quercus petraea*, panj 50 cm, ldRPa, lit.RPa2003, 27.9.2003; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2015a, 24.6.2015; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaPr, ldRPa, lit.RPa2010a, 9.6.2010; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 2.6.2017.
NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 16.6.2017; **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 14.7.2017, 28.7.2017, 25.8.2017; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.

THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 14.7.2017; **Ljubljanski vrh 1**, 14°17′57″, 45°55′44″, VL48, 753 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 2**, 14°17′55″, 45°55′41″, VL48, 729 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; ibidem, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 3**, 14°17′52″, 45°55′39″, VL48, 715 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 4**, 14°17′48″,

Slika 102: KOCASTI KOSMATINEC *Dryocoetes villosus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 102: *Dryocoetes villosus*, dorsal, lateral (Photo: Maja Jurc)



Slika 103: KOCASTI KOSMATINEC *Dryocoetes villosus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 103: *Dryocoetes villosus*, distribution map according to historical and recent data

45°55′39″, VL48, 707 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; ibidem, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 5**, 14°17′44″, 45°55′39″, VL48, 692 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; ibidem, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Samotorica, Horjul**, 14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017.
LJUBLJANA Z OKOLICO: **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 14.7.2017; **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 2.6.2017, 30.6.2017; **Rožnik, Ljubljana**, 14°28′, 46°03′, VM50, ~390 m, ldAGs, cAGs, 15.7.1948; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 21.4.2017, 19.5.2017, 2.6.2017, 30.6.2017; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017.
DOLENJSKO: **Janče, Jevnica**, 14°42′14″, 46°03′48″, VM70, 589 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 19.5.2017, 2.6.2017, 11.8.2017; **Laze pri Dolskem**, 14°42′07″, 46°04′45″, VM70, 452 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 19.5.2017, 2.6.2017, 14.7.2017; **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 30.6.2017, 28.7.2017; **Velike Češnjice 2**, 14°51′07″, 45°58′08″, VL89, 381 m, tBak, phEtan, ldLPa vTHa, lit.LPa2019, 17.5.2017.
ŠTAJERSKO: Kumen, Lovrenc na Pohorju, 15°23′37″, 46°31′39″, WM35, 704 m, *Quercus robur*, hlod, ldRPa, lit.RPa2020b, 5.7.2016.

25.00. *Lymantor* Løvendal, 1889 OVALNEŽ

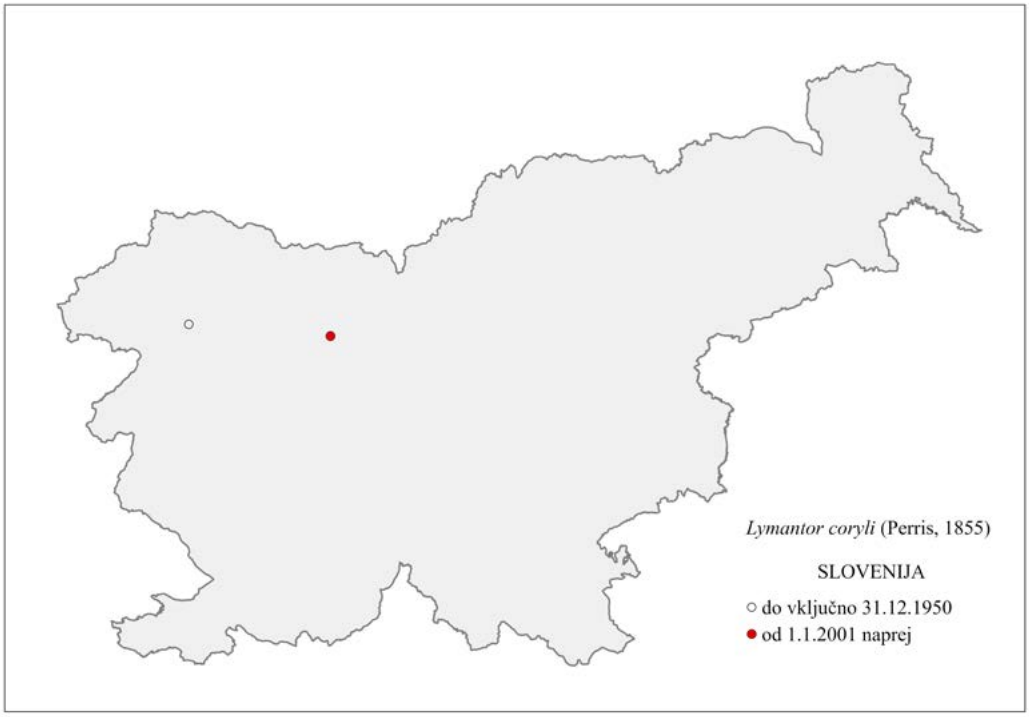
25.01. *Lymantor coryli* (Perris, 1855) LEŠNIKOV OVALNEŽ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: FUCHS 1905: *Lymantor coryli* Perris; GRÜNE 1979: *Lymantor coryli* Perris, 1855; FREUDE, HARDE, LOHSE 1981: *Triotemnus coryli* Perris; PFEFFER 1995: *Lymantor coryli* (Perris, 1853).

E: AU BE BU CR CT CZ DE EN FI FR GB GE GR HU IT LA LT NR NT PL RO SK SL SP ST SV SZ UK YU »Caucasus« **A:** ES FE TR

Vrsta je razširjena v Evropi, Turčiji, Kavkazu, vzhodni Sibiriji in vzhodni Rusiji. FUCHS (1905) navaja, da ja vrsto »našel prof. dr. Peneke v Julijskih Alpah, v Bohinju, na leski«. Datum najdbe ni naveden. Več kot 100 let pozneje (2008) je bil v Zgornjih Bitnjah (Gorenjska) v pasti najden drugi primerek. Zato lahko domnevamo, da je vrsta pri nas redka (slika 104). Gostitelji so *Corylus avellana*, *C. betulus*, *Fagus* sp., *Juglans nigra*, *Acer campestre*, *A. pseudoplatanus*, *Quercus* spp., *Pyrus malus*, *Prunus* sp., *Rhamnus catharticus*, *Salix* sp., *Ulmus carpinifolia*, *Syringa vulgaris* in *Frangula alnus*. Dolžina adulta je 1,6–2,2 mm.

The species is distributed in Europe, Turkey, the Caucasus, eastern Siberia and eastern Russia. FUCHS (1905) states that the species was "found by Prof. Dr. Peneke in the Julian Alps, in Bohinj, on hazel". The date of the find is not given. More than 100 years later (2008), a second specimen was found in a trap in Zgornje Bitnje (Gorenjska). Therefore, it can be assumed that the species is rare in our area (Figure 104). Hosts include *Corylus avellana*, *C. betulus*, *Fagus* sp., *Juglans nigra*, *Acer campestre*, *A. pseudoplatanus*, *Quercus* spp., *Pyrus malus*, *Prunus* sp., *Rhamnus catharticus*, *Salix* sp., *Ulmus carpinifolia*, *Syringa vulgaris* and *Frangula alnus*. Adult length is 1.6-2.2 mm.



Slika 104: LEŠNIKOV OVALNEŽ *Lymantor coryli*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 104: LEŠNIKOV OVALNEŽ *Lymantor coryli*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia
GORENJSKO: **Bohinj, Julijske Alpe**, (13°50′), (46°15′), VM12, ~550 m, *Corylus avellana*, ldPPe, lit.GFu1905, pred 1951; **Zgornje Bitnje 2**, 14°19′37″, 46°13′19″, VM41, 396 m, tWit, phGaWi, ldRPa, lit.RPa2008, 10.9.2008.

26.00. *Taphrorychus* Eichhoff, 1878 BUKOVAR

26.01. *Taphrorychus bicolor* (Herbst, 1794) DVOBARVNI BUKOVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL, 1866: *Bostrychus autographus* Rtzb.; BRANCSIK, 1871: *Dryocetes bicolor* HRBST.; GRÜNE 1979: *Taphrorychus bicolor* Herbst, 1793; FREUDE, HARDE, LOHSE 1981: *Taphrorychus bicolor* Herbst; TITOVŠEK 1988: *Taphrorychus bicolor* (Herbst); PFEFFER & KNÍŽEK 1993: *Taphrorychus bicolor* (Herbst, 1793); PFEFFER 1995: *Taphrorychus bicolor* (Herbst, 1793).

E: AU BE BH BU CR CZ DE FR GB GE HU IT LS LT MC NL NR PL PT RO SL* SK SP SV SZ UK YU »Caucasus« **A:** NC SC TR

Slika 105: DVOBARVNI BUKOVAR *Taphrorychus bicolor*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 105: *Taphrorychus bicolor*, dorsal, lateral (Photo: Maja Jurc)

Vrsta je razširjena v Evropi, na Krimu, Kavkazu, Turčiji ter Severni in Južni Koreji. SIEGEL (1866) in BRANCSIK (1871) za Kranjsko oziroma Štajersko navajata, da je bila vrsta »redka, pod bukvinim lubjem«. Po letu 1990 je bila vrsta najdena na lokacijah v večjem delu Slovenije, vendar ni pogosta (slika 106). Gostitelji so *Fagus sylvatica*, *F. orientalis*, redkeje tudi *Carpinus betulus*, *C. orientalis*, *Quercus pedunculata*, *Q. petraea*, *Q. pontica*, *Populus tremula*, *Betula* spp., *Juglans regia* in *Acer pseudoplatanus*. V Sloveniji je najden samo na *F. sylvatica*, pogostejši je ulov v pasti. Razvije dve generaciji letno, prvič roji marca in aprila, drugič junija. Rovni sistem je nepravilno razvejan, vključno z larvalni rovi, spominja na labirint. Dolžina adulta je 1,6–2,5 mm (slika 105) . Vrsta je izrazito sekundarna.

The species is distributed in Europe, in the Crimea, the Caucasus, Turkey, North Korea, and South Korea; SIEGEL (1866) and BRANCSIK (1871) state for Carniola and Styria that the species was "rare, under the bark of beech". Especially after 1990, the species has been found at sites in most of Slovenia, but it is not common (Figure 106). Hosts include *Fagus sylvatica*, *F. orientalis*, less frequently also *Carpinus betulus*, *C. orientalis*, *Quercus pedunculata*, *Q. petraea*, *Q. pontica*, *Populus tremula*, *Betula* spp., *Juglans regia* and *Acer pseudoplatanus*. In Slovenia it is found only on *F. sylvatica*, more often caught in traps. Develops two generations per year, the first swarming in March and April, the second in June. The tunnel system is irregularly branched, including the larval tunnels, resembling a labyrinth. Adult length is 1.6-2.5 mm (Figure 105).

Najdišča v Sloveniji / Localities in Slovenia

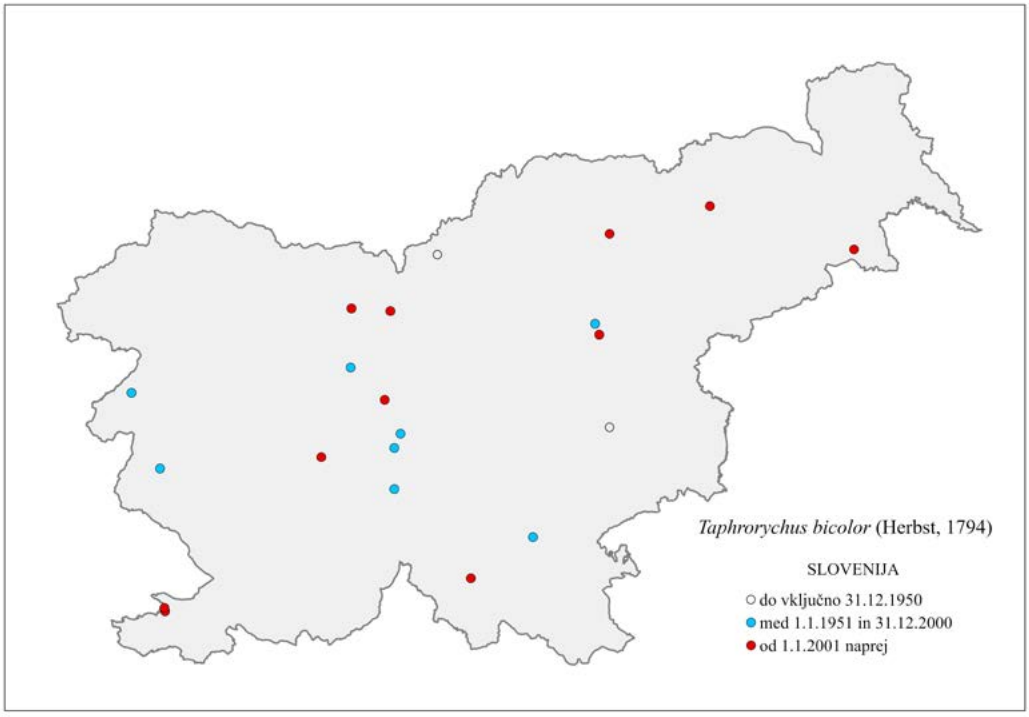
SLOVENIJA: *Fagus sylvatica*, ldMSi, lit.MSi1866, pred 1951.

ISTRA: **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2016b, 31.8.2016; ibidem, lit.RPa2019d, 28.8.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2019d, 25.9.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2015b, 6.5.2015.

PRIMORSKO: **Kanal**, 13°38', 46°05', UM90, 100 m, lMKa dBDr, cZRC, 4.5.1989; **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, lRJe dSBr, cSBr, 14.5.1991, 26.4.1992.

GORENJSKO: **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 22.7.2022; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2019a, 11.10.2019; **Goričane, skladišče lesa**, 14°23′50″,

46°08′41″, VM51, 323 m, tThe, phLino, lFPo dSBr, cSBr, 4.6.1990; ibidem, lGBa,cSBr,30.4.1991, 27.5.1991, 3.6.1991, 4.5.1992, 4.6.1993; ibidem, phPher, lGBa, cSBr, 16.4.1991.
NOTRANJSKO: **Ljubljanski vrh 5**, 14°17′44″, 45°55′39″, VL48, 692 m, *Fagus sylvatica*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, pred 1951.
DOLENJSKO: **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 13.6.1977, 19.6.1977, 3.7.1977, 8.8.1977; **Ledenik, Kočevje, pragozd Strmec**, 14°49′, 45°38′, VL95, 875 m, *Fagus sylvatica*, deblo, ldMKa, cZRC, 16.5.2002; **Podturn pri Dolenjskih Toplicah**, 15°02′, 45°44′, WL06, 175 m, lMKa dBDr, cZRC, 2.6.1996; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phPher, lGBa dSBr, cSBr, 4.6.1993, 2.7.1993; **Uzmani, Rob**, 14°33′, 45°51′, VL67, 690 m, ldSBr, cSBr, 14.6.1987.
ŠTAJERSKO: Celje, 15°15′, 46°15′, WM22, 240 m, lLTg, lit.KBr1871, pred 1951; **Celje, Breg**, 15°15′52″, 46°13′26″, WM21, 262 m, tWit, phGaPP, ldTŽu, lit.TŽu2020, 27.8.2018, 11.9.2018; **Celje, skladišče lesa**, 15°15′, 46°15′, WM22, 240 m, lSJe dSBr, cSBr, 31.5.1991; **Maribor**, (15°39′), (46°32′), (WM55), ~270 m, ldJPe vSBr, cJPe, pred 1951; **Pohorje**, (15°18′), (46°28′), (WM24), *, ldJPe vSBr, cJPe, pred 1951; **Sevnica, železniška postaja**, 15°18′, 46°00′, WL29, 200 m, *Fagus sylvatica*, hlod, ldJTi, lit.JTi1983, 1971; **Solčava**, 14°42′, 46°25′, VM74, 640 m, ldUCe, cBFG, 1.3.1930; **Stolenščak, Ormož**, 16°09′08″, 46°25′45″, WM84, 248 m, *Fagus sylvatica*, deblo, ldRPa, lit.RPa2020c, 7.6.2016.



Slika 106: DVOBARVNI BUKOVAR *Taphrorychus bicolor*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 106: *Taphrorychus bicolor*, distribution map according to historical and recent data

26.02. *Taphrorychus siculus* Eggers, 1908 BODIČASTI BUKOVAR

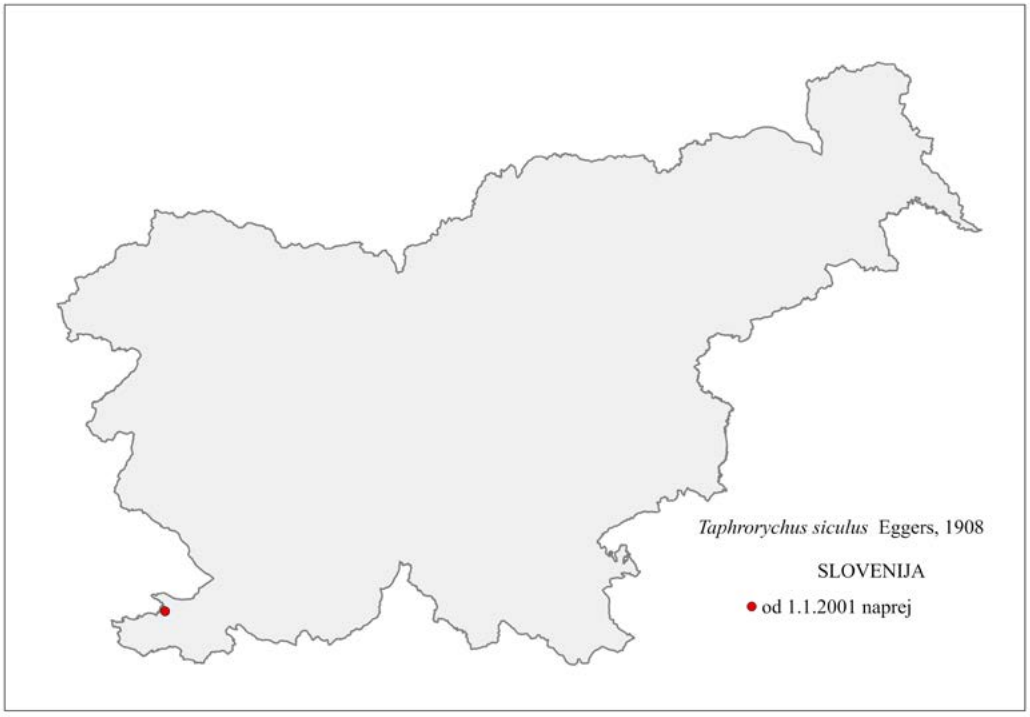
Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: FREUDE, HARDE, LOHSE 1981: *Taphrorychus bicolor* Herbst (*siculus* Eggers (1908)); PFEFFER 1995: *T. siculus* Eggers, 1908.

E: BH IT (Sicilija) SL* SZ

Vrsta se pojavlja v Italiji (Sicilija), v južnem delu Švice ter v Bosni in Hercegovini. Edini primerek, najden v Sloveniji, se je ujel v past v Luki Koper leta 2015 (slika 107). Gostitelj je *Alnus* sp.. Dolžina adulta znaša 2,0–2,2 mm. Od sorodne vrste *Taphrorychus alni* se razlikuje po širših pokrovkah in mat površini koničnika.

The species occurs in Italy (Sicily), southern Switzerland and Bosnia and Herzegovina. The only specimen found in Slovenia was caught in a trap at the Port of Koper in 2015 (Figure 107). The host is *Alnus* sp.. Length (adultus) is 2.0-2.2 mm. It differs from the related species *Taphrorychus alni* by its broader elytra and matt surface of the apex.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit. RPa2015b, 2.9.2015.



Slika 107: BODIČASTI BUKOVAR *Taphrorychus siculus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 107: *Taphrorychus siculus*, distribution map according to historical and recent data

26.03. *Taphrorychus villifrons* (Dufour, 1843) ČELNODLAČNI BUKOVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Taphrorychus villifrons* (Dufour, 1843); FREUDE, HARDE, LOHSE 1981: *Taphrorychus villifrons* Dufour; PFEFFER & KNÍŽEK 1993: *T. villifrons* (Dufour, 1843); PFEFFER 1995: *T. villifrons* (Dufour, 1843).

E: AR AU BE BU CR CT CZ FR GB GE HU IT MC NT PT SK SL* SP ST SZ UK YU **N:** AG EG LB MO TU **A:** IN TR

Vrsta je razširjena v južni Evropi, na Krimu, Kavkazu, severni Afriki in Aziji (Turčija, Iran). Pri nas je vrsta redka, znanih je le nekaj lokacij na Primorskem, Gorenjskem, Dolenjskem in Štajerskem (slika 109). Gostitelji so *Fagus silvatica*, *Carpinus betulus*, *Quercus robur*, *Q. cerris*, *Acer campestre*, *Castanea sativa*, redkeje *Fagus* spp., *Carpinus* spp., *Ulmus* spp., *Aesculus hippocastanum*, *Padus* spp. in *Prunus avium*. Na Gorenjskem so se osebki čelnodlačnega bukovarja ujeli v pasti. Podatki o gostiteljskih rastlinah v Sloveniji manjkajo. V Sloveniji letno razvije dve generaciji, roji marca in julija. Materinski rovi so razvejani, vzdolžni. Dolžina adulta je 1,8–2,4 mm (slika 108).

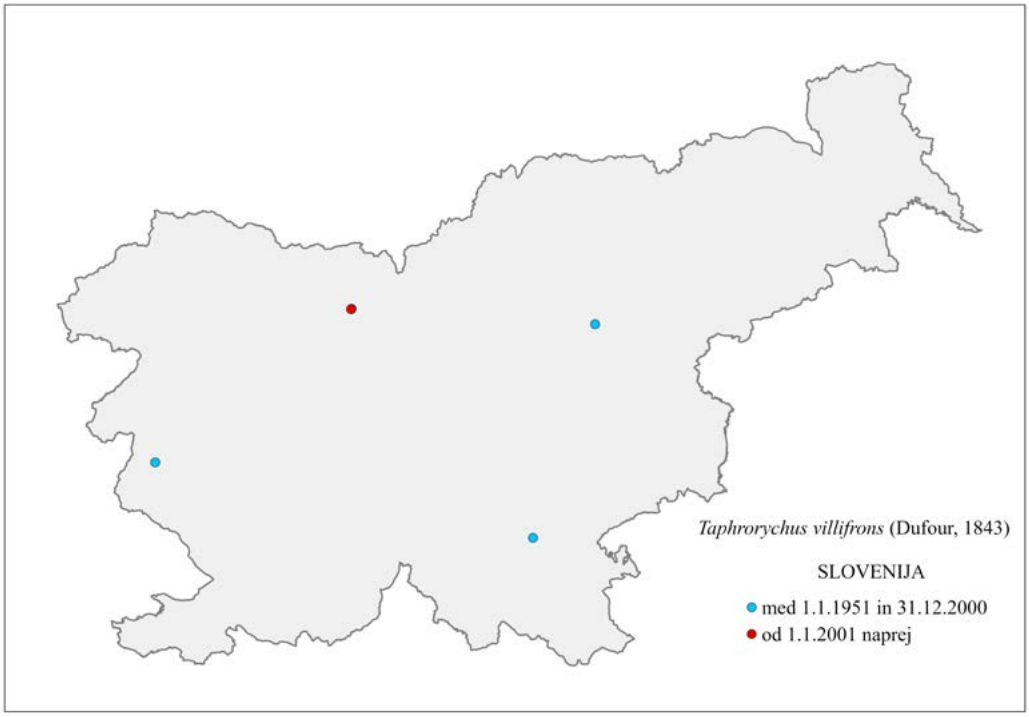
The species is distributed in southern Europe, the Crimea, the Caucasus, North Africa and Asia (Turkey, Iran). The species is rare in Slovenia, with only a few known sites in Primorska, Gorenjska, Dolenjska and Štajerska (Figure 109). Hosts include *Fagus silvatica*, *Carpinus betulus*, *Quercus robur*, *Q. cerris*, *Acer campestre*, *Castanea sativa*, less frequently *Fagus* spp., *Carpinus* spp., *Ulmus* spp., *Aesculus hippocastanum*, *Padus* spp. and *Prunus avium*. In Gorenjska, specimens of *T. villifrons have been* caught in traps, but data on host species from other regions are lacking. In Slovenia, it develops two generations per year, swarming in March and July. Maternal galleries are branched, longitudinal. Adult length is 1.8-2.4 mm (Figure 108).

Najdišča v Sloveniji / Localities in Slovenia

PRIMORSKO: **Kurnik, Vogrsko**, 13°43′, 45°55′, VL08,60 m, lRJe dSBr, cSBr, 18.2.1987.
GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2015a, 14.10.2015; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52,

Slika 108: ČELNODLAČNI BUKOVAR *Taphrorychus villifrons*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 108: *Taphrorychus villifrons*, dorsal, lateral (Photo: Maja Jurc)



Slika 109: ČELNODLAČNI BUKOVAR *Taphrorychus villifrons*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 109: *Taphrorychus villifrons*, distribution map according to historical and recent data

469 m, tWit, phGaP2, ldRPa, lit.RPa2014a, 3.9.2014; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2017a, 27.9.2017.
DOLENJSKO: **Podturn pri Dolenjskih Toplicah**, 15°02′, 45°44′, WL06, 175 m, ujeto v letu, ldMKa, cZRC, 2.6.1996.
ŠTAJERSKO: Celje, skladišče lesa, 15°15′, 46°15′, WM22, 240 m, lSJe dSBr, cSBr, 30.4.1991, 7.6.1991.

27.00. *Xylocleptes* Ferrari, 1867 DOLGEŽ

27.01. *Xylocleptes bispinus* (Duftschmid, 1825) SROBOTOV DOLGEŽ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Bostrychus bispinus* Rtzb.; GRÜNE 1979: *Xylocleptes bispinus* (Duftschmid, 1825); FREUDE, HARDE, LOHSE 1981: *Xylocleptes bispinus* Duftschmid; PFEFFER & KNÍŽEK 1993: *X. bispinus* (Duftschmid, 1825); PFEFFER 1995: *X. bispinus* (Duftschmid, 1825).

E: AU BE BU CR CZ DE FR GB GE GR HU IT MC NL PL RO SK SL SP ST SZ UK YU **N:** AG EG LB MO TU **A:** TR

Vrsta je bila prvotno prisotna v južni Evropi, nato se je razširila tudi v južni del srednje in vzhodne Evrope, severno Afriko in Turčijo. Pojavlja se v gozdnih sestojih, zaraščajočih s srobotom (*Clematis* spp.). Vrsta je pri nas pogosta, številna starejša in novejša najdišča so v vseh slovenskih pokrajinah z izjemo Prekmurja (slika 111). Gostitelj je srobot (*Clematis vitalba*, *C. orientalis*). V Sloveniji je kot gostitelj znan samo *C. vitalba*. Vrsto se je pogosto našlo tudi v pasteh za spremljanje entomofavne s feromoni (črna ploščata režasta past Theysohn® - tThe, črna križna past Witasek – tWit s feromoni kot so Linoprax - phLino, Galloprotect 2D pheromon - phGaP2). Vrsta je poligamna. Dolžina adultov je 2,1–3,2 mm. Spolni dimorfizem je dobro izražen, pri samcih je koničnik izdolben, z dvema zobčkoma na vsakem obronku koničnika, podobno kot pri dvozobem zvezdarju (*Pityogenes bidentatus*). Pri samicah zobčka manjkata, na zadnjem delu pokrovk pa so trije medprostori rahlo dvignjeni in z dlačicami (slika 110).

The species was originally found in southern Europe and then spread to the southern part of central and eastern Europe, northern Africa and Turkey. It is common in Slovenia, with numerous older and more recent records in all Slovene regions except Prekmurje (Figure 111). The host is the genus *Clematis* (*Clematis vitalba*, *C. orientalis*). In Slovenia, only *C. vitalba* is known as a host, but records in traps with pheromones for monitoring entomofauna are also frequent (Theysohn® black flat slotted trap – tThe, Witasek black cross trap – tWit with pheromones as Linoprax – phLino, Galloprotect 2D pheromone - phGaP2). The species is polygamous. Adult length is 2.1-3.2 mm. Sexual dimorphism is well pronounced, with the male having an elongated apex with two denticles on each apical margin, similar to *Pityogenes bidentatus*. In females, the two denticles are absent and there are three slightly raised interstices / ridges with hairs on the posterior part of the elytra (Figure 110).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Picea abies*, ldMSi, lit.MSi1866, pred 1951.

ISTRA: **Hrpelje, Kozina**, 13°57′, 45°36′, VL15, 500 m, ldJSd, cJSd, 14.6.1942; **Lucija, Portorož 1**, 13°38′, 45°30′, UL93, 240 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 1.1979; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2019e, 19.6.2019.

PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, laABi vSBr, cABi, pred 1951; **Buje ob Reki**, 14°05′, 45°39′, VL25, 470 m, ldSBr, cSBr, 10.3.1994; **Dolenja Trebuša**, 13°51′, 46°05′, VM10, 350 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 5.1973; **Kambreško, Kanal**, 13°39′, 46°08′, UM90, 770 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 7.1974; **Kanal**, 13°38', 46°05', UM90, 100 m, lMKa dBDr, cZRC, 4.5.1989; **Povir, Divača**, 13°56′, 45°42′, VL16, 410 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 5.1978; **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, lRJe dSBr, cSBr, 20.3.1991.

GORENJSKO: **Bistrica, Mojstrana**, 13°54′, 46°26′, VM14, 750 m, lAKa dSBr, cAKa, 24.7.2003; **Bled**, 14°07′, 46°22′, VM33, 500 m, ldJSd, cJSd, 2.8.1931; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, Kont, lGBa dSBr, cSBr, 9.7.1993; ibidem, phLino, lGBa dSBr, cSBr, 9.7.1993; ibidem, phPher phChal, lGBa dSBr, cSBr, 9.4.1993, 13.4.1993, 4.5.1993; **Bled, skladišče lesa**, 14°06′, 46°22′, VM85, 550 m, lMDa dRPa, lit.RPa1994c, 16.6.1994; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2023b, 1.6.2023; **Dovje, Mojstrana**, 13°56′, 46°27′, VM14, 730 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 4.1973; **Dražgoše**, 14°11′, 46°15′, VM32, 840 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 4.1974; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 22.4.1992; **Jezersko**, 14°30′, 46°24′, VM63, 1000 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 3.1973; **Kropa**, 14°12′, 46°17′, VM42, 590 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 4.1973; **Lancovo, Radovljica**, 14°10′, 46°20′, VM33, 500 m, ldJSd, cJSd, 4.8.1929; **Otoče, Podnart**, 14°14′, 46°19′, VM42, 400 m, ldAGs, cAGs, 15.4.1913; **Podbrezje**, 14°17′, 46°18′, VM42, 470 m, *Clematis*

vitalba, ldJTi, lit.JTi1983, 4.1973; **Rateče, Planica**, 13°44′, 46°29′, VM04, 870 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 4.1973; **Sorica, Zali Log**, 14°02′, 46°13′, VM21, 820 m, ldJSd, cSBr, 28.4.1983; **Spodnja Kokra, Preddvor**, 14°28′, 46°18′, VM52, 500 m, *Clematis vitalba*, ldJTi, lit. JTi1983, 3.1973.

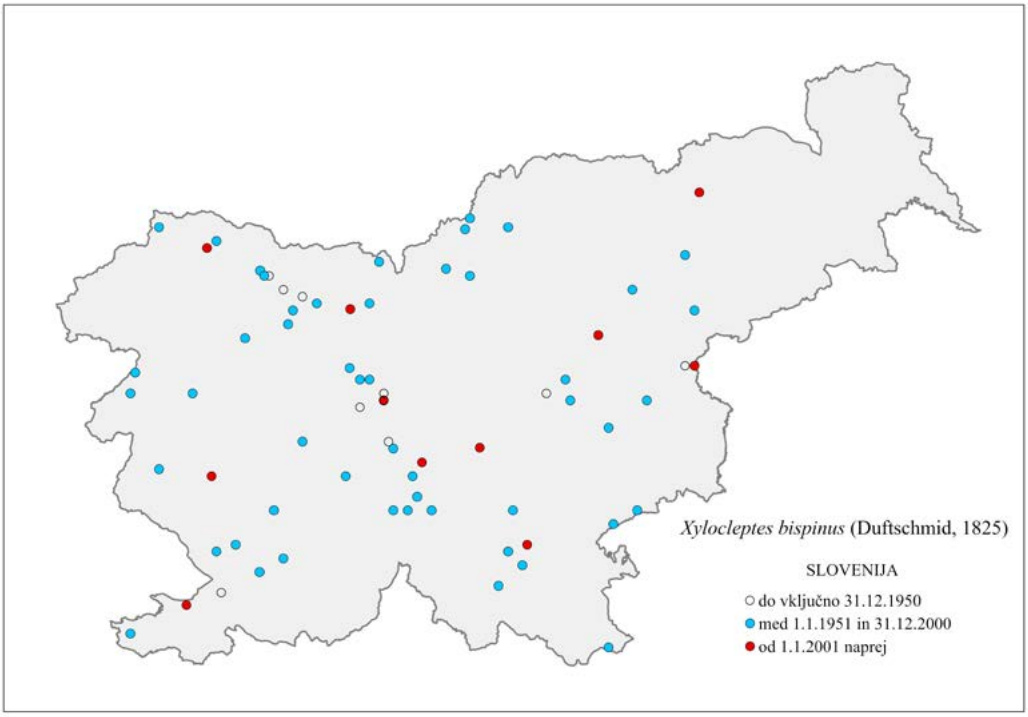
NOTRANJSKO: **Landol, Postojna**, 14°08′, 45°48′, VL37, 540 m, ldSBr, cSBr, 9.5.1994; **Osojnica, Pivka**, 14°10′, 45°41′, VL35, 660 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 3.1978; **Pekel, Borovnica**, 14°23′, 45°53′, VL58, 390 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 3.1973; **Senadole, Senožeče**, 14°00′, 45°43′, VL26, 390 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 7.1977; **Zaplana, Vrhnika**, 14°14′, 45°58′, VL14, 470 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 4.1973.

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, pred 1951; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), lHEg, cJSs, 1.3.1905; **Ljubljana, Ježica**, 14°31′, 46°05′, VM60, 295 m, ldJSd, cJSd, 1.8.1940; **Šmarna gora**, 14°28′, 46°07′, VM50, 620 m, *Clematis vitalba*, ldJTi, lit.JTi1973, 3.1972; **Utik**, 14°26′, 46°03′, VM50, ~310 m, ldJSd, cJSd, 20.5.1918; **Vikrče**, 14°26′, 46°07′, VM50, 360 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 3.1972.

DOLENJSKO: **Borovec pri Karlovici**, 14°36′, 45°48′, VL67, 560 m, tThe, phPher, lČVi dSBr, cSBr, 26.5.1992; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 9.4.1981; **Dvor, Žužemberk**, 14°58′, 45°48′, VL97, 200 m, ldSBr, cSBr, 3.5.1986; **Ig**, 14°32′, 45°58′, VL68, 300 m, ldJSd, cJSd, 9.6.1940; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 6.5.1981, 4.5.1984, 20.8.1984, 11.8.1985, 15.8.1985; **Krvavi kamen, Gorjanci**, 15°19′, 45°46′, WL26,

Slika 110*:* SROBOTOV DOLGEŽ *Xylocleptes bispinus* (♀ 2x, ♂ 2x), dorzalno, lateralno (Foto: Maja Jurc)

Figure 110*: Xylocleptes bispinus* (♀ 2x, ♂ 2x), dorsal, lateral (Photo: Maja Jurc)



Slika 111: SROBOTOV DOLGEŽ *Xylocleptes bispinus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 111: *Xylocleptes bispinus*, distribution map according to historical and recent data

940 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 10.1973; **Kum**, 15°05′, 46°05′, WM00, *, ldSBr, cSBr, 24.7.1948; **Mirčev grič, Gorjanci**, 15°24′, 45°48′, WL37, 780 m, ldSBr, cSBr, 29.4.1995; **Mramorovo pri Lužarjih**, 14°33′, 45°48′, VL67, 760 m, tThe, phPher, lČVi dSBr, cSBr, 19.5.1992; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 730 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 8.1981; **Podstenice, Kočevski Rog**, 15°01′, 45°43′, WL06, 900 m, ldAGs, cAGs, pred 1951; **Pugled, Stari Log**, 14°57′, 45°42′, VL96, 660 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 5.1979; **Radeče**, 15°10′, 46°04′, WM10, 310 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 5.1970; **Radna, Sevnica**, 15°18′, 46°00′, WL29, 510 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 3.1973; **Rajhenavski Rog, pragozd**, 15°00′, 45°40′, WL05, 850 m, lMKa dBDr, cZRC, 27.6.1994; ibidem, lMKa lMEg dBDr, cZRC, 27.6.1994; **Šahen, Kočevje**, 14°55′, 45°37′, VL95, 490 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 8.1979; **Tabor, Grosuplje**, 14°39′, 45°55′, VL78, 460 m, ldAGs, cAGs, pred 1951; **Turjak**, 14°37′, 45°53′, VL78, 430 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 5.1973; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 3.5.2017; **Velike Lašče**, 14°38′, 45°50′, VL77, 580 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 8.1981.

BELA KRAJINA: **Zilje, Vinica**, 15°18′, 45°28′, WL23, 200 m, ldSBr, cSBr, 18.4.1996.

ŠTAJERSKO: Boč, Poljčane, 15°36′, 46°17′, WM42, 750 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 8.1974;

Bohor, 15°26′, 46°04′, WM30, 840 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 5.1972; **Celje, Breg**, 15°15′52″, 46°13′26″, WM21, 262 m, tWit, phGaPP, ldTŽu, lit.TŽu2020, 27.5.2018; **Gore, Rimske Toplice**, 15°09′, 46°07′, WM01, 780 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 9.1978; **Igla, Solčava,**

Savinjska dolina, 14°44′, 46°23′, VM73, 670 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 6.1973; **Konjiška gora, Slovenske Konjice**, 15°23′, 46°20′, WM23, 810 m, *Clematis vitalba*, ldJTi, lit. JTi1983, 8.1974; **Kovača Vas, Slovenska Bistrica**, 15°34′, 46°25′, WM44, 350 m, ldSBr, cSBr, 1.7.1997; **Maribor, Mariborski otok, Kamnica**, 15°37′, 46°34′, WM45, 280 m, ldJPe vSBr, cJPe, pred 1951; **Olimje, Podčetrtek**, 15°34′, 46°09′, WM41, 270 m, ldEJa vSBr, cEJa, 2.5.1930; **Podčetrtek**, 15°36′, 46°09′, WM41, 220 m, ldEJa vSBr, cEJa, pred 1951; **Primož pri Ljubnem ob Savinji**, 14°49′, 46°22′, VM83, 460 m, ldSBr, cSBr, 31.3.1994.
KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1995a, 21.6.1995; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, phCemp, ldRPa vSBr, lit.RPa1994a, 22.6.1994; **Uršlja Gora**, 14°57′, 46°29′, VM94, 1150 m, *Clematis vitalba*, ldJTi, lit.JTi1983, 5.1979.

28.00. *Ips* DeGeer, 1775 LUBADAR

28.01. *Ips acuminatus* (Gyllenhal, 1827) BOROV LUBADAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Ips acuminatus* (Gyllenhal, 1827); FREUDE, HARDE, LOHSE 1981: *Ips acuminatus* Gyllenhal; TITOVŠEK 1988: *Ips acuminatus* (Gyllenhal); PFEFFER & KNÍŽEK 1993: *I. acuminatus* (Gyllenhal, 1827); PFEFFER 1995: *I. acuminatus* (Gyllenhal, 1827); VEGA & HOFSTETTER 2015.

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LT LU MC MD NL NR NT PL RO SK SL SP ST SV SZ UK YU **A:** ES FE FUJ GAN HEB HEI HEN HUN JA JIL KZ LIA MG NC NMO QIN SC SCH SHA SHN SHX SY TAI TR WS XIN YUN **ORR**

Vrsta se pojavlja v Evropi, Mali Aziji, na Krimu, Kavkazu, Sibiriji, Koreji in na Japonskem. Posamične najdbe so prisotne po večjem delu Slovenije, vrsta je velikokrat spregledana, ker se naseljuje v krošnjo (slika 113). Gostitelji: pretežno na *Pinus sylvestris*, *P. nigra*, *P. mugo* in *P. heldreichi*, občasno na *Picea abies*, *P. orientalis*, *P. obovata*, *Abies nordmanniana*, *Larix decidua* in *Juniperus communis*. Vrsta je bila pri nas ugotovljena le na *Pinus sylvestris* in *P. nigra* ter na *Picea abies*. Dolžina adulta je 2,2–3,9 mm. Za borovega lubadarja je značilen spolni dimorfizem: samčki imajo na vsakem obronku pokrovk po tri zobčke, tretji je največji in z dvema vrhovoma, pri samičkah pa je tretji zobček manjši in z enim vrhom (slika 112). Je poligamna vrsta, letno razvije 1–2 generaciji, roji maja (v južnih arealih aprila) in avgusta. Rovni sistem je izrazito vzdolžno zvezdast, s 3–5 materinskimi in kratkimi larvalnimi rovi. Napadajo tanko

The species is present in Europe, Asia Minor, Crimea, Caucasus, Siberia, Korea, and Japan. Individual records are found throughout most of Slovenia, but the species is often overlooked because it is a canopy dweller (Figure 113). Hosts include *Pinus sylvestris*, *P. nigra*, *P. mugo* and *P. heldreichi*, occasionally *Picea abies*, *P. orientalis*, *P. obovata*, *Abies nordmanniana*, *Larix decidua* and *Juniperus communis*. The species has only been recorded in Slovenia on *Pinus sylvestris* and *P. nigra*, and on *Picea abies*. Adult length is 2.2-3.9 mm. *I. acuminatus* is characterised by sexual dimorphism: males have three denticles on each elytral margin, the third being the largest and with two apices, while in females the third denticle is smaller and with one apex (Figure 112). A polygamous species, it develops 1-2 generations per year, swarming in May (April in southern ranges) and August. The tunnel system is distinctly longitudinally star-shaped, with 3-5 maternal and short larval

skorjo vej ali vrhačev. V južni Evropi se njegov gospodarski pomen povečuje zaradi pogoste prisotnosti v gozdovih s *P. sylvestris.* Vrsta je sekundarna, pri namnožitvah v borovih gozdovih lahko postane primarna. Feromoni: Ipsdienol, Ipsenol, *cis*-Verbenol (Vité s sod. 1974, Vité 1978).

chambers. They attack the thin bark of branches or tops. In southern Europe, its economic importance is increasing due to its frequent occurrence in forests with *P. sylvestris.* The species is secondary but may become primary in The species is secondary, with an increased population in pine forests it can become primary. Pheromones: Ipsdienol, Ipsenol, cis-Verbenol (Vité et al., 1974, Vité 1978).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951.

ISTRA: **Kastelec**, 13°52′09″, 45°34′17″, VL14, 299 m, *Pinus nigra*, veja 5 cm, ldRPa, lit. RPa2020c, 5.6.2009.

PRIMORSKO: **Tomajski Govec, Pod Govcem, Vrhovlje**, 13°49′55″, 45°44′06″, VL06, 296 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 1.6.2000.

GORENJSKO: **Bezovnica, Železniki**, 14°14′13″, 46°14 23″, WM42, 871 m, *Picea abies*, panj, ldRPa, lit.RPa2014c, 16.5.1994; **Brdo pri Kranju 1/12**, 14°23′05″, 46°16′30″, VM52, 424 m, *Pinus sylvestris*, veja 5 cm rs, odRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/28**, 14°24′21″, 46°16′50″, VM52, 444 m, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/53**, 14°23′48″, 46°17′09″, VM52, 459 m, *Pinus sylvestris*, deblo 10 cm, ldRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/66**, 14°23′13″, 46°17′11″, VM52, 460 m, *Pinus sylvestris*, veja 5 cm, ldRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/67**, 14°23′05″, 46°17′10″, VM52, 458 m, *Pinus sylvestris*, veja 7 cm rs, odRPa, lit.RPa2003, 27.9.2003; **Brdo pri Kranju 2/6**, 14°24′02″, 46°17′14″, VM52, 470 m, *Pinus sylvestris*, veja 3 cm rs, odRPa, lit.RPa2004, 22.8.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010a, 9.6.2010; ibidem, lit.RPa2012, 25.7.2012; ibidem, lit. RPa2013a, 30.4.2013, 24.7.2013, 8.8.2013; ibidem, lit.RPa2014a, 3.9.2014, 17.9.2014; ibidem, lit. RPa2015a, 22.7.2015, 18.8.2015, 2.9.2015; ibidem, lit.RPa2017a, 8.6.2017; ibidem, lit.RPa2018a, 9.5.2018, 4.7.2018; ibidem, lit.RPa2019a, 3.6.2019, 19.6.2019, 3.7.2019; ibidem, lit.RPa2020d, 22.4.2020, 1.7.2020, 15.7.2020; ibidem, lit.RPa2023b, 28.6.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008, 10.9.2008; ibidem, lit.RPa2010a, 9.6.2010; ibidem, phGaP2, ldRPa, lit.RPa2015a, 24.6.2015, 8.7.2015; **Medno, Medvode**, 14°25′, 46°07′, VM50, 330 m, ldSBr, cSBr, 19.6.1949; **Mlaka pri Kranju, ob tekaški stezi 2**, 14°20′11″, 46°16′20″, VM42, 430 m, *Pinus sylvestris*, veja 10 cm, ldRPa, lit.RPa1996, 17.6.1996; ibidem, veja 5 cm rs, odRPa, lit.RPa2020c, 6.6.2007; **Mošenik, Ljubelj**, 14°16′, 46°26′, VM44, 1000 m, ldSBr, cSBr, 19.5.1986; **Zgornje Bitnje 2**, 14°19′37″, 46°13′19″, VM41, 396 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008.

NOTRANJSKO: **Javornik, Javorniki**, 14°17′, 45°46′, VL46, ~1000 m, ldAGs, cAGs, pred 1951; **Lož**, 14°29′, 45°44′, VL56, 630 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 11.1979.

LJUBLJANA Z OKOLICO: **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, *Pinus sylvestris*, veja 5 cm rs, odRPa, lit.RPa2020c, 4.6.2013, 25.10.2013; **Podlipoglav, Češnjica**, 14°37′, 46°01′, VL79, 380m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 1.1978.

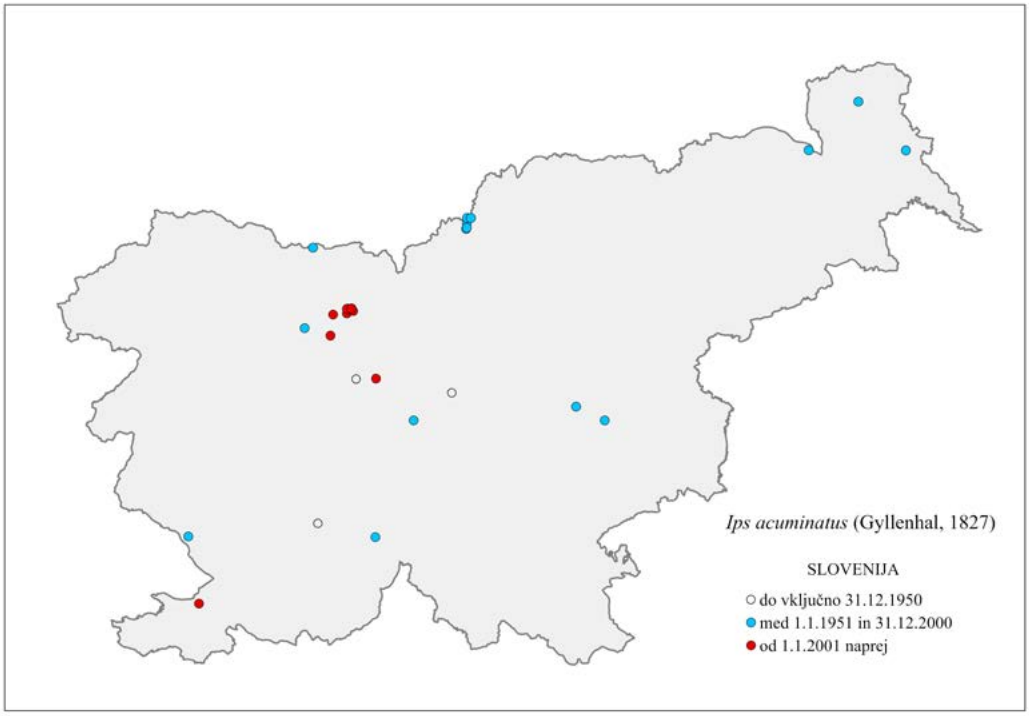
DOLENJSKO: **Boštanj, Sevnica**, 15°17′, 46°01′, WL29, 280 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 4.1974; **Dobrava, Radeče**, 15°11′, 46°03″, WL19, 310m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 4.1974; **Jevnica, Litija**, 14°45′, 46°05′, VM80, 260 m, ldSBr, cSBr, 7.9.1948.

ŠTAJERSKO: Gornja Radgona, Kunejev grad,15°59′40″, 46°40′01″, WM76, 220 m, ldBDr, cZRC, 1999.

KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1994a, 22.6.1994; ibidem, phCemp, ldRPa, lit.RPa1994a, 22.6.1994, 31.7.1994, 13.8.1994, 26.8.1994; ibidem, ldRPa vcSBr, lit.RPa1994a, 9.6.1994, 18.7.1994; ibidem, ldRPa vSBr, lit.RPa1994a, 5.7.1994; ibidem, lit.RPa1995a, 21.6.1995, 30.7.1995, 12.8.1995, 25.8.1995; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa, lit.RPa1995a,

Slika 112: BOROV LUBADAR *Ips acuminatus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 112: *Ips acuminatus*, dorsal, lateral (Photo: Maja Jurc)



Slika 113: BOROV LUBADAR *Ips acuminatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 113: *Ips acuminatus*, distribution map according to historical and recent data

4.7.1995, 17.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a, 17.7.1995, 30.7.1995, 12.8.1995; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, phCemp, ldRPa, lit.RPa1994a, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a, 12.8.1995; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, phCemp, ldRPa, lit.RPa1994a, 31.7.1994, 13.8.1994; ibidem, lit.RPa19954a, 17.7.1995, 30.7.1995, 12.8.1995; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, phCemp, ldRPa, lit. RPa1994a, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994; ibidem, lit.RPa1995a, 21.6.1995.
PREKMURJE: **Bukovniško jezero, Dobrovnik**,16°20′, 46°40′, XM06, 220 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 5.1982; **Mačkovci, Goričko**,16°10′, 46°47′, WM88, 320 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1977.

28.02. *Ips amitinus* (Eichhoff, 1872) MONTANSKI LUBADAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Ips amitinus* (Eichhoff, 1871); FREUDE, HARDE, LOHSE 1981: *Ips amitinus* Eichhoff; TITOVŠEK 1988: *Ips amitinus* (Eichhoff); PFEFFER & KNÍŽEK 1993: *I. amitinus* (Eichhoff, 1871); PFEFFER 1995: *I. amitinus* (Eichhoff, 1871); VEGA & HOFSTETTER 2015.

E: AU BE BH BU CR CZ DE EN FI FR GE GR HU IT LA LT MC NL NT PL RO SL* SK SZ YU **A:** TR

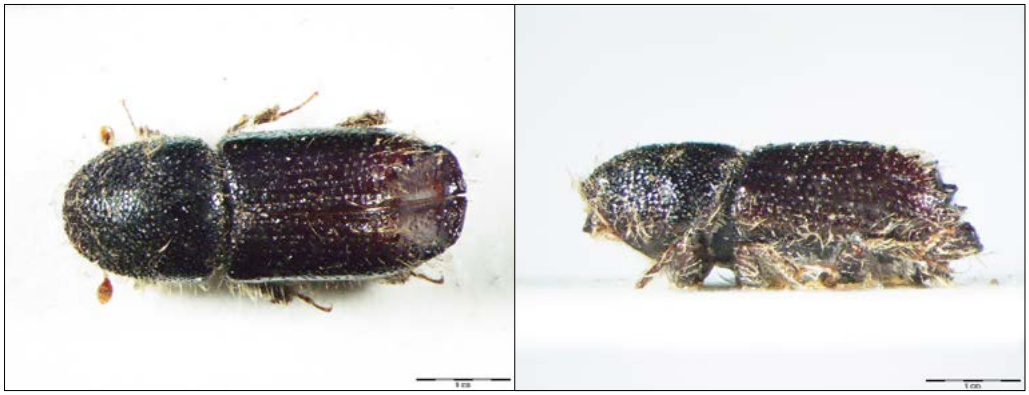
Vrsta se pojavlja v Evropi, na območju nekdanje Jugoslavije, v zahodnem delu nekdanje Sovjetske zveze in v Turčiji. V Sloveniji je znanih nekaj najdišč na Koroškem in le po eno najdišče na Gorenjskem in Štajerskem. Njegov areal so višje montanske lege, največkrat nad 1000 m (slika 115). Gostitelji so: *Picea abies*, *P. omorica*, *Pinus mugo*, *P. rotundata*, *P. peuce*, *P. heldreichii* in *P. cembra*, izjemoma tudi *Pinus nigra*, *Abies alba* in *Larix decidua*. V Sloveniji je bil ugotovljen le na *Picea abies*. Letno razvije 1–2 generaciji, roji maja in julija. Je floemofag, dolžina adulta znaša 3,5–4,8 mm (slika 114). Rovni sistem je zvezdast, s 3–7 dolgimi materinskimi hodniki. Od morfološko podobnega osmerozobega lubadarja (*I. typographus*) in macesnovega lubadarja (*I. cembrae*) je vitkejši, od njiju se razlikuje tudi po skoraj popolnoma ravnih stikih členov na kiju tipalk in po bleščečem žlebu koničnika, na katerem ob šivu pokrovk manjkajo dlačice. Vrsta je potencialno nevarna, vendar za zdaj v Sloveniji zaradi redkosti in pojavljanja na višjih nadmorskih višinah ne povzroča večje gospodarske škode.

The species occurs in Europe, the former Yugoslavia, the western part of the former Soviet Union and Turkey. In Slovenia, there are a few known records in Koroška and only one record each in Gorenjska and Štajerska. Its range is higher montane, mostly above 1000 m (Figure 115). Hosts include *Picea abies*, *P. omorica*, *Pinus mugo*, *P. rotundata*, *P. peuce*, *P. heldreichii* and *P. cembra*, exceptionally also *Pinus nigra*, *Abies alba* and *Larix decidua*. In Slovenia it has been found only on *Picea abies*. It develops 1-2 generations annually, swarming in May and July. Phloemophagous, adult length is 3.5-4.8 mm (Figure 114). The tunnel system is star-shaped, with 3-7 long maternal galleries. It is slenderer than the morphologically similar species *I. typographus* and *I. cembrae*, differing from them also by the almost completely straight contacts of individual joints on the flagellum of the antennae and by a shiny groove of the apex, which lacks hairs at the edge of the elytra. The species is potentially dangerous, but for the time being it is not of great economic importance in Slovenia due to its rarity and its higher-altitude habitat.

Najdišča v Sloveniji / Localities in Slovenia

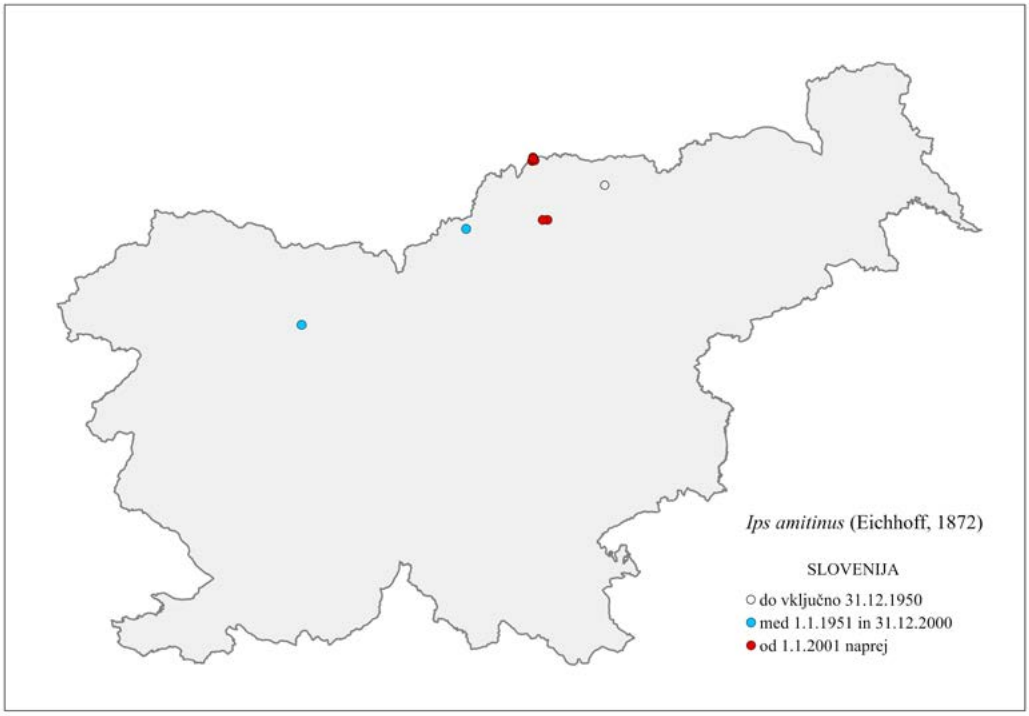
GORENJSKO: **Prevoje, Zabrekve, Korošc**, 14°13′37″, 46°14′52″, VM42, 610 m, *Picea abies*, progasto obeljen panj 69 cm, lFJa dJTi, lit.FJa1997, 27.7.1995.

ŠTAJERSKO: Spodnja Orlica, Gregoričeva graba, Pohorje, 15°17′, 46°35′, WM25, 700 m, ldJPe vSBr, cJPe, pred 1951.



Slika 114: MONTANSKI LUBADAR *Ips amitinus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 114: *Ips amitinus*, dorsal, lateral (Photo: Maja Jurc)



Slika 115: MONTANSKI LUBADAR *Ips amitinus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 115: *Ips amitinus*, distribution map according to historical and recent data

KOROŠKO: **Košenjak, Kobansko**, 15°02′, 46°39′, WM06, 1270 m, *Picea abies*, deblo, ldMJu, lit. MJu2004, 18.4.2003; ibidem, 1500 m, *Picea abies*, deblo, ldMJu, lit.MJu2004, 18.4.2003; **Košenjak, Kobansko 1**, 15°02′10″, 46°38′45″, WM06, 1270 m, *Picea abies*, kontrolno deblo, ldARe, lit.ARe2014, 6.2010, 7.2010; ibidem, ldMJu, lit.MJu2004, 10.5.2003; ibidem, **Košenjak, Kobansko 2**, 15°01′48″, 46°38′29″, WM06, 1400 m, tThe, phChal, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005; ibidem, phPher, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005, 6.8.2005; **Košenjak, Kobansko 3**, 15°02′20″, 46°38′34″, WM06, 1415 m, tThe, Kont, ldARi, lit.ARi2007, 2.7.2005; ibidem, phPher, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 27.7.2005, 6.8.2005; **Košenjak, Kobansko 4**, 15°01′59″, 46°38′49″, WM06, 1480 m, tThe, phChal, ldARi, lit.ARi2007, 2.7.2005; ibidem, phPher, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 27.7.2005, 6.8.2005; **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1995a, 4.7.1995; ibidem, phCemp, ldRPa, lit. RPa1994a, 9.6.1994, 5.7.1994; **Slovenj Gradec**, 15°05′, 46°30′, WM05, 1270 m, *Picea abies*, ldMJu, lit.MJu2004, 2002, 2003; ibidem, 1500 m, *Picea abies*, ldMJu, lit.MJu2004, 2002, 2003.

28.03. *Ips cembrae* (Heer, 1836) MACESNOV LUBADAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Grüne 1979: *Ips cembrae* Heer, 1836; Freude, Harde, Lohse 1981: *Ips cembrae* Heer; Titovšek 1988: *Ips cembrae* (Heer); Pfeffer & Knížek 1993: *I. cembrae* (Heer, 1836); Pfeffer 1995: *I. cembrae* (Heer, 1836).

E: AU CT CZ DE FR GB GE GR HU IT LS NL NT PL SK SL SZ **A:** FE HEI JA JIL KZ MG SC WS

Vrsta se pojavlja v zahodni in srednji Evropi, v severni Rusiji, Sibiriji, Sahalinu, Koreji, Mongoliji, na Japonskem in na severozahodnem delu Kitajske. Vrsta je v Sloveniji veljala za redko, dokler ni bil v letih 1994–1996 narejen sistematični popis v severnem delu Slovenije, delno tudi z uporabo sintetičnih feromonov. Vrsta je prisotna v montanskem in subalpinskem pasu severne Slovenije (slika 117). Gostitelji so pretežno *Pinus cembra*, *Larix decidua*, *L. gmelinii* in *L. sibirica*, vendar naseljuje tudi *Larix leptolepis*, *Pinus mugo*, *P. sylvestris*, *Picea abies*, *Abies alba* in *Pseudotsuga menziesii*. V Sloveniji smo vrsto našli le na *L. decidua* in *P. abies*. Je floemofag, letno razvije 1–2 generaciji, roji konec aprila in julija. Dolbe vzdolžno usmerjene zvezdaste rovne sisteme, z 2–4 materinskimi rovi. Dolžina adultov je 4,5–6,0 mm. Oba spola imata na obronku vsake pokrovke po štiri zobčke, tretji je največji in gumbasto odebeljen. Na bleščečem koničniku ob šivu pokrovk izraščata na vsaki strani po ena vrsta dlačic (slika 116). Ogroža zlasti sestoje

The species is present in western and central Europe, northern Russia, Siberia, the Sakhalin, Korea, Mongolia, Japan and north-western China. The species was considered rare in Slovenia until a systematic census was carried out in 1994-1996 in the northern part of the country partly using synthetic pheromones. The species is found in the montane and subalpine zones of northern Slovenia (Figure 117). Hosts are mainly *Pinus cembra*, *Larix decidua*, *L. gmelinii* and *L. sibirica*, but it also inhabits *Larix leptolepis*, *Pinus mugo*, *P. sylvestris*, *Picea abies*, *Abies alba* and *Pseudotsuga menziesii*. In Slovenia, the species has been found only on *L. decidua* and *P. abies*. Floemophagous, it develops 1-2 generations per year and swarms in late April and July. Longitudinally oriented star-shaped tunnel systems, with 2-4 maternal galleries. Adult length is 4.5-6.0 mm. Both sexes have 4 denticles on the margin of each elytrum, the third being the largest and thickened in a button shape. One row of hairs grows on each side of the shiny tip at the of the elytra

macesna, osnovane zunaj njegovega naravnega areala. Feromoni: Ipsdienol, Ipsenol (3-Methyl-3-buten-1-ol) (Stoakley s sod. 1978).

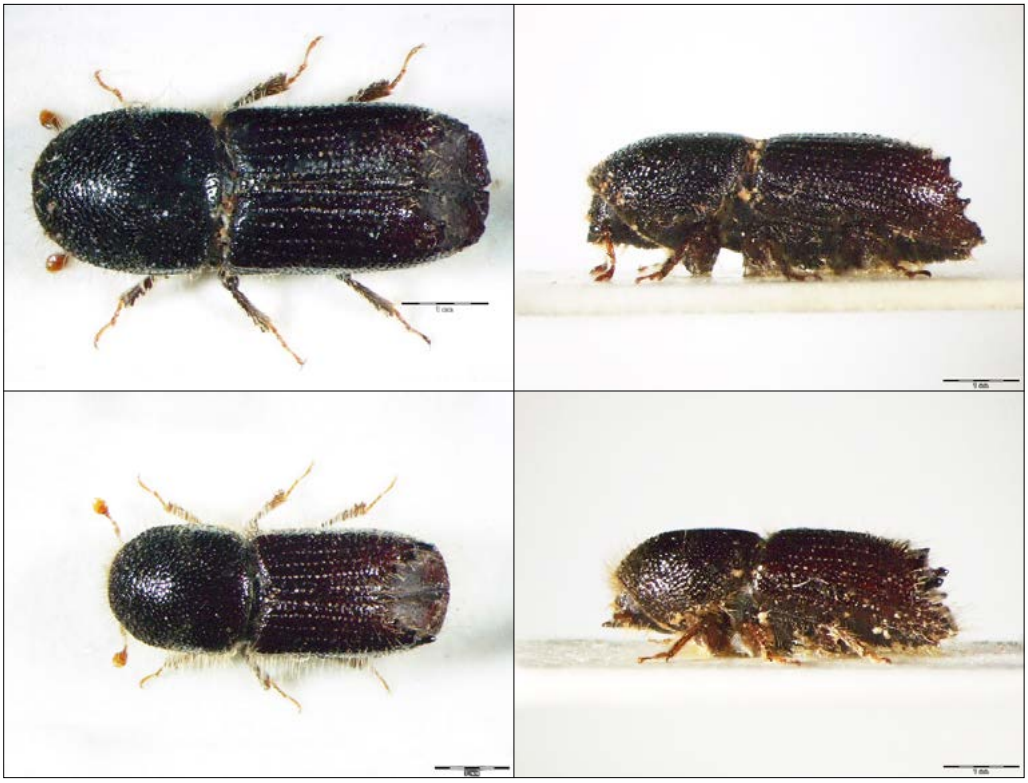
(Figure 116). It is a particular threat to larch stands established outside its natural range. Pheromones: Ipsdienol, Ipsenol (3-Methyl-3-buten-1-ol) (Stoakley et al. 1978).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi, cSBr, 1951-2000; ldJTi, cŠFS, 1951-2000.

PRIMORSKO: **Cerkno, Zapoška (potok)**, 13°58′, 46°08′, VM20, 340 m, ldSBr, cSBr, 13.7.1949; **Cvetrež, Kal nad Kanalom**, 13°44′57″, 46°05′14″, VM00, 799 m, *Larix decidua*, deblo, ldRPa, lit.RPa1997, 8.9.1996; ibidem, *Larix decidua,* enoletni poganjki, ldRPa, lit.RPa1997, 8.9.1996; **Koritnica, odcep za Rut**, 13°52′34″, 46°09′50″, VM11, 314 m, *Larix decidua*, hlod, ldRPa, lit. RPa1997, 20.8.1995; **Tolminske Ravne**, 13°46′05″, 46°13′46″, VM02, 946 m, *Larix decidua*, veje, ldRPa, lit.RPa1997, 20.8.1995.

GORENJSKO: **Belca, pri Belem potoku, Karavanke**, 13°55′15″, 46°30′16″, VM15, 1011 m, tThe, phCemp, ldRPa, lit.RPa1997, 19.8.1995; **Dol, ob potoku Reka, Spodnje Jezersko**, 14°27′17″, 46°22′51″, VM53, 748 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 15.8.1995; **Dolič, pod Grpišco, Karavanke**, 13°48′20″, 46°30′04″, VM05, 1367 m, tThe, phCemp, ldRPa, lit. RPa1997, 16.6.1994; **Gozd Martuljek**, 13°50′23″, 46°29′13″, VM05, 792 m, *Larix decidua*, kontrolno deblo, ldRPa, lit.RPa1997, 10.6.1996; **Grpišca, Karavanke**, 13°48′01″, 46°30′06″,



Slika 116: macesnov lubadar *Ips cembrae* (♀ 2x, ♂ 2x), dorzalno, lateralno (Foto: Maja Jurc)

Figure 116: *Ips cembrae* (♀ 2x, ♂ 2x), dorsal, lateral (Photo: Maja Jurc)

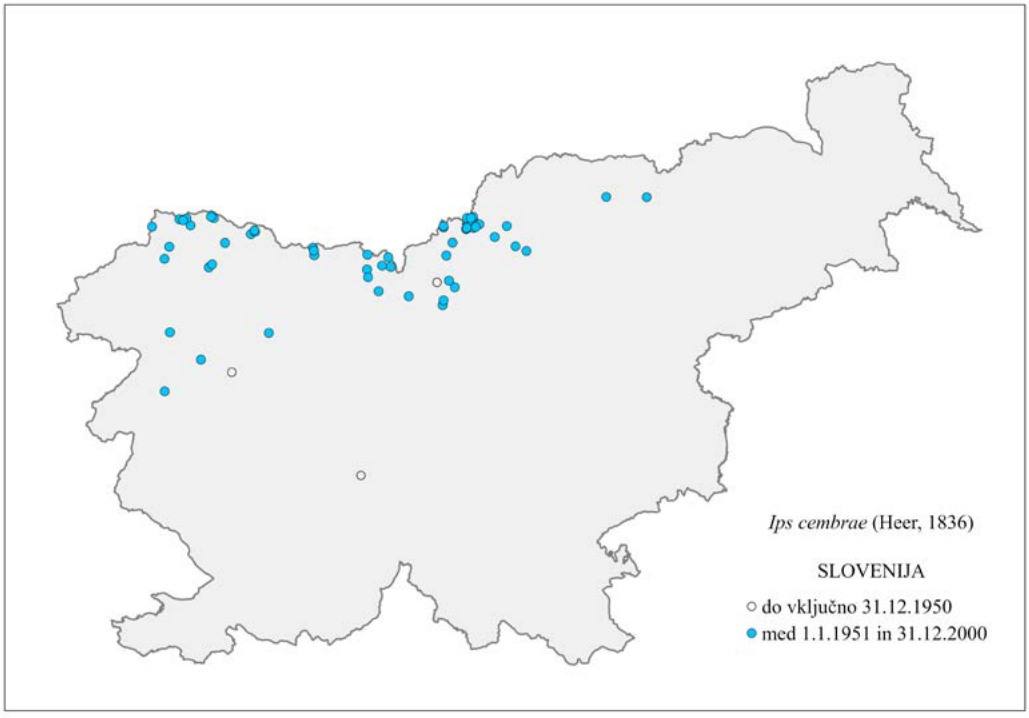
VM05, 1330 m, tThe, phCemp, ldRPa, lit.RPa1997, 16.6.1994; **Jezersko, pri Jezerskem vrhu**, 14°31′43″, 46°24′37″, VM64, 1077 m, *Larix decidua,* hlod, ldRPa, lit.RPa1997, 25.5.1995; **Jezersko, Ravenska Kočna**, 14°32′15″, 46°23′13″, VM63, 1007 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 30.7.1995; **Jureževa planina, pod Blekovo, Karavanke**, 13°49′33″, 46°30′14″, VM05, 1514 m, tThe, phCemp, ldRPa, lit.RPa1997, 16.6.1994; **Jureževa planina, pod Vošco, Karavanke**, 13°48′47″, 46°29′57″, VM05, 1415 m, tThe, phCemp, ldRPa, lit. RPa1997, 16.6.1994, 14.7.1994; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, ~600 m, rRPa, cBFG, 20.6.1953; **Kokra, odcep za Suhadolnik**, 14°29′41″, 46°19′43″, VM63, 583 m, *Larix decidua*, hlod, odRPa, lit.RPa1997, 30.7.1995; **Komatevra, pod Robniško pečjo**, 14°27′22″, 46°24′59″, VM54, 1267 m, tThe, phCemp, ldRPa, lit.RPa1997, 15.8.1995; **Krma, pri Lesi**, 13°54′12″, 46°23′09″, VM13, 997 m, tThe, phCemp, ldRPa, lit.RPa1997, 19.8.1995; **Krma, Zasipska planina**, 13°54′53″, 46°23′36″, VM14, 916 m, tThe, phCemp, ldRPa, lit.RPa1997, 19.8.1995; **Ljubelj, Mošenik**, 14°16′, 46°26′, VM44, 1000 m, ldSBr, cSBr, 19.5.1986; **Ljubelj, Mošenik 1**, 14°16′16″, 46°24′56″, VM44, 772 m, ldcSBr, cSBr, 19.5.1986; **Ljubelj, Šentanska dolina**, 14°16′11″, 46°25′36″, VM44, 883 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 15.6.1996; **Macesnovec, nad karavlo, Planica**, 13°42′18″, 46°29′02″, VM04, 1104 m, *Larix decidua*, deblo, ldRPa, lit.RPa2014c, 31.5.1994; ibidem, tThe, phCemp, ldRPa, lit.RPa1997, 16.6.1994, 27.6.1994, 14.7.1994; **Macesnovec, odcep za Kozji vrh**, 14°27′30″, 46°21′44″, VM53, 983 m, tThe, phCemp, ldRPa, lit.RPa1997, 10.9.1995; **Mežakla, Jerebikovec**, 13°57′36″, 46°26′42″, VM24, 1479 m, *Larix decidua*, deblo, ldRPa, lit.RPa1997, 12.8.1996; **Mikulovica, pobočje**, 13°54′41″, 46°30′28″, VM15, 1270 m, *Larix decidua*, deblo, ldRPa, lit.RPa1997, 19.8.1995; **Planina pod Golico, Karavanke**, 14°02′59″, 46°27′58″, VM24, 936 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 28.7.1995; **Prtovč, Železniki**, 14°06′44″, 46°13′41″, VM32, 1009 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 14.8.1995; **Savske jame, dom tabornikov, Karavanke**, 14°03′51″, 46°28′18″, VM24, 1024 m, *Larix decidua*, drva, ldRPa, lit.RPa1997, 28.7.1995; **Savske jame, ob poti na Golico, Karavanke**, 14°03′47″, 46°28′30″, VM25, 1123 m, tThe, phCemp, ldRPa, lit.RPa1997, 19.8.1995; **Vršič, Koča na Gozdu**, 13°45′55″, 46°26′08″, VM04,1364 m, *Larix decidua*, kontrolno deblo, ldRPa, lit.RPa1997, 10.6.1996; ibidem, tThe, phCemp, ldRPa, lit.RPa1997, 16.6.1994; **Vršič, ovinek 41**, 13°44′55″, 46°24′23″, VM04, 1006 m, *Larix decidua*, deblo, ldRPa, lit.RPa1997, 5.8.1995; **Zgornje Jezersko**, 14°30′25″, 46°23′25″, VM63, 973 m, *Larix decidua*, hlod 15 cm, ldRPa, lit.RPa1996, 8.6.1996.

NOTRANJSKO: **Rakitna**, 14°26′, 45°53′, VL58, 795 m, ldAGs, cAGs, 16.5.1929.

ŠTAJERSKO: Janževski vrh, Ribnica na Pohorju, 15°17′19″, 46°33′19″, WM25, 648 m, *Larix decidua*, hlod, lMPr dRPa, lit.RPa1997, 5.6.1995; ibidem, *Larix decidua*, kontrolno deblo, ldRPa, lit.RPa1997, 11.6.1996; ibidem, tThe, phCemp, lMPr dRPa, lit.RPa1997, 9.6.1995; **Kašni vrh, Savinjske Alpe 1**, 14°43′07″, 46°17′42″, VM72, 1228 m, *Larix decidua*, hlod, ldRPa, lit. RPa1997, 6.8.1995; **Krnica, pod Hriberskim vrhom**, 14°45′38″, 46°20′18″, VM83, 751 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 6.8.1995; **Kunšperski vrh, Savinjske Alpe**, 14°43′18″, 46°18′24″, VM73, 1089 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 6.8.1995; **Luče ob Savinji**, 14°44′26″, 46°21′14″, VM73, 515 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 6.8.1995; **Ojstrica, Dleskovška planota, planina Ravne**, 14°41′55″, 46°21′00, VM73, 1500 m, *Larix decidua*, ldJTi, lit.RPa1995b, 17.6.1905; **Puščava, kmetija Jesenik, Pohorje**, 15°25′46″, 46°33′16″, WM35, 436 m, *Larix decidua*, veja, ldRPa, lit.RPa1997, 17.8.1995; **Raduha, Savinjske Alpe**, 14°43′54″, 46°24′51″, VM74, 1470 m, *Larix decidua*, ldJTi, lit.JTi1983, 7.1974.

KOROŠKO: **Črna, Podpeca**, 14°49′31″, 46°28′53″, VM84, 800 m, *Larix decidua*, ldJTi, lit. JTi1983, 7.1979; **Javorje, kmetija Klavž**, 14°54′00″, 46°27′33″, VM94, 949 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 12.8.1995; **Jelenov vrh, kmetija Jelen**, 14°43′17″, 46°28′56″, VM75, 1251 m, *Larix decidua*, sečni ostanki, ldRPa, lit.RPa1997, 18.8.1995; **Jesenik, kmetija Mitnik**,

14°49′37″,46°29′57″, VM85, 970 m, tThe, phCemp, ldRPa, lit.RPa1997, 27.5.1994; **Kasnjakov vrh, Sv. Helena**, 14°50′47″, 46°29′23″, VM85, 989 m, tThe, phCemp, ldRPa, lit.RPa1997, 27.5.1994; **Koprivna, kmetija Haderlap**, 14°45′11″, 46°26′44″, VM84, 1112 m, *Larix decidua*, drva, ldRPa, lit.RPa1997, 18.8.1995; **Peca, Jakobe, konec ceste**, 14°48′00″, 46°28′41″, VM85, 1360 m, tThe, phCemp, ldRPa, lit.RPa1997, 27.5.1994; **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994; 22.6.1994, 18.7.1994, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995, 17.7.1995, 12.8.1995, 25.8.1995, 7.9.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 27.5.1994, 18.7.1994, 31.7.1994, 13.8.1994, 26.8.1994, 8.9.1994, 21.9.1994; ibidem, lit.RP1995a, 9.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995, 25.8.1995; ibidem, ldRPa vcSBr, lit.RP1994a, 9.6.1994, 22.6.1994, 5.7.1994; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa, lit. RPa1995a, 8.6.1995, 21.6.1995, 17.7.1995, 30.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994b, 27.5.1994, 22.6.1994, 18.7.1994, 1.7.1994, 13.8.1994, 8.9.1994; ibidem, lit.RP1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995, 25.8.1995, 20.9.1995; ibidem, ldRPa vcSBr, lit.RP1994a, 9.6.1994, 5.7.1994; **Peca, nad Mihevom**, 14°48′12″, 46°28′59″, VM85, 1281 m, tThe, phCemp, ldRPa, lit.RPa1997, 27.5.1994; **Peca, pod Tomaževo kočo**, 14°48′30″, 46°29′49″, VM85, 1133 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 11.6.1996; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 31.7.1994; ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995; ibidem, ldRPa vcSBr, lit.RPa1994a, 22.6.1994; ibidem, phCemp, ldRPa, lit.RPa1994a, 27.5.1994, 27.5.1994, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994, 26.8.1994, 8.9.1994;



Slika 117: MACESNOV LUBADAR *Ips cembrae*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 117: *Ips cembrae*, distribution map according to historical and recent data

ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995, 25.8.1995, 7.9.1995; **Peca, Riška gora, Vernik, pri karavli**, 14°49′28″, 46°30′26″, VM85, 1025 m, tThe, phCemp, ldRPa, lit.RPa1997, 27.5.1994; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 5.7.1994, 8.6.1995, 21.6.1995, 17.7.1995, 30.7.1995, 12.8.1995; ibidem, ldRPa vcSBr, lit.RPa1994a, 22.6.1994; ibidem, phCemp, ldRPa, lit.RPa1994a, 27.5.1994, 9.6.1994, 22.6.1994, 5.7.1994,
18.7.1994, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995, 25.8.1995, 7.9.1995, 20.9.1995; **Podpeca, Črna na Koroškem**, 14°50′, 46°29′, VM84, 800 m, *Larix decidua*, ldJTi, lit.JTi1983, 7.1979; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, Kont, ldRPa, lit.RPa1994a, 22.6.1994; ibidem, lit.RPa1995a, 30.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 27.5.1994, 9.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994, 26.8.1994; ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995; **Spodnje Sleme, Šentvid pri Zavodnju**, 14°58′21″, 46°26′11″, VM94, 1027 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 11.6.1996; **Sveta Ana, ob potoku Koprivna**, 14°43′16″, 46°29′08″, VM75, 1209 m, *Larix decidua*, sečni ostanki, ldRPa, lit.RPa1997, 18.8.1995; **Uršlja gora, Naravske Ledine**, 14°56′30″, 46°29′07″, VM94, 1200 m, *Larix decidua*, ldJTi, lit.JTi1983, 5.1979; **Zavodnje**, 15°00′38″, 46°25′32″, WM04, 673 m, *Larix decidua*, hlod, ldRPa, lit.RPa1997, 11.6.1996.

28.04. *Ips duplicatus* (Sahlberg, 1836) DVOJNOZOBI LUBADAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Ips duplicatus* (Sahlberg, 1836); FREUDE, HARDE, LOHSE 1981: *I. duplicatus* (Sahlberg, 1836); PFEFFER & KNÍŽEK 1993: *Ips duplicatus* (Heer, 1836); PFEFFER 1995: *I. duplicatus* (Sahlberg, 1836).

E: AU BY CT CZ EN FI FR GE HU LA LT NR NT PL SL* SK SV **A:** ES FE HEI JA JIL KZ LIA MG NC NMO SCH WS XIN

Evrazijska vrsta, prvotno prisotna v SV Evropi in severni Aziji. Pozneje se je razširila v več evropskih držav (Nemčija, Poljska, Češka, Slovaška, Avstrija in Madžarska) in v evropski del nekdanje Sovjetske zveze. V Sloveniji je bila vrsta leta 2020 najdena na več lokacijah na Gorenjskem, večinoma v okolici Kranja (slika 118). Gostitelji so *Picea abies*, *P. ayanensis*, *P. obovata*, redkeje *Pinus sylvestris*, *P. cembra, P. sibirica, Abies* spp. in *Pseudotsuga menziesii*. V Sloveniji so se vsi primerki ujeli v pasti s feromoni za dvojnozobega lubadarja ali osmerozobega lubadarja (*I. typographus*). Vrsta se običajno pojavlja skupaj z drugimi podlubniki, njena fenologija pa je podobna osmerozobemu lubadarju. Običajno razvije dve, v ugodnih razmerah tudi do štiri generacije letno. Rovni sistem je vzdolžen, z 1–4 materinskimi hodniki.

A Eurasian species originally found in NE Europe and N Asia. Later it spread to several European countries (Germany, Poland, Czech Republic, Slovakia, Austria and Hungary) and to the European part of the former Soviet Union. In Slovenia, the species was found in 2020 in several locations in Gorenjska, mostly in the vicinity of Kranj (Figure 118). Hosts include *Picea abies*, *P. ayanensis*, *P. obovata*, less frequently *Pinus sylvestris*, *P. cembra, P. sibirica, Abies* spp. and *Pseudotsuga menziesii*. In Slovenia, all individuals were caught in traps with pheromones for *I. duplicatus* or *I. typographus*. The species usually occurs together with other bark beetles and its phenology is similar to that of *I. typographus*. It usually develops two, and in favourable conditions up to four, generations per year. The tunnel system is elongated, with 1-4 maternal

Z dolžino 2,8–4,0 mm je krajši od rovnega sistema osmerozobega lubadarja, običajno je tudi temneje obarvan. Od štirih zobčkov na obronku koničnika 2. in 3. zobček izraščata iz skupne osnove, razdalja med njima pa je manjša kot med prvim (suturalnim) in drugim zobčkom. Dvojnozobi lubadar naseljuje zlasti višje dele debel in debelejše veje, le redko pa podrta drevesa. Gostota njegovih populacij je v Sloveniji relativno nizka, vendar bi se lahko v prihodnosti lokalno namnožili. Feromon: Ipsdienol (Bakke 1975).

galleries. At 2.8-4.0 mm it is shorter than *I. typographus* and usually darker in colour. Of the four denticles at the tip of the elytrum, the 2nd and 3rd denticles grow from a common base, with a smaller distance between them than between the first (sutural) and second denticle. *I. duplicatus* attacks mainly the higher parts of trunks and thicker branches, but rarely fallen trees. Its population density is relatively low in Slovenia, but localized increased reproduction may occur in the future. Pheromone: Ipsdienol (Bakke 1975).

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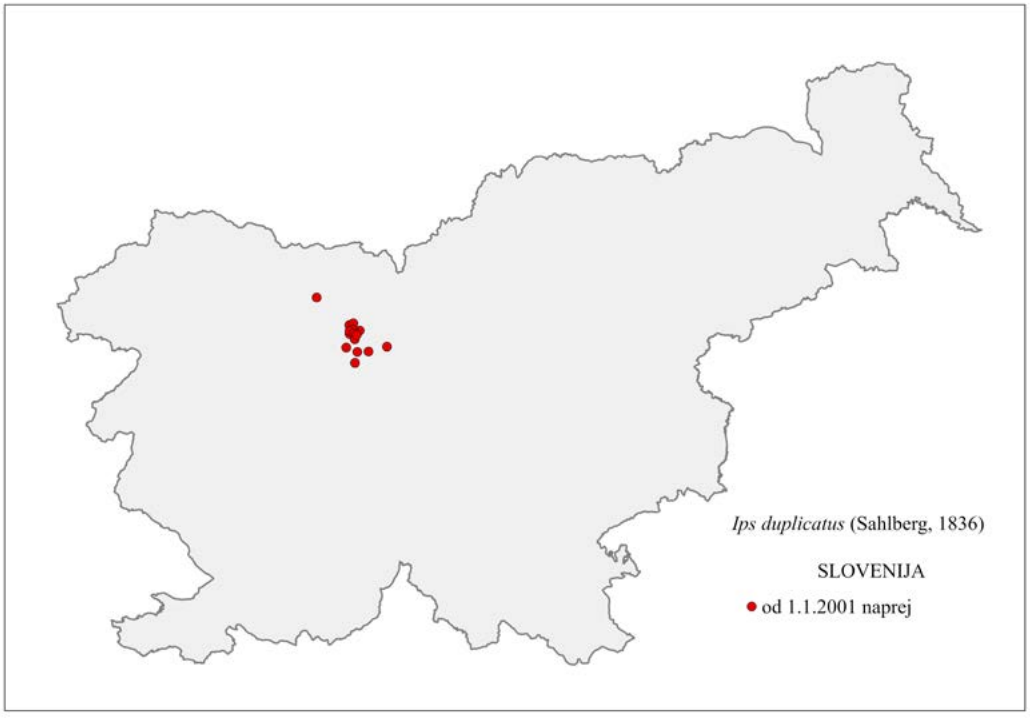
GORENJSKO: **Hrastje, Kranj, Agromehanika 5**, 14°23′38″, 46°13′34″, VM51, 378 m, tWmf, phEcITe, ldAKv, lit.AKv2023, 7.7.2020; **Meja, Sorško polje 3**, 14°22′57″, 46°11′34″, VM51, 366 m, tWtr, phAtDu, ldAKv, lit.AKv2023, 12.8.2020; **Moše, Smlednik**, 14°25′16″, 46°10′55″, VM51, 360 m, tWit, phEcITe, ldAKv, lit.AKv2023, 1.7.2020; **Podbrezje**, 14°16′46″, 46°18′49″, VM42, 470 m, tWtr, phAtDu, ldAKv, lit.AKv2023, 29.9.2020; **Primskovski boršt, Primskovo**, 14°23′34″, 46°14′50″, VM52,403 m, tWtr, phEcITe, ldAKv, lit.AKv2023, 7.7.2020; **Šenčur, Hrastišče**, 14°24′25″, 46°15′05″, VM52, 412 m, tWtr, phEcITe, ldAKv, lit.AKv2023, 7.7.2020;



Slika 118: dvojnozobi lubadar *Ips duplicatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 118: *Ips duplicatus*, distribution map according to historical and recent data

Šenčur, izvoz Brnik 5, 14°25′45″, 46°14′02″, VM52, 392 m, tWit, phEcITe, ldAKv, lit.AKv2023, 7.7.2020; **Šenčur, poslovna cona 6**, 14°24′26″, 46°14′10″, VM52, 329 m, tWtr, phEcITt, ldAKv, lit.AKv2023, 7.7.2020; **Šenčurska gmajna, Hrastje**, 14°23′38″, 46°13′58″, VM52, 385 m, tWtr, phEcITe, ldAKv, lit.AKv2023, 7.7.2020; **Voklo, Delavska cesta**, 14°24′36″, 46°13′38″, VM51, 369 m, tWtr, phEcITe, ldAKv, lit.AKv2023, 7.7.2020; **Voklo, Dobče**, 14°24′44″, 46°12′45″, VM51, 369 m, tWtr, phEcITe, ldAKv, lit.AKv2023, 7.7.2020; **Voklo, Prešnica**, 14°25′08″, 46°13′24″, VM51, 382 m, tWtr, phEcITe, ldAKv, lit.AKv2023, 7.7.2020; **Zapoge**, 14°27′37″, 46°11′00″, VM51, 343 m, tWmf, phEcITe, ldAKv, lit.AKv2023, 1.7.2021; **Žeje pri Komendi, Vodice**, 14°31′27″, 46°11′42″, VM61, 339 m, tWmf, phEcITe, ldAKv, lit.AKv2023, 24.4.2020, 29.6.2020; **Žeje, Zbilje**, 14°24′46″, 46°09′21″, VM51, 363 m, tWtr, phEcITe, ldAKv, lit.AKv2023, 12.5.2020.

28.05. *Ips sexdentatus* (Boerner, 1766) DVANAJSTEROZOBI LUBADAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866*: Bostrychus stenographus* Dft.; GRÜNE 1979: *Ips sexdentatus* (Boerner, 1767); FREUDE, HARDE, LOHSE 1981: *Ips sexdentatus* Boerner; TITOVŠEK 1988: *Ips sexdentatus* (Boerner); PFEFFER & KNÍŽEK 1993: *I. sexdentatus* (Börner, 1776); PFEFFER 1995: *I. sexdentatus* (Börner, 1776).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA LT LU MC MD NL NR NT PL PT RO SK SL SP ST SV SZ UK YU **A:** ES FE GAN HEB HEI HEN HUB JA JIL KZ LIA MG NC NMO SC SCH SHA SHX TR WS YUN **ORR**

Vrsta je razširjena v Evropi, na Krimu, Kavkazu, Mali Aziji, Sibiriji, Koreji, Japonskem in severnem Kitajskem. SIEGEL (1866) navaja, da vrsta »na Kranjskem ni redka, pod borovim lubjem«. *I. sexdentatus* se pojavlja v večjem delu Slovenije, vendar so gostote populacij nizke (slika 120). Gostitelji: *Pinus sylvestris*, redkeje *P. pinaster*, *P. nigra*, *P. heldreichii* in *P. koraiensis*, redko tudi *Abies alba*, *A. nordmanniana*, *Larix decidua*, *L. sibirica*, *Picea abies* in *P. orientalis*. V Sloveniji je najpogostejši gostitelj črni bor (*P. nigra*). Roji od aprila do maja in od julija do avgusta, letno razvije 2–5 generacij. Je floemofag, gradi zelo dolge zvezdaste rovne sisteme z 2–5 materinskimi rovi. Je izrazito sekundarno-terciarna vrsta, največkrat jo najdemo na napadeni hlodovini. Dolžina adultov znaša 5,5–8,9 mm. Oba spola imata na obronku vsake pokrovke po 6 zobčkov, četrti je največji in gumbasto odebeljen (slika 119). Feromoni: ♂ ♂ Ipsdienol, (Ipsenol) (VITÉ S SOD. 1974; VITÉ 1978, BAKKE & HUGHES 1974).

The species is widespread in Europe, the Crimea, the Caucasus, Asia Minor, Siberia, Korea, Japan and northern China. SIEGEL (1866) states that the species is "not rare in Carniola, under pine bark". *I. sexdentatus* occurs in most of Slovenia, but population densities are low (Figure 120). Hosts: *Pinus sylvestris*, less frequently *P. pinaster*, *P. nigra*, *P. heldreichii* and *P. koraiensis*, rarely also *Abies alba*, *A. nordmanniana*, *Larix decidua*, *L. sibirica*, *Picea abies* and *P. orientalis*. In Slovenia, the most common host is the black pine (*P. nigra*). It swarms from April to May and from July to August, developing 2-5 generations annually. Floemophagous, builds very long star-shaped tunnel systems with 2-5 maternal galleries. A distinctly secondary-tertiary species, mostly found on infested logs. Adult length is 5.5-8.9 mm. Both sexes have 6 denticles on the margin of each elytrum, the fourth being the largest and button-shaped (Figure 119). Pheromones: ♂ ♂ Ipsdienol, (Ipsenol) (VITÉ ET AL. 1974; VITÉ 1978, BAKKE & HUGHES 1974).

Slika 119: DVANAJSTEROZOBI LUBADAR *Ips sexdentatus* (♀ 1x – dorzalno, ♂ 2x – dorzalno in lateralno) (Foto: Maja Jurc)

Figure 119: *Ips sexdentatus* (♀ 1x – dorsal, ♂ 2x – dorsal and lateral) (Photo: Maja Jurc)

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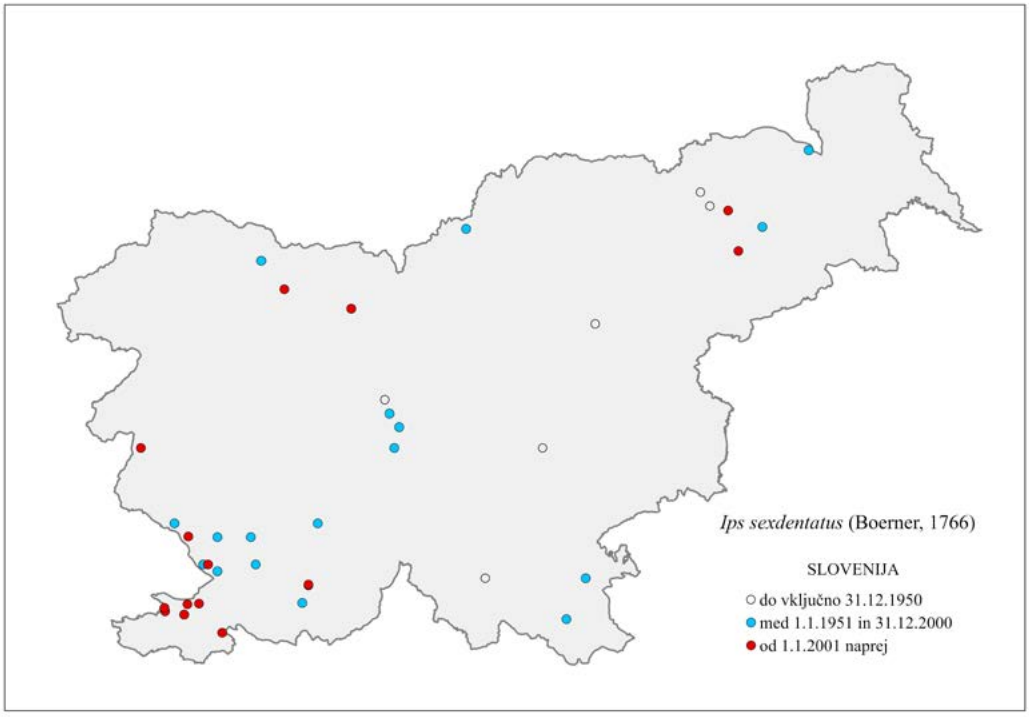
SLOVENIJA: cBFG, pred 1951; *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.
ISTRA: **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phPher, ldGMe, lit.RPa2010b, 7.9.2010; **Kastelec**, 13°52′09″, 45°34′17″, VL14, 299 m, *Pinus nigra*, deblo 25 cm, ldRPa, lit.RPa2020c, 5.6.2009; ibidem, deblo 30 cm, ldRPa, lit.RPa2020c, 30.5.2011; ibidem, vrhač 3 cm, ldRPa, lit. RPa2014c, 19.5.2006: **Kojnik, Koper**, 13°57′, 45°30′, VL13, 780 m, *Pinus nigra*, deblo, ldMJu, cBFG, 3.2002, 6.2002; ibidem, opožarjeno drevo, ldIRe, lit.IRe2001, 16.9.1999, 1.10.1999, 16.10.1999; ibidem, ldMJu, lit.MJu2001, 22.7.1999, 26.5.2000, 1.6.2000, 22.7.2000, 17.6.2001; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2018b, 23.10.2018; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 23.10.2014; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2017d, 4.7.2017, 3.10.2017; ibidem, lit.RPa2018e, 27.7.2018; ibidem, lit.RPa2019e, 31.7.2019, 25.9.2019.
PRIMORSKO: **Lipica**, 13°53′, 45°40′, VL15, 360 m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Lipica, Mlave**, 13°54′, 45°40′, VL15, 400 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 10.9.2000, 23.3.2001, 16.8.2001, 15.9.2001; **Nova Gorica, Panovec**, 13°40′, 45°57′, UL98, ~100 m, tThe, phPher, lBZa dSBr, cSBr, 6.7.2000, 23.4.2001; **Pliskovica, Dutovlje**, 13°47′, 45°46′, VL06, 240 m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1979; **Prelože pri Lokvi, Divača**, 13°56′, 45°39′, VL15, 480 m, *Pinus nigra*, hlod, ldJTi, lit.JTi1983, 8.1968; **Štorje, Sežana**, 13°56′, 45°44′, VL16, 370 m,

Pinus nigra, opožarjeno drevo deblo, ldJTi, lit.JTi1983, 4.1973; **Tomajski Govec, Pod Govcem, Vrhovlje**, 13°49′55″, 45°44′06″, VL06, 296 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 22.7.1999, 26.5.2000, 1.6.2000, 22.7.2000, 13.6.2001.
GORENJSKO: **Boršt, Blejska Dobrava**, 14°05′07″, 46°24′07″, VM23, 850 m, *Pinus nigra*, deblo, ldMJu, cBFG, 8.6.2000; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008; ibidem, lit.RPa2010a, 9.6.2010; **Radovljica**, 14°10′, 46°20′, VM33, 500 m, ldAGs, cAGs, pred 1951.
NOTRANJSKO: **Gornje Ležeče, Vremščica**, 14°04′, 45°40′, VL25, 470 m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Ilirska Bistrica, žaga**, 14°13′44″, 45°34′22″, VL34, 404 m, *Pinus nigra*, hlod, ldRPa, lit.RPa2014c, 10.7.1995; **Javornik, Javorniki**, 14°17′, 45°46′, VL46, ~1000 m, ldSBr, cSBr, 10.6.1986; **Knežak, južno**, 14°15′02″, 45°36′58″, VL45, 608 m, *Pinus nigra*, hlod 40 cm, ldRPa, lit.RPa2014c, 19.8.2014, 23.10.2014; **Knežak, severno**, 14°15′02″, 45°37′04″, VL45, 607 m, *Pinus nigra*, hlod 40 cm, ldRPa, lit.RPa2014c, 19.8.2014, 23.10.2014; **Senožeče**, 14°03′, 45°44′, VL26, 390m, *Pinus nigra*, ldJTi, lit.JTi1983, 7.1977.
LJUBLJANA Z OKOLICO: **Golovec**, **Ljubljana**, 14°32′, 46°02′, VL69, ~400 m, lVFu dSBr, cVFu, 4.5.1984; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cJSd, 15.6.1930; **Orle, Ljubljana**, 14°34′, 46°00′, VL69, ~400 m, lVFu dSBr, cVFu, 4.5.1984.
DOLENJSKO: **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 17.4.1983; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, ldJSd, cJSd, 7.7.1932; **Mirna, Trebnje, žaga KLO**, 15°04′, 45°57′, WL08, 250 m, *Pinus* sp., hlod, ldJŠl, lit.JŠl1948, 13.5.1947.



Slika 120: DVANAJSTEROZOBI LUBADAR *Ips sexdentatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 120: *Ips sexdentatus*, distribution map according to historical and recent data

BELA KRAJINA: **Izvir Krupe, Krupa**, 15°13′, 45°38′, WL15, 170 m, ldSBr, cSBr, 23.5.1986; **Tanča Gora, Črnomelj**, 15°09′, 45°32′, WL14, 225 m, ldSBr, cSBr, 26.5.1987.
ŠTAJERSKO: Celje, žaga, 15°15′, 46°15′, WM22, 240 m, *Pinus* sp., hlod, ldJŠl, lit.JŠl1948, 4.7.1947; **Cirkovce, Pragersko, peskokop**, 15°44′57″, 46°25′31″, WM54, 245 m, *Pinus sylvestris*, deblo 35 cm, ldRPa, lit.RPa2020c, 19.4.2013; **Gornja Radgona, Kunejev grad**, 15°59′40″, 46°40′01″, WM76, 220 m, ldBDr, cZRC, 1999; **Maribor**, (15°39′), (46°32′), (WM55), ~270 m, ldAGs, cAGs, 8.7.1929; **Maribor, Mariborski otok, Kamnica**, 15°37′, 46°34′, WM45, 280 m, ldJPe vSBr, cJPe, pred 1951; **Vurberk, Zlatoličje, Dolgi kamen**, 15°50′,46°29′,WM64,380 m,tThe,phCemp,lRRe dRPa,lit.RPa2014c,30.9.1994; **Zgornji Duplek**, Maribor, 15°42′47″, 46°31′22″, WM55, 242 m, *Pinus sylvestris*, deblo 40 cm rs, odAMu vRPa, lit.RPa2023a, 9.11.2023.
KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, phCemp, ldRPa, lit.RPa1994a, 22.6.1994.

28.06. *Ips typographus* (Linnaues, 1758) OSMEROZOBI LUBADAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel 1866: *Bostrychus typographus* Lin.; Grüne 1979: *Ips typographus* Linné, 1758; Freude, Harde, Lohse 1981: *Ips typographus* Linné; Titovšek 1988: *Ips typographus* (Linné); Pfeffer & Knížek 1993: *I. typographus* (Linnaues, 1758); Pfeffer 1995: *Ips typographus* (Linné, 1758).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IC IR IT LA LS LT LU MD NR NT PL PT RO SK SL SP ST SV SZ UK YU **N:** AG **A:** ES FE GAN HEI HEN JA JIL KZ MG NC NMO QIN SC SCH SHA TR WS XIN

Vrsta je razširjena v arealu navadne smreke (*Picea abies*) v srednji Evropi, severni Evropi, Bosni, Srbiji, Bolgariji, na Kavkazu in v Sibiriji. Vrsta je razširjena po vsej Sloveniji, od kolinskega do alpinskega pasu (slika 122). Gostitelji: *Picea abies*, *P. obovata*, *P. omorica*, *P. jezoensis*, *Pinus sylvestris*, *P. strobus*, *P. sibirica*, *P. koraiensis* in *Abies sibirica*, redkeje *Larix* spp., *Pseudotsuga* spp., *Pinus nigra* in *Abies alba*. V Sloveniji je gostitelj skoraj vedno *P. abies*, redko tudi *P. sylvestris* in *A. alba*. Letno razvije 2–3 generacije. Gradi vzdolžno usmerjene, najpogosteje z 2–3 krake rovne sisteme. Velikost adultov je 4,2–5,5 mm. Oba spola imata na vsakem obronku koničnika po 4 zobce na približno enaki razdalji, od katerih je tretji največji in gumbasto odebeljen. Stiki členov na kiju tipalke potekajo v blagem loku (slika 121). Je floemofagna sekundarna vrsta, v ugodnih trofičnih in vremenskih razmerah se pogosto pojavlja v gradacijah. Je zelo pogosta vrsta v odraslih zasmrečenih sestojih, v katerih lahko povzroča veliko ekonomsko škodo. Glede

The species is distributed in the range of the Norway spruce (*Picea abies*) in central Europe, northern Europe, Bosnia, Serbia, Bulgaria, the Caucasus and Siberia. It is common throughout Slovenia, from the colline to the Alpine zone (Figure 122). Hosts: *Picea abies*, *P. obovata*, *P. omorica*, *P. jezoensis*, *Pinus sylvestris*, *P. strobus*, *P. sibirica*, *P. koraiensis* and *Abies sibirica*, rarely *Larix* spp., *Pseudotsuga* spp., *Pinus nigra* and *Abies alba*. In Slovenia, the host is almost always *P. abies*, rarely also *P. sylvestris* and *A. alba*. It develops 2-3 generations per year. It builds longitudinally oriented, most often 2-3-limbed straight tunnel systems. Adult size is 4.2-5.5 mm. Both sexes have 4 teeth on each side of the elytrl apex, approximately equidistant, the third of which is the largest and button-shaped. The stitching on the tip of the antenna is in a gentle arc (Figure 121). Floemophagous secondary species, often occurring in gradations in favourable trophic and weather conditions. Very common in mature spruce-dominated stands, where it can causes considerable economic damage.

na porušeno razmerje razvojnih faz, velike površine zasmrečenih gozdov in podnebne spremembe je njegova svetla prihodnost v Sloveniji zagotovljena. Vrsta je primarni saproksil. Podobno kot drugi podlubniki ima številne naravne sovražnike: bakterije, glive, nematode, praživali, pršice, žuželke in ptice. Njegovo obvladovanje v gospodarskih gozdovih je uspešno le ob doslednem izvajanju preventivnih, profilaktičnih in zatiralnih ukrepov. Feromoni: 2-Methyl-3-buten-2-ol, [S]-*cis*-Verbenol, Ipsdienol; (Ipsenol, *trans*-Verbenol) (Bakke 1970, Bakke s sod. 1977).

Given the disrupted relationship between developmental stages, the large areas of forest overgrown with spruce and climate change, its bright future in Slovenia is assured. The species is a primary saproxylic. Like other bark beetles, it has many natural enemies: bacteria, fungi, nematodes, protozoa, mites, insects and birds. Its management in managed forests is successful only if preventive, prophylactic and curative measures are implemented consistently. Pheromones: 2-Methyl-3-buten-2-ol, [S]-cis-Verbenol, Ipsdienol; (Ipsenol, *trans*-Verbenol) (Bakke 1970, Bakke s sod. 1977).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951; ldJTi, cŠFS, 1951-2000; *Abies alba*, ldMSi, lit.MSi1866, pred 1951. **ISTRA**: **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014b, 23.5.2014; ibidem, lit.RPa2017b, 31.5.2017; ibidem, lit.RPa2018b, 26.9.2018; ibidem,

Slika 121: osmerozobi lubadar *Ips typographus* (♀ 2x – dorzalno, lateralno, ♂ 2x – dorzalno, lateralno) (Foto: Maja Jurc)

Figure 121: *Ips typographus* (♀ 2x – dorsal, lateral, ♂ 2x – dorsal, lateral) (Foto: Maja Jurc)

lit.RPa2019d, 31.7.2019, 24.10.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2015b, 2.6.2015, 2.9.2015; ibidem, lit.RPa2016b, 28.9.2016; ibidem, 25.9.2019, 24.10.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 1.7.2014, 31.7.2014, 1.9.2014; ibidem,
lit.RPa2015b, 6.5.2015, 2.6.2015, 2.9.2015, 6.10.2015; ibidem, lit.RPa2016b, 30.6.2016, 27.7.2016, 27.10.2016; ibidem, lit.RPa2017b, 4.7.2017; ibidem, lit.RPa2019d, 19.6.2019, 31.7.2019, 25.9.2019, 24.10.2019; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2019e, 24.10.2019.
PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, 106 m, *Picea abies*, ldDJu, lit.DJu1988, 1987; **Bača pri Modreju, ob železnici**, 13°45′32″, 46°08′47″, VM01, 181 m, *Picea abies*, hlod 30 cm rs, odRPa, lit.RPa2021a, 8.8.2021; **Breginj**, 13°26′, 46°16′, UM72, 760 m, *Picea abies*, ldJTi, lit. JTi1983, 6.1978; **Buje**, 14°05′55″, 45°38′58″, VL25, 403 m, *Abies alba*, deblo 25 cm rs, odJDe vRPa, lit.RPa2023a, 18.11.2023; **Cerkno**, 14°00′, 46°08′, VM20, 430 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Čaven, Lokavec, Trnovski gozd**, 13°52′, 45°56′, VL18, 1080 m, *Picea abies*, ldJTi, lit. JTi1983, 8.1979; **Čezsoča, potok Slatenik, Bovec**, 13°35′, 46°19′, UM93, ~500 m, ldSBr, cSBr, 3.8.1982; **Grahovo ob Bači**, 13°51′28″, 46°09′17″, VM11, 339 m, *Picea abies*, deblo 50 cm, odRPa, lit.RPa2023a, 20.8.2023; **Komen**, 13°45′, 45°49′, VL07, 282 m, *Pinus nigra*, deblo gLEŠ, lBKo dRPa, lit.RPa2014c, 15.6.2005; **Krajna Vas**, 13°48′56″, 45°45′51″, VL04, 274 m, tWit, phPher, ldRPa, lit.RPa2010b, 2.7.2010; **Krnica, Trnovski gozd**, 13°48′, 45°57′, VL08, 1050 m, tThe, phPher, ldIKr, lit.IKr1998, 8.5.1994, 15.5.1994, 22.5.1994, 29.5.1994, 5.6.1994, 12.6.1994, 19.6.1994, 26.6.1994, 3.7.1994, 10.7.1994, 17.7.1994, 24.7.1994, 31.7.1994, 7.8.1994, 14.8.1994, 21.8.1994, 28.8.1994, 4.9.1994, 11.9.1994, 18.9.1994, 25.9.1994, 15.5.1995, 22.5.1995, 29.5.1995, 5.6.1995, 12.6.1995, 19.6.1995, 26.6.1995, 3.7.1995, 10.7.1995, 17.7.1995, 24.7.1995, 31.7.1995, 7.8.1995, 14.8.1995, 21.8.1995; **Mangart, odcep**, 13°35′37″, 46°11′42″, UM94, 1099 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa1995b, 9.9.1995; **Nova Gorica, Panovec**, 13°40′, 45°57′, UL98, ~100 m, tThe, phPher, lBZa dSBr, cSBr, 21.4.2000, 6.7.2000; **Podbrdo, Batava, ob železnici**, 13°58′04″, 46°12′38″, VM21, 506 m, *Picea abies*, hlod 35 cm rs, odRPa, lit.RPa2021a, 8.8.2021; **Predmeja**, 13°51′13″, 45°57′37″, VL19, 980 m, *Abies alba*, hlod, ldRPa, lit.RPa2014c, 9.8.1996; **Prelože pri Lokvi, Divača**, 13°56′, 45°39′, VL15, 440 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 7.1968; **Pretovč, Tolmin**, 13°41′, 46°13′, UM92, 1120 m, *Picea abies*, deblo, ldJTi, lit.RPa2014c, 27.6.2004; **Prevala, Trnovski gozd**, 13°48′, 45°57′, VL08, 1100 m, tThe, phPher, ldIKr, lit. IKr1998, 15.5.1994; 22.5.1994, 29.5.1994, 5.6.1994, 12.6.1994, 19.6.1994, 26.6.1994, 3.7.1994, 10.7.1994, 17.7.1994, 24.7.1994, 31.7.1994, 7.8.1994, 14.8.1994, 21.8.1994, 28.8.1994, 4.9.1994, 11.9.1994, 18.9.1994, 25.9.1994, 15.5.1995, 22.5.1995, 29.5.1995, 5.6.1995, 12.6.1995, 19.6.1995, 26.6.1995, 3.7.1995, 10.7.1995, 17.7.1995, 24.7.1995, 31.7.1995, 7.8.1995, 14.8.1995, 21.8.1995; **Rut, nad Grantom**, 13°52′58″, 46°12′47″, VM12, 914 m, tThe, phPher, ldRPa, lit.RPa1995b, 20.8.1995; **Smečje, Trnovski gozd**, 13°49′, 45°58′, VL09, 1050 m, tThe, phPher, ldIKr, lit.IKr1998, 8.5.1994, 15.5.1994, 22.5.1994, 29.5.1994, 5.6.1994, 12.6.1994, 19.6.1994, 26.6.1994, 3.7.1994, 10.7.1994, 17.7.1994, 24.7.1994, 31.7.1994, 7.8.1994, 14.8.1994, 21.8.1994, 28.8.1994, 4.9.1994, 11.9.1994, 18.9.1994, 25.9.1995, 15.5.1995, 22.5.1995, 29.5.1995, 5.6.1995, 12.6.1995, 19.6.1995, 26.6.1995, 3.7.1995, 10.7.1995, 17.7.1995, 24.7.1995, 31.7.1995, 7.8.1995, 14.8.1995, 21.8.1995; **Soča, Bovec**, 13°40′, 46°21′, UM93, 650 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Temnica, Kostanjevica na Krasu**, 13°41′, 45°51′, UL97, 400 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Tolmin, Kozlov rob**, 13°44′, 46°11′, VM01, 300 m, tThe, phPher, ldNRu, lit.NRu2014, 17.4.2013; 1.5.2013, 8.5.2013, 15.5.2013, 22.5.2013, 29.5.2013, 5.6.2013, 12.6.2013, 19.6.2013, 26.6.2013, 3.7.2013, 10.7.2013, 17.7.2013, 24.7.2013, 31.7.2013, 7.8.2013, 14.8.2013, 21.8.2013, 28.8.2013, 4.9.2013, 11.9.2013, 18.9.2013, 25.9.2013; **Trenta, Na Logu**, 13°45′16″, 46°23′00″, VM03, 638 m, *Picea abies*, deblo 30 cm rs, odAKr vRPa, lit.RPa2022a, 4.12.2022; **Volče, Tolmin**, 13°43′, 46°10′, VM01, 280m,

Picea abies, ldJTi, lit.JTi1983, 7.1974; **Zadnja Trenta, ob Suhem potoku**, 13°42′15″, 46°24′05″, VM94, 971 m, *Picea abies*, deblo, ldRPa, lit.RPa1995b, 5.8.1995; **Zadnjica, Julijske Alpe**, 13°47′, 46°23′, VM03, 700 m, ldSBr, cSBr, 11.6.1997.

GORENJSKO: **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022; **Blagovica**, 14°48′, 46°11′, VM81, 410 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1.1972; **Bled, Drajžnik**, 14°03′49″, 46°21′45″, VM23, 721 m, tWtr, phPher, ldDBo, lit.NOg2019, 13.4.2018; **Bled, pod gradom 2**, 14°05′49″, 46°22′10″, VM33, 531 m, tWtr, phPher, ldDBo, lit.NOg2019, 13.4.2018; **Bled, Višce**, 14°05′30″, 46°22′15″, VM33, 521 m, tWtr, phPher, ldDBo, lit.NOg2019, 13.4.2018; **Bohinjska Bistrica, Litostrojska koča**, 14°01′, 46°14′, VM22, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Bohinjska Bistrica, Mencingerjeva koča**, 13°57′, 46°15′, VM12, 1100 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Bohinjska Bistrica, ob železnici**, 13°57′31″, 46°16′18″, VM12, 522 m, *Picea abies*, hlod 40 cm rs, odRPa, lit.RPa2021a, 8.8.2021; **Boršt, Vintgar**, 14°05′07″, 46°24′07″, VM23, 850 m, *Picea abies*, kontrolno deblo, ldARe, lit.ARe2014, 5.2008; **Brdo pri Kranju**, 14°25′, 46°17′, VM52, 470 m, tThe, phPher, ldMVr, lit.MVr2008, 23.4.2005; 30.4.2005, 14.5.2005, 21.5.2005, 28.5.2005, 4.6.2005, 11.6.2005, 18.6.2005, 25.6.2005, 2.7.2005, 9.7.2005, 16.7.2005, 23.7.2005, 30.7.2005, 6.8.2005, 13.8.2005, 20.8.2005, 27.8.2005, 3.9.2005, 10.9.2005, 17.9.2005, 24.9.2005, 1.10.2005, 8.10.2005, 15.10.2005, 22.10.2005, 29.10.2005, 5.11.2005; **Brdo pri Kranju 1/1**, 14°23′50″, 46°16′46″, VM52, 439 m, tThe, phChal, ldRPa, lit.RPa2003, 6.6.2003, 20.6.2003, 27.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 6.9.2003, 13.9.2003, 19.9.2003, 27.9.2003; ibidem, phLino, lit.RPa2003, 20.6.2003, 27.6.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 6.9.2003, 19.9.2003, 27.9.2003; ibidem, phPher, ldRPa, lit.RPa2003, 6.6.2003, 13.6.2003, 20.6.2003, 27.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 6.9.2003, 13.9.2003, 19.9.2003, 27.9.2003, 3.10.2003, 10.10.2003, 18.10.2003; **Brdo pri Kranju 1/2**, 14°23′31″, 46°17′14″, VM52, 463 m, tThe, phChal, ldRPa, lit.RPa2003, 6.6.2003, 20.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 6.9.2003; ibidem, phLino, lit. RPa2003, 6.6.2003, 13.6.2003, 20.6.2003, 27.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 19.9.2003, 27.9.2003, 18.10.2003; ibidem, phPher, ldRPa, lit.RPa2003, 6.6.2003, 13.6.2003, 20.6.2003, 27.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 6.9.2003, 13.9.2003, 19.9.2003, 27.9.2003, 3.10.2003, 10.10.2003; **Brdo pri Kranju 1/7**, 14°23′33″, 46°16′38″, VM52, 432 m, *Picea abies*, deblo 50 cm, ldRPa, lit.RPa2003, 14.6.2003; **Brdo pri Kranju 1/16**, 14°23′49″, 46°16′43″, VM52, 438 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2003, 15.8.2003; **Brdo pri Kranju 1/23**, 14°24′08″, 46°17′03″, VM52, 453 m, *Picea abies*, sušica 25 cm rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/38**, 14°24′47″, 46°17′22″, VM52, 462 m, *Picea abies*, deblo 25 cm, ldRPa, lit. RPa2003, 18.10.2003; **Brdo pri Kranju 2/1**, 14°22′07″, 46°16′49″, VM52, 423 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2004, 24.8.2004; **Brdo pri Kranju 2/8**, 14°24′22″, 46°17′13″, VM52, 457 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2004, 26.9.2004; ibidem, sušica 25 cm rs, odRPa, lit.RPa2004, 26.9.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 7.10.2008; ibidem, lit.RPa2010a, 9.6.2010; ibidem, lit. RPa2012, 25.7.2012; ibidem, lit.RPa2018a, 25.4.2018, 20.6.2018, 18.7.2018; ibidem, lit.RPa2019a, 8.5.2019, 3.6.2019; ibidem, lit.RPa2020d, 20.5.2020, 12.8.2020; ibidem, lit.RPa2021b, 22.9.2021; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008, 10.9.2008, 7.10.2008; ibidem, lit.RPa2010a, 9.6.2010, 20.7.2010, 27.10.2010; ibidem, phGaPr, ldRPa, lit.RPa2013a, 17.4.2013; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tWit, Kont, ldRPa, lit.RPa2008, 16.7.2008; ibidem, phPher, ldRPa, lit.RPa2008, 13.8.2008, 10.9.2008, 7.10.2008; ibidem, lit.RPa2010, 9.6.2010, 20.7.2010, 8.9.2010, 27.10.2010;

Brdo pri Lukovici pri Domžalah, 14°41′, 46°10′, VM71, 330 m, ldSBr, cSBr, 5.7.1948; **Breg ob Savi, Sorško polje 1**, 14°22′25″, 46°12′38″, VM51, 372 m, *Picea abies*, deblo 20 cm, ldRPa, lit. RPa2014c, 10.5.2008; **Britof, Kranj**, 14°24′05″, 46°15′13″, VM52, 413 m, tThe, phChal, ldRPa, lit. RPa1991a, 14.4.1989, 21.4.1989, 14.7.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989; **Brnik**, 14°28′, 46°14′, VM52, 380m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 4.1971; ibidem, 390 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 4.1971; **Brnik, južno od letališča**, 14°26′34″, 46°13′17″, VM51, 375 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2020c, 24.5.2018; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, phPher, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 30.6.1989, 7.7.1989, 14.7.1989, 28.7.1989; **Brnik, letališče, krožišče Cargo 1**, 14°26′37″, 46°14′08″, VM52, 392 m, *Picea abies*, deblo 20 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 3**, 14°26′43″, 46°14′07″, VM52, 392 m, tRid, phEcIT, ldRPa, lit. RPa2021a, 16.8.2021, 2.10.2021, 15.10.2021; ibidem, lit.RPa2022a, 31.5.2022, 30.6.2022, 28.10.2022; ibidem, phEcPC, ldRPa, lit.RPa2021a, 16.8.2021, 2.10.2021, 15.10.2021; ibidem, lit. RPa2022a, 31.5.2022, 30.6.2022, 28.10.2022; **Brnik, letališče, krožišče Cargo 4**, 14°26′43″, 46°14′11″, VM52, 392 m, tThe, phEcIT, ldRPa, lit.RPa2021a, 16.8.2021; ibidem, phEcPC, ldRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 8**, 14°26′43″, 46°14′08″, VM52, 392 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2022a, 28.10.2022; ibidem, deblo 25 cm, ldRPa, lit. RPa2022a, 28.10.2022; **Brnik, letališče, krožišče Cargo 11**, 14°26′35″, 46°14′08″, VM52, 392 m, *Picea abies*, hlod 20 cm, ldRPa, lit.RPa2022a, 28.10.2022; ibidem, vejni kup 5 cm, ldRPa, lit. RPa2022a, 28.10.2022; **Brnik, letališče, krožišče Cargo 12**, 14°26′37″, 46°14′07″, VM52, 392 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2022a, 28.10.2022; ibidem, deblo 50 cm, ldRPa, lit. RPa2022a, 28.10.2022; **Brnik, letališče, pri parkirišču**, 14°26′59″, 46°14′14″, VM52, 393 m, tThe, Kont, ldRPa, lit.RPa1991a, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 26.5.1989, 7.7.1989, 14.7.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 14.10.1989; **Brnik, severno od letališča**, 14°26′32″, 46°14′10″, VM52, 392 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2020c, 12.10.2018; **Brode, Poljanska dolina**, 14°15′, 46°08′, VM40, 410 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 3.1972; **Bukov hrib, Medvodje, Jelendol**, 14°24′07″, 46°24′26″, VM53, 927 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2020e, 3.6.2011; **Cerklje na Gorenjskem**, 14°27′52″, 46°15′12″, VM52, 400 m, *Picea abies*, hlod 25 cm ok *Chytridiopsis typographi*, ldRPa, lit.RPa2014c, 8.5.1999; **Čadovlje pri Tržiču, Močilnik**, 14°18′55″, 46°22′33″, VM43, 811 m, tThe, phPher, ldRPa, lit.RPa1992b, 12.5.1992; **Čegelše, Tržič**, 14°17′26″, 46°22′39″, VM43, 741 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2020e, 11.7.2018; **Čemšeniška planina**, 14°58′, 46°11′, VM91, 980 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977; **Črna prst, Bohinjska Bistrica,** 13°56′, 46°14′, VM12, *, ldJSd, cJSd, 10.6.1928; **Črnivec, Kamnik,** 14°42′, 46°15′, VM72, 900 m, *Picea abies*, neobeljen les za kurjavo, ldJŠl, lit.JŠl1948, 5.9.1947; ibidem, 980 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 6.1973; ibidem, 1030 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Dolič, pod Grpišco, Karavanke**, 13°48′20″, 46°30′04″, VM05, 1367 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994; **Dragočajna, Smlednik**, 14°26′, 46°10′, VM51, 345 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005,

18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Dražgoše**, 14°11′, 46°15′, VM32, 890 m, *Picea abies*, ldJTi, lit.JTi1983, 4.1974; **Duplje**, 14°18′34″, 46°18′21″, VM42, 506 m, *Picea abies*, deblo, ldRPa, lit.RPa1992b, 5.9.1991; **Duplje, Vojvodin boršt II**, 14°08′08″, 46°17′57″, VM42, 490 m, *Picea abies*, deblo, ldRPa, lit.RPa2014c, 14.8.2008; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phPher, lFPo dSBr, cSBr, 4.6.1990; **Gornji Grad, Šemprimožnik**, 14°49′17″, 46°17′23″, VM82, 766 m, tThe, phPher, ldRPa, lit.RPa1995b, 4.8.1995; **Goropeke, Žirovski Vrh**, 14°08′, 46°02′, VM30, 620 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 3.1972; **Gozd Martuljek**, 13°50′38″, 46°29′12″, VM05, 777 m, *Picea abies*, deblo 45 cm, ldRPa, lit.RPa2014c, 10.6.1996; **Gozd, Golnik 1**, 14°20′04″, 46°20′38″, VM43, 999 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2014c, 14.3.1999; **Gozd, Golnik 2**, 14°20′05″, 46°20′37″, VM43, 987 m, *Picea abies*, deblo 20 cm rs, odRPa, lit.RPa2022a, 31.7.2022; **Grofija, Brezje**, 14°14′, 46°21′, VM43, 530 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 3.1972; **Grpišca, Karavanke**, 13°48′01″, 46°30′06″, VM05, 1330 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994; **Hrastje, Kranj 1**, 14°23′40″, 46°14′01″, VM52, 386 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020c, 21.5.2010, 12.10.2012, 18.10.2013; ibidem, hlod 40 cm rs, odRPa, lit.RPa2023a, 20.10.2023; ibidem, tThe, phPher phChal, ldRPa, lit. RPa2020c, 4.6.2008, 12.6.2008, 21.5.2010, 12.10.2012, 18.10.2013; **Hrastje, Kranj 2**, 14°23′41″, 46°14′01″, VM52, 387 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2014c, 9.8.2014, 16.8.2014; ibidem, deblo 50 cm, ldRPa, lit.RPa2014c, 19.5.2010; ibidem, hlod 20 cm, ldRPa, lit.RPa2021a, 27.5.2021; ibidem, hlod 25 cm, ldRPa, lit.RPa2021a, 27.5.2021; ibidem, hlod 30 cm, ldRPa, lit. RPa2021a, 31.5.2021; ibidem, hlod 40 cm, ldRPa, lit.RPa2021a, 4.6.2021; **Hrastje, Kranj 3**, 14°23′52″, 46°13′58″, VM52, 387 m, *Picea abies*, deblo 25 cm ok *Chytridiopsis typographi*, ldRPa, lit.RPa2014c, 20.4.1996, 21.4.1996; ibidem, deblo 30 cm, ldRPa, lit.RPa2020c, 12.10.2018, 3.6.2019; ibidem, kontrolno deblo 25 cm ok *Chytridiopsis typographi*, ldRPa, lit.RPa2014c, 8.5.1999; **Hrastje, Kranj 4**, 14°23′19″, 46°14′02″, VM52, 387 m, *Picea abies*, deblo 20 cm rs, odRPa, lit.RPa2023a, 20.10.2023; ibidem, deblo 30 cm rs, odRPa, lit.RPa2023a, 20.10.2023; ibidem, hlod 40 cm rs, odRPa, lit.RPa2023a, 20.10.2023; **Hrastje, Kranj, Agromehanika 2**, 14°23′48″, 46°13′43″, VM51, 381 m, *Picea abies*, vrhač 15 cm, ldRPa, lit.RPa2021a, 27.5.2021, 31.5.2021, 4.6.2021; **Hrastje, Kranj, Agromehanika 5**, 14°23′38″, 46°13′34″, VM51, 378 m, tWmf, phEcITe, ldRPa, lit.RPa2020b, 26.5.2020; **Hrastje, Kranj, Klanec 8**, 14°23′23″, 46°14′09″, VM52, 388 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2023a, 29.5.2023; ibidem, deblo 40 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 10**, 14°23′18″, 46°14′08″, VM52, 388 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 12**, 14°23′18″, 46°14′10″, VM52, 389 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Planjava 1**, 14°23′39″, 46°14′28″, VM52, 397 m, *Picea abies*, hlod 20 cm, ldRPa, lit. RPa2020c, 28.5.2009; ibidem, hlod 30 cm, ldRPa, lit.RPa2020c, 29.5.2008; ibidem, tThe, phPher phChal, ldRPa, lit.RPa2020c, 29.5.2008; **Hrastje, Kranj, Planjava 2**, 14°23′38″, 46°14′09″, VM52, 389 m, tThe, phEcIT, ldRPa, lit.RPa2020b, 28.5.2020; ibidem, phEcIT phEcPC, ldRPa, lit.RPa2021a, 27.5.2021, 31.5.2021, 4.6.2021; **Hrastje, Kranj, Planjava 3**, 14°23′39″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2014c, 1.6.2009; **Hrastje, Kranj, Planjava 6**, 14°23′38″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2014c, 1.4.2002; **Hrastje, Kranj, Planjava 7**, 14°23′47″, 46°13′20″, VM51, 378 m, *Picea abies*, deblo, ldRPa, lit.RPa2014c, 18.8.2008; **Hrastje, Kranj, Planjava 8**, 14°23′50″, 46°14′12″, VM52, 384 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2014c, 22.9.1989; **Hrastje, Kranj, Planjava 11**, 14°23′41″, 46°14′07″, VM52, 389 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2014c, 7.6.2004; **Hrastnik, Bukovica 1**, 14°15′38″, 46°12′06″, VM51, 567 m, *Picea abies*, deblo 35 cm, odRPa, lit.RPa2020b, 6.6.2019; **Hrastnik, Bukovica 2**, 14°15′52″, 46°12′13″, VM51, 569 m, *Picea abies*, deblo 30 cm, odRPa, lit.RPa2020b, 6.6.2019; **Hrastnik, Bukovica 3**, 14°15′39″, 46°12′16″, VM51, 685 m, *Picea abies*, deblo 40 cm, odRPa, lit.RPa2020b, 6.6.2019; **Hraše, Smlednik**, 14°27′, 46°10′, VM51,

360 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Hudi Graben, Bistrica pri Tržiču**, 14°15′03″, 46°21′47″, VM43, 781 m, tThe, phPher, ldRPa, lit.RPa1992b, 18.5.1992; **Jama, Sorško polje**, 14°21′51″, 46°10′50″, VM51, 363 m, *Picea abies*, lovno deblo, ldRPa, lit.RPa1992b, 21.8.1991; **Javorje, Škofjeloško hribovje**, 14°11′, 46°09′, VM31, 700 m, tThe, phChal, ldJDe, lit.LDe2006, 9.5.2005, 15.5.2005, 21.5.2005, 28.5.2005, 4.6.2005, 11.6.2005, 18.6.2005, 25.6.2005, 3.7.2005, 10.7.2005, 17.7.2005, 24.7.2005, 1.8.2005, 8.8.2005, 29.8.2005, 12.9.2005; **Javorniški Rovt, Jesenice**, 14°04′57″, 46°27′59″, VM24, 1227 m, *Picea abies*, deblo 40 cm rs, oKMa vRPa, lit.RPa2022a, 11.12.2022; **Jelovica, Blatnica**, 14°04′09″, 46°17′36″, VM22, 1035 m, *Picea abies*, deblo, ldRPa, lit.RPa2020e, 25.5.2009; **Jelovica, Čukova Konta**, 14°03′, 46°15′, VM22, 1299 m, tThe, phChal, ldMŠi, lit.MŠi2011, 22.5.2009, 29.5.2009, 8.6.2009, 17.6.2009, 27.6.2009, 9.7.2009, 20.7.2009, 30.7.2009, 9.8.2009, 19.8.2009, 28.8.2009, 7.9.2009, 16.9.2009, 25.9.2009; ibidem, phChaW, ldMŠi, lit.MŠi2011, 22.5.2009, 29.5.2009, 8.6.2009, 17.6.2009, 27.6.2009, 9.7.2009, 20.7.2009, 30.7.2009, 9.8.2009, 19.8.2009, 28.8.2009, 7.9.2009, 16.9.2009, 25.9.2009; ibidem, phEcPC, ldMŠi, lit.MŠi2011, 22.5.2009, 29.5.2009, 8.6.2009, 17.6.2009, 27.6.2009, 9.7.2009, 20.7.2009, 30.7.2009, 9.8.2009, 19.8.2009, 28.8.2009, 7.9.2009, 16.9.2009, 25.9.2009; **Jelovica, Javorjev vrh**, 14°05′31″, 46°16′16″, VM32, 1220 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, pod Konfinovim vrhom**, 14°02′32″, 46°16′52″, VM52, 1040 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020c, 12.10.2018; **Jelovica, pod Ličebom**, 14°03′34″, 46°16′23″, VM22, 1250 m, *Picea abies*, deblo, ldRPa, lit.RPa2020e, 25.5.2009; **Jelovica, Podrtija**, 14°05′15′, 46°16′59″, VM22, 1080 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Praprotnica**, 14°04′04′, 46°17′02″, VM22, 1210 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Rovtarica**, 14°04′49″, 46°17′17″, VM22, 1042 m, *Picea abies*, deblo, ldRPa, lit.RPa2020e, 25.5.2009; **Jelovica, V Sečju**, 14°04′36″, 46°17′06″, VM22, 1116 m, *Picea abies*, deblo, ldRPa, lit.RPa2020e, 25.5.2009; **Jelovica, vrh Oglovše**, 14°06′48″, 46°16′00″, VM32, 1220 m, *Picea abies*, deblo, ldRPa, lit.RPa1992b, 16.8.1991; **Jelovica, Za Liskom**, 14°04′23′, 46°16′19″, VM22, 1300 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Zgornji Bol 1**, 14°05′25″, 46°15′47″, VM22, 1200 m, tThe, phPher, ldJRo, lit.JRo2016, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Zgornji Bol 2**, 14°05′19″, 46°15′33″, VM22, 1360 m, tThe, phPher, ldJRo, lit.JRo2016, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Palikovec 1**, 14°04′54″, 46°15′52″, VM22, 1290 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Palikovec 2**, 14°04′54″, 46°15′45″, VM22, 1290 m, tThe, phPher, ldJRo, lit.JRo2016, 16.6.2007, 17.7.2007, 18.8.2007; 25.9.2007; **Jeprca, Medvode**, 14°23′26″, 46°09′34″, VM51, 348 m, *Picea abies*, hlod 35 cm rs, odRPa, lit.RPa2023a, 24.3.2023; **Jeprca, Medvode, odcep za Podrečo**, 14°23′19″, 46°10′11″, VM51, 352 m, *Picea abies*, hlod 30 cm rs, odRPa, lit.RPa2023a, 24.3.2023; **Jezersko**, 14°30′, 46°24′, VM63, 920 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1980; **Jureževa planina, pod Blekovo, Karavanke**, 13°49′33″, 46°30′14″, VM05, 1514 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994; **Jureževa planina, pod Vošco, Karavanke**, 13°48′47″, 46°29′57″, VM05, 1415 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994, 14.7.1994; **Kamnik**, 14°37′41″, 46°13′09″, VM71, 578 m, *Picea abies*, deblo 33 cm gLEŠ, lDBo dRPa, lit.NOg2019, 27.3.2017; ibidem, deblo 34 cm gLEŠ, lDBo dRPa, lit.NOg2019, 27.3.2017; ibidem, tWtr, phPher, ldDBo, lit.NOg2019, 20.3.2017; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, ~600 m, rRPa, cBFG, 20.6.1953; ibidem, 540 m, *Picea abies*, talni vzorci gEZ, ldJŠl, lit.JŠl1958, 24.4.1952; ibidem, 830 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 9.1968; **Kamniška Bistrica, revir**, 14°36′, 46°20′, VM63, ~700 m, *Picea abies*, deblo, odSBe, lit. SBe1951, 1950, 1951; ibidem, hlod, odSBe, lit.SBe1951, 1950; ibidem, lovno drevo, odSBe, lit.

SBe1951, 1951; **Kokra, Kurja Vas, pobočje 1**, 14°29′57″, 46°19′21″, VM63, 677 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020c, 3.11.2016; ibidem, tThe, phEcIT, ldRPa, lit.RPa2020c, 3.11.2016; **Kokra, Kurja Vas, pobočje 2**, 14°29′30″, 46°19′41″, VM63, 639 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2020c, 3.11.2016; **Kokra, Kurja Vas, skladišče lesa**, 14°29′38″, 46°19′37″, VM63, 581 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020c, 25.5.2016; ibidem, deblo 40 cm, ldRPa, lit.RPa2020c, 3.11.2016; ibidem, tThe, phEcIT, ldRPa, lit.RPa2020c, 25.5.2016; **Kostavška planina, Brode, Zgornji Tuhinj**, 14°45′46″, 46°14′32″, VM82, 830 m, *Picea abies*, deblo 21 cm gLEŠ, lDBo dRPa, lit.NOg2019, 3.4.2017; ibidem, tWtr, phPher, ldDBo, lit.NOg2019, 20.3.2017; **Kranj, ob avtocesti 6**, 14°23′32″, 46°14′52″, VM52, 403 m, tThe, phEcIT phEcPC, ldRPa, lit. RPa2021a, 6.10.2021; **Kranj, ob avtocesti 8**, 14°23′43″,46°14′45″, VM52, 402 m, *Picea abies*, deblo 45 cm, ldRPa, lit.RPa2021a, 6.10.2021; **Kranj, Planina, cesta Boštjana Hladnika**, 14°22′30″, 46°14′11″, VM52, 388 m, *Picea abies*, hlod 40 cm rs, odRPa, lit.RPa2023a, 24.3.2023; **Kranj, Valjavčeva ulica 4**, 14°21′23″, 46°14′58″, VM52, 400 m, *Picea pungens*, neobeljen panj 25 cm rs, odRPa, lit.RPa2023a, 20.9.2023; **Kranjska Gora, ob Pišnici**, 13°47′, 46°28′, VM04, 860 m, *Picea abies*, jamski les, ldJTi, lit.JTi1983, 3.1973; **Krašnja, Moravče**, 14°45′, 46°10′, VM81, 370 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1.1972; **Krma, pri Lesi**, 13°54′12″, 46°23′09″, VM13, 997 m, tThe, phCemp, ldRPa, lit.RPa1995b, 19.8.1995; **Krma, Zasipska planina**, 13°54′53″, 46°23′36″, VM14, 916 m, tThe, phCemp, ldRPa, lit.RPa1995b, 28.7.1995; **Laze v Tuhinju**, 14°45′24″, 46°13′13″, VM81, 520 m, *Picea abies*, deblo 15 cm rs, odNBo vRPa, lit. RPa2021a, 22.10.2021; **Ljubelj, Šentanska dolina**, 14°16′11″, 46°25′36″, VM44, 883 m, *Picea abies*, hlod, ldRPa, lit.RPa1996, 15.6.1996; **Macesnovec, nad karavlo, Planica**, 13°42′18″, 46°29′02″, VM05, 1104 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994, 14.7.1994; **Macesnovec, odcep za Kozji vrh**, 14°27′30″, 46°21′44″, VM53, 983 m, tThe, phCemp, ldRPa, lit.RPa1995b, 10.9.1995; **Macesnovec, Zasipska planina**, 13°55′06″, 46°23′52″, VM13, 910 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020e, 29.8.2018; **Marovšca, Bohinj 1**, 13°49′01″, 46°18′50″, VM02, 1547 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020b, 24.10.2019; **Marovšca, Bohinj 2**, 13°47′33″, 46°18′23″, VM02, 1663 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2020b, 24.10.2019; **Medji dol, Javorniški Rovt, Karavanke**, 14°48′12″, 46°28′03″, VM34, 1254 m, *Picea abies*, hlod 35 cm, ldRPa, lit.RPa1995b, 1.8.1995; **Medno, Medvode**, 14°25′, 46°07′, VM50, 330 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Meja, Sorško polje 1**, 14°21′59″, 46°11′12″, VM51, 365 m, *Picea abies*, lovno deblo 25 cm, ldRPa, lit.RPa1994b, 8.7.1993; **Meja, Sorško polje 2**, 14°22′05″, 46°11′12″, VM51, 371 m, *Picea abies*, deblo, ldRPa, lit.RPa1992b, 22.5.1992; ibidem, lovno deblo 25 cm, ldRPa, lit.RPa1992b, 1.6.1992; ibidem, tThe, phPher, ldRPa, lit.RPa1992b, 1.6.1992; **Mengeš, obvoznica, ob kanalu**, 14°34′50″, 46°09′58″, VM61, 321 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2023a, 14.6.2023; **Mežakla**, 14°00′, 46°25′, VM24, 1000 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2020c, 17.10.2008; **Mežakla, Hribje**, 13°58′21″, 46°27′15″, VM24, 703 m, *Picea abies*, deblo 40 cm, ldRPa, lit. RPa2020e, 30.6.2017; **Mežakla, Kisovec**, 13°59′52″, 46°26′44″, VM24, 727 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2020e, 30.6.2017; **Mežakla, Radovna, Gabrje**, 13°59′52″, 46°23′51″, VM23, 681 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020b, 24.11.2016; **Milje 1**, 14°24′23″, 46°15′50″, VM52, 425 m, tCev, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 14.10.1989, 27.10.1989; ibidem, tThe, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989; **Milje 2**, 14°24′30″, 46°15′52″, VM52, 428 m, tCev, phPher phChal, ldRPa, lit.RPa1991a,

8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989; ibidem, tThe, phPher phChal, ldRPa, lit. RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 27.10.1989; **Milje 3**, 14°24′24″, 46°15′42″, VM52, 423 m, tCev, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989; ibidem, tThe, phPher phChal, ldRPa, lit. RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 14.10.1989; **Milje 4, v Hrastičih**, 14°24′21″, 46°15′41″, VM52, 423 m, tCev, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 14.10.1989; ibidem, tThe, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017; **Moše, Smlednik**, 14°25′, 46°11′, VM51, 360 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004,, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005. 28.9.2005; **Mošenik, Ljubelj**, 14°16′, 46°26′, VM44, 1000 m, ldSBr, cSBr, 19.5.1986; **Pišnica, Kranjska Gora**, 13°47′, 46°28′, VM04,880 m, ldJSd, cJSd, 14.06.1931; **Planica, Rateče**, 13°44′, 46°28′, VM04, 1020 m, *Picea abies*, deblo, ldJTi, lit. JTi1983, 3.1973; ibidem, 1000 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1981; **Planina pod Golico, Karavanke**, 14°02′59″, 46°27′58″, VM24, 936 m, *Picea abies*, hlod, ldRPa, lit.RPa1995b, 28.7.1995; **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit. APi2015, 17.7.2014; **Podbrezje**, 14°17′, 46°18′, VM42, 430 m, *Picea abies*, deblo, ldJTi, lit. JTi1983, 4.1973; **Podbrezje 1**, 14°16′00″, 46°17′50″, VM42, 453 m, *Picea abies*, deblo 20 cm rs, odMFr vRPa, lit.RPa2022a, 9.12.2022; **Podbrezje, pri rondoju**, 14°16′36″, 46°18′56″, VM42, 476 m, *Picea abies*, deblo, ldRPa, lit.RPa2014c, 29.8.2008; **Podvolovjek, kmetija Petek, Savinjske Alpe**, 14°42′09″, 46°18′12″, VM72, 712 m, *Abies alba*, hlod, ldRPa, lit.RPa1996, 16.6.1996; **Pokljuka, Belska planina**, 14°01′12″, 46°20′11″, VM23, 1240 m, *Picea abies*, hlod 30 cm, ldRPa, lit.RPa2022a, 20.9.2022; bidem, hlod 40 cm, ldRPa, lit.RPa2022a, 20.9.2022; **Pokljuka, Branca**, 14°01′29″, 46°19′23″, VM23, 1095 m, *Picea abies*, deblo 40 cm, ldRPa, lit. RPa2020b, 6.11.2017; **Pokljuka, Medvedova konta**, 13°57′, 46°22′, VM13, 1395 m, ldcAPi, lit. APi2015, 11.7.2014; **Pokljuka, Medvedova konta 1**, 13°56′57″, 46°21′57″, VM13, 1331 m, *Picea abies*, deblo, ldGGB, lit.GGB1988, 9.4.1988; ibidem, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; ibidem, phPher, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; **Pokljuka, Medvedova konta 2**, 13°56′31″, 46°22′12″, VM13, 1381 m, *Picea abies*, deblo, ldGGB, lit.GGB1988, 9.4.1988; ibidem, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; ibidem, phPher, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988,

7.9.1988, 21.9.1988; **Pokljuka, Medvedova konta 3**, 13°56′36″, 46°22′11″, VM13, 1378 m, *Picea abies*, deblo 45 cm, ldRPa, lit.RPa2020e, 24.9.2013; **Pokljuka, Medvedovec**, 13°56′26″, 46°22′01″, VM13, 1344 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2020e, 24.9.2013; **Pokljuka, Mrzli Studenec**, 13°59′, 46°21′, WM23, 1250 m, *Picea abies*, deblo, ldMJu, cBGF, 8.6.2000; ibidem, 1320 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Pokljuka, Mrzli Studenec 1**, 13°59′30″, 46°20′57″, VM23, 1212 m, *Picea abies*, hlod 40 cm, ldRPa, lit.RPa2020c, 19.10.2007; **Pokljuka, planina Javornik**, 13°56′58″, 46°21′45″, VM13, 1298 m, *Picea abies*, deblo, ldGGB, lit.GGB1988, 9.4.1988; ibidem, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; ibidem, phPher, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; **Pokljuka, planina Velika Raven**, 13°56′53″, 46°22′33″, VM13, 1447 m, *Picea abies*, deblo, ldGGB, lit.GGB1988, 9.4.1988; ibidem, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; ibidem, phPher, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; **Pokljuka, ploskev GIS**, 13°56′19″, 46°22′02″, VM13, 1397 m, *Picea abies*, kontrolno deblo, ldRPa, lit.RPa2020c, 5.6.2008, 13.6.2008; **Pokljuka, pri Rupah**, 13°55′52″, 46°21′56″, VM13, 1367 m, *Picea abies*, deblo 45 cm, ldRPa, lit. RPa2020e, 24.9.2013; **Pokljuka, Rudna dolina**, 13°57′, 46°21′, VM13, 1320 m, ldcAPi, lit. APi2015, 11.7.2014; **Pokljuka, Velika preseka**, 13°56′24″, 46°22′20″, VM13, 1394 m, *Picea abies*, deblo, ldGGB, lit.GGB1988, 9.4.1988; ibidem, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; ibidem, phPher, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; **Petrovo Brdo**, 14°00′44″, 46°12′08″, VM21, 712 m, *Picea abies*, deblo 60 cm, odRPa, lit.RPa2023a, 20.8.2023; **Ponoviče, Litija**, 14°52′, 46°04′, VM80, 380 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 5.1971; **Ponoviče, Litija, blizu drevesnice**, 14°52′, 46°04′, VM80, 240 m, *Picea abies*, deblo, ldMJu, lit.PSm2019, 29.6.2000; **Praprotna Polica 2**, 14°27′05″, 46°14′28″, VM52, 396 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2020b, 11.10.2019; ibidem, deblo 60 cm, ldRPa, lit.RPa2020b, 11.10.2019; **Preska, Medvode**, 14°25′, 46°08′, VM50, 315 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Prevala, Menina**, 14°45′08″, 46°14′54″, VM82, 1038 m, *Picea abies*, deblo 22 cm gLEŠ, lDBo dRPa, lit.NOg2019, 22.5.2017; ibidem, tWtr, phPher, ldDBo, lit.NOg2019, 31.3.2017; **Prevoje, Bezovnica, Hkavšč**, 14°13′47″, 46°14′51″, VM32, 650 m, *Picea abies*, neobeljen panj 64 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, progasto obeljen panj 56 cm, ldFJa, lit.FJa1997, 28.7.1995; **Prevoje, Zabrekve, Knapovc**, 14°13′32″, 46°14′45″, VM42, 600 m, *Picea abies*, progasto obeljen panj 58 cm, ldFJa, lit.FJa1997, 28.7.1995; **Prevoje, Zabrekve, Korošc**, 14°13′37″, 46°14′52″, VM42, 610 m, *Picea abies*, neobeljen panj 46 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, neobeljen panj 80 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, progasto obeljen panj 69 cm, lFJa dJTi, lit.FJa1997, 27.7.1995; **Pungert, Škofja Loka**, 14°20′06″, 46°09′10″, VM41, 384 m, *Picea abies*, deblo, ldRPa, lit.RPa1992b, 13.8.1991; **Rateče, Planica**, 13°44′, 46°29′, VM04, 880 m, ldSBr, cSBr, 29.4.1993; **Retnje, Dobrava**, 14°16′17″, 46°19′32″, VM43, 509 m, tThe, phChal, ldRPa, lit. RPa1992b, 11.6.1992; ibidem, phPher, ldRPa, lit.RPa1992b, 11.6.1992; **Rodica, Groblje, Domžale**, 14°35′, 46°08′, VM61, 360m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 5.1971; **Rovtarica, Jelovica**, 14°06′, 46°17′, VM32, 1170 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977; **Selške Lajše, Kobivnk, Jelenc**, 14°12′19″, 46°14′31″, VM32, 650 m, *Picea abies*, progasto obeljen panj 49 cm, lFJa dJTi, lit.FJa1997, 12.6.1995; ibidem, progasto obeljen panj 65 cm, ldFJa, lit.FJa1997, 24.7.1995; **Selške Lajše, Koblarjev hrib, Bitenc**, 14°12′43″, 46°14′25″, VM32, 510 m, *Picea abies*, neobeljen panj

65 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, neobeljen panj 76 cm, ldFJa, lit.FJa1997, 25.7.1995; ibidem, progasto obeljen panj 45 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, progasto obeljen panj 57 cm, ldFJa, lit.FJa1997, 14.6.1995; **Selške Lajše, Selca, Jakec**, 14°11′50″, 46°14′38″, VM32, 660 m, *Picea abies*, neobeljen panj 75 cm, ldFJa, lit.FJa1997, 6.7.1995; ibidem, progasto obeljen panj 66 cm, ldFJa, lit.FJa1997, 17.8.1995; ibidem, progasto obeljen panj 76 cm, ldFJa, lit.FJa1997, 2.10.1995; **Selške lajše, Selca, Plajba**, 14°11′57″, 46°14′13″, VM32, 530 m, *Picea abies*, neobeljen panj 36 cm, ldFJa, lit.FJa1997, 8.7.1995; ibidem, progasto obeljen panj 60 cm, ldFJa, lit.FJa1997, 4.10.1995; **Seničica, Medvode**, 14°26′, 46°07′, VM50, 320 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004; 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Sorško polje**, 14°22′, 46°11′, VM51, 360m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 5.1972; **Sorško polje, Dobrava**, 14°21′51″, 46°10′55″, VM51, 364 m, tThe, phPher, ldRPa, lit.RPa1992b, 25.5.1992; **Sorško polje, Hrastiče 1**, 14°23′09″, 46°11′48″, VM51, 367 m, *Picea abies*, deblo 25 cm, ldBMa, lit.RPa1993, 31.3.1993; **Sorško polje, Hrastiče 2**, 14°22′57″, 46°11′29″, VM51, 366 m, *Picea abies*, deblo 30 cm, ldBMa, lit.RPa1993, 31.3.1993; ibdem, tThe, phPher phChal, lBMa dRPa, lit.RPa1993, 22.4.1993, 6.5.1993, 20.5.1993, 2.6.1993, 12.6.1993, 22.6.1993, 10.7.1993, 25.7.1993, 15.8.1993, 2.9.1993; **Sorško polje, Hrastiče 3**, 14°23′03″, 46°11′21″, VM51, 364 m, *Picea abies*, deblo 35 cm, ldBMa, lit.RPa1993, 31.3.1993; ibidem, tThe, phPher, lBMa dRPa, lit.RPa1993, 22.4.1993, 6.5.1993, 20.5.1993, 2.6.1993, 12.6.1993, 22.6.1993, 10.7.1993, 25.7.1993, 15.8.1993, 2.9.1993; **Sorško polje, Hrastiče 4**, 14°22′55″, 46°11′16″, VM51, 366 m, *Picea abies*, deblo 25 cm, lBMa dRPa, lit.RPa1993, 31.3.1993; ibidem, lovni vejni kup, lBMa dRPa, lit.RPa1993, 22.4.1993, 6.5.1993, 20.5.993, 28.5.1993, 10.6.1993; **Sorško polje, Hrastiče 5**, 14°22′59″, 46°11′09″, VM51, 362 m, *Picea abies*, deblo 30 cm, lBMa dRPa, lit.RPa1993, 31.3.1993; **Sorško polje, Hrastiče 6**, 14°23′16″, 46°11′13″, VM51, 362 m, *Picea abies*, deblo 35 cm, lBMa dRPa, lit.RPa1993, 31.3.1993; ibidem, tThe, phChal, lBMa dRPa, lit. RPa1993, 22.4.1993, 6.5.1993, 20.5.1993, 2.6.1993, 12.6.1993, 22.6.1993, 10.7.1993, 25.7.1993, 15.8.1993, 2.9.1993; Ibidem, phPher, lBMa dRPa, lit.RPa1993, 22.4.1993, 6.5.1993, 20.5.1993, 2.6.1993, 12.6.1993, 22.6.1993, 10.7.1993, 25.7.1993, 15.8.1993, 2.9.1993; **Sorško polje, Lumar Trade 3**, 14°21′47″, 46°11′53″, VM51, 374 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020c, 8.5.2006; **Sorško polje, Senožeti**, 14°21′50″, 46°11′04″, VM51, 369 m, *Picea abies*, l ovno deblo, ldRPa, lit.RPa1992b, 25.5.1992; **Spodnja Kapla, Kozjak**, 15°24′43″, 46°37′14″, WM26, 875 m, *Picea abies*, deblo 25 cm rs, odTRi vRPa, lit.RPa2021a, 24.10.2021; **Spodnja Kokra, Preddvor**, 14°30′, 46°18′, VM62, 570 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 3.1973; **Spodnja Luša, Ambruški potok, Ambrušč**, 14°13′17″, 46°11′30″, VM31, 530 m, *Picea abies*, neobeljen panj 51 cm, ldFJa, lit.FJa1997, 3.10.1995; ibidem, progasto obeljen panj 40 cm, ldFJa, lit.FJa1997, 21.8.1995; **Spodnja Luša, Kraj, Benetk 2**, 14°13′55″, 46°11′50″, VM41, 560 m, *Picea abies*, progasto obeljen panj 54 cm, ldFJa, lit.FJa1997, 19.8.1995; **Spodnja Luša, Kraj, Dolenc**, 14°14′06″, 46°11′49″, VM41, 550 m, *Picea abies*, neobeljen panj 51 cm, ldFJa, lit.FJa1997, 4.10.1995; **Srednja Vas pri Šenčurju 4**, 14°26′05″, 46°15′27″, VM52, 418 m, *Picea abies*, deblo 20 cm, ldRPa, lit. RPa2022a, 11.8.2022; **Stara Fužina, Vorenčkojca, Bohinj**, 13°53′12″, 46°17′27″, VM12, 578 m, tWtr, phPher, ldDBo, lit.NOg2019, 9.4.2018; **Sveta Gora, Izlake**, 14°54′, 46°08′, VM90, 720 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978; **Sveti Jakob, Hraše**, 14°28′, 46°11′, VM51, 340 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Šenčur, Beleharjeva cesta 1**, 14°26′25″, 46°14′08″, VM52, 392 m, *Picea abies*, deblo 20 cm rs, odRPa, lit.RPa2021a, 15.10.2021; ibidem, deblo 35 cm rs, odRPa, lit.RPa2021a, 15.10.2021; **Šenčur, Beleharjeva cesta 2**, 14°26′29″, 46°14′07″, VM52, 392 m, *Picea abies*, deblo 40 cm rs, odRPa, lit.RPa2022a, 31.5.2022; ibidem, deblo 50 cm rs, ldRPa, lit.RPa2022a, 2.6.2022; **Šenčur, izvoz Brnik 1**, 14°26′11″, 46°13′47″, VM51, 386 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2014c, 6.10.1989; **Šenčur, izvoz Brnik 3**, 14°26′13″, 46°13′35″, VM51, 383 m, tEco, phGaPP, ldRPa, lit. RPa2019b, 10.7.2017, 13.7.2017, 17.7.2017, 20.7.2017, 24.7.2017, 26.7.2017, 28.5.2018, 31.5.2018,

4.6.2018, 7.6.2018, 11.6.2018, 14.6.2018, 19.6.2018, 21.6.2018, 25.6.2018, 28.6.2018, 1.7.2018, 6.6.2019, 10.6.2019, 15.6.2019, 20.6.2019, 26.6.2019, 1.7.2019, 5.7.2019, 8.7.2019, 12.7.2019, 15.7.2019, 18.7.2019, 23.7.2019, 26.7.2019, 31.7.2019, 31.8.2019; **Šenčur, izvoz Brnik 4**, 14°26′23″, 46°13′29″, VM52, 380 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2020c, 30.10.2015; ibidem, deblo 35 cm, ldRPa, lit.RPa2020c, 31.5.2011, 11.11.2011; ibidem, tThe, phPher phChal, ldRPa, lit. RPa2020c, 31.5.2011, 11.11.2011; **Šenčur, Partizanska ulica 1**, 14°24′25″, 46°15′06″, VM52, 413 m, tRid, phEcIT phEcPC, ldRPa, lit.RPa2022a, 31.7.2022; ibidem, lit.RPa2023a, 30.5.2023, 14.6.2023, 28.6.2023, 12.7.2023, 24.7.2023, 7.8.2023, 21.8.2023, 6.9.2023, 20.9.2023, 4.10.2023, 18.10.2023, 27.10.2023; **Šenčur, Partizanska ulica 2**, 14°24′16″, 46°15′10″, VM52, 414 m, *Picea abies*, hlod 20 cm, ldRPa, lit.RPa2023a, 28.6.2023; **Šenčur, poslovna cona 1**, 14°24′28″, 46°13′57″, VM52, 387 m, *Picea abies*, vejni kup, ldRPa, lit.RPa2020c, 4.6.2008; ibidem, tThe, phPher, ldRPa, lit.RPa2020c, 4.6.2008; **Šenčur, poslovna cona 3**, 14°24′19″, 46°13′58″, VM52, 387 m, *Picea abies*, hlod 35 cm, ldRPa, lit.RPa2020c, 4.6.2008; **Šenčur, poslovna cona 4**, 14°24′22″, 46°14′09″, VM52, 393 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021a, 6.10.2021; **Šenčur, poslovna cona 5**, 14°24′41″, 46°14′05″, VM52, 392 m, *Picea abies*, deblo 30 cm, ldRPa, lit. RPa2023a, 28.6.2023; **Šenčur, pri krožišču, skladišče sekancev**, 14°24′20″, 46°14′27″, VM52, 398 m, tThe, pdEcIT phEcPC, ldRPa, lit.RPa2021a, 27.5.2021; **Šenčur, proti Voklu 1**, 14°25′06″, 46°13′58″, VM52, 390 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2020c, 30.5.2012; ibidem, deblo 40 cm, ldRPa, lit.RPa2020c, 13.10.2017; ibidem, tThe, phPher phChal, ldRPa, lit.RPa2020c, 30.5.2012; **Šenčur, proti Voklu 2**, 14°25′10″, 46°13′58″, VM52, 390 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020c, 13.10.2017; **Šenčur, v Križancah**, 14°24′47″, 46°14′13″, VM52, 394 m, tCev, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 9.9.1989, 15.9.1989, 22.9.1989; ibidem, tThe, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 9.9.1989, 15.9.1989, 22.9.1989, 29.8.1989, 6.10.1989; **Šenčur, Zlato polje 1,** 14°24′11″, 46°15′01″, VM52, 414 m, tThe, Kont, ldRPa, lit.RPa1991a, 5.5.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 7.7.1989, 14.7.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 14.10.1989; **Šenčur, Zlato polje 2,** 14°24′42″, 46°14′53″, VM52, 408 m, tThe, phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989; **Tržič, Kajžerjeva guba**, 14°17′18″, 46°22′44″, VM43, 824 m, *Picea abies*, deblo 35 cm, ldRPa, lit. RPa2020e, 11.7.2018; **Vodice 3**, 14°32′01″, 46°11′19″, VM61, 330 m, *Picea abies*, deblo 24 cm gLEŠ, lDBo dRPa, lit.NOg2019, 27.3.2017; ibidem, deblo 25 cm gLEŠ, lDBo dRPa, lit.NOg2019, 27.3.2017; ibidem, tWtr, phPher, ldDBo, lit.NOg2019, 16.3.2017; **Voglje 8**, 14°27′18″, 46°11′47″, VM51, 363 m, *Picea abies*, deblo 60 cm rs, odRPa, lit.RPa2021a, 15.6.2021; **Voglje, ob avtocesti**, 14°27′00″, 46°12′45″, VM51, 368 m, *Picea abies*, hlod 35 cm rs, odRPa, lit.RPa2023a, 2.4.2023; **Voklo, pri Petrol BS 5**, 14°25′39″, 46°13′37″, VM51, 384 m, tEco, phGaPP, ldRPa, lit.RPa2019b, 10.7.2017, 13.7.2017, 17.7.2017, 20.7.2017, 24.7.2017, 26.7.2017, 28.5.2018, 31.5.2018, 4.6.2018, 7.6.2018, 11.6.2018, 14.6.2018, 19.6.2018, 21.6.2018, 25.6.2018, 28.6.2018, 1.7.2018, 6.6.2019, 10.6.2019, 15.6.2019, 20.6.2019, 26.6.2019, 1.7.2019, 5.7.2019, 8.7.2019, 12.7.2019, 15.7.2019,

18.7.2019, 23.7.2019, 26.7.2019, 31.7.2019, 31.8.2019; **Volčji Potok, arboretum, Vrtni center 1**, 14°36′22″, 46°11′11″, VM61, 339 m, tThe, phEcIT, lVDo dRPa, lit.RPa2020a, 16.6.2020; **Volčji Potok, arboretum, Zgornji angleški park**, 14°36′44″, 46°11′25″, VM61, 351 m, tThe, phEcIT, lVDo dRPa, lit.RPa2020a, 29.6.2020; **Vopovlje 1**, 14°29′41″, 46°13′27″, VM61, 362 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021a, 2.10.2021; **Vrata, Aljažev dom, Julijske Alpe**, 13°51′, 46°25′, VM14, 1040 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1974; **Vršič, Koča na Gozdu**, 13°45′55″, 46°26′08″, VM04, 1364 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994, 14.7.1994; **Zavrh pod Šmarno goro**, 14°28′, 46°08′, VM50, 340 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Zbilje, Medvode**, 14°25′, 46°09′, VM51, 340 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Zgornje Bitnje 2**, 14°19′37″, 46°13′19″, VM41, 396 m, tWit, phGaWi, ldRPa, lit. RPa2008, 13.8.2008; 10.9.2008, 7.10.2008, **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit.RPa2008, 16.7.2008; 13.8.2008,10.9.2008, 7.10.2008; **Zgornje Bitnje 5**, 14°19′38″, 46°13′18″, VM41, 395 m, *Picea abies*, hlod 35 cm, ldRPa, lit.RPa2020c, 29.5.2008; **Zgornje Jezersko, pri Kazini**, 14°30′03″, 46°23′34″, VM64, 880 m, tThe, phPher, ldRPa, lit. RPa1995b, 30.7.1995; **Zgornje Veterno, Križe**, 14°18′49″, 46°20′27″, VM43, 695 m, *Picea abies*, deblo 50 cm rs, odRPa, lit.RPa2022a, 31.7.2022; **Zgornji Brnik**, 14°27′09″, 46°13′53″, VM51, 369 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2014c, 1.5.2008; **Zvirče, Tržič**, 14°16′03″, 46°19′40″, VM43, 482 m, *Picea abies*, deblo, ldRPa, lit.RPa1992b, 7.8.1991; **Železniki**, 14°08′47″, 46°14′30″, VM32, 540 m, *Picea abies*, deblo, ldRPa, lit.RPa2014c, 10.8.2008; **Županje Njive, Kamnik**, 14°36′15″, 46°16′16″, VM62, 446 m, *Picea abies*, deblo 8 cm rs, odMKo vRPa, lit. RPa2022a, 9.12.2022; **Županje Njive, vodno zajetje Iverje**, 14°36′50″, 46°16′47″, VM72, 458 m, ldSBr, cSBr, 11.5.1986.

NOTRANJSKO: **Cerknica**, 14°22′, 45°48′, VL57, ~600 m, *Picea abies*, deblo, odFPe, lit. FPe1969, 5.1967; ibidem, deblo gEZ, odFPe, lit.FPe1969, 8.1967, 4.1968; **Čekovnik, Hleviše**, 13°59′20″, 45°58′44″, VL29, 637 m, *Picea abies*, hlod 25 cm rs, odDMo vRPa, lit.RPa2022a, 10.12.2022; **Črni Vrh, Idrija**, 14°03′, 45°55′, VL28, 680 m, *Picea abies*, ldDJu, lit.DJu1988, 1987; ibidem, ldJTi, lit.JTi1983, 10.1977; ibidem, 840 m, tWit, phPher, ldGKo, lit.GKo2010, 25.4.2008; 6.5.2008, 16.5.2008, 1.6.2008, 14.6.2008, 29.6.2008, 7.7.2008, 20.7.2008, 25.7.2008, 10.8.2008, 26.8.2008, 5.9.2008, 19.9.2008, 3.10.2008; **Dole, Medvedje Brdo**, 14°06′, 45°59′, VL39, 800 m, *Picea abies*, ldDJu, lit.DJu1988, 1987; **Godovič**, 14°06′, 45°57′, VL29, 595 m, *Picea abies*, ldJTi, lit.JTi1983, 10.1977; **Golobičevec, Planina**, 14°15′, 45°47′, VL47, 690 m, *Picea abies*, hlod 30 cm, ldRPa, lit.RPa2020c, 28.10.2011; **Horjul,** 14°18′, 46°01′, VL49, 400 m, *Picea abies*, hlod, ldJTi, lit. JTi1983, 4.1972; ibidem, 470 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 3.1972; **Hotedršica**, 14°09′, 45°56′, VL38, 545 m, *Picea abies*, ldJTi, lit.JTi1983, 10.1977; **Hrušica 2**, 14°06′05″, 45°50′19″, VL37, 699 m, *Picea abies*, deblo 25 cm rs, odSPe vRPa, lit.RPa2021a, 25.10.2021; **Idrijska Bela, Kotenski rob**, 13°59′17″, 45°57′13″, VL28, 627 m, *Picea abies*, deblo 40 cm, ldRPa, lit. RPa2020e, 23.9.2013; **Kalce**, 14°12′, 45°54′, VL38, 492 m, *Picea abies*, ldJTi, lit.JTi1983, 10.1977; **Ljubljanski vrh 2**, 14°17′55″, 45°55′41″, VL48, 729 m, *Abies alba*, deblo 10 cm, ldTHa, lit. THa2020, 29.6.2018; **Lož**, 14°29′, 45°44′, VL56, 640 m, *Picea abies*, ldJTi, lit.JTi1983, 11.1979; **Malni, Planina**, 14°16′, 45°49′, VL47, 458 m, tThe, phPher, ldMPe, lit.MPe2001, 12.5.1997, 23.6.1997, 28.7.1997, 1.9.1997, 20.4.1998, 25.5.1998, 29.6.1998, 3.8.1998; **Mašun, Snežnik**, 14°22′, 45°38′, VL55, 1100 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 6.1978; **Planina, Mali laz**, 14°14′, 45°49′, VL47, 664 m, tThe, phPher, ldMPe, lit.MPe2001, 12.5.1997, 23.6.1997, 8.7.1997, 1.9.1997, 20.4.1998, 25.5.1998, 29.6.1998, 3.8.1998; **Podpeč, Ljubljansko barje 2**, 14°26′07″, 45°57′33″, VL59, 345 m, tWit, phPher, ldRPa, lit.RPa2010b, 20.10.2010; **Podpeč, Ljubljansko barje, žaga**, 14°26′, 45°58′, VL59, 330 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 11.1971; **Ravbarkomanda, Postojna 1**, 14°13′53″, 45°47′24″, VL47, 615 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2020c,

26.5.2016; ibidem, tThe, phEcIT, ldRPa, lit.RPa2020c, 26.5.2016; **Ravbarkomanda, Postojna 2**, 14°13′51″, 45°47′38″, VL47, 590 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2020c, 26.5.2016; **Ravbarkomanda, Postojnska Vrata**, 14°15′, 45°48′, VL47, 626 m, tThe, phPher, ldMPe, lit. MPe2001, 12.5.1997, 23.6.1997, 28.7.1997, 1.9.1997, 20.4.1998, 25.5.1998, 29.6.1998, 3.8.1998; **Rovte 1**, 14°11′39″, 45°59′35″, VL39, 623 m, *Picea abies*, deblo 30 cm rs, odATr vRPa, lit. RPa2022a, 10.12.2022; **Smrečje, Rovte**, 14°12′, 46°01′, VL39, 580 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 3.1972; **Snežnik**, 14°26′, 45°36′, VL54, 1389 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2020c, 9.5.2014; ibidem, deblo 35 cm, ldRPa, lit.RPa2020c, 9.5.2013; **Veliko Ubeljsko, Razdrto 1**, 14°04′07″, 45°46′47″, VL26, 660 m, *Picea abies*, deblo 25 cm rs, odPČe vRPa, lit. RPa2023a, 13.11.2023; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 16.6.2017; **Verd, Vrhnika**, 14°18′, 45°57′, VL48, 300 m, ldAGs, cAGs, pred 1951; **Vrhnika**, 14°17′42″, 45°56′14″, VL48, 567 m, *Picea abies*, hlod 40 cm, ldRPa, lit.RPa2020c, 4.11.2016; ibidem, tThe, phEcIT, ldRPa, lit. RPa2020c, 4.11.2016; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017.

LJUBLJANA Z OKOLICO: **Babni Dol, Staneżiče**, 14°24′, 46°05′, VM50, 370 m, ldAGs, cAGs, pred 1951; ibidem, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005;

Belo, Polhograjsko hribovje, 14°21′, 46°04′, VM40, 680 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004

21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Bormes, Staneżiče**, 14°25′, 46°06′, VM50, 350 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Brezovica pri Medvodah**, 14°23′, 46°06′, VM50, 640 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Dol pri Ljubljani**, 14°39′, 46°05′, VM50, 300 m, *Picea abies*, deblo, ldJTi, lit.JTi1973, 1969; **Golo Brdo, Staneżiče**, 14°25′, 46°07′, VM50, 360 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Golovec, Ljubljana**, 14°32′, 46°02′, VL69, ~400 m, ldAGs, cAGs, pred 1951; **Legastja, Polhograjsko hribovje**, 14°22′, 46°07′, VM51, 440 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, 7.5.1916; ibidem, ldAGs vSBr, cAGs, 27.3.1941; ibidem, ldJSd, cJSd, 1.5.1916, 6.5.1919, 10.8.1927, 20.7.1941; ibidem, lHEg, cJSs, pred 1951; **Ljubljana, Brdo, pot Roberta Blinca 1**, 14°27′36″, 46°03′22″, VM50, 299 m, *Picea abies*, deblo 120 cm, ldRPa, lit.RPa2014c, 1.9.2002; **Ljubljana, Brdo, pot Roberta Blinca 2**, 14°28′25″, 46°03′05″, VL59, 309 m, *Picea abies*, deblo 30 cm rs, odRPa, lit.RPa2020b, 25.11.2020; **Ljubljana, Črnuče, Podboršt**, 14°32′28″, 46°06′41″, VM60, 338 m, *Picea abies*, deblo 70 cm rs, odMKr vRPa, lit.RPa2021a, 22.10.2021; **Ljubljana, Stožice**, 14°53′, 46°08′, VM60, 295 m, ldAGs, cAGs, 14.3.1925, 19.5.1926; **Ljubljana, Šentvid**, 14°28′, 46°06′, VM50, 420 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 7.1968; **Ljubljana, Večna pot, parkirišče ZOO**, 14°28′17″, 46°03′10″, VM50, 302 m, *Picea abies*, deblo 35 cm rs, odRPa, lit.RPa2022a, 20.4.2022; ibidem, deblo 50 cm rs, odRPa, lit.RPa2022a, 15.4.2022; **Ljubljana, Večna pot, pri Karingerjevi ulici**, 14°28′27″, 46°03′54″, VM60, 310 m, *Picea abies*, deblo 20 cm rs, odRPa, lit.RPa2014c, 20.11.2020; **Ljubljana, Vodnikova 25, vrt**, 14°29′31″, 46°03′53″, VM60, 308 m, *Picea pungens* var. Glauca, deblo 60 cm, ldRPa, lit.RPa2014c, 15.9.2004; **Podlipoglav, Češnjica**, 14°37′, 46°01′, VL79, 420 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1978; **Rašica 1**, 14°31′04″, 46°07′54″, VM60, 417 m, tThe, phPher, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 2**, 14°30′25″, 46°08′20″, VM60, 495 m, tThe, phPher, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 3**, 14°30′22″, 46°08′27″, VM60, 531 m, tThe, phPher, ldMBj, lit. MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 4**, 14°30′48″, 46°08′20″,

VM60, 632 m, tThe, phPher, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 5**, 14°30′17″, 46°08′32″, VM60, 516 m, tThe, phPher, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 6**, 14°30′39″, 46°08′54″, VM61, 489 m, tThe, phPher, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 7**, 14°31′07″, 46°09′32″, VM61, 336 m, tThe, phPher, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 8**, 14°31′36″, 46°09′39″, VM61, 355 m, tThe, phPher, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 9**, 14°31′46″, 46°09′40″, VM61, 364 m, tThe, phPher, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rožnik, Ljubljana**, 14°28′, 46°03′, VM50, 360 m, *Picea abies*, panj, ldJTi, lit.JTi1983, 1965; **Rožnik, Ljubljana 7**, 14°28′40″, 46°03′03″, VL59, 309 m, *Picea abies*, deblo 20 cm rs, odAČe vRPa, lit.RPa2022a, 10.12.2022; **Stanežiče**, 14°26′, 46°07′, VM50, 340 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Šmarna gora**, 14°26′, 46°08′, VM50, 570 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 4.1972; **Tehovec, Polhograjsko hribovje**, 14°22′, 46°07′, VM50, 680 m, tThe, phPher, ldMJe, lit. MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Toško Čelo**, 14°25′, 46°05′, VM50, 460 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1978; **Vikrče**, 14°26′, 46°07′, VM50, 330 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Žlebe**, 14°24′, 46°07′, VM50, 380 m, tThe, phPher, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005.

DOLENJSKO: **Banjaloka**, 14°53′, 45°31′, VL94, 560 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Baza 20, Kočevski Rog**, 15°02′58″, 45°41′50″, WL06, 670 m, ldSBr, cSBr, 8.8.1986; **Borovec pri Karlovici, Mala Slevica 1**, 14°35′38″, 45°47′50″, VL67, 574 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2020e, 8.6.2011; ibidem,

hlod 40 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Borovec pri Karlovici, Mala Slevica 2**, 14°36′01″, 45°48′07″, VL67, 598 m, *Picea abies*, hlod 45 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Breg pri Kočevju**, 14°50', 45°39', VL85, 470 m, ldSBr, cSBr, 4.5.1986; **Brunk, Radeče**, 15°11′, 46°02′, WL19, 510 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1963, 1966; ibidem, hlod, ldJTi, lit.JTi1983, 1963, 1966; **Čadraže, Šentjernej**, 15°18′, 45°52′, WL27, 160 m, *Picea abies*, deblo, odJŠl, lit. JŠl1948, 1947; **Črmošnjice, Semič**, 15°07′, 45°40′, WL05, 410 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Črni vrh, Mala gora**, 14°50′, 45°44′, VL86, ~800 m, tThe, phPher, ldMKl, lit.MKl2006, 22.4.2004, 13.7.2004, 28.9.2004; **Dobrava, Radeče**, 15°11′, 46°03″, WL19, 250 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1963, 1966; ibidem, hlod, ldJTi, lit.JTi1983, 1963, 1966; **Draga, Goteniška gora**, 14°39′, 45°38′, VL75, 850 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, *Picea abies*, ldVVu, lit.VVu2016, 22.11.2012, 8.5.2013; ibidem, ldDPr, cSBr, 24.8.1984; ibidem, ldSBr,cSBr,15.6.1977, 3.7.1977, 14.7.1979, 20.7.1979, 2.5.1980, 3.4.1982, 3.5.1982, 17.4.1983, 24.8.1984; **Gorenje Kališče, Mala Slevica**, 14°34′34″, 45°49′00″, VL67, 695 m, *Picea abies*, hlod 40 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Gorenje, Kočevje 1**, 14°51′46″, 45°40′42″, VL85, 470 m, *Picea abies*, hlod 35 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Gorenje, Kočevje 2**, 14°51′23″, 45°40′50″, VL85, 475 m, *Picea abies*, hlod 40 cm, ldRPa, lit. RPa2020e, 9.7.2018; **Gorica, Ig**, 14°31′05″, 45°57′23″, VL68, 325 m, *Picea abies*, kontrolno deblo, ldARe, lit.ARe2014, 7.2008, 5.2009; **Gornje Ložine, Dolenja Vas**, 14°47′08″, 45°41′33″, VL85, 496 m, *Picea abies*, hlod 40 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Gradec, Kobilje, Gorjanci**, 15°20′51″, 45°47′28″, WL27, 468 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2020e, 28.8.2018; ibidem, deblo 30 cm, ldRPa, lit.RPa2020e, 26.9.2013; **Grčarice, Črni vrh**, 14°45′, 45°39′, VL85, ~900 m, ldSBr, cSBr, 10.6.2004; ibidem, 950 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Grosuplje**, 14°39′, 45°57′, VL78, 380m, *Picea abies*, ldJTi, lit.JTi1983, 7.1978; ibidem, 340 m, *Picea abies*, deblo, ldJŠl, lit.JŠl1958, 1951, 22.3.1952; ibidem, talni vzorci gEZ, ldJŠl, lit.JŠl1958, 29.3.1952; **Hotemež, Radeče 1**, 15°12′, 46°03′, WL19, 240 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1963,

1966; ibidem, hlod, ldJTi, lit.JTi1983, 1963, 1966; **Hudi Konec, Domalnica**, 14°39′44″, 45°46′55″, VL76, 680 m, *Picea abies*, deblo 40 cm rs, odAAd vRPa, lit.RPa2023a, 18.11.2023; **Ivanja Vas, Mirna Peč**, 15°05′, 45°52′, WL07, 328 m, *Picea abies*, deblo, ldJŠl, lit.JŠl1958, 11.4.1952; ibidem, talni vzorci gEZ, ldJŠl, lit.JŠl1958, 16.4.1952; **Jatna, Podkum**, 15°05′, 46°03′, WL09, 700 m, *Picea abies*, ldDJu, lit.DJu1988, 1987; ibidem, *Picea abies*, deblo, ldJTi, lit.JTi1983,1963, 1966; ibidem, hlod, ldJTi, lit.JTi1983, 1963, 1966; **Junčje, Mala Slevica**, 14°32′13″, 45°40′23″, VL85, 918 m, *Picea abies*, hlod 35 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Klinger, Kočevska Mala gora**, 14°53′13″, 45°40′32″, VL95, 477 m, *Picea abies*, hlod 35 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Klinja Vas, Kočevska Mala gora 1**, 14°52′13″, 45°40′23″, VL85, 474 m, *Picea abies*, hlod 30 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Klinja Vas, Kočevska Mala gora 2**, 14°52′17″, 45°40′10″, VL85, 477 m, *Picea abies*, hlod 35 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Kočevje**, 14°52′, 45°38′, VL85, 480 m, JdSd, cJSd, 2.7.1932; ibidem, *Picea abies*, ldJTi, lit.JTi1983, 5.1971; ibidem, 470 m, tThe, phPher, ldRPa, lit.RPa2014c, 31.5.2004; **Kočevje, Koblarji 1**, 14°50′44″, 45°41′00″, VL85, 471 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 10.4.2020, 17.4.2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020; **Kočevje, Koblarji 2**, 14°50′42″, 45°41′26″, VL85, 470 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 24.4.2020, 30.4.2020, 8.5.2020, 29.5.2020; **Kočevje, Koblarji 3**, 14°50′23″, 45°41′54″, VL86, 472 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 17.4.2020, 24.4.2020, 8.5.2020, 29.5.2020; **Kočevska Mala gora**, 14°54′13″, 45°40′28″, VL95, 473 m, *Picea abies*, hlod 15 cm, ldRPa, lit. RPa2020e, 9.7.2018; **Krka, Muljava**, 14°47′, 45°53′, VL88, 270m, *Picea abies*, deblo rs, odJTi, lit. JTi1983, 10.1972; **Krvavi kamen, Gorjanci**, 15°19′, 45°46′, WL26, 860 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 9.1973; **Kum**, 15°05′, 46°05′, WM00, *, ldSBr, cSBr, 4.6.1988; **Kureščck, Visoko**, 14°34′, 45°53′, VL68, 740 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Linca, Žimarice 1**, 14°35′14″, 45°47′39″, VL67, 724 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Linca, Žimarice 2**, 14°35′21″, 45°47′27″, VL67, 746 m, *Picea abies*, deblo 30 cm, ldRPa, lit. RPa2020e, 8.6.2011; **Luče, Višnja Gora**, 14°44′, 45°55′, VL78, 340 m, *Picea abies*, ldNHa, lit. NHa2009, 24.8.2006; **Mala Gora, Kočevje 1**, 14°51′34″, 45°41′20″, VL85, 479 m, *Picea abies*, hlod 30 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Medvedica, Želimlje**, 14°37′36″, 45°54′35″, VL78, 426 m, tWtr, phPher, ldDBo, lit.NOg2019, 2.4.2018; **Mikunca, Žimarice**, 14°35′, 45°47′, VL67, ~800 m, tThe, phPher, lČVi dSBr, cSBr, 26.5.1992; **Mirna Peč**, 15°05′, 45°51′, WL07, 240 m, talni vzorci, ldJŠl, lit.JŠl1958, 1951, 1952; **Močilno, Radeče**, 15°09′, 46°03′, WL19, 540 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1963, 1966; ibidem, hlod, ldJTi, lit.JTi1983, 1963, 1966; **Mokrec 4**, 14°31′44″, 45°53′39″, VL68, 1016 m, *Picea abies*, deblo 13 cm gLEŠ, lDBo dRPa, lit.NOg2019, 2.5.2018; ibidem, tWtr, phPher, ldDBo, lit.NOg2019, 19.4.2018; **Mokrec, Erjavčev laz**, 14°30′22″, 45°53′10″, VL68, 849 m, *Picea abies*, deblo 14 cm gLEŠ, lDBo dRPa, lit.NOg2019, 25.4.2018; ibidem, deblo 22 cm gLEŠ, lDBo dRPa, lit.NOg2019, 25.4.2018; ibidem, tWtr, phPher, ldDBo, lit. NOg2019, 8.4.2018; **Novo Mesto, Bršljin, žaga**, 15°09′, 45°49′, WL17, 200 m, *Picea abies*, neobrobljene deske, ldJŠl, lit.JŠl1948, 5.1947; **Občine, Trebnje**, 14°57′53″, 45°54′09″, VL98, 327 m, *Picea abies*, deblo 35 cm rs, odJPr vRPa, lit.RPa2023a, 18.11.2023; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 600 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Podkogelj, Mišja dolina 1**, 14°36′06″, 45°48′30″, VL67, 570 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Podkogelj, Mišja dolina 2**, 14°36′09″, 45°48′48″, VL67, 580 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Podtabor, Struška dolina**, 14°46′, 45°47′, VL87, 520 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Podturjak, Turjak**, 14°36′, 45°53′, VL68, 350 m, ldSBr, cSBr, 7.5.1981; **Prestrana, Muljava**, 14°45′, 45°54′, VL88, 460 m, *Picea abies*, ldNHa, lit. NHa2009, 24.8.2006; **Pugled, Kočevje**, 14°51′14″, 45°40′43″, VL85, 475 m, *Picea abies*, kontrolno deblo, ldARe, lit.ARe2014, 6.2008, 5.2009; **Radeče**, 15°10′, 46°04′, WM10, 250 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1963, 1966; **Rakitnica, Dolenja Vas 1**, 14°45′50″, 45°41′31″, VL85, 494 m, *Picea abies*, deblo 30 cm rs, oPOr dRPa, lit.RPa2021a, 22.10.2021; **Rdeči kamen, Kunški**

vrh, Kočevski Rog, 14°58′, 45°44′, VL96, 850 m, *Picea abies*, deblo, ldJŠl, lit.JŠl1948, 1947; **Ribnica, Gržariče**, 14°42′05″, 45°43′28″, VL76, 525 m, *Picea abies*, deblo 25 cm rs, odTLe vRPa, lit.RPa2022a, 10.12.2022; **Ribnica, kmetija Purkreb**, 14°43′, 45°44′, VL76, 650 m, tThe, phCemp, ldRPa, lit.RPa2014c, 25.9.1995; **Rudna Vas, Radeče**, 15°10′, 46°03′, WL19, 540 m, *Picea abies*, hlod, ldJTi, lit.JTi1969, 1963, 1966; **Smuka, Lopata, Suha krajina**, 14°56′, 45°46′, VL96, 480 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Spodnje Duplice**, 14°41′, 45°58′, VL79, 360 m, *Picea abies*, ldNHa, lit.NHa2009, 24.8.2006; **Stara Cerkev, Kočevje**, 14°51′, 45°40′, VL85, 480 m, ldSBr, cSBr, 28.7.1948; **Stična**, 14°48′, 45°57′, VL88, 440 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; ibidem, 470 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Šahen, Kočevje**, 14°55′, 45°37′, VL95, 490 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Šklendrovec, Podkum,** 15°00′, 46°06′, WM00, 350 m, ldJSd, cJSd, 12.6.1932; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phPher, lGBa dSBr, cSBr, 4.6.1993; **Škrilje, Ig**, 14°33′, 45°55′, VL68, 570 m, ldSBr, cSBr, 2.5.1980; **Tabor, Grosuplje**, 14°39′, 45°55′, VL78, 460 m, *Picea abies*, deblo, ldMJu, cBFG, 3.1.2000; **Travna gora, Sodražica**, 14°39′, 45°44′, VL76, 880 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Trška gora, Otočec**, 15°11′04″, 45°50′33″, WL17, 351 m, *Picea abies*, deblo, odRPa, lit. RPa2020c, 30.1.2005; **Turjak 1**, 14°36′58″, 45°52′00″, VL77, 510 m, tWtr, phPher, ldDBo, lit. NOg2019, 9.4.2018; **Turjak 2**, 14°37′01″, 45°52′25″, VL78, 550 m, *Picea abies*, deblo 25 cm rs, odRMi vRPa, lit.RPa2021a, 22.10.2021; **Vavta Vas, Straža**, 15°05′24″, 45°46′13″, WL06, 192 m, *Picea abies*, deblo 35 cm rs, odŽPa vRPa, lit.RPa2023a, 21.11.2023; **Velika Slevica, Velike Lašče**, 14°37′12″, 45°49′06″, VL77, 606 m, tThe, phPher phChal, lTSt dRPa, lit.RPa2014c, 27.6.1994, 11.7.1994, 21.7.1994; **Veliki Ločnik 1**, 14°36′15″, 45°54′27″, VL68, 510 m, *Picea abies*, deblo 50 cm rs, odMFr vRPa, lit.RPa2021a, 22.10.2021; **Zdenska Vas, Dobrepolje**, 14°42′, 45°51′, VL77, 430 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1978.

BELA KRAJINA: **Bojanci, Tribuče, Črnomelj**, 15°16′, 45°31′, WL24, 200 m, lAPi dSBr, cAPi, 7.9.2011;

Črnomelj, 15°12′, 45°35′, WL14, 170m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Izvir Krupe, Krupa**, 15°13′, 45°38′, WL15, 170 m, ldSBr, cSBr, 23.5.1986; **Semič**, 15°11′, 45°39′, WL15, 200m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Sodevci, Stari Trg ob Kolpi**, 15°05′, 45°29′, WL03, 358 m, tThe, phPher, lAPi dSBr, cAPi, 4.7.2011.

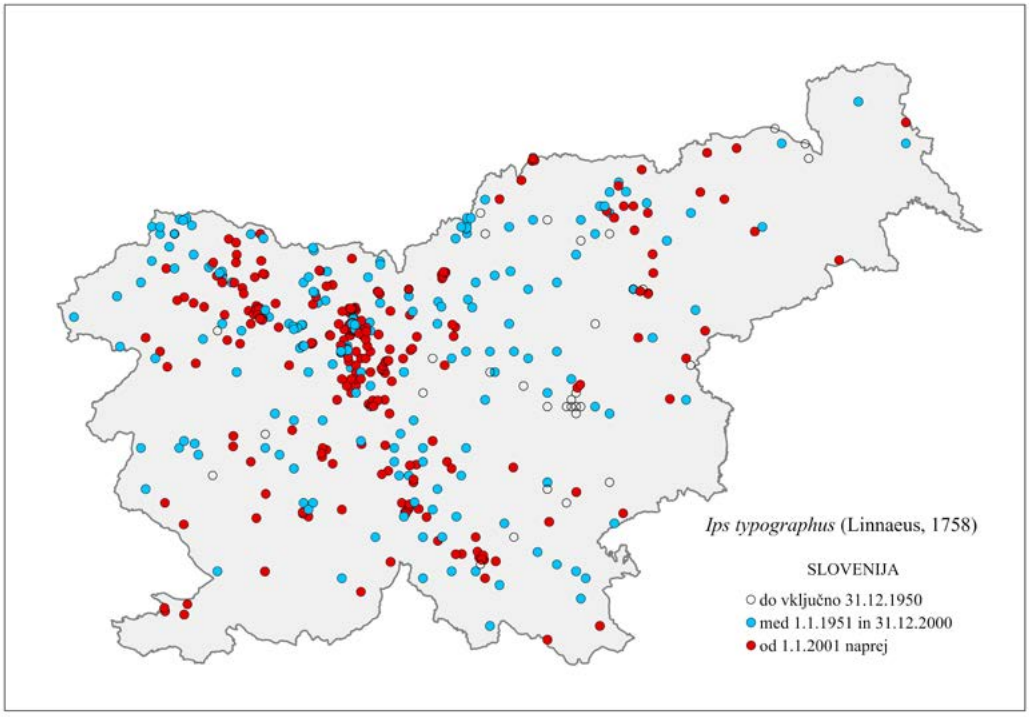
ŠTAJERSKO: Apaško polje, Gornja Radgona, 15°54′, 46°41′, WM67, 210 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; ibidem, 220 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Babič, Slovenske Konjice 1**, 15°26′06″, 46°19′25″, WM33, 606 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2020b, 3.3.2020; **Babič, Slovenske Konjice 2**, 15°26′03″, 46°19′20″, WM33, 719 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020b, 3.3.2020; **Boč, Poljčane**, 15°36′, 46°17′, WM42, 770 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1974; **Breg, Račica**, 15°15′, 46°03′, WL19, 235 m, ldSBr, cSBr, 15.6.1989; **Celje**, 15°15′, 46°15′, WM22, 240 m, *Picea abies*, ldDJu, lit.DJu1988, 1987; **Čelovnik, Zidani Most**, 15°11′, 46°05′, WM10, 510 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1963, 1966; ibidem, hlod, ldJTi, lit.JTi1983, 1963, 1966; **Golte, Mozirska koča**, 14°54′, 46°22′, VM93, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1980; **Gornja Radgona, Radgonski grad**, 15°58′56″, 46°40′56″, WM77, 220 m, lJMa dBDr, cZRC,1999; **Gornji Dolič, Mislinja**, 15°11′, 46°25′, WM14, 570 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Grobelno, Šentjur**, 15°27′, 46°13′, WM31, 320 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Janževski vrh, Ribnica na Pohorju**, 15°18′, 46°34′, WM25, 830 m, tThe, phCemp, ldSSu, lit.RPa1995b, 29.7.1994; **Javorski vrh, Kladje, Pohorje**, 15°23′12″, 46°28′32″, WM24, 1304 m, *Picea abies*, ldJPo, lit.JPo2016, 5.2009, 10.2009; **Josipdol, Baumscule, Ribnica na Pohorju**, 15°18′, 46°31′, WM25, 850 m, tThe, phCemp, ldSSu, lit.RPa1995b, 21.7.1994; **Josipdol, Lavtar, Pohorje**, 15°18′58″, 46°30′19″, WM24, 1230 m, *Picea abies*, ldJPo, lit.JPo2016, 7.2011, 7.2012; **Josipdol, Pohorje**, 15°17′24″, 46°31′16″, WM25, 700 m, *Picea abies*, ldJPo, lit. JPo2016, 6.2011, 7.2011, 6.2012, 7.2012; **Kašni vrh, Savinjske Alpe 2**, 14°42′49″, 46°17′29″,

VM72, 1217 m, tThe, phPher, ldRPa, lit.RPa1995b, 6.8.1995; **Konjiška gora, Slovenske Konjice**, 15°23′, 46°20′, WM23, 820 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1974; **Kopitnik, Gore, Rimske Toplice**, 15°10′, 46°07′, WM01, 800 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978; **Kozje, Kozjansko**, 15°34′, 46°04′, WM40, 530 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 7.1973; ibidem, neobeljen gradbeni les, ldJTi, lit.JTi1983, 7.1973; **Krčevina pri Vurbergu**, 15°48′23″, 46°28′20″, WM64, 335 m, *Picea abies*, hlod 35 cm rs, odŽDo vRPa, lit.RPa2023a, 16.11.2023; **Lamprehtov potok, Pohorje**, 15°26′, 46°31′, WM35, ~600 m, ldJPe vSBr, cJPe, pred 1951; **Ljubno ob Savinji**, 14°50′, 46°21′, VM83, 530 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1979; **Lovrenc na Pohorju, potok Slepnica**, 15°23′, 46°32′, WM35, 350 m, lAKa dSBr, cAKa, 30.7.2005; **Malahorna, Oplotnica**, 15°27′09″, 46°22′20″, WM33, 335 m, *Picea abies*, deblo 35 cm rs, odŽBr vRPa, lit.RPa2023a, 18.11.2023; **Maribor, Malečnik**, 15°42′, 46°33′, WM55, 350 m, ldJPe vSBr, cJPe, pred 1951; **Maribor, Mariborski otok, Kamnica**, 15°37′, 46°34′, WM45, 280 m, ldJPe vSBr, cJPe, pred 1951; **Markečica, Malahorna 1**, 15°27′09″, 46°22′20″, WM33, 332 m, *Picea abies*, deblo 40 cm rs, odLSa vRPa, lit.RPa2022a, 9.12.2022; **Mislinja**, 15°12′, 46°27′, WM14, 600 m, *Picea abies*, ldDJu, lit.DJu1988, 1987;**Mislinjski graben, Pohorje**, 15°15′, 46°28′, WM14, ~750 m, ldSBr, cSBr, 3.6.1992; **Mrzlica, Hrastnik**, 15°07', 46°11', WM01, 950 m, lVFu dSBr, cVFu, 13.6.1991; **Nadgrad, Slovenska Bistrica 1**, 15°27′00″, 46°25′03″, WM34, 789 m, *Picea abies*, deblo 45 cm rs, odMŽv vRPa, lit.RPa2022a, 2.10.2022; **Nova Glažuta, Vetrnik**, 15°30′37″, 46°04′07″, WM30, 666 m, *Picea abies*, hlod 30 cm, ldFFe vRPa, lit.RPa2022a, 9.12.2022; **Obrežje pri Zidanem Mostu**, 15°11′16″, 46°05′45″, WM10, 335 m, *Picea abies*, hlod 25 cm rs, odSBo vRPa, lit.RPa2021a, 30.10.2021; **Orehovci, Radenci**, 15°59′40″, 46°38′51″, WM76, 200 m, ldBDr, cZRC, 1999; **Orešje nad Sevnico**, 15°18′, 46°02′, WL29, 220 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 5.1972; ibidem, *Pinus sylvestris*, hlod, ldJTi, lit.JTi1983, 5.1972; **Partizanski vrh, Trbovlje**, 15°01′, 46°10′, WM01, 850 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Planina pod Šumikom, Močnik, Pohorje**, 15°30′, 46°27′, WM34, 840 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1978; **Podčetrtek, Palčjak**, 15°35′, 46°09′, WM41, *, ldEJa dSBr, cEJa, 2.8.1930; **Podvelka, Brezno**, 15°19′55″, 46°35′25″, WM25, 321 m, tThe, phPher phChal, ldRPa, lit.RPa1995b, 4.8.1995; **Pohorje**, (15°18′), (46°28′), (WM24), *, *Picea abies*, ldDJu, lit.DJu1988, 1987; **Poljšak 3**, 14°42′56″, 46°22′06″, VM72, 1086 m, *Picea abies*, lovno deblo 30 cm, ldRPa, lit.RPa2021a, 23.6.2021; ibidem, žlebljeno deblo 30 cm, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak 5**, 14°42′53″, 46°22′08″, VM72, 1137 m, *Picea abies*, lovno deblo 30 cm, ldRPa, lit.RPa2021a, 23.6.2021; ibidem, žlebljeno deblo 35 cm, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak 6**, 14°43′17″, 46°22′27″, VM72, 1158 m, *Picea abies*, vrhač 10 cm rs, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak p2c**, 14°42′58″, 46°21′33″, VM72, 813 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2021c, 28.7.2021, 11.8.2021; ibidem, lTHa dRPa, lit.RPa2021c, 1.9.2021; **Poljšak p3a**, 14°43′13″, 46°21′48″, VM72, 754 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021c, 26.5.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Poljšak p3b**, 14°43′12″, 46°21′48″, VM72, 760 m, tThe, phPher, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Poljšak p6a**, 14°43′41″, 46°22′26″, VM72, 888 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Poljšak p6b**, 14°43′41″, 46°22′24″, VM72, 891 m, tThe, phPher, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Poljšak p7a**, 14°43′19″, 46°22′30″, VM72, 1088 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Poljšak p7b**, 14°43′18″, 46°22′30″, VM72, 1090 m, tThe, phPher, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Puščava, kmetija Kikel, Pohorje**, 15°25′46″, 46°32′25″, WM35, 492 m, tThe, phPher, ldRPa, lit.RPa1995b, 17.8.1995;

Rdeči Breg, Lovska koča Klančnik, Pohorje, 15°21′28″, 46°34′04″, WM25, 854 m, *Picea sitkaensis*, deblo 5 cm gLEŠ, ldRPa, lit.RPa2020b, 17.7.2019; ibidem, deblo 35 cm, lUFr dRPa, lit. RPa2020b, 16.7.2019; ibidem, tThe, phCemp, ldSSu, lit.RPa1995b, 29.7.1994; **Rdeči Breg, Pohorje**, 15°19'54″, 46°34'55″, WM25, 450 m, *Picea abies*, ldJPo, lit.JPo2016, 6.2011, 5.2012, 6.2012; **Recenjak, Lovrenc na Pohorju**, 15°21′, 46°32′, WM25, 600 m, *Picea abies*, deblo, ldRPa, lit.RPa2014c, 15.5.2009; **Ribnica na Pohorju**, 15°16′, 46°32′, WM25, 750 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Ribnica na Pohorju, Kapelvald**, 15°17′, 46°32′, WM25, 640 m, tThe, phCemp, ldSSu, lit.RPa1995b, 21.7.1994; **Rogaška Slatina, enota**, (15°38′), (46°14′), (WM42), *, *Picea abies*, lovno drevo phPhero, ldMCi, lMCi1988, 1984; ibidem, tCev, phPher, ldMCi, lMCi1988, 1986; 4.1987, 5.1987, 6.1987, 7.1987, 8.1987, 9.1987, 10.1987; ibidem, tThe, phPher, ldMCi, lMCi1988, 1986; 4.1987, 5.1987, 6.1987, 7.1987, 8.1987, 9.1987, 10.1987; **Rudnica, Podčetrtek**, 15°34′, 46°10′, WM41, ~500 m, *Picea abies*, odMCi, lMCi1986, 1985; ibidem, tCev, phPher, ldMCi, lMCi1986, 1985; 4.1985, 5.1985, 6.1985, 7.1985, 8.1985, 9.1985, 10.1985; **Sele, Slovenj Gradec**, 15°02′, 46°30′, WM04, 450 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Slovenske Konjice**, 15°25′, 46°20′, WM33, ~350 m, *Picea abies*, kontrolno drevo, odDJg, lit.DJg1967, 1966; ibidem, lovno drevo, odDJg, lit.DJg1967, 1966; **Spodnja Kapla, Kozjak**, 15°24′43″, 46°37′14″, WM26, 875 m, *Picea abies*, deblo 25 cm rs, odTRi vRPa, lit.RPa2021a, 24.10.2021; **Sveti Bolfenk, Hočko Pohorje**, 15°35′, 46°31′, WM45, 1150 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1979; **Šentjur, Celje**, 15°24′, 46°13′, WM31, 260 m, *Picea abies*, odŽKv, lit.ŽKv1953, 1951-2000; **Šmihel nad Mozirjem**, 14°57′17″, 46°22′36″, VM93, 710 m, tThe, phPher, ldRPa, lit.RPa1995b, 4.8.1995; **Šokat, Gornji Grad**, 14°48′22″, 46°18′32″, VM83, 508 m, *Picea abies*, deblo, ldRPa, lit. RPa1995b, 4.8.1995; **Šomat, Vučja Jama, Sladki Vrh**, 15°44′34″, 46°40′19″, WM76, 370 m, *Picea abies*, kontrolno deblo, ldARe, lit.ARe2014, 6.2009; **Tabor, Šmartno ob Paki**, 15°01′, 46°20′, WM03, 310m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 4.1973; **Tolsti Vrh, Slovenske Konjice**, 15°24′24″, 46°19′44″, WM33, 664 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020b, 3.3.2020; **Trojane**, 14°53′, 46°11′, VM91, 730 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1972, 8.1977; **Velika Kopa, Pohorje**, 15°12′, 46°30′, WM14, 1400 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Velika Nedelja, Ormož, vodno zbirališče**, 16°06′03″, 46°24′12″, VM83, 196 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2020c, 21.5.2015, 11.6.2015, 29.10.2015, 6.10.2017; ibidem, tThe, phPher phChal, ldRPa, lit.RPa2020c, 11.6.2015; **Veliki Koželj, Velenje**, 15°07′, 46°21′, WM03, 480·m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 9.1973; **Veliko Širje, Zidani Most 2**, 15°11′53″, 46°06′13″, WM10, 376 m, *Picea abies*, deblo 40 cm rs, odKBa vRPa, lit.RPa2021a, 24.10.2021; **Vransko**, 14°57′, 46°15′, VM92, 350 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1.1972; **Vurberk, Zlatoličje, Dolgi kamen**, 15°50′, 46°29′, WM64, 380 m, tThe, phCemp, ldRRe, lit.RPa2014c, 6.5.1994; 19.5.1994, 1.6.1994, 16.6.1994, 8.7.1994, 14.7.1994, 1.8.1994, 18.8.1994, 2.9.1994, 15.9.1994; ibidem, lRRe dRPa, lit.RPa2014c, 30.9.1994; **Zgornje Dobrenje, rezervat**, 15°38′24″, 46°39′40″, WM46, 364 m, *Picea abies*, deblo, ldRPa, lit.RPa2020c, 19.4.2013; **Žepovci, Žepovski Travniki, ob Muri**, 15°52′36″, 46°43′08″, WM67, 220 m, ldBDr, cZRC, 1999.

KOROŠKO: **Črna na Koroškem**, 14°52′, 46°28′, VM84, 580 m, *Picea abies*, ldDJu, lit.DJu1988, 1987; **Črneče, Dravograd, Zajc**, 14°59′33″, 46°35′41″, VM96, 360 m, *Picea abies*, deblo, ldBVr, cZRC, 28.8.2017; **Javorje, Sveta Magdalena**, 14°55′36″, 46°27′22″, VM94, 1092 m, tThe, phPher, ldRPa, lit.RPa1995b, 12.8.1995; **Košenjak, Kobansko**, 15°02′, 46°39′, WM06, 1270 m, *Picea abies*, ldDJu, lit.DJu1988, 1987; **Košenjak, Kobansko 2**, 15°01′48″, 46°38′29″, WM06, 1400 m, tThe, phChal, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 6.8.2005; ibidem, phPher, ldARi, lit. ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005, 6.8.2005, 18.8.2005, 29.8.2005; Košenjak, Kobansko 3, 15°02′20″, 46°38′34″, WM06, 1415 m, tThe, Kont, ldARi, lit.ARi2007, 22.6.2005; ibidem, phChal, ldARi, lit.ARi2007, 2.7.2005, 6.8.2005; ibidem, phCurW, ldARi, lit.ARi2007, 22.6.2005; ibidem, phPher, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005,

18.8.2005, 29.8.2005, 10.9.2005, 22.9.2005; **Košenjak, Kobansko 4**, 15°01′59″, 46°38′49″, WM06, 1480 m, tThe, phChal, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 29.8.2005; ibidem, phPher, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005, 6.8.2005, 18.8.2005, 29.8.2005, 10.9.2005, 22.9.2005; **Mežica**, 14°51′, 46°31′, VM95, 500 m, *Picea abies*, ldDJu, lit.DJu1988, 1987; **Peca, Jakobe, skladišče lesa**,14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 31.7.1994, 21.6.1995, 17.7.1995, 12.8.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 22.6.1994, 18.7.1994, 31.7.1994, 13.8.1994, 26.8.1994, 8.9.1994, 21.9.1994, ibidem, ldRPa vcSBr, lit.RPa1994a, 9.6.1994, 5.7.1994; ibidem, ldRPa, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995, 7.9.1995; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa, lit.RPa1994a, 18.7.1994, 31.7.1994; ibidem, lit.RPa1995a, 21.6.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 22.6.1994, 5.7.1994, 31.7.1994, 26.8.1994, 9.6.1994; ibidem, lit. RPa1995a, 8.6.1995, 4.7.1995, 30.7.1995; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa1995b, 2.8.1995, 12.8.1995; ibidem, tThe, Kont, ldRPa, lit.RPa1994a, 22.6.1994, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a, 21.6.1995, 17.7.1995, 30.7.1995; ibidem, ldRPa vcSBr, lit.RPa1994a, 9.6.1994; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, phCemp, ldRPa, lit.RPa1994a, 22.6.1994, 5.7.1994, 31.7.1994, 13.8.1994, 8.9.1994, 21.9.1994; ibidem, phCemp, ldRPa, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit.RPa1994a, 31.7.1994, Ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 22.6.1994, 5.7.1994, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a,



Slika 122: OSMEROZOBI LUBADAR *Ips typographus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 122: *Ips typographus*, distribution map according to historical and recent data

21.6.1995, 12.8.1995; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, phCemp, ldRPa, lit.RPa1994a, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994, 26.8.1994, 8.9.1994; **Poljana, proti Holmcu**, 14°51′59, 46°32′56″, VM85, 640 m, tThe, phPher phChal, ldRPa, lit. RPa1995b, 16.7.1995; **Prevalje**, 14°55′, 46°33′, VM95, 480 m, tThe, phPher phChal, ldRPa, lit. RPa2020c, 24.5.2010, 25.5.2010, 26.5.2010; **Slovenj Gradec**, 15°05′, 46°30′, WM05, 1270 m, *Picea abies*, ldDJu, lit.DJu1988, 1987; **Šumel, Koprivna**, 14°45′49″, 46°27′19″, VM84, 781 m, *Picea abies*, hlod, ldRPa, lit.RPa1995b, 18.8.1995; **Topla, Peca**, 14°47′, 46°29′, VM84, 620 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Uršlja Gora**, 14°57′, 46°29′, VM94, 1150 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979.

PREKMURJE: **Bukovnica, Dobrovnik**, 16°20′, 46°41′, XM07, 230 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1982; **Mačkovci, Goričko**, 16°10′, 46°47′, WM88, 310 m, *Picea abies*, ldJTi, lit. JTi1983, 7.1977; **Prosenjakovci, gozdni rezervat**, 16°20′, 46°44′, XM07, 230 m, *Picea abies*, podrto drevo, ldJTi, lit.JTi1988, 1981; ibidem, deblo, ldJTi, lit.JTi1988, 1982, 1983.

29.00. ***Orthotomicus*** Ferrari, 1867 BORAR

29.01. *Orthotomicus erosus* (Wollaston, 1857) JUŽNOEVROPSKI BORAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Grüne 1979: *Orthotomicus erosus* Wollaston, 1857; Freude, Harde, Lohse 1981: (*Ips*) *erosus* (Wollaston); Titovšek 1988: *Orthotomicus erosus* (Wollaston); Pfeffer & Knížek 1993: *O. erosus* (Wollaston, 1857); Pfeffer 1995: *O. erosus* (Wollaston, 1857).

E: AZ AU BU CR CT FR GB GR IT MA MC NL PL PT SL SP ST SZ UK YU **N:** AG EG LB MO MR TU **A:** AF ANH FUJ GUA GUI GUX HEN HUB HUN IN IS JIA JIX JO LIA SCH SHA SHN SHX SY TR UZ YUN ZHE »Koreja« **AFR NAR**

Vrsta je prisotna v srednji, južni in jugovzhodni Evropi, na Krimu, Kavkazu, Mali Aziji, severni Afriki, na afrotropskem in nearktičnem območju. V Sloveniji je vrsta razmeroma pogosta v zahodnem delu države, manjkajo pa najdišča na Štajerskem, Koroškem in v Prekmurju (slika 124). Gostitelji so predvsem kontinentalne in mediteranske vrste borov: *Pinus halepensis*, *P. canariensis*, *P. pinaster*, *P. pinea* in *Pinus* spp.. Redko naseljuje *Abies pinsapo*, *A. alba*, *A. nordmanniana*, *Cedrus atlantica* in *Picea* spp.. Pri nas je bila vrsta ugotovljena na *P. sylvestris*, *P. nigra*, *P. pinea* in *P. halepensis*. Letno razvije dve generaciji, prvič roji aprila in maja, drugič julija. Gradi dolge, nepravilne, pogosto vzdolžno usmerjene zvezdaste rovne sisteme. Dolžina adultov je 2,7–3,5 mm. Koničnik je zelo strm, skoraj navpičen, gosto punktiran, ni žlebasto

The species is found in central, southern and south-eastern Europe, the Crimea, the Caucasus, Asia Minor, North Africa, the Afrotropics and the Nearctic. In Slovenia, it is relatively common in the western part of the country, but there are no records in Štajerska, Koroška and Prekmurje (Fugure 124). The hosts are mainly continental and Mediterranean pine species: *Pinus halepensis*, *P. canariensis*, *P. pinaster*, *P. pinea* and *Pinus* spp.. Rarely inhabits *Abies pinsapo*, *A. alba*, *A. nordmanniana*, *Cedrus atlantica* in *Picea* spp.. In Slovene territory, the species has been found on *P. sylvestris*, *P. nigra*, *P. pinea* and *P. halepensis*. It develops two generations per year, the first swarming in April and May, the second in July. It builds long, irregular, often longitudinally oriented, star-shaped tunnel systems. Adults are 2.7-3.5 mm long. The elytras apex is very steep, almost vertical, densely

poglobljen. Spolni dimorfizem je močno poudarjen, pri samcu so zobčki na obronku krepko razviti (slika 123). Je sekundarna vrsta, v Evropi je zelo pogosta v sveže podrtih drevesih, v neobeljeni hlodovini ali v drevesih, ki so jih napadli agresivnejši podlubniki ali pa hirajo zaradi drugih biotskih ali abiotskih dejavnikov.

punctate, not grooved. Sexual dimorphism is strongly marked, with the denticles in the male being more strongly developed at the elytras apex (Figure 123). Secondary species, very common in Europe in freshly felled trees, in logs that have not been debarked or in trees attacked by more aggressive bark beetles or decaying due to other biotic or abiotic factors.

Najdišča v Sloveniji / Localities in Slovenia

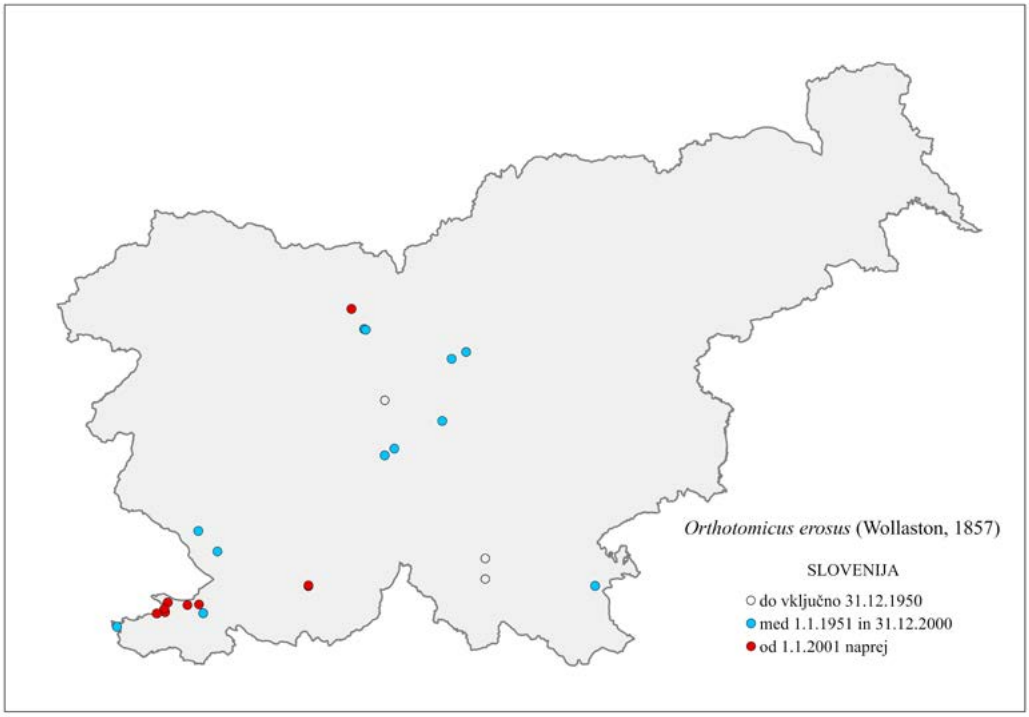
ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2016d, 26.5.2016; ibidem, lit.RPa2018d, 7.6.2018; **Črni Kal**, 13°53′, 45°33′, VL14, 280 m, *Pinus nigr*, ldJTi, lit.JTi1983, 12.1978; **Kastelec**, 13°52′09″, 45°34′17″, VL14, 300 m, *Pinus nigra*, veja 3 cm, ldRPa, lit.RPa2014c, 16.5.2009; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014b, 27.4.2014, 23.5.2014, 1.7.2014, 31.7.2014, 1.9.2014; ibidem, lit.RPa2015b, 2.9.2015; ibidem, lit.RPa2016b, 26.5.2016, 31.8.2016, 27.10.2016; ibidem, lit.RPa2017b, 31.5.2017, 3.8.2017, 6.9.2017; ibidem, lit.RPa2018b, 14.6.2018, 3.9.2018; lit.RPa2019d, 19.6.2019, 31.7.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2016b, 26.5.2016; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 1.7.2014; **Koper, Ukmarjev trg, park**, 13°43′20″, 45°32′57″, VL04, 2 m, *Pinus pinea*, veja 2 cm, ldRPa, lit.RPa2014c, 24.10.2004; **Portorož**, 13°35′, 45°31′, UL84, 60 m, *Pinus halepensis*, veja, ldJTi, lit.JTi1983, 1970; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2018e, 27.7.2018.

PRIMORSKO: **Križ, Sežana**, 13°52′, 45°45′, VL16, 370 m, *Pinus nigr*, ldJTi, lit.JTi1983, 5.1979; **Povir, Divača**, 13°56′, 45°42′, VL16, 430 m, *Pinus nigr*, ldJTi, lit.JTi1983, 5.1978.

GORENJSKO: **Blagovica**, 14°48′, 46°11′, VM81, 430 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 1.1974; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2022b, 18.5.2022; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, phChal, ldRPa, lit.RPa1991a, 12.5.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 12.5.1989; **Brnik, letališče, pri parkirišču**, 14°26′59″, 46°14′14″, VM52, 393 m, tThe, phChal, lRPa dJTi, lit.RPa1991a, 28.4.1989; **Krašnja, Moravče**, 14°45′, 46°10′, VM81, 430 m, *Pinus sylvestris*, rs, odJTi, lit.JTi1983, 1.1974.

Slika 123: JUŽNOEVROPSKI BORAR *Orthotomicus erosus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 123: *Orthotomicus erosus*, dorsal, lateral (Photo: Maja Jurc)



Slika 124: JUŽNOEVROPSKI BORAR *Orthotomicus erosus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 124: *Orthotomicus erosus*, distribution map according to historical and recent data

NOTRANJSKO: **Iška Vas, Ig**, 14°31′, 45°56′, VL68, 325 m, ldSBr, cSBr, 28.7.1981; **Knežak, južno**, 14°15′02″, 45°36′58″, VL45, 608 m, *Pinus nigra*, hlod 30 cm, ldRPa, lit.RPa2014c, 19.8.2014; **Knežak, severno**, 14°15′02″, 45°37′04″, VL45, 607 m, *Pinus nigra*, hlod 35 cm, ldRPa, lit.RPa2014c, 19.8.2014.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cJSd, 8.1927.
DOLENJSKO: **Besnica, Trebeljevo**, 14°43′, 46°01′, VL79, 510 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 1.1978; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 17.4.1983; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 320 m, ldSBr, cSBr, 6.6.1976; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, ldSBr, cSBr, 30.8.1948; **Mala Gora, Kočevje**, 14°52′, 45°41′, VL96, 490 m, ldSBr, cSBr, 2.8.1948.
BELA KRAJINA: **Gradac, Metlika**, 15°15′, 45°37′, WL15, 180 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 7.1977.

29.02. *Orthotomicus laricis* (Fabricius, 1792) MNOGOZOBI BORAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Bostrychus Laricis* Fab.; GRÜNE 1979: *Orthotomicus laricis* (Fabricius, 1792); FREUDE, HARDE, LOHSE 1981: *Orthotomicus laricis* Fabricius; TITOVŠEK 1988: *Orthotomicus laricis* (Fabricius); PFEFFER & KNÍŽEK 1993: *Orthotomicus laricis* (Fabricius, 1792); PFEFFER 1995: *O. laricis* (Fabricius, 1792).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LS LT LU MC MD NL NR NT PL PT RO SK SL SP ST SV SZ UK YU **N:** AG MO **A:** ES FE HEB HEI JA KZ MG NC SC SHA SHX TR WS

Vrsta je razširjena v Evropi, na Kavkazu, v Mali Aziji, Sibiriji, Koreji, na Japonskem in v severni Afriki. Siegel (1866) navaja, da je bila vrsta »na Kranjskem pogostna, pod borovim in macesnovim lubjem«. Pri nas je vrsta zelo pogosta, razširjena je v vseh slovenskih pokrajinah (slika 126). Gostitelji so *Pinus cembra*, *P. mugo*, *P. densiflora*, *P. koraiensis*, *P. nigra*, *P. sibirica*, *P. strobus* in *Pinus sylvestris*, redkeje tudi *P. halepensis*, *Larix decidua*, *L. gmelinii*, *L. sibirica*, *Abies alba*, *Picea abies, P. jezoensis, P. obovata* in *P. orientalis*. V Sloveniji so gostitelji *P. abies*, *P. sylvestris*, *P. nigra* in *L. decidua*. Je poligam, razvije dve generaciji letno, roji maja in avgusta. Naseljujejo zlasti debelolubne dele dreves. Rovni sistem je v obliki nepravilnega prostorskega hodnika, iz katerega pozneje izhajajo vijugasti larvalni rovi. Dolžina adulta je 3,3–3,8 mm. Koničnik je zelo strm, pri samčku skoraj okrogel. Spolni dimorfizem je dobro izražen, zobčki so pri samčku krepkejši kot pri samici (slika 125). Je poligamna in saproksilna vrsta. Zaradi izrazito sekundarnega značaja nima večjega ekonomskega pomena.

The species is widespread in Europe, the Caucasus, Asia Minor, Siberia, Korea, Japan and North Africa. Siegel (1866) states that the species was “common in Carniola, under pine and larch bark”. In Slovenia, the species is very common, being widespread in all Slovene regions (Fugure 126), hosts being *Pinus cembra*, *P. mugo*, *P. densiflora*, *P. koraiensis*, *P. nigra*, *P. sibirica*, *P. strobus* and *Pinus sylvestris*, and more rarely also *P. halepensis*, *Larix decidua*, *L. gmelinii*, *L. sibirica*, *Abies alba*, *Picea abies, P. jezoensis, P. obovata* and *P. orientalis*. In Slovenia, the hosts are *P. abies*, *P. sylvestris*, *P. nigra* and *L. decidua*. Polygamum, develops two generations per year, swarming in May and August. It mainly inhabits the thick-trunked parts of trees. The tunnel system is in the form of an irregular spatial galleries, from which the sinuous larval galleries later emerge. Length (adultus) is 3.3-3.8 mm. The apex is very steep, almost round in the male. Sexual dimorphism is well marked, the denticles being stronger in the male than in the female (Figure 125). Polygamous. Saproxylic species, not of major economic importance due to its distinctly secondary character.

Slika 125: mnogozobi borar *Orthotomicus laricis*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 125: *Orthotomicus laricis*, dorsal, lateral (Photo: Maja Jurc)

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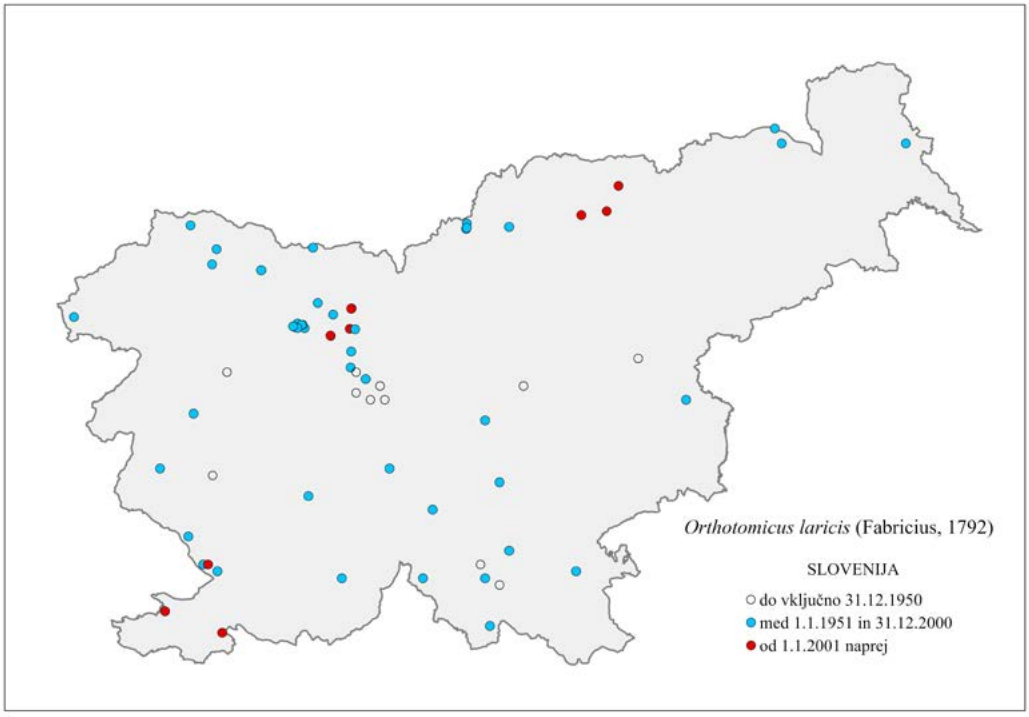
SLOVENIJA: cBFG, pred 1951; ldJTi, cSBr, 1951-2000; *Larix decidua*, ldMSi, lit.MSi1866, pred 1951; *Pinus* spp.*,* ldMSi, lit.MSi1866, pred 1951.

ISTRA: **Kojnik, Koper**, 13°57′, 45°30′, VL13, 780 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 22.7.1999, 26.5.2000, 1.6.2000, 22.7.2000, 17.6.2001; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2015b, 2.6.2015, 2.7.2015, 4.8.2015, 2.9.2015; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2019d, 25.9.2019.

PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, ldABi vSBr, cABi, pred 1951; **Breginj**, 13°26′, 46°16′, UM72, 830 m, *Larix decidua,* ldJTi, lit.JTi1983, 6.1978; ibidem, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; ibidem, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Cerkno, potok Zapoška**, 13°58′, 46°08′, VM20, 340 m, ldSBr, cSBr, 13.7.1949; **Gorenja Trebuša, Čepovan**, 13°51′, 46°02′, VL19, 250 m, ldSBr, cSBr, 17.6.1992; **Lipica**, 13°53′, 45°40′, VL15, 360m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Lipica, Mlave**, 13°54′, 45°40′, VL15, 400 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 15.9.2001; **Prelože pri Lokvi, Divača**, 13°56′, 45°39′, VL15, 560 m, *Pinus nigra*, debelce, ldJTi, lit.JTi1983, 1968; ibidem, veja, ldJTi, lit.JTi1983, 1968; **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, lRJe dSBr, cSBr, 19.5.1988; **Tomajski Govec, Pod Govcem, Vrhovlje**, 13°49′55″, 45°44′06″, VL06, 296 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 22.7.1999.

GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008, 10.9.2008; ibidem, lit.RPa2010a, 9.6.2010; ibidem, lit. RPa2021b, 16.6.2021; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008; ibidem, phGaP2, ldRPa, lit.RPa2013a, 30.4.2013; ibidem, lit.RPa2018a, 24.10.2018; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, lGBa dSBr, cSBr, 28.6.1991; ibidem, phLino, lGBa dSBr, cSBr, 7.5.1992; ibidem, phPher, lFPo dSBr, cSBr, 4.6.1990; **Gozd Martuljek**, 13°50′23″, 46°29′13″, VM05, 792 m, *Larix decidua*, kontrolno deblo, ldRPa, lit.RPa1996, 10.6.1996; **Hrastje, Kranj, Planjava 3**, 14°23′39″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 50 cm, ldRPa, lit.RPa2014c, 21.5.2010; **Krma, Zasipska planina**, 13°54′53″, 46°23′36″, VM14, 916 m, *Larix decidua*, deblo 15 cm, ldRPa, lit.RPa1995b, 28.7.1995; **Mavčiče, Sorško polje**, 14°24′, 46°11′, VM51, 350 m, *Picea abies*, panj, ldJTi, lit.JTi1983, 5.1972; **Medvode**, 14°25′, 46°08′, VM51, ~320 m, ldAGs, cAGs, 3.6.1925; **Mlaka pri Kranju, ob tekaški stezi 2**, 14°20′11″, 46°16′20″, VM42, 430 m, *Pinus sylvestris*, deblo 20 cm, ldRPa, lit.RPa1996, 17.6.1996; **Mošenik, Ljubelj**, 14°16′, 46°26′, VM44, 1000 m, ldSBr, cSBr, 19.5.1986; **Podblica, Koblarjev hrib, Blažon**, 14°12′44″, 46°15′03″, VM32, 705 m, *Picea abies*, neobeljen panj 55 cm, ldFJa, lit.FJa1997, 27.7.1995; **Podbrezje**, 14°17′, 46°18′, VM42, 430 m, *Picea abies*, korenina, ldJTi, lit.JTi1974, 4.1973; ibidem, panj, ldJTi, lit.JTi1974, 4.1973; **Prevoje, Bezovnica, Hkavšč**, 14°13′47″, 46°14′51″, VM32, 650 m, *Picea abies*, progasto obeljen panj 70 cm, ldFJa, lit.FJa1997, 17.6.1995; **Prevoje, Zabrekve, Korošc**, 14°13′37″, 46°14′52″, VM42, 610 m, *Picea abies*, neobeljen panj 50 cm, lFJa dJTi, lit.FJa1997, 27.7.1995; **Selške Lajše, Kobivnk, Jelenc**, 14°12′19″, 46°14′31″, VM32, 650 m, *Picea abies*, progasto obeljen panj 48 cm, ldFJa, lit.FJa1997, 24.7.1995; ibidem, progasto obeljen panj 57 cm, ldFJa, lit.FJa1997, 7.9.1995; **Selške Lajše, Koblarjev hrib, Bitenc**, 14°12′43″, 46°14′25″, VM32, 510 m, *Picea abies*, neobeljen panj 55 cm, ldFJa, lit.FJa1997, 25.7.1995; ibidem, neobeljen panj 77 cm, ldFJa, lit.FJa1997, 9.9.1995; ibidem, progasto obeljen panj 57 cm, lFJa dJTi, lit.FJa1997, 14.6.1995; **Selške Lajše, Selca, Jakec**, 14°11′50″, 46°14′38″, VM32, 660 m, *Picea abies*, progasto obeljen panj 59 cm, ldFJa, lit.FJa1997, 6.7.1995; **Šenčur, v Križancah**, 14°24′47″, 46°14′13″, VM52, 394 m, tThe, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989; **Zgornja Radovna, potok Kotarica**, 13°55′47″, 46°25′46″, VM14, 784 m, *Larix decidua*, deblo 25 cm, ldRPa, lit.RPa1995b,

19.8.1995; **Zgornje Bitnje 1**, 14°19′40″, 46°13′17″, VM41, 395 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008; **Zgornje Bitnje 2,** 14°19′37″, 46°13′19″, VM41, 396 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008.
NOTRANJSKO: **Mašun, Snežnik**, 14°22′, 45°38′, VL55, 1100 m, *Picea abies*, ldJTi, lit. JTi1983, 6.1978; **Planina, Postojna**, 14°15′, 45°50′, VL47, 600 m, *Pinus nigra*, ldRPa, lit. RPa2014c, 6.8.1996.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cJSd, 5.1916, 6.1938, 6.1944; ibidem, lHEg, cJSs, pred 1951; **Ljubljana, Koseze**, 14°28′, 46°04′, VM50, 310 m, ldAGs, cAGs, pred 1951; **Ljubljana, Savlje**, 14°30′, 46°06′, VM60, 300 m, ldAGs, cAGs, 8.6.1936; **Šmarna gora**, 14°27′, 46°07′, VM50, 560 m, *Picea abies,* panj, ldJTi, lit.JTi1983, 3.1972; **Toško Čelo**, 14°25′, 46°05′, VM50, ~590 m, ldAGs, cAGs, pred 1951.
DOLENJSKO: **Banjaloka**, 14°53′, 45°31′, VL94, 560 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Bogenšperk, Črni Potok**, 14°52′, 46°01′, VL89, 480 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Draga, Goteniška gora**, 14°39′, 45°38′, VL75, 850 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Gornji Križ, Žužemberk**, 14°55′, 45°52′, VL97, 330 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 5.1979; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, ldSBr, cSBr, 9.7.1948, 20.8.1948; ibidem, 520 m, *Picea abies*, ldJTi, lit.JTi1983, .1979; **Mokrec**, 14°32′, 45°54′, VL68, ~900 m, ldSBr, cSBr, 9.7.1980; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 620 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Pugled, Stari Log**, 14°57′, 45°42′, VL96, 670 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, .1979; **Stara Cerkev, Kočevje**, 14°51′, 45°40′, VL85, 480 m, ldSBr, cSBr, 28.7.1948; **Šahen,**



Slika 126: MNOGOZOBI BORAR *Orthotomicus laricis*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 126: *Orthotomicus laricis*, distribution map according to hostorical and recent data

Kočevje, 14°55′, 45°37′, VL95, 490 m, ldSBr, cSBr, 9.7.1948; **Šklendrovec, Podkum,** 15°00′, 46°06′, WM00, 350 m, ldJSd, cJSd, 6.1922.
BELA KRAJINA: **Semič**, 15°11′, 45°39′, WL15, 210 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977.
ŠTAJERSKO: Apaško polje, Gornja Radgona, 15°54′, 46°41′, WM67, 220 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Josipdol, Pohorje**, 15°17′24″, 46°31′16″, WM25, 700 m, *Picea abies*, ldJPo, lit. JPo2016, 2011, 2012; **Kalobje, Kostrivnica**, 15°24′, 46°10′, WM31, 620 m, ldVKo, cŠFS, 1930; **Kope, Pohorje, Pahernikova posest**, 15°12′05″, 46°30′41″, WM15, 1350 m, tPfall, phAlfa phEtan, lTAd dTHa, lit.THa2022a, 31.7.2020; **Kozje, Kozjansko**, 15°34′, 46°04′, WM40, 540 m, *Pinus sylvestris*, hlod, ldJTi, lit.JTi1983, 7.1973; **Rdeči Breg, Pohorje**, 15°19′54″, 46°34′55″, WM25, 450 m, *Picea abies*, ldJPo, lit.JPo2016, 2012; **Žepovci, Žepovski Travniki, ob Muri**, 15°52′36″, 46°43′08″, WM67, 220 m, ldBDr, cZRC, 1999.
KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, phCemp, ldRPa, lit.RPa1994a, 22.6.1994; ibidem, ldRPa vSBr, lit.RPa1994a, 9.6.1994; ibidem, ldRPa, lit.RPa1995a, 21.6.1995, 17.7.1995; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, phCemp, ldRPa, lit.RPa1994a, 9.6.1994; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, phCemp, ldRPa, lit.RPa1994a, 5.7.1994, 21.9.1994; **Uršlja Gora**, 14°57′, 46°29′, VM94, 1140 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979.
PREKMURJE: **Bukovnica, Dobrovnik**, 16°20′, 46°41′, XM07, 230 m, *Picea abies*, ldJTi, lit. JTi1983, 5.1982.

29.03. *Orthotomicus longicollis* (Gyllenhal, 1827) DOLGOŠČITNI BORAR

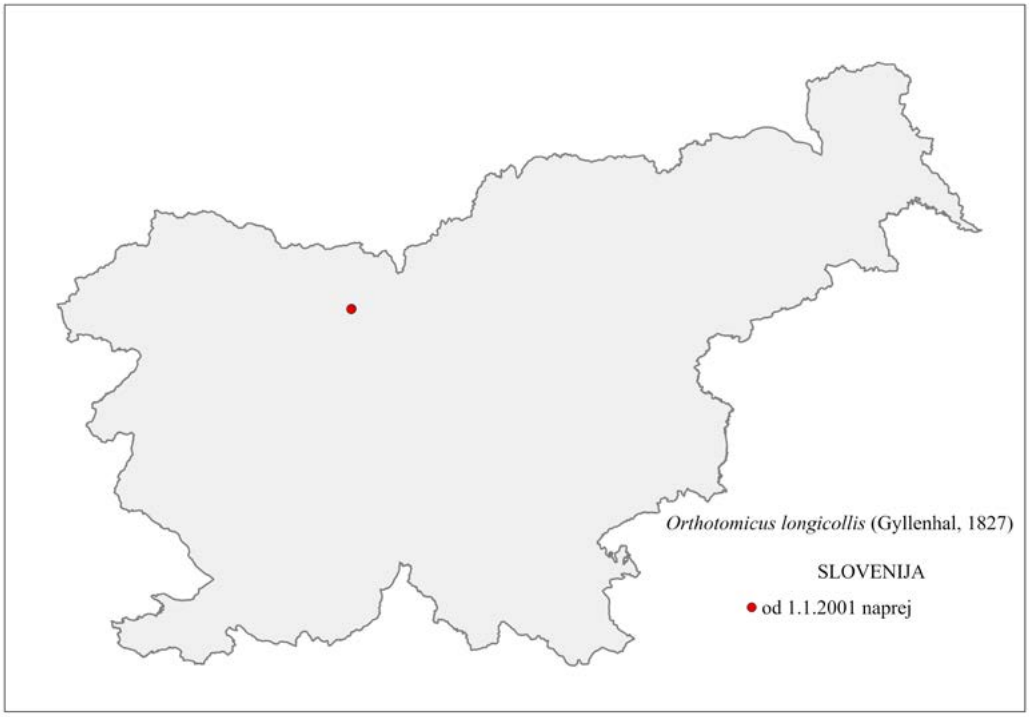
Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Grüne 1979: *Orthotomicus longicollis* Gyllenhal, 1827; Freude, Harde, Lohse 1981: *Orthotomicus longicollis* Gyllenhal; Pfeffer 1995: *O. longicollis* (Gyllenhal, 1827).

E: BH BU BY CT CZ DE EN FI FR GE GR HU IT LA MC NR NT PL SK SL SP ST SV SZ UK YU

Vrsta je prisotna v Evropi, na Kavkazu in v Mali Aziji. Pri nas je bila vrsta najdena le na Brdu pri Kranju v pasteh, prvič leta 2018 (slika 127). Gostitelja sta največkrat *Pinus sylvestris* in *P. nigra*. Rovni sistem je zgrajen iz prečnih materinskih hodnikov. Dolžina adultov je 3,5–5,0 mm. Pokrovki sta dolgi, valjasti. Na koničniku je pet parov zobčastih izrastkov, ki so pri samčku izrazitejši (spolni dimorfizem). Vrsta je pri nas redka.

The species is present in Europe, the Caucasus and Asia Minor. It has only been found in Slovenia at Brdo pri Kranju, in traps, starting in 2018 (Figure 127). Hosts are mostly *Pinus sylvestris* and *P. nigra*. The tunnel system is built of transverse maternal galleries. Length (adultus) is 3.5-5.0 mm. The elytra are long, cylindrical. There are 5 pairs of denticles on the apex, which are more pronounced in the male (sexual dimorphism). The species is rare in Slovene territory.

Najdišča v Sloveniji / Localities in Slovenia
GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2020d, 6.5.2020; ibidem, lit.RPa2021b, 31.5.2021; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2019a, 8.5.2019, 22.5.2019; ibidem, lit.RPa2022d, 4.5.2022, 18.5.2022.



Slika 127: DOLGOŠČITNI BORAR *Orthotomicus longicollis*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 127: *Orthotomicus longicollis*, distribution map according to historical and recent data

29.04. *Orthotomicus proximus* (Eichhoff, 1868) PLOSKOZOBI BORAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Orthotomicus proximus* Eichhoff, 1867; FREUDE, HARDE, LOHSE 1981: *O. proximus* Eichhoff (*feiferi* Keller (1925)); TITOVŠEK 1988: *O. proximus* (Eichhoff); PFEFFER & KNÍŽEK 1993: *O. proximus* (Eichhoff, 1867); PFEFFER 1995: *O. proximus* (Eichhoff, 1867).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GE GR HU IT LA LT MD NL NR NT PL PT SK SL SP ST SV SZ UK YU **N:** AG **A:** ES FE 2FUJ IQ JA KZ MG NC NO SC TR WS »Manchuria« **AFR ORR**

Vrsta je razširjena v srednji in severni Evropi, v Bosni in Hercegovini, Bolgariji, Krimu, Kavkazu, Sibiriji, Koreji, na severnem Kitajskem, Japonskem, v severni Afriki, Aziji ter na afrotropskem in orientalskem območju. Pri nas je vrsta redka, najdena je bila le na treh lokacijah: v slovenskem delu Istre, na Gorenjskem in na Koroškem (slika 129). Glavni gostitelji so *Pinus sylvestris*, *P. halepensis*, *P.*

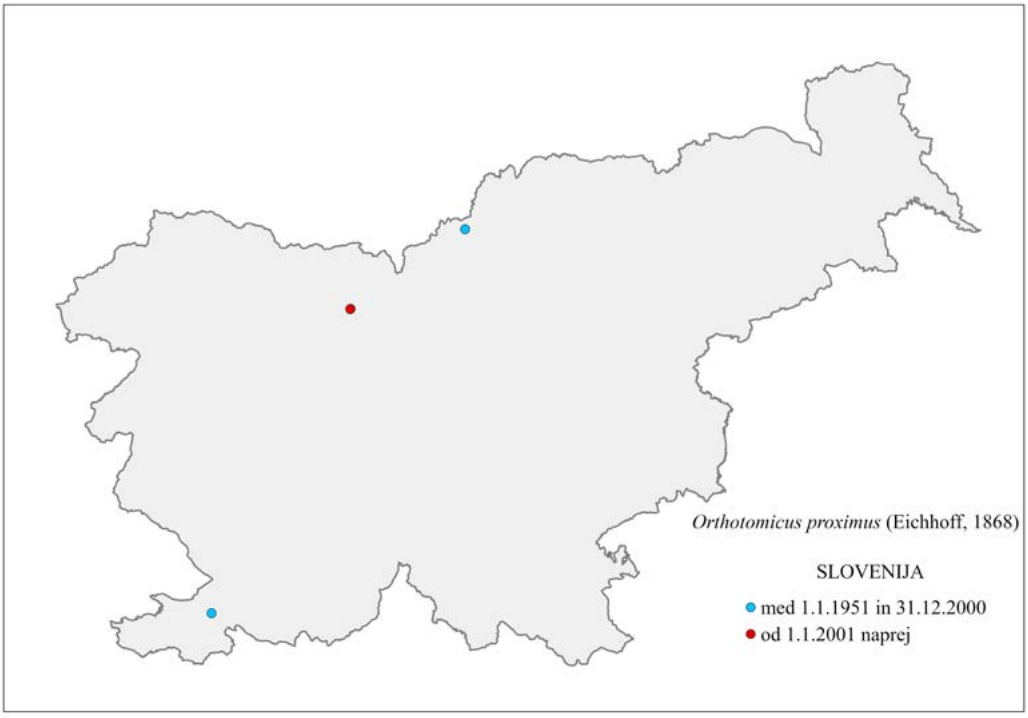
The species is distributed in central and northern Europe, Bosnia and Herzegovina, Bulgaria, the Crimea, the Caucasus, Siberia, Korea, northern China, Japan, northern Africa and Asia, the Afrotropical and Oriental zones. It is rare in Slovenia, having been found only in three sites in the Slovene part of Istria, in Gorenjska and in Koroška (Figure 129). The main hosts are *Pinus sylvestris*, *P. halepensis*, *P. densiflora*,

densiflora, *P. koraiensis*, *P. thunbergiana*, *P. parviflora*, redkeje *Picea* spp., *Abies* spp. in *Larix* spp.. V Sloveniji je bil od gostiteljev v Istri zabeležen le *P. nigra*, na drugih lokacijah

P. koraiensis, *P. thunbergiana*, *P. parviflora*, and less frequently *Picea* spp., *Abies* spp. and *Larix* spp.. In Slovenia only one host, *P. nigra*, has been recorded, in Istria, and specimens have

Slika 128: PLOSKOZOBI BORAR *Orthotomicus proximus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 128: *Orthotomicus proximus*, dorsal, lateral (Photo: Maja Jurc)



Slika 129: PLOSKOZOBI BORAR *Orthotomicus proximus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 129: *Orthotomicus proximus*, distribution map according to historical and recent data

pa so se primerki ujeli v pasti. Razvije dve generaciji letno, roji maja ter julija in avgusta. Gradijo dolge zvezdaste rovne sisteme z 2–5 materinskimi rovi. Dolžina adultov je 3,0–3,8 mm. Pri obeh spolih je drugi zobček velik, vendar ni prečno razširjen. Pri samčku so vsi zobčki na robu koničnika, pri samički pa je četrti zobček potisnjen navznoter, tako da ni v vrsti s preostalimi (slika 128). Vrsta je izrazito sekundarna, naseljuje debla, stara od 20 do 100 let. .

been caught in traps at the other sites. It develops two generations per year, swarming in May and in July and August. They build long star-shaped tunnel systems with 2-5 maternal galleries. Adults are 3.0-3.8 mm long. In both sexes the second denticle is large but not transversely expanded. In the male, all the denticles are on the edge of the apex, but in the female the fourth denticle is pushed inwards so that it is not in line with the others (Figure 128). The species is distinctly secondary, it colonises trunks between 20 and 100 years old.

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Črnotiče, Podgorje**, 13°55′, 45°33′, VL14, 420 m, *Pinus nigra*, ldJTi, lit.JTi1983, 10. 1977.
GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010a, 9.6.2010; **Brdo pri Kranju, GIS 2**, Gorenjsko, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaWi, ldRPa, lit.RPa2010a, 9.6.2010.
KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, phCemp, lRPa dSBr, cSBr, 27.5.1994.

29.05. *Orthotomicus suturalis* (Gyllenhal, 1827) MRKI BORAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Orthotomicus suturalis* Gyllenhal, 1827; FREUDE, HARDE, LOHSE 1981: *O. suturalis* Gyllenhal; TITOVŠEK 1988: *O. suturalis* (Gyllenhal); PFEFFER & KNÍŽEK 1993: *O. suturalis* (Gyllenhal, 1827); PFEFFER 1995: *O. suturalis* (Gyllenhal, 1827).

E: AB AU BE BH BU BY CT CZ DE EN FI FR GB GE GR HU ICi IT LA LT MC MD NL NR NT PL PT RO SC SK SL SP ST SV SZ UK YU **A:** ES FE JA JIL KZ LIA MG NC QIN SC SCH SHA SHX YUN TR WS

Vrsta je razširjena v Evropi, Mali Aziji, Kavkazu, Sibiriji, Mongoliji, na severnem Kitajskem in Japonskem. *O. suturalis* je pri nas prisoten na Primorskem, Gorenjskem, Dolenjskem in Štajerskem (slika 131). Gostitelji: pretežno *Pinus sylvestris*, *P. thunbergiana*, *P. sibirica*, *P. densiflora*, *P. koraiensis*, *P. nigra*, *P. pumila*, *Pinus* spp., *Picea abies*, *P. glehnii*, *P. jezoensis*, *P. orientalis*, *P. obovata*, redkeje *Picea* spp., *Larix decidua*, *Abies alba*, *A. nordmanniana*. Pri nas je bila vrsta najdena na *P. sylvestris*, *P. nigra* in *P. abies*. Mrki borar je tankolubna vrsta, ki naseljuje mlada hirajoča debla. Letno razvije 1–2 generaciji, roji maja in julija ter avgusta. Mrki borar je

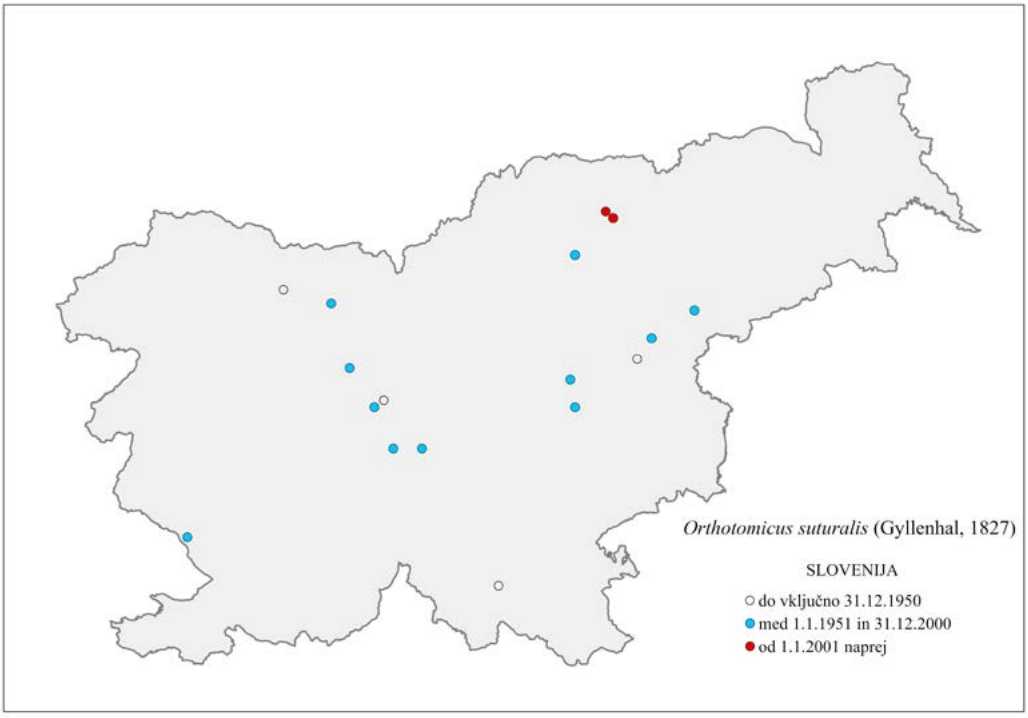
The species is distributed in Europe, Asia Minor, the Caucasus, Siberia, Mongolia, northern China and Japan. *O. suturalis* is found in Primorska, Gorenjska, Dolenjska and Štajerska (Figure 131). Hosts: mainly *Pinus sylvestris*, *P. thunbergiana*, *P. sibirica*, *P. densiflora*, *P. koraiensis*, *P. nigra*, *P. pumila*, *Pinus* spp., *Picea abies*, *P. glehnii*, *P. jezoensis*, *P. orientalis*, *P. obovata*, rarely *Picea* spp., *Larix decidua*, *Abies alba*, *A. nordmanniana*. In Slovene territory, the species has been found on *P. sylvestris*, *P. nigra* and *P. abies*. *O. suturalis* is a thin-bark species that inhabits young, wilting trunks. It develops 1-2 generations per year, swarming in May, July and August. It

tankolubna vrsta, ki naseljuje mlada hirajoča debla. Gradi nepravilne zvezdaste rovne sisteme z 2–5 materinskimi rovi. Večina rovnega sistema je v skorji, le bubilnice na

builds irregular star-shaped straight systems with 2-5 maternal tunnels. Most of the tunnel system is in the bark, with only the pupation chambers at the end of the larval passages

Slika 130: MRKI BORAR *Orthotomicus suturalis*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 130: *Orthotomicus suturalis*, dorsal, lateral (Photo: Maja Jurc)



Slika 131: MRKI BORAR *Orthotomicus suturalis*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 131: *Orthotomicus suturalis*, distribution map according to historical and recent data

koncu larvalnih hodnikov se plitvo pogrezajo v beljavo. Dolžina adulta je 2,5–3,5 mm. Razdalja med obema suturalnima zobčkoma je večja kot med suturalnim zobčkom in 2. zobčkom na obronku koničnika (slika 130). Vrsta je izrazito sekundarna.

shallowly burrowing into the sapwood. Adult length is 2.5-3.5 mm. The distance between the sutural denticles is greater than between the sutural denticle and the 2nd denticle at the tip of the apex (Figure 130). The species is distinctly secondary.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951.

PRIMORSKO: **Tomajski Govec, Pod Govcem, Vrhovlje**, 13°49′55″, 45°44′06″, VL06, 296 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 22.7.2000.

GORENJSKO: **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, lGBa dSBr, cSBr, 20.5.1991; **Lancovo, Radovljica**, 14°10′, 46°20′, VM33, 500 m, dAGs, cAGs, 1892; **Udin boršt, Naklo**, 14°20′, 46°18′, VM42, 480 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; ibidem, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1978.

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldSBr, cSBr, 5.4.1950; **Ljubljana, Podrožnik, drevesnica IGLG**, 14°29′, 46°03′, VM60, 320 m, *Pinus strobus*, debelce, ldJTi, lit.JTi1983, 1968.

DOLENJSKO: **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 8.8.1976; **Grosuplje**, 14°39′, 45°57′, VL78, 460 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1978; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 6.8.1986; **Hotemež, Radeče**, 15°11′, 46°03′, WL19, 280 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1966; **Šahen, Kočevje**, 14°55′, 45°37′, VL95, 490 m, ldSBr, cSBr, 8.7.1948.

ŠTAJERSKO: Boč, Poljčane, 15°36′, 46°17′, WM42, 680 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1974; **Gornji Dolič, Mislinja**, 15°11′, 46°25′, WM14, 480 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Grobelno, Šentjur**, 15°27′, 46°13′, WM31, 330 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Josipdol, Lavtar, Pohorje**, 15°18′58″, 46°30′19″, WM24, 1230 m, *Picea abies*, ldJPo, lit.JPo2016, 7.2011; **Josipdol, Pohorje**, 15°17′24″, 46°31′16″, WM25, 700 m, *Picea abies*, ldJPo, lit.JPo2016, 2011; **Kalobje, Kostrivnica**, 15°24′, 46°10′, WM31, 620 m, ldVKo vZKa, cŠFS, 5.1928; **Kopitnik, Gore, Rimske Toplice**, 15°10′, 46°07′, WM01, 800 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978.

30.00. *Pityogenes* Bedel, 1888 zvezdar

30.01. *Pityogenes bidentatus* (Herbst, 1784) dvozobi zvezdar

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel 1866: *Bostrychus bidens* Fab.; Grüne 1979: *Pityogenes bidentatus* (Herbst, 1783); Freude, Harde, Lohse 1981: *P. bidentatus* Herbst (*obtusus* Eggers (1932)); Titovšek 1988: *P. bidentatus* (Herbst); Pfeffer & Knížek 1993: *P. bidentatus* (Herbst, 1783); Pfeffer 1995: *P. bidentatus* (Herbst, 1784).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LT LU MC MD NL NR NT PL PT RO SK SL SP ST SV SZ UK YU **A:** ES FE IS JA KZ MG TR WS **AFR NAR**

Vrsta je prisotna v srednji in severni Evropi, na Kavkazu, v Mali Aziji, severni Afriki ter na afrotropskem in nearktičnem območju. Siegel (1866) navaja, da je bila vrsta »na Kranjskem samo na borovcih, na svežih in podrtih deblih«.

The species is present in central and northern Europe, the Caucasus, Asia Minor, North Africa, the Afrotropics and the Nearctic. Siegel (1866) states that the species was found “in Carniola only on pine trees, on fresh and fallen trunks”.

Po drugi svetovni vojni je bilo zabeleženih 10 najdišč v različnih delih Slovenije (slika 133). Gostitelji so *Pinus sylvestris*, *P. nigra*, *P. strobus*, *P. mugo*, *P. rotundata*, *P. sibirica*, *Picea abies*, *P. obovata* in *P. orientalis*, zelo redko *Abies alba*, *A. nordmanniana*, *Larix decidua* in *Pseudotsuga menziesii*. V Sloveniji je bil najden na *Pinus sylvestris* in *P. strobus*. Letno razvije dve generaciji, prvič roji maja in junija, drugič julija in avgusta. Gradijo zvezdast rovni sistem s 3–7 materinskimi hodniki, ki so globoko pogreznjeni v beljavo. Dolžina adultov znaša 2,0–2,8 mm. Koničnik je strm, žlebasto poglobljen, na njem ima samček na vsakem obronku po en kljukast, navzdol ukrivljen zobček. Suturalni zobček, ki je blizu kljukastemu, je zelo majhen ali pa manjka. Samičke so na obronku brez zobčkov

After World War II, 10 sites were recorded in different parts of Slovenia (Figure 133), hosted by *Pinus sylvestris*, *P. nigra*, *P. strobus*, *P. mugo*, *P. rotundata*, *P. sibirica*, *Picea abies*, *P. obovata* and *P. orientalis*, very rarely *Abies alba*, *A. nordmanniana*, *Larix decidua* and *Pseudotsuga menziesii*. In Slovenia it has been found on *Pinus sylvestris* and *P. strobus*. It develops two generations annually, the first swarming in May and June, the second in July and August. They build a star-shaped tunnel system with 3-7 maternal galleries buried deeply in the sapwood. Adult length is 2.0-2.8 mm. The elytra apex is steep, grooved and deepened, with males having one downward-curved, peg-like denticle on each side of the apex. The sutural denticle, which is close to the clavate denticle, is very small or absent. Females have no denticles

Slika 132: DVOZOBI ZVEZDAR *Pityogenes bidentatus* (♀ 2x – dorzalo, lateralno, ♂ 2x – dorzalno, lateralno) (Foto: Maja Jurc)

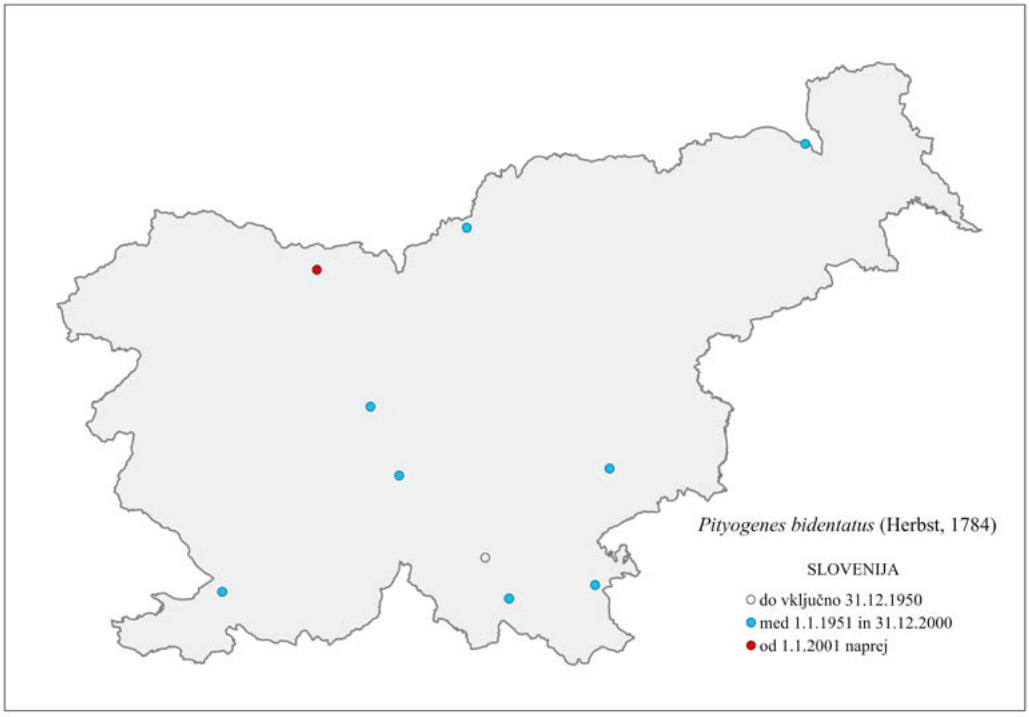
Figure 132: *Pityogenes bidentatus* (♀ 2x – dorsal, lateral, ♂ 2x – dorsal, lateral) (Photo: Maja Jurc)

in grbic (slika 132). Sekundarna vrsta, ki ob ugodnih pogojih lahko postane primarna, takrat ogroža mlade borove sestoje. Feromoni: Chalcogran, 1-Hexanol ♂ ♂ (Gerken 1977).

or humps on the elytra edge (Figure 132). It is a secondary species which may become primary under favourable conditions, when it poses a threat to young pine stands. Pheromones: Chalcogran, 1-Hexanol ♂ ♂ (Gerken 1977).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Pinus* spp., ldMSi, lit.MSi1866, pred 1951.
ISTRA: **Hrpelje, Kozina**, 13°57′, 45°36′, VL15, 540 m, dSBr, cSBr, 24.6.1999.
GORENJSKO: **Brdo pri Kranju 2/3**, 14°16′48″, 46°22′49″, VM52, 424 m, *Pinus silvestris*, veja 2 cm, ldRPa, lit.RPa2004, 3.9.2004; ibidem, veja 5 cm, ldRPa, lit.RPa2004, 3.9.2004.
LJUBLJANA Z OKOLICO: **Rožnik, Ljubljana, nasad**, 14°28′, 46°03′, VM50, 350 m, *Pinus strobus*, debelce, ldJTi, lit.JTi1983, 8.1972; ibidem, veja, ldJTi, lit.JTi1983, 8.1972.
DOLENJSKO: **Kurešček, Visoko**, 14°34′, 45°53′, VL68, 750 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 8.1978; **Mala Gora, Kočevje**, 14°52′, 45°41′, VL96, 490 m, ldSBr, cSBr, 2.8.1948; **Mozelj**, 14°57′, 45°35′, VL94, 530 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1981; **Škocjan ob Radulji**, 15°18′, 45°54′, WL28, 280 m, *Pinus strobus*, ldJTi, lit.JTi1983, 7.1977.
BELA KRAJINA: **Gradac, Metlika**, 15°15′, 45°37′, WL15, 180 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 7.1977.
ŠTAJERSKO: Gornja Radgona, Radgonski grad, 15°58′56″, 46°40′56″, WM77, 220 m, lJMa dBDr, cZRC, 1999.



Slika 133: dvozobi zvezdar *Pityogenes bidentatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 133: *Pityogenes bidentatus*, distribution map according to historical and recent data

KOROŠKO: **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit. RPa1995a, 30.7.1995.

30.02. *Pityogenes bistridentatus* (Eichhoff, 1878) KRIVOZOBI ZVEZDAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityogenes bistridentatus* Eichhoff, 1879; FREUDE, HARDE, LOHSE 1981: *P. bistridentatus* Eichhoff; TITOVŠEK 1988: *P. bistridentatus* (Eichhoff); PFEFFER & KNÍŽEK 1993: *P. bistridentatus* (Eichhoff, 1879); PFEFFER 1995: *P. bistridentatus* (Eichhoff, 1878).

E: AL AU BH BU CR CZ FR GE GR HU IT MC PL RO SK SL SP ST SZ UK YU **A:** CY JA NE TR

Vrsta je prisotna v južnem delu srednje Evrope, na Balkanu, v evropskem delu nekdanje Sovjetske zveze in v Aziji. Pri nas je z izjemo SV dela prisoten na celotnem ozemlju Slovenije (slika 135). Gostitelji so evropske in azijske vrste borov, redkeje *Larix decidua*, *Abies* spp. in *Picea* spp.. V Sloveniji je bila vrsta najdena na *Pinus sylvestris*, *P. nigra*, *P. mugo* in *P. pinea*, samo enkrat pa na *Abies alba*. Na Gorenjskem se pogosto lovi v pasti. Je poligam, letno razvije dve generaciji, roji maja in julija. Rovni sistem je zvezdast, s 5–7 materinskimi rovi. Dolžina adultov je 2,2–2,8 mm. Samčki imajo na koničniku na vsakem obronku po 3 zobčke, drugi je največji in močno ukrivljen navzdol. Tudi prvi (suturalni) zobček, ki leži blizu srednjega, je dobro razvit in zakrivljen. Tretji zobček je stožčast. Samice imajo na vsakem obronku po dve izraziti grbici (slika 134). Sekundarna vrsta ob ugodnih pogojih lahko postane primarna in ogroža zlasti borove letvenjake in mlajše drogovnjake. Feromon: 1-Hexanol v ♂ ♂ (GERKEN 1977).

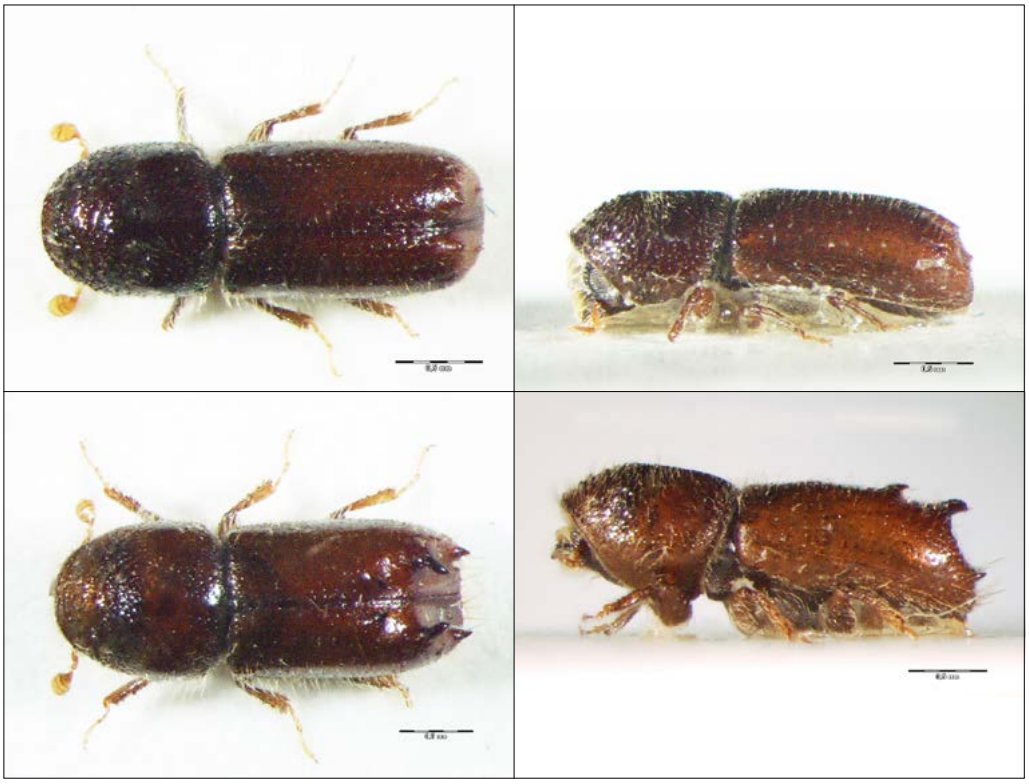
The species is present in southern central Europe, the Balkans, the European part of the former Soviet Union and Asia. It is present throughout Slovenia, with the exception of the NE (Figure 135). Hosts are European and Asian pine species, less frequently *Larix decidua*, *Abies* spp. and *Picea* spp.. In Slovenia, the species has been found on *Pinus sylvestris*, *P. nigra*, *P. mugo* and *P. pinea*, but only once on *Abies alba*. In Gorenjska it is often caught in traps. Polygamous, it develops two generations per year and swarms in May and July. The tunnel system is star-shaped, with 5-7 maternal galleries. Adult length is 2.2-2.8 mm. Males have 3 denticles on the elytra apex on each side, the second being the largest and curved strongly downwards. The first (sutural) denticle, close to the middle one, is also well developed and curved. The third denticle is conical. The females have 2 distinct humps on elytra margin (Figure 134). It is a secondary species which can become primary under favourable conditions and is a threat especially to pine pole stands. Pheromone: 1-Hexanol in ♂ ♂ (GERKEN 1977).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951.

ISTRA: **Črni kal**, 13°53′, 45°33′, VL14, 280 m, *Pinus nigra*, ldJTi, lit.JTi1983, 12.1978; **Kastelec**, 13°52′09″, 45°34′17″, VL14, 299 m, *Pinus nigra*, veja 5 cm, ldRPa, lit.RPa2020c, 30.5.2011; ibidem, veja 10 cm, ldRPa, lit.RPa2020c, 15.6.2009; ibidem, vrhač 3 cm, ldRPa, lit.RPa2014c, 19.5.2006; **Koper, park**, 13°43′35″, 45°32′59″, VL04, 2 m, *Pinus pinea*, veja, ldRPa, lit.RPa2014c, 24.10.2004; **Kozina**, 13°55′59″, 45°36′32″, VL15, 490 m, *Pinus nigra*, deblo 40 cm, ldRPa, lit. RPa2014c, 14.6.2007; **Osp, Črni Kal**, 13°52′, 45°34′, VL14, 60 m, lCKr dSBr, cSBr, 30.7.1990; **Podgorje, Slavnik**, 13°58′, 45°32′, VL14, 430 m, *Pinus nigra*, ldJTi, lit.JTi1983, 10.1977.

PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, 170 m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1979; **Breginj**, 13°26′, 46°16′, UM72, 760 m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Čebulovica, Divača**, 14°00′, 45°42′, VL26, 580 m, *Pinus nigra*, ldJTi, lit.JTi1983, 7.1977; **Črniče, Šempas**, 13°47′, 45°55′, VL08, 160 m, *Pinus nigra*, ldJTi, lit.JTi1983, 7.1974; **Fajtji hrib, Kostanjevica na Krasu**, 13°39′, 45°52′, UL98, 370 m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1979; **Lipica**, 13°53′, 45°40′, VL15, 360 m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Lipica, Mlave**, 13°54′, 45°40′, VL15, 400 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 15.9.2001; **Lokev, Divača**, 13°56′, 45°40′, VL15, 430 m, *Pinus nigra*, opožarjeno drevo debelce, ldJTi, lit.JTi1983, 1968; **Pliskovica, Dutovlje**, 13°47′, 45°46′, VL06, 260 m, *Pinus nigra*, ldJTi, lit.JTi1983, 5.1979; **Predmeja, Trnovski gozd**, 13°52′, 45°57′, VL18, 980 m, *Pinus nigra*, ldJTi, lit.JTi1983, 8.1979; **Senadolice, Štorje 1**, 13°57′04″, 45°44′09″, VL16, 441 m, *Pinus sylvestris*, veja 7 cm, ldRPa, lit.RPa2014c, 18.8.2001; **Senadolice, Štorje 2**, 13°57′05″, 45°44′12″, VL16, 443 m, *Pinus sylvestris*, veja 4 cm, ldRPa, lit.RPa2014c, 18.8.2001; **Štorje, Sežana**, 13°56′, 45°44′, VL16, 380 m, *Pinus nigra*, opožarjeno drevo veja, ldJTi, lit.JTi1983, 4.1973; **Trenta**, 13°46′, 46°23′, VM03, 850 m, *Pinus mugo*, ldJTi, lit.JTi1983, 7.1974.
GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2012, 25.7.2012, 29.8.2012; ibidem, lit.RPa2013a, 26.6.2013, 10.7.2013, 24.7.2013, 8.8.2013; ibidem, lit.RPa2014a, 11.6.2014, 9.7.2014; ibidem, lit.RPa2015a, 8.7.2015, 22.7.2015, 4.8.2015; ibidem, lit.RPa2016a, 11.5.2016, 20.7.2016, 3.8.2016, 17.8.2016, 31.8.2016; ibidem, lit.RPa2017a, 19.7.2017;

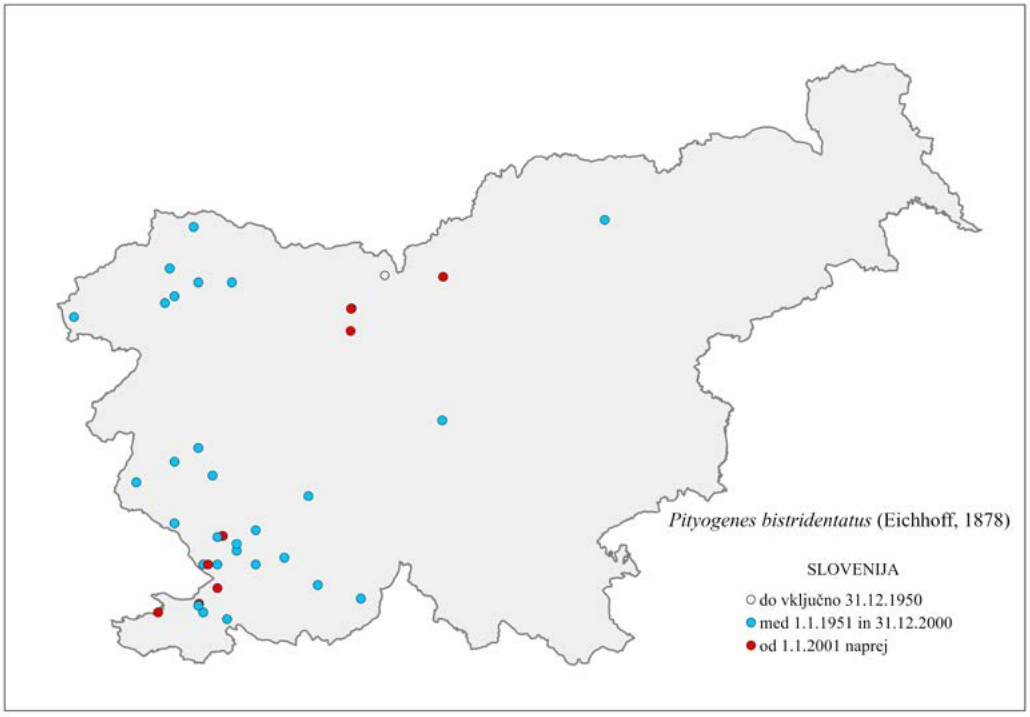


Slika 134: KRIVOZOBI ZVEZDAR *Pityogenes bistridentatus* (♀ 2x – dorzalo, lateralno, ♂ 2x – dorzalno, lateralno) (Foto: Maja Jurc)

Figure 134: *Pityogenes bistridentatus* (♀ 2x – dorsal, lateral, ♂ 2x – dorsal, lateral) (Photo: Maja Jurc)

ibidem, lit.RPa2018a, 20.6.2018, 4.7.2018, 18.7.2018; ibidem, lit.RPa2019a, 18.7.2019, 31.7.2019, 14.8.2019, 28.8.2019; lit.RPa2020d, 29.7.2020, 12.8.2020; ibidem, lit.RPa2021b, 30.6.2021, 28.7.2021, 11.8.2021, 25.8.2021; ibidem, lit.RPa2022b, 29.6.2022, 13.7.2022, 10.8.2022; ibidem, lit.RPa2023b, 28.6.2023, 12.7.2023, 26.7.2023, 9.8.2023, 20.9.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2016a, 3.8.2016; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2015a, 4.8.2015, 30.9.2015; ibidem, lit.RPa2019a, 14.8.2019; **Gozd Martuljek**, 13°51′, 46°29′, VM14, 830 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 3.1977; **Hrastje, Kranj 3**, 14°23′52″, 46°13′58″, VM52, 387 m, *Abies alba*, deblo 15 cm, ldRPa, lit.RPa2014b, 2.6.2009; **Jezerska Kočna, Kamniške Alpe**, 14°31′, 46°22′, VM63, *, lHEg, cJSs, pred 1951; **Komna, Julijske Alpe**, 13°45′, 46°18′, VM02, 1550 m, *Pinus mugo*, ldJTi, lit.JTi1983, 9.1979; **Pokljuka, Mrzli Studenec**, 13°59′, 46°21′, VM23, 1290 m, *Pinus mugo*, ldJTi, lit.JTi1983, 7.1977; **Triglavska jezera**, 13°47′, 46°19′, VM02, 1750 m, *Pinus mugo*, ldJTi, lit.JTi1983, 8.1974; **Velo polje, Vodnikov dom, Julijske Alpe**, 13°52′, 46°21′, VM13, 1600 m, *Pinus mugo*, ldJTi, lit.JTi1983, 8.1979.

NOTRANJSKO: **Gornje Ležeče, Vremščica**, 14°04′, 45°40′, VL25, 490 m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Koritnice, Knežak**, 14°17′, 45°37′, VL45, 650 m, *Pinus nigra*, ldJTi, lit.JTi1983, 6.1978; **Osojnica, Pivka**, 14°10′, 45°41′, VL35, 660 m, *Pinus nigra*, ldJTi, lit.JTi1983, 3.1978; **Planina, Postojna**, 14°15′, 45°50′, VL47, 600 m, *Pinus nigra*, ldRPa, lit.RPa2014c, 6.8.1996; **Razdrto**, 14°04′, 45°45′, VL26, 650 m, *Pinus nigra*, ldJTi, lit.JTi1983, 11.1978; **Senadole, Senožeče**, 14°00′, 45°43′, VL26, 390 m, *Pinus nigra*, veja, ldJTi, lit.JTi1974, 4.1973; **Snežnik 2**, 14°26′, 45°35′, VL54, 1600 m, *Pinus mugo*, ldJTi, lit.JTi1983, 6.1978.



Slika 135: KRIVOZOBI ZVEZDAR *Pityogenes bistridentatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 135: *Pityogenes bistridentatus*, distribution map according to historical and recent data

DOLENJSKO: **Besnica, Trebeljevo**, 14°43′, 46°01′, VL79, 400 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 1.1978.
ŠTAJERSKO: Poljšak p3a, 14°43′13″, 46°21′48″, VM72, 754 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021c, 23.6.2021; **Ribniško jezero, Pohorje**, 15°17′, 46°30′, WM24, 1510 m, *Pinus mugo*, ldJTi, lit.JTi1983, 7.1979.

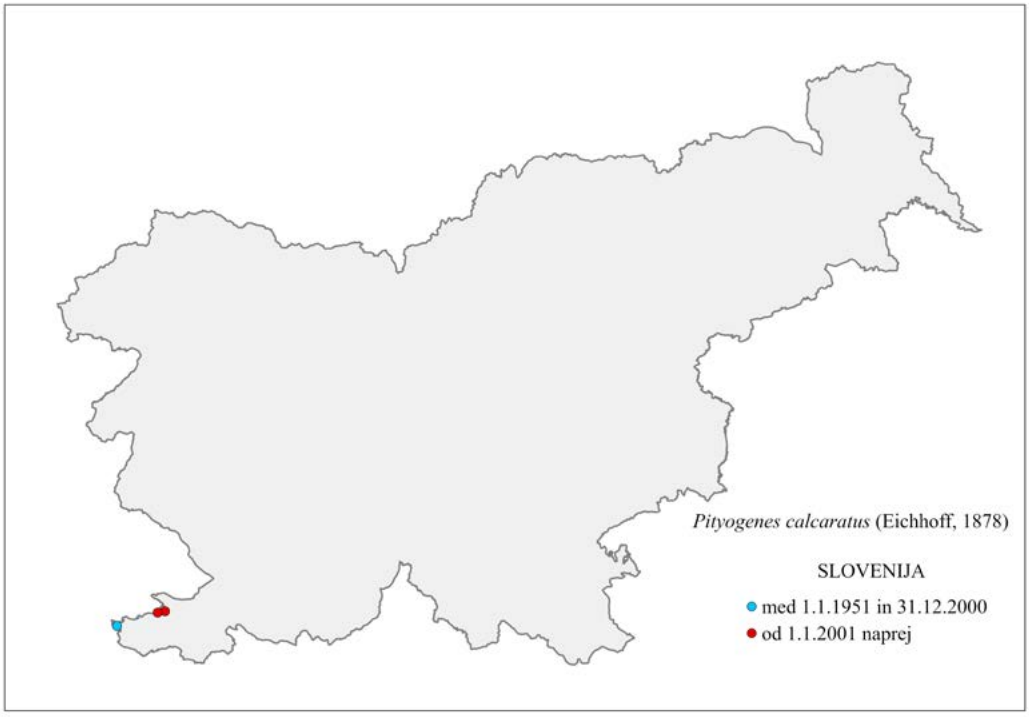
30.03. *Pityogenes calcaratus* (Eichhoff, 1878) KLJUKASTI ZVEZDAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityogenes calcaratus* Eichhoff, 1879; PFEFFER & KNÍŽEK 1993: *P. calcaratus* Eichhoff, 1879; PFEFFER 1995: *P. calcaratus* (Eichhoff, 1878).

E: CR FR GR HU IT MA PT SL* SP ST UK **N:** AG MO TU **A:** IS SY TR

Vrsta je prisotna na sredozemskem območju, od zahodnega območja Portugalske do Krima, v Siriji, Palestini, Alžiriji in v Dalmaciji. Pri nas je bila najdena le trikrat, vsakič v so zobčki samo nakazani.

The species is found in the Mediterranean area, from western Portugal to the Crimea, in Syria, Palestine, Algeria and Dalmatia. It has been found only three times in Slovenia, each



Slika 136: KLJUKASTI ZVEZDAR *Pityogenes calcaratus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 136: *Pityogenes calcaratus*, distribution map according to historical and recent data

slovenskem delu Istre (slika 136). Gostitelji so *Pinus halepensis*, *P. pinaster*, *P. sylvestris*, redkeje *P. pinaster*, *P. nigra*, *P. heldreichii*. V Sloveniji smo jo zabeležili le na *P. halepensis* in *P. pinea*. Rovni sistem vrste *P. calcaratus* je zvezdast, s 3–7 materinskimi rovi. Dolžina adultov znaša 2,0–2,8 mm. Na obronku koničnika ima samček poudarjen kljukast zobček in od 2 do 3 manjše zobčke. Pri samici

time in the Slovene part of Istria (Figure 136). Hosts include *Pinus halepensis*, *P. pinaster*, *P. sylvestris*, less frequently *P. pinaster*, *P. nigra*, *P. heldreichii*. In Slovenia it has been recorded only on *P. halepensis* and *P. pinea*. The tunnel system of *P. calcaratus* is star-shaped, with 3-7 maternal tunnels. Adult length is 2.0-2.8 mm. The male has a prominent aquiline denticle and 2 to 3 smaller denticles at the apex of the elytra. In the female, the denticles are only indicated.

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014b, 1.9.2014; **Koper, Ukmarjev trg, park**, 13°43′29″, 45°32′57″, VL04, 2 m, *Pinus pinea*, veja 1 cm, ldRPa, lit.RPa2014c, 24.10.2004; **Portorož**, 13°35′, 45°31′, UL84, 101 m, *Pinus halepensis*, veja, ldJTi, lit.JTi1983, l.1979 1.1970.

30.04. *Pityogenes chalcographus* (Linnaeus, 1760) ŠESTEROZOBI ZVEZDAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Grüne 1979: *Pityogenes chalcographus* Linnaeus, 1761; Freude, Harde, Lohse 1981: *P. chalcographus* Linné; Titovšek 1988: *P. chalcographus* Linné; Pfeffer & Knížek 1993: *P. chalcographus* (Linnaeus, 1761); Pfeffer 1995: *P. chalcographus* (Linné, 1761).

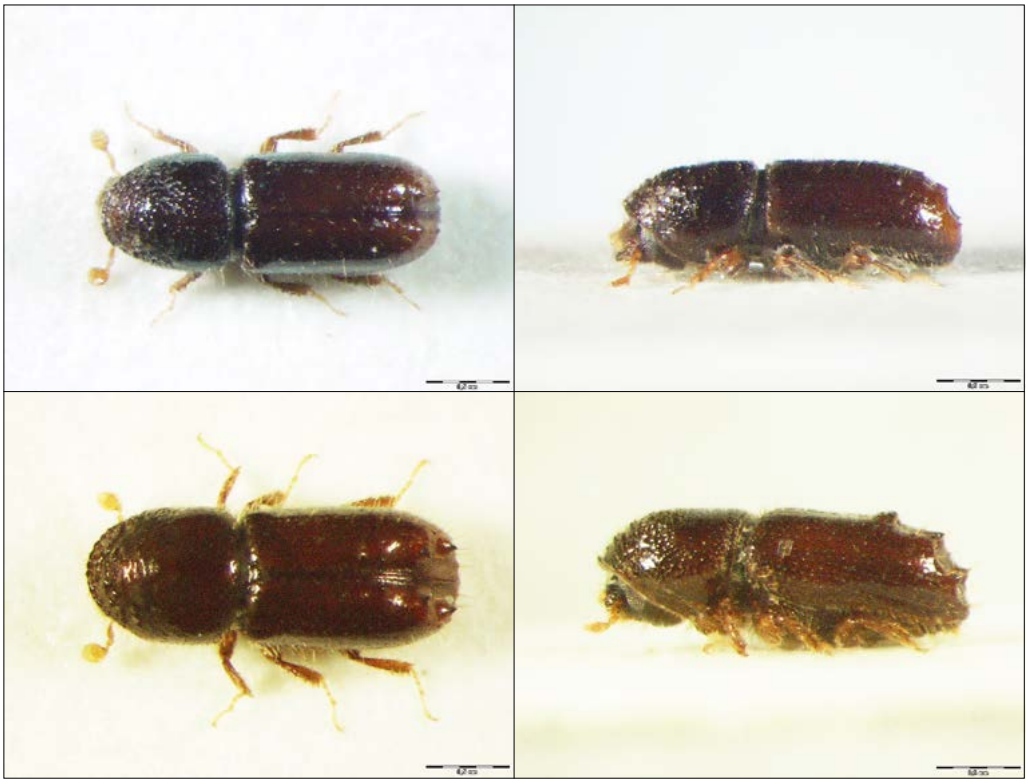
E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IC IR IT LA LS LT MC MD NR NT PL SK SL SP ST SV SZ YU **A:** ES FE HEI JA JIL LIA MG NC NMO SC SCH SHA TR WS XIN **NTR**

Vrsta je prisotna v arealu navadne smreke v srednji Evropi. Pojavlja se tudi v severni Evropi, Bosni, Bolgariji, Kavkazu, Sibiriji, Koreji, Japonskem, Afriki in na neotropskem območju. Pri nas je vrsta zelo pogosta, množično se pojavlja v vsej Sloveniji (slika 138). Gostitelji: *Picea* abies, *P. glehnii*, *P. jezoensis*, *P. obovata*, *P. omorica*, *P. orientalis*, *Pinus cembra*, *P. densiflora*, *P. koraiensis*, *P. mugo*, *P. parviflora*, *P. peuce*, *P. pumila*, *P. rotundata*, *P. sibirica*, *P. strobus* in *P. sylvestris*, redkeje *Pseudotsuga menziesii*, *Pinus* spp., *Larix decidua*, *L. sibirica*, *L. gmelinii*, *Abies alba* in *A. sibirica*. V Sloveniji je bila vrsta pogosto najdena na *Picea abies*, *Pinus sylvestris* in *P. strobus*, redkeje na *Abies alba*, *Picea sitkaensis*, *Pinus mugo*, *Larix decidua* in *Pseudotsuga menziesii*. Poleg tega je bila v drevesnicah vrsta najdena tudi na *Picea omorika*, *P.*

The species is found in the range of the Norway spruce in central Europe, but also occurs in northern Europe, Bosnia, Bulgaria, the Caucasus, Siberia, Korea, Japan, Africa and the Neotropics. It is very common in Slovenia, occurring in large numbers throughout the country (Figure 138). Hosts: *Picea* abies, *P. glehnii*, *P. jezoensis*, *P. obovata*, *P. omorica*, *P. orientalis*, *Pinus cembra*, *P. densiflora*, *P. koraiensis*, *P. mugo*, *P. parviflora*, *P. peuce*, *P. pumila*, *P. rotundata*, *P. sibirica*, *P. strobus*, *P. sylvestris* and, more rarely, *Pseudotsuga menziesii*, *Pinus* spp, *Larix decidua*, *L. sibirica*, *L. gmelinii*, *Abies alba* and *A. sibirica*. In Slovenia, the species has frequently been found on *Picea abies*, *Pinus sylvestris* and *P. strobus*, less frequently on *Abies alba*, *Picea sitkaensis*, *Pinus mugo*, *Larix decidua* and *Pseudotsuga menziesii*. In addition, the species was also found in nurseries on *Picea omorika*,

pungens, *Pinus heldreichii*, *P. wallichiana* in *Chamaecyparis lawsoniana*. Je poligamna vrsta, ki letno razvije dve generaciji, prvič roji aprila, drugič julija in avgusta. Gradi tipične zvezdaste rovne sisteme s 3–6 materinskimi rovi. Praviloma leži kotilnica v celoti v skorji, tako da se odtis na beljavi ne vidi in se zdi, da se materinski hodniki ne stikajo. Dolžina adultov je 1,8–2,5 mm (slika 137). Koničnik sega do polovice pokrovk, na njem ima samček na obeh obronkih tri krepke, med seboj približno enako oddaljene zobčke. Samička ima na mestih zobčkov le majhne grbice, na čelu pa ima polkrožno vdolbinico, po kateri se loči od samice borovega zvezdarja (*P. trepanatus*). *Šesterozobi zvezdar* je poleg osmerozobega lubadarja (*I. typographus*) ekonomsko najpomembnejši podlubnik na navadni smreki,

P. pungens, *Pinus heldreichii*, *P. wallichiana* and *Chamaecyparis lawsoniana*. A polygamous species, it develops two generations per year, the first swarming in April, the second in July and August. It builds typical star-shaped tunnel systems with 3-6 maternal galleries. The brood chamber is typically entirely contained within the bark, so that the imprint on the sapwood is not visible and the maternal galleries do not appear to meet. Length (adultus) is 1.8-2.5 mm. The bevel extends to the middle of the elytra apex, on which the male has three bold denticles, approximately equidistant from each other, on either side of the apex. The female has only small humps where the denticles are and a semicircular depression on the forehead, which distinguishes it from the female of the related species *P. trepanatus* (Figure 137). *P. chalcographus* is



Slika 137: ŠESTEROZOBI ZVEZDAR *Pityogenes chalcographus* (♀ 2x – dorzalo, lateralno, ♂ 2x – dorzalno, lateralno) (Foto: Maja Jurc)

Figure 137: *Pityogenes chalcographus* (♀ 2x – dorsal, lateral, ♂ 2x – dorsal, lateral) (Photo: Maja Jurc)

pogosto se pojavljata skupaj v gradacijah. *Šesterozobi zvezdar* naseljuje tankolubne dele dreves, vrhače, veje in debla mlajših dreves. Feromoni: Chalcogran (1-Hexanol) (Francke s sod. 1977; Gerken 1977).

the most economically important bark beetle on Norway spruce, along with *I. typographus*, and the two often occur together in gradations. *P. chalcographus* inhabits thin-bark parts of trees, tops, branches and trunks of younger trees. Pheromones: Chalcogran (1-Hexanol) (Francke et al. 1977; Gerken 1977).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951; ldJSs, cJSs, pred 1951.

ISTRA: **Kojnik, Koper**, 13°57′, 45°30′, VL13, 780 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit. MJu2001, 22.7.1999, 26.5.2000, 1.6.2000, 22.7.2000, 17.6.2001; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2018b, 3.9.2018; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2016b, 26.5.2016; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 1.7.2014; ibidem, lit.RPa2016b, 26.5.2016, 27.7.2016; ibidem, lit.RPa2017b, 4.7.2017; **Osp, Črni Kal**, 13°52′, 45°34′, VL14, 60 m, lCKr dSBr, cSBr, 10.9.1990.

PRIMORSKO: **Cerkno**, 14°00′, 46°08′, VM20, 420 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Čaven, Lokavec, Trnovski gozd**, 13°52′, 45°56′, VL18, 1150 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Čaven, planinska koča Antona Bavčerja, Trnovski gozd**, 13°52′, 45°56′, VL18, 1240 m, ldSBr, cSBr, 27.5.1999; **Kanal**, 13°38', 46°05', UM90, 100 m, lMKa dBDr, cZRC, 4.5.1989; **Krnica, Trnovski gozd**, 13°48′, 45°57′, VL08, 1050 m, tThe, phChal, ldIKr, lit. IKr1998, 8.5.1994, 15.5.1994, 22.5.1994, 29.5.1994, 5.6.1994, 12.6.1994, 19.6.1994, 26.6.1994, 3.7.1994, 10.7.1994, 17.7.1994, 24.7.1994, 31.7.1994, 7.8.1994, 14.8.1994, 21.8.1994, 28.8.1994, 4.9.1994, 11.9.1994, 15.5.1995, 22.5.1995, 29.5.1995, 5.6.1995, 12.6.1995, 19.6.1995, 26.6.1995, 3.7.1995, 10.7.1995, 17.7.1995, 24.7.1995, 31.7.1995, 7.8.1995, 14.8.1995, 21.8.1995, 28.8.1995, 4.9.1995; **Mangrt, odcep pod pobočjem**, 13°35′37″, 46°11′42″, UM94, 1099 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa1995b, 9.9.1995; **Nova Gorica, Panovec**, 13°40′, 45°57′, UL98, ~100 m, tThe, phPher, lBZa dSBr, cSBr, 21.4.2000; **Prelože pri Lokvi, Divača**, 13°56′, 45°39′, VL15, 610 m, *Picea abies*, veja, ldJTi, lit.JTi1983, 1968; ibidem, vrhač, ldJTi, lit.JTi1983, 1968; **Prevala, Trnovski gozd**, 13°48′, 45°57′, VL08, 1100 m, tThe, phChal, ldIKr, lit.IKr1998, 8.5.1994, 15.5.1994, 22.5.1994, 29.5.1994, 5.6.1994, 12.6.1994, 19.6.1994, 26.6.1994, 3.7.1994, 10.7.1994, 17.7.1994, 24.7.1994, 31.7.1994, 7.8.1994, 14.8.1994, 21.8.1994, 28.8.1994, 4.9.1994, 11.9.1994, 15.5.1995, 22.5.1995, 29.5.1995, 5.6.1995, 12.6.1995, 19.6.1995, 26.6.1995, 3.7.1995, 10.7.1995, 17.7.1995, 24.7.1995, 31.7.1995, 7.8.1995, 14.8.1995, 21.8.1995, 28.8.1995, 4.9.1995; **Rut, nad Grantom**, 13°52′58″, 46°12′47″, VM12, 914 m, tThe, phChal, ldRPa, lit.RPa1995b, 20.8.1995; **Smečje, Trnovski gozd**, 13°49′, 45°58′, VL09, 1050 m, tThe, phChal, ldIKr, lit.IKr1998, 8.5.1994, 15.5.1994, 22.5.1994, 29.5.1994, 5.6.1994, 12.6.1994, 19.6.1994, 26.6.1994, 3.7.1994, 10.7.1994, 17.7.1994, 24.7.1994, 31.7.1994, 7.8.1994, 14.8.1994, 21.8.1994, 28.8.1994, 4.9.1994, 11.9.1994, 15.5.1995, 22.5.1995, 29.5.1995, 5.6.1995, 12.6.1995, 19.6.1995, 26.6.1995, 3.7.1995, 10.7.1995, 17.7.1995, 24.7.1995, 31.7.1995, 7.8.1995, 14.8.1995, 21.8.1995, 28.8.1995, 4.9.1995; **Soča, Bovec**, 13°40′, 46°21′, UM93, 780 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Tolmin, Kozlov rob**, 13°44′, 46°11′, VM01, 300 m, tThe, phChal, ldNRu, lit.NRu2014, 17.4.2013, 24.4.2013, 1.5.2013, 8.5.2013, 15.5.2013, 22.5.2013, 29.5.2013, 5.6.2013, 12.6.2013, 19.6.2013, 26.6.2013, 3.7.2013, 10.7.2013, 17.7.2013, 24.7.2013, 31.7.2013, 7.8.2013, 14.8.2013, 21.8.2013, 28.8.2013, 4.9.2013, 11.9.2013, 18.9.2013, 25.9.2013; **Trenta, Andrejeva domačija**, 13°45′19″, 46°23′01″, VM03, 660 m, *Picea abies*, veja 3 cm rs, odAKr vRPa, lit.RPa2022a, 4.12.2022; ibidem, vrhač 8 cm rs, odAKr vRPa, lit.RPa2022a, 4.12.2022; **Trnovo, Nova Gorica**, 13°45', 45°58', VL09, 800 m, *Abies alba*, ldJŠl, lit.JŠl1948, 1947.

GORENJSKO: **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Bezovnica, Železniki**, 14°14′13″, 46°14 23″, WM42, 871 m, *Picea abies*, panj, ldRPa, lit.RPa2014c, 16.5.1994; **Blagovica**, 14°48′, 46°11′, VM81, 410 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1972; **Bled, pod gradom 1**, 14°06′06″, 46°22′12″, VM33, 555 m, *Pinus nigra*, deblo 10 cm, ldRPa, lit.RPa2014c, 20.7.1994; ibidem, deblo 8 cm, ldRPa vcSBr, lit.RPa2014c, 16.2.1995; ibidem, veja 5 cm, ldRPa, lit.RPa2014c, 16.2.1995; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, Kont, lGBa dSBr, cSBr, 9.4.1993; phLino, lGBa dSBr, cSBr, 9.4.1993; **Boršt, Vintgar**, 14°05′07″, 46°24′07″, VM23, 850 m, *Picea abies*, kontrolno deblo, ldARe, lit.ARe2014, 5.2008; **Brdo pri Kranju**, 14°25′, 46°17′, VM52, 470 m, tThe, phChaW, ldMVr, lit.MVr2008, 23.4.2005, 30.4.2005, 14.5.2005, 21.5.2005, 28.5.2005, 4.6.2005, 11.6.2005, 18.6.2005, 25.6.2005, 2.7.2005, 9.7.2005, 16.7.2005, 23.7.2005, 30.7.2005, 6.8.2005, 13.8.2005, 20.8.2005, 27.8.2005, 3.9.2005, 10.9.2005, 17.9.2005, 24.9.2005, 1.10.2005, 8.10.2005, 15.10.2005, 22.10.2005, 29.10.2005, 5.11.2005; **Brdo pri Kranju 1/1**, 14°23′50″, 46°16′46″, VM52, 439 m, tThe, phChal, ldRPa, lit.RPa2003, 6.6.2003, 13.6.2003, 20.6.2003, 27.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 6.9.2003, 13.9.2003, 19.9.2003, 27.9.2003, 3.10.2003; ibidem, phLino, ldRPa, lit.RPa2003, 6.6.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 19.9.2003; ibidem, phPhero, ldRPa, lit.RPa2003, 6.6.2003, 13.6.2003, 20.6.2003, 27.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 6.9.2003, 27.9.2003; **Brdo pri Kranju 1/2**, 14°23′31″, 46°17′14″, VM52, 463 m, tThe, phChal, ldRPa, lit.RPa2003, 6.6.2003, 13.6.2003, 20.6.2003, 27.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 6.9.2003, 13.9.2003, 19.9.2003, 27.9.2003, 3.10.2003, 10.10.2003, 18.10.2003; ibidem, phLino, ldRPa, lit. RPa2003, 6.6.2003, 13.6.2003, 20.6.2003, 27.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 6.9.2003, 13.9.2003, 19.9.2003; ibidem, phPhero, ldRPa, lit.RPa2003, 6.6.2003, 13.6.2003, 20.6.2003, 27.6.2003, 4.7.2003, 11.7.2003, 18.7.2003, 26.7.2003, 2.8.2003, 8.8.2003, 15.8.2003, 22.8.2003, 29.8.2003, 6.9.2003, 13.9.2003, 19.9.2003, 27.9.2003, 10.10.2003; **Brdo pri Kranju 1/6**, 14°23′31″, 46°16′40″, VM52, 433 m, *Picea abies*, deblo 7 cm, ldRPa, lit.RPa2003, 18.9.2003; **Brdo pri Kranju 1/7**, 14°23′33″, 46°16′38″, VM52, 432 m, *Picea abies*, deblo 50 cm, ldRPa, lit.RPa2003, 14.6.2003; **Brdo pri Kranju 1/11**, 14°23′02″, 46°16′25″, VM52, 422 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/14**, 14°23′34″,46°16′41″, VM52, 434 m, *Picea abies*, sušica 5 cm rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/16**, 14°23′49″, 46°16′43″, VM52, 438 m, *Picea abies*, deblo 15 cm, ldRPa, lit. RPa2003, 15.8.2003; **Brdo pri Kranju 1/19**, 14°23′57″, 46°16′49″, VM52, 441 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2003, 19.9.2003; **Brdo pri Kranju 1/23**, 14°24′08″, 46°17′13″, VM52, 453 m, *Picea abies*, sušica 25 cm rs, odRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/25**, 14°24′20″, 46°17′07″, VM52, 454 m, *Picea abies*, deblo 7 cm, ldRPa, lit.RPa2003, 11.10.2003; **Brdo pri Kranju 1/30**, 14°24′31″, 46°16′58″, VM52, 446 m, *Picea abies*, deblo 10 cm, ldRPa, lit. RPa2003, 18.10.2003; **Brdo pri Kranju 1/38**, 14°24′57″, 46°17′22″, VM52, 462 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/54**, 14°23′44″, 46°17′00″, VM52, 452 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/60**, 14°23′39″, 46°17′11″, VM52, 443 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/71**, 14°22′08″, 46°16′52″, VM52, 422 m, *Picea abies*, deblo 10 cm, ldRPa, lit. RPa2003, 27.9.2003; **Brdo pri Kranju 1/72**, 14°22′14″, 46°16′47″, VM52, 424 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2003, 27.9.2003; **Brdo pri Kranju 2/1**, 14°22′07″, 46°16′49″, VM52, 423 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2004, 24.8.2004; ibidem, *Pinus sylvestris*, deblo 15 cm, ldRPa, lit.RPa2004, 24.8.2004; ibidem, sušica 20 cm rs, odRPa, lit.RPa2004, 24.8.2004;

ibidem, veja 5 cm, ldRPa, lit.RPa2004, 24.8.2004; ibidem, vrhač 10 cm, ldRPa, lit.RPa2004, 24.8.2004; ibidem, vrhač 15 cm, ldRPa, lit.RPa2004, 24.8.2004; **Brdo pri Kranju 2/3**, 14°22′49″, 46°16′48″, VM52, 424 m, *Picea abies*, vrhač 1 cm, ldRPa, lit.RPa2004, 3.9.2004; ibidem, vrhač 2 cm, ldRPa, lit.RPa2004, 3.9.2004; **Brdo pri Kranju 2/4**, 14°23′18″, 46°17′04″, VM52, 453 m, *Pinus sylvestris*, veja 3 cm, ldRPa, lit.RPa2004, 21.7.2004; **Brdo pri Kranju 2/5**, 14°23′45″, 46°17′22″, VM52, 469 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2004, 30.7.2004; **Brdo pri Kranju 2/6**, 14°24′02″, 46°17′14″, VM52, 470 m, *Pinus sylvestris*, veja 1 cm, ldRPa, lit.RPa2004, 22.8.2004; **Brdo pri Kranju 2/7**, 14°23′48″, 46°16′47″, VM52, 441 m, *Abies alba*, veja 3 cm, ldRPa, lit.RPa2004, 18.9.2004; ibidem, vrhač 3 cm, ldRPa, lit.RPa2004, 18.9.2004; ibidem, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2004, 18.9.2004; ibidem, *Pinus sylvestris*, veja 5 cm, ldRPa, lit. RPa2004, 18.9.2004; **Brdo pri Kranju 2/8**, 14°24′22″, 46°17′13″, VM52, 457 m, *Picea abies,* deblo 15 cm rs, odRPa, lit.RPa2004, 26.9.2004; ibidem, 14°24′22″, 46°17′13″, VM52, 457 m, *Pinus sylvestris*, vrhač 5 cm, ldRPa, lit.RPa2004, 23.10.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2015a, 8.7.2015; ibdem, lit.RPa2019a, 11.9.2019; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2015a, 16.9.2015; ibidem, lit.RPa2018a,1.8.2018; ibidem, lit.RPa2019a, 19.6.2019; ibidem, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2015a, 10.6.2015; ibidem, lit.RPa2017a, 25.5.2017; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tWit, phPher, ldRPa, lit.RPa2008, 13.8.2008; ibidem, lit.RPa2010a, 9.6.2010, 20.7.2010, 8.9.2010, 27.10.2010; **Brdo pri Kranju, GIS 5**, 14°24′02″, 46°17′16″, VM52, 465 m, tThe, phPher, ldRPa, lit.RPa2014c, 13.8.2005; **Brdo pri Kranju, parkovni del**, 14°22′39″, 46°16′32″, VM52, 420 m, *Pseudotsuga menziesii*, deblo 10 cm, ldRPa, lit.RPa2014c, 30.7.2004; **Breg ob Savi, Sorško polje 1**, 14°22′25″, 46°12′38″, VM51, 372 m, *Picea abies*, veja 4 cm, ldRPa, lit.RPa2014c, 10.5.2008; **Breg ob Savi, Sorško polje 2**, 14°22′26″, 46°12′38″, VM51, 372 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2014c, 10.5.2008; **Breg ob Savi, Sorško polje 3**, 14°22′27″, 46°12′36″, VM51, 372 m, *Picea abies*, deblo 8 cm, ldRPa, lit.RPa2014c, 27.4.2008; **Britof, Gorenje, Kranj**, 14°22′34″, 46°15′26″, VM52, 401 m, *Picea abies*, deblo 8 cm, ldRPa, lit.RPa2014c, 19.3.1995; ibidem, deblo 10 cm, ldRPa, lit.RPa2014c, 19.3.1995; ibidem, veja 2 cm, ldRPa, lit.RPa2014c, 19.3.1995; **Britof, Kranj**, 14°24′05″, 46°15′13″, VM52, 413 m, tThe, Kont, ldRPa, lit.RPa1991a, 21.4.1989, 5.5.1989; ibidem, phChal, ldRPa, lit. RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 14.10.1989, 27.10.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 29.9.1989, 14.10.1989; **Brnik**, 14°28′, 46°14′, VM52, 380 m, *Picea abies*, debelce, ldJTi, lit.JTi1983, 4.1971; ibidem, veja, ldJTi, lit.JTi1983, 4.1971; ibidem, vrhač, ldJTi, lit.JTi1983, 4.1971; **Brnik, južno od letališča**, 14°26′34″, 46°13′17″, VM51, 375 m, *Picea abies*, deblo 5 cm, ldRPa, lit.RPa2020c, 24.5.2018; **Brnik, krožišče pri letališču**, 14°28′02″, 46°13′39″, VM51, 374 m, *Picea abies*, veja 4 cm, ldRPa, lit.RPa2022a, 24.5.2022; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, Kont, ldRPa, lit.RPa1991a, 28.4.1989, 12.5.1989, 30.6.1989, 28.7.1989, 11.8.1989, 18.8.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 14.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 8.9.1989, 22.9.1989,

29.9.1989; **Brnik, letališče, krožišče Cargo 1**, 14°26′37″, 46°14′08″, VM52, 392 m, *Picea abies*, deblo 20 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 2**, 14°26′42″, 46°14′22″, VM52, 396 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 3**, 14°26′43″, 46°14′07″, VM52, 392 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2021a, 16.8.2021; ibidem, veja 1 cm rs, odRPa, lit.RPa2021a, 16.8.2021; ibidem, tRid, phEcIT, ldRPa, lit.RPa2021a, 16.8.2021, 2.10.2021, 15.10.2021; ibidem, lit.RPa2022a, 31.5.2022, 30.6.2022, 28.10.2022; ibidem, phEcPC, ldRPa, lit.RPa2021a, 16.8.2021, 2.10.2021, 15.10.2021; ibidem, lit.RPa2022a, 31.5.2022, 30.6.2022, 28.10.2022; **Brnik, letališče, krožišče Cargo 4**, 14°26′43″, 46°14′11″, VM52, 392 m, tThe, phEcIT, ldRPa, lit.RPa2021a, 16.8.2021; ibidem, phEcPC, ldRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 5**, 14°27′04″, 46°14′13″, VM52, 391 m, *Picea abies*, veja 5 cm rs, odRPa, lit.RPa2020b, 11.10.2019; **Brnik, letališče, krožišče Cargo 6**, 14°27′07″, 46°14′11″, VM52, 390 m, *Picea abies*, vejni kup rs, odRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 7**, 14°27′18″, 46°14′11″, VM52, 390 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Brnik, letališče, krožišče Cargo 8**, 14°26′43″, 46°14′07″, VM52, 392 m, *Picea abies*, deblo 4 cm, ldRPa, lit.RPa2022a, 28.10.2022; ibidem, deblo 15 cm rs, odRPa, lit.RPa2022a, 28.10.2022; **Brnik, letališče, krožišče Cargo 11**, 14°26′35″, 46°14′08″, VM52, 392 m, *Picea abies*, veja 3 cm, ldRPa, lit.RPa2022a, 28.10.2022; **Brnik, letališče, pri parkirišču**, 14°26′59″, 46°14′14″, VM52, 393 m, tThe, Kont, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 5.5.1989, 12.05.1989, 19.5.1989, 26.5.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 14.10.1989, 27.10.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989; **Brnik, severno od letališča**, 14°26′32″, 46°14′10″, VM52, 392 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 12.10.2018; **Bukov hrib, Medvodje, Jelendol**, 14°24′07″, 46°24′26″, VM53, 927 m, *Picea abies*, vrhač 15 cm, ldRPa, lit. RPa2020e, 3.6.2011; **Čadovlje pri Tržiču, Močilnik**, 14°18′55″, 46°22′33″, VM43, 811 m, tThe, phChal, ldRPa, lit.RPa1992b, 12.5.1992; **Čegelše, Tržič**, 14°17′26″, 46°22′39″, VM43, 741 m, *Picea abies*, veja 5 cm, ldRPa, lit.RPa2020e, 11.7.2018; **Čemšeniška planina**, 14°58′, 46°11′, VM91, 980 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977; **Črnivec, Kamnik,** 14°42′, 46°15′, VM72, 1060 m, *Picea abies*, veja, ldJTi, lit.JTi1983, 6.1973; ibidem, vrhač, ldJTi, lit.JTi1983, 6.1973; **Dolič pod Grpišco, Karavanke**, 13°48′20″, 46°30′04″, VM05, 1367 m, tThe, phCemp, ldRPa, lit. RPa1995b, 16.6.1994; **Dragočajna, Smlednik**, 14°25′, 46°10′, VM51, 345 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Dražgoše**, 14°11′, 46°15′, VM32, 890 m, *Picea abies*, ldJTi, lit.JTi1983, 4.1974; **Duplje**, 14°18′34″, 46°18′21″, VM42, 506 m, *Picea abies*, deblo, ldRPa, lit.RPa1992b, 5.9.1991; ibidem, veja, ldRPa, lit. RPa1992b, 5.9.1991; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phPher, lFPo dSBr, cSBr, 4.6.1990; **Goropeke, Žirovski Vrh**, 14°08′, 46°02′, VM30, 700 m, *Picea abies*, debelce, ldJTi, lit.JTi1983, 3.1972; **Gozd Martuljek**, 13°51′, 46°29′, VM14, 840 m, *Picea abies*, ldJTi, lit.JTi1983, 3.1977; **Gozd, Golnik 2**, 14°20′05″, 46°20′37″, VM43, 987 m, *Picea abies*, veja 4 cm rs, odRPa, lit.RPa2022a, 31.7.2022; **Gozd, Golnik 3**, 14°20′05″, 46°20′30″, VM43, 918 m, *Picea abies*, veja 6 cm rs, odRPa, lit.RPa2022a, 31.7.2022; **Grpišca, Karavanke**, 13°48′01″, 46°30′06″, VM05, 1330 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994, 14.7.1994; **Hrastje, Kranj 1**, 14°23′40″, 46°14′01″, VM52, 386 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2023a, 20.10.2023; ibidem, veja 5 cm, ldRPa, lit.RPa2020c, 21.5.2010, 12.10.2012, 18.10.2013; ibidem, tThe, phPher phChal, ldRPa, lit.RPa2020c, 21.5.2010, 12.10.2012, 18.10.2013; **Hrastje, Kranj 2**,

14°23′41″, 46°14′01″, VM52, 387 m, *Picea abies*, hlod 10 cm, ldRPa, lit.RPa2014c, 28.8.2014; ibidem, hlod 15 cm, ldRPa, lit.RPa2014c, 19.5.2010; ibidem, hlod 20 cm, ldRPa, lit.RPa2014c, 9.8.2014, 16.8.2014; ibidem, hlod 15 cm, ldRPa, lit.RPa2021a, 31.5.2021; ibidem, hlod 20 cm, ldRPa, lit.RPa2021a, 4.6.2021; **Hrastje, Kranj 3**, 14°23′52″, 46°13′58″, VM52, 387 m, *Abies alba*, deblo 20 cm, ldRPa, lit.RPa2014c, 1.6.2009; ibidem, *Picea abies*, deblo 10 cm, ldRPa, lit. RPa2020c, 3.6.2019; ibidem, veja 5 cm, ldRPa, lit.RPa2020c, 28.5.2009, 12.10.2018; **Hrastje, Kranj 4**, 14°23′19″, 46°14′02″, VM52, 387 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2023a, 20.10.2023; **Hrastje, Kranj, Agromehanika 2**, 14°23′48″, 46°13′43″, VM51, 381 m, *Picea abies*, vejni kup, ldRPa, lit.RPa2021a, 31.5.2021, 4.6.2021; ibidem, vrhač 15 cm, ldRPa, lit.RPa2021a, 27.5.2021, 31.5.2021, 4.6.2021; **Hrastje, Kranj, Agromehanika 3**, 14°23′47″, 46°13′44″, VM51, 381 m, *Picea abies*, deblo 5 cm rs, odRPa, lit.RPa2021a, 27.5.2021; **Hrastje, Kranj, Agromehanika 4**, 14°23′46″, 46°13′46″, VM51, 381 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2021a, 27.5.2021; **Hrastje, Kranj, Klanec 2**, 14°23′39″, 46°14′06″, VM52, 389 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 6**, 14°23′30″, 46°14′08″, VM52, 388 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2023a, 29.5.2023; ibidem, vrhač 2 cm, ldRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 8**, 14°23′23″, 46°14′09″, VM52, 388 m, *Picea abies*, deblo 7 cm, ldRPa, lit.RPa2023a, 29.5.2023; ibidem, deblo 10 cm, ldRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 9**, 14°23′20″, 46°14′07″, VM52, 388 m, *Picea abies*, veja 4 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 10**, 14°23′18″, 46°14′08″, VM52, 388 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 11**, 14°23′18″, 46°14′10″, VM52, 389 m, *Picea abies*, veja 5 cm, ldRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Planjava 1**, 14°23′39″, 46°14′28″, VM52, 397 m, *Picea abies*, hlod 20 cm, ldRPa, lit. RPa2020c, 29.5.2008, 28.5.2009; ibidem, tThe, phPher phChal, ldRPa, lit.RPa2020c, 29.5.2008; **Hrastje, Kranj, Planjava 2**, 14°23′39″, 46°14′09″, VM52, 389 m, tThe, phEcIT, ldRPa, lit. RPa2020b, 28.5.2020; ibidem, phEcIT phEcPC, ldRPa, lit.RPa2021a, 27.5.2021, 31.5.2021, 4.6.2021; **Hrastje, Kranj, Planjava 3**, 14°23′39″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2014c, 1.6.2009; **Hrastje, Kranj, Planjava 4**, 14°23′41″, 46°14′07″, VM52, 389 m, *Picea abies*, deblo 7 cm, ldRPa, lit.RPa2014c, 3.6.2004; ibidem, deblo 8 cm, ldRPa, lit. RPa2014c, 7.6.2004; ibidem, veja 2 cm, ldRPa, lit.RPa2014c, 7.6.2004; ibidem, *Pinus sylvestris*, veja 2 cm, ldRPa, lit.RPa2014c, 3.6.2004; ibidem, veja 6 cm, ldRPa, lit.RPa2014c, 7.6.2004; **Hrastje, Kranj, Planjava 5**, 14°23′39″, 46°14′06″, VM52, 389 m, *Picea abies*, veja 5 cm rs, odRPa, lit.RPa2020b, 28.5.2020; **Hrastje, Kranj, Planjava 10**, 14°23′42″, 46°14′11″, VM52, 392 m, *Picea abies*, veja 2 cm rs, odRPa, lit.RPa2021a, 27.5.2021; **Hrastnik, Bukovica 1**, 14°15′38″, 46°12′06″, VM51, 567 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020b, 6.6.2019; **Hrastnik, Bukovica 2**, 14°15′52″, 46°12′13″, VM51, 569 m, *Picea abies*, veja 5 cm, ldRPa, lit. RPa2020b, 6.6.2019; **Hrastnik, Bukovica 3**, 14°15′39″, 46°12′16″, VM51, 685 m, *Picea abies*, deblo 5 cm, ldRPa, lit.RPa2020b, 6.6.2019; **Hraše, Smlednik**, 14°27′, 46°10′, VM51, 360 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Hudi Graben, Bistrica pri Tržiču**, 14°15′03″, 46°21′47″, VM43, 781 m, tThe, phChal, ldRPa, lit.RPa1992b, 18.5.1992; **Jama, Sorško polje**, 14°21′51″, 46°10′50″, VM51, 363 m, *Picea abies*, veja, ldRPa, lit.RPa1992b, 21.8.1991; **Javorje, Škofjeloško hribovje**, 14°11′, 46°09′, VM31, 700 m, tThe, phChal, ldLDe, lit.LDe2006, 9.5.2005, 15.5.2005, 21.5.2005, 28.5.2005, 4.6.2005, 11.6.2005, 18.6.2005, 25.6.2005, 3.7.2005, 10.7.2005, 17.7.2005, 24.7.2005, 1.8.2005, 8.8.2005, 29.8.2005, 12.9.2005; **Jelovica, Blatnica**, 14°04′09″, 46°17′36″, VM22, 1035 m, *Picea abies*, vrhač, ldRPa, lit.RPa2020e, 25.5.2009; **Jelovica, Čukova Konta**, 14°03′, 46°15′, VM22, 1299 m, tThe, phChal, ldMŠi, lit.MŠi2011, 22.5.2009, 29.5.2009, 8.6.2009, 17.6.2009, 27.6.2009, 9.7.2009, 20.7.2009, 30.7.2009, 9.8.2009, 19.8.2009, 28.8.2009, 7.9.2009, 16.9.2009, 25.9.2009; ibidem, phChaW, ldMŠi, lit.MŠi2011, 22.5.2009, 29.5.2009, 8.6.2009, 17.6.2009, 27.6.2009, 9.7.2009,

20.7.2009, 30.7.2009, 9.8.2009, 19.8.2009, 28.8.2009, 7.9.2009, 16.9.2009, 25.9.2009; ibidem, phEcPC, ldMŠi, lit.MŠi2011, 22.5.2009, 29.5.2009, 8.6.2009, 17.6.2009, 27.6.2009, 9.7.2009, 20.7.2009, 30.7.2009, 9.8.2009, 19.8.2009, 28.8.2009, 7.9.2009, 16.9.2009, 25.9.2009; **Jelovica, Javorjev vrh**, 14°05′31″, 46°16′16″, VM32, 1220 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Palikovec 1**, 14°04′54″, 46°15′52″, VM22, 1290 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Palikovec 2**, 14°04′54″, 46°15′45″, VM22, 1290 m, tThe, phPher, ldJRo, lit.JRo2016, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, pod Konfinovim vrhom**, 14°02′32″, 46°16′52″, VM52, 1040 m, *Picea abies*, deblo 35 cm, ldRPa, lit.RPa2020c, 12.10.2018; **Jelovica, pod Ličebom**, 14°03′34″, 46°16′23″, VM22, 1250 m, Picea abies, vrhač 5 cm, ldRPa, lit.RPa2020e, 25.5.2009; **Jelovica, Podrtija**, 14°05′15′, 46°16′59″, VM22, 1080 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Praprotnica**, 14°04′04′, 46°17′02″, VM22, 1210 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica, Rovtarica**, 14°04′49″, 46°17′17″, VM22, 1042 m, *Picea abies*, vrhač, ldRPa, lit.RPa2020e, 25.5.2009; **Jelovica, v Sečju**, 14°04′36″, 46°17′06″, VM22, 1116 m, *Picea abies*,vrhač 5 cm, ldRPa, lit.RPa2020e, 25.5.2009; **Jelovica, vrh Oglovše**, 14°06′48″, 46°16′00″, VM32, 1220 m, *Picea abies*, veja, ldRPa, lit. RPa1992b, 16.8.1991; **Jelovica, Za Liskom**, 14°04′23′, 46°16′19″, VM22, 1300 m, tThe, phPher, ldJRo, lit.JRo2016, 30.6.2006, 19.7.2006, 31.8.2006, 29.9.2006, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica. Zgornji Bol 1**, 14°05′25″, 46°15′47″, VM22, 1200 m, tThe, phPher, ldJRo, lit. JRo2016, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jelovica. Zgornji Bol 2**, 14°05′19″, 46°15′33″, VM22, 1360 m, tThe, phPher, ldJRo, lit.JRo2016, 16.6.2007, 17.7.2007, 18.8.2007, 25.9.2007; **Jeprca, Medvode, odcep za Podrečo**, 14°23′19″, 46°10′11″, VM51, 352 m, *Picea abies*, deblo 8 cm rs, odRPa, lit.RPa2023a, 24.3.2023; **Jezerska Kočna, Kamniške Alpe**, 14°31′, 46°22′, VM63, *, ldHEg, cJSs, pred 1951; **Jureževa planina, pod Blekovo, Karavanke**, 13°49′33″, 46°30′14″, VM05, 1514 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994; **Jureževa planina, pod Vošco, Karavanke**, 13°48′47″, 46°29′57″, VM05, 1415 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994, 14.7.1994; **Kamnik**, 14°37′41″, 46°13′09″, VM71, 578 m, *Picea abies*, deblo 33 cm gLEŠ, lDBo dRPa, lit.NOg2020, 3.4.2017; ibidem, tWtr, phChal, ldDBo, lit.NOg2020, 20.3.2017; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, 780 m, *Picea abies*, veja, ldJTi, lit.JTi1983, 3.1973; ibidem, vrhač, ldJTi, lit.JTi1983, 3.1973; ibidem, 540 m, *Picea abies*, talni vzorci gEZ, ldJŠl, lit. JŠl1958, 24.4.1952; **Kokra, Kurja Vas, pobočje 1**, 14°29′57″, 46°19′21″, VM63, 677 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2020c, 3.11.2016; ibidem, tThe, phEcPC, ldRPa, lit.RPa2020c, 3.11.2016; **Kokra, Kurja Vas, pobočje 2**, 14°29′30″, 46°19′41″, VM63, 639 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 3.11.2016; **Kokra, Kurja Vas, skladišče lesa**, 14°29′38″, 46°19′37″, VM63, 581 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2020c, 25.5.2016; ibidem, deblo 20 cm, ldRPa, lit.RPa2020c, 25.5.2016, 3.11.2016; ibidem, tThe, phEcPC, ldRPa, lit.RPa2020c, 25.5.2016; **Komatevra, pod Robniško pečjo**, 14°27′22″, 46°24′59″, VM54, 1267 m, tThe, phCemp, ldRPa, lit.RPa1995b, 15.8.1995; **Kostavška planina, Brode, Zgornji Tuhinj**, 14°45′46″, 46°14′32″, VM82, 830 m, *Picea abies*, deblo 27 cm gLEŠ, lDBo dRPa, lit.NOg2020, 3.4.2017; ibidem, tWtr, phChal, ldDBo, lit.NOg2020, 20.3.2017; **Kranj, ob avtocesti 4**, 14°23′34″, 46°14′55″, VM52, 404 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2021a, 6.10.2021; **Kranj, ob avtocesti 6**, 14°23′32″, 46°14′52″, VM52, 403 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021a, 6.10.2021; **Kranj, ob avtocesti 8**, 14°23′43″, 46°14′45″, VM52, 402 m, *Picea abies*, veja 5 cm, ldRPa, lit. RPa2021a, 6.10.2021; **Kranj, pri Mestnem pokopališču 2**, 14°22′14″, 46°14′09″, VM52, 387 m, *Picea abies*, veja 2 cm rs, odRPa, lit.RPa2021a, 21.2.2021; **Kranjska Gora, ob Pišnici**, 13°47′, 46°28′, VM04, 880 m, *Picea abies*, jamski les, ldJTi, lit.JTi1983, 4.1973; ibidem, *Pinus mugo*,

veja, ldJTi, lit.JTi1983, 4.1973; **Krašnja, Moravče**, 14°45′, 46°10′, VM81, 370 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1972; **Laze v Tuhinju**, 14°45′23″, 46°13′13″, VM81, 520 m, *Picea abies*, deblo 15 cm rs, oNBo dRPa, lit.RPa2021a, 22.10.2021; **Lipica, Škofja Loka, nad pokopališčem 1**, 14°20′30″, 46°10′07″, VM41, 351 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2021a, 20.1.2021; **Lipica, Škofja Loka, nad pokopališčem 2**, 14°20′32″, 46°10′05″, VM41, 350 m, *Picea abies*, veja 5 cm rs, odRPa, lit.RPa2021a, 20.1.2021; **Ljubelj, Šentanska dolina**, 14°16′11″, 46°25′36″, VM44, 883 m, *Picea abies*, hlod, ldRPa, lit.RPa1996, 15.6.1996; **Macesnovec, nad karavlo, Planica**, 13°42′18″, 46°29′02″, VM04, 1104 m, *Larix decidua*, hlod, ldRPa, lit.RPa2014c, 31.5.1994; ibidem, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994, 14.7.1994; **Macesnovec, Zasipska planina**, 13°55′06″, 46°23′52″, VM13, 910 m, *Picea abies*, deblo 10 cm, ldRPa, lit. RPa2020e, 29.8.2018; **Marovšca, Bohinj 1**, 13°49′01″, 46°18′50″, VM02, 1547 m, *Picea abies*, vrhač 10 cm, ldRPa, lit.RPa2020b, 24.10.2019; **Marovšca, Bohinj 2**, 13°47′33″, 46°18′23″, VM02, 1663 m, *Picea abies*, veja 5 cm, ldRPa, lit.RPa2020b, 24.10.2019; **Mavčiče, Sorško polje**, 14°24′, 46°11′, VM51, 350m, *Picea abies*, vrhač, ldJTi, lit.JTi1983, 5.1970; **Medno, Medvode**, 14°25′, 46°07′, VM50, 330 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Meja, Sorško polje 1**, 14°21′59, 46°11′12″, VM52, 365 m, *Picea abies*, lovno deblo 25 cm, ldRPa, lit.RPa1994b, 8.7.1993; **Meja, Sorško polje 2**, 14°22′05″, 46°11′12″, VM51, 371 m, *Picea abies*, veja, ldRPa, lit.RPa1992b, 22.5.1992; ibidem, vejni kup, ldRPa, lit.RPa1992b, 1.6.1992; ibidem, tThe, phChal, ldRPa, lit.RPa1992b, 1.6.1992; **Mengeš, drevesnica Semesadike Mengeš**, 14°33′44″, 46°10′21″, VM61, 321 m, *Abies alba*, sadika, ldIRe, lit.PSm2019, 24.6.2005; ibidem, *Picea abies*, sadika, ldIRe, lit.PSm2019, 24.6.2005; ibidem, veja, lit.MJu1996, 1951-2000; ibidem, vrhač, lit.MJu1996, 1951-2000; ibidem, *Picea omorika*, deblo 6 cm, ldRPa, lit.RPa2014c, 16.6.1995; ibidem, sadika, ldIRe, lit.PSm2019, 24.6.2005; ibidem, ldMJu, lit.PSm2019, 5.6.2000; veja, lit.MJu1996, 1951-2000; ibidem, vrhač, lit.MJu1996, 1951-2000; ibidem, *Picea pungens*, sadika, ldIRe, lit.PSm2019, 24.6.2005; ibidem, *Pinus heldreichii*, sadika, ldIRe, lit.PSm2019, 24.6.2005; ibidem, *Pinus mugo*, sadika, ldIRe, lit. PSm2019, 24.6.2005; ibidem, *Pinus nigra*, sadika, ldIRe, lit.PSm2019, 24.6.2005; ibidem, *Pinus sylvestris*, sadika, ldIRe, lit.PSm2019, 24.6.2005; ibidem, *Pinus wallichiana*, sadika, ldIRe, lit. PSm2019, 24.6.2005; ibidem, *Pseudotsuga menziesii*, sadika, ldIRe, lit.PSm2019, 24.6.2005; **Menina planina**, 14°48′, 46°15′, VM82, 1280 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Mežakla**, 14°00′, 46°25′, VM24, 1000 m, *Picea abies*, vrhač 10 cm, ldRPa, lit.RPa2020c, 17.10.2008; **Mežakla, Hribje**, 13°58′21″, 46°27′15″, VM24, 703 m, *Picea abies*, vrhač 10 cm, ldRPa, lit. RPa2020e, 30.6.2017; **Mežakla, Kisovec**, 13°59′52″, 46°26′44″, VM24, 727 m, *Picea abies*, vrhač 10 cm, ldRPa, lit.RPa2020e, 30.6.2017; **Mežakla, Radovna, Gabrje**, 13°59′52″, 46°23′51″, VM23, 681 m, *Picea abies*, vrhač 10 cm, ldRPa, lit.RPa2020b, 24.11.2016**Milje 1**, 14°24′23″, 46°15′50″, VM52, 425 m, tCev, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 27.10.1989; ibidem, tThe, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 6.10.1989; **Milje 2**, 14°24′30″, 46°15′52″, VM52, 428 m, tCev, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 29.9.1989, 6.10.1989; ibidem, tThe, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989,

21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 14.10.1989; **Milje 3**, 14°24′24″, 46°15′42″, VM52, 423 m, tCev, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989; ibidem, tThe, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989; **Milje 4, v Hrastičih**, 14°24′21″, 46°15′41″, VM52, 423 m, tCev, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 9.9.1989, 15.9.1989, 22.9.1989; ibidem, tThe, phPher phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 9.9.1989, 15.9.1989, 22.9.1989, 29.9.1989; **Mlaka pri Kranju, krožišče**, 14°20′58″, 46°16′05″, VM42, 411 m, *Picea abies*, vrhač 5 cm, ldRPa, lit. RPa2014c, 10.8.2014, 17.8.2014; **Moše, Smlednik**, 14°25′, 46°11′, VM51, 360 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Pišnica, Kranjska Gora**, 13°47′, 46°28′, VM04, 880 m, *Picea abies*, ldJTi, lit.JTi1983, 4.1973; ibidem, *Pinus mugo*, ldJTi, lit.JTi1983, 4.1973; **Planica, Rateče**, 13°44′, 46°28′, VM04, 970 m, *Picea abies*, veja, ldJTi, lit.JTi1983, 4.1973; ibidem, vrhač, ldJTi, lit.JTi1983, 4.1973; **Planina Vodični vrh, Julijske Alpe**, 13°51′, 46°18′, VM12, 1460 m, ldcAPi, lit.APi2015, 17.7.2014; **Podbrezje**, 14°17′, 46°18′, VM42, 440 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 4.1973; **Podbrezje, pri rondoju**, 14°16′36″, 46°18′56″, VM42, 476 m, *Picea abies*, deblo, ldRPa, lit.RPa2014c, 29.8.2008; **Pokljuka, Branca**, 14°01′29″, 46°19′23″, VM23, 1095 m, *Picea abies*, vrhač 10 cm, ldRPa, lit.RPa2020b, 6.11.2017; **Pokljuka, Medvedova konta**, 13°57′, 46°22′, VM13, 1395 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Medvedova konta 1**, 13°56′57″, 46°21′57″, VM13, 1331 m, *Picea abies*, veja, ldGGB, lit.GGB1988, 9.4.1988; ibidem, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; ibidem, phPher, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 6.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; **Pokljuka, Medvedova konta 2**, 13°56′31″, 46°22′12″, VM13, 1381 m, *Picea abies*, veja, ldGGB, lit.GGB1988, 9.4.1988; ibidem, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; ibidem, phPher, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; **Pokljuka, Medvedovec**, 13°56′26″, 46°22′01″, VM13, 1344 m, *Picea abies*, deblo 40 cm, ldRPa, lit.RPa2020e, 24.9.2013; **Pokljuka, Mrzli Studenec**, 13°59′, 46°201′, VM23, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Pokljuka, Mrzli Studenec 1**, 13°59′30″, 46°20′57″, VM23, 1212 m, *Picea abies*, hlod 20 cm, ldRPa, lit.RPa2020c, 19.10.2007; **Pokljuka, planina Javornik**, 13°56′58″, 46°21′45″, VM13, 1298 m, *Picea abies*, veja, ldGGB, lit.GGB1988, 9.4.1988; ibidem, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; ibidem, phPher, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; **Pokljuka, planina Velika Raven**, 13°56′53″, 46°22′33″, VM13, 1447 m, *Picea abies*, veja, ldGGB, lit.GGB1988, 9.4.1988; ibidem, 13°56′53″, 46°22′33″, VM13, 1447 m, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988,

20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; ibidem, phPher, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; **Pokljuka, pri Rupah**, 13°55′52″, 46°21′56″, VM13, 1367 m, *Picea abies*, vrhač 15 cm, ldRPa, lit.RPa2020e, 24.9.2013; **Pokljuka, Rudna dolina**, 13°57′, 46°21′, VM13, 1320 m, ldcAPi, lit.APi2015, 11.7.2014; **Pokljuka, Rudna dolina 1**, 13°56′23″, 46°21′14″, VM13, 1322 m, *Picea abies*, vrhač 15 cm, ldRPa, lit.RPa2020e, 4.6.2011; **Pokljuka, Velika preseka**, 13°56′24″, 46°22′20″, VM13, 1394 m, *Picea abies*, veja, ldGGB, lit.GGB1988, 9.4.1988; ibidem, tThe, phChal, ldGGB, lit.GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988,21.9.1988; ibidem, phPher, ldGGB, lit. GGB1988, 4.5.1988, 13.5.1988, 20.5.1988, 28.5.1988, 10.6.1988, 24.6.1988, 7.7.1988, 16.7.1988, 25.7.1988, 9.8.1988, 23.8.1988, 7.9.1988, 21.9.1988; **Potočnikov graben, Podljubelj**, 14°14′42″, 46°24′47″, VM44, 1364 m, tThe, phChal, ldRPa, lit.RPa1992b, 9.7.1992; **Praprotna Polica 4**, 14°27′08″, 46°14′30″, VM52, 396 m, *Picea abies*, deblo 25 cm rs, odRPa, lit.RPa2020b, 11.10.2019; **Praprotna Polica 5**, 14°27′10″, 46°14′28″, VM52, 396 m, *Picea abies*, deblo 20 cm rs, odRPa, lit. RPa2020b, 11.10.2019; **Preddvor**, 14°25′, 46°18′, VM52, 480 m, tWit, phPher, ldRPa, lit. RPa2010b, 8.9.2010; **Preska, Medvode**, 14°25′, 46°08′, VM50, 315 m, tThe, phChal, ldMJe, lit. MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Prevala, Menina**, 14°45′08″, 46°14′54″, VM82, 1038 m, *Picea abies*, deblo 8 cm gLEŠ, lDBo dRPa, lit.NOg2020, 22.5.2017; ibidem, tWtr, phChal, ldDBo, lit.NOg2020, 12.4.2017; **Prtovč, Zali Log**, 14°07′, 46°14′, VM32, 740 m, *Picea abies*, ldJTi, lit.JTi1983, 4.1974; **Prtovč, Železniki**, 14°06′44″, 46°13′41″, VM32, 1009 m, *Larix decidua*, veja, ldRPa, lit.RPa1995b, 14.8.1995; **Pungert, Škofja Loka**, 14°20′06″, 46°09′10″, VM41, 384 m, *Picea abies*, veja, ldRPa, lit.RPa1992b, 13.8.1991; **Radovljica**, 14°10′, 46°20′, VM33, 500 m, ldAGs, cAGs, pred 1951; **Retnje, Dobrava**, 14°16′17″, 46°19′32″, VM43, 509 m, tThe, phChal, ldRPa, lit.RPa1992b, 11.6.1992; ibidem, phPher, ldRPa, lit.RPa1992b, 11.6.1992; **Rovtarica, Jelovica**, 14°06′, 46°17′, VM32, 1160 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977; **Seničica, Medvode**, 14°26′, 46°07′, VM50, 320 m, tThe, phChal, ldMJe, lit. MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Sorško polje, Dobrava**, 14°21′51″, 46°10′55″, VM51, 364 m, tThe, phPher, ldRPa, lit.RPa1992b, 25.5.1992; **Sorško polje, Hrastiče 1**, 14°23′09″, 46°11′48″, VM51, 367 m, *Picea abies*, veja 5 cm, ldBMa, lit. RPa1993, 31.3.1993; **Sorško polje, Hrastiče 2**, 14°22′57″, 46°11′29″, VM51, 366 m, *Picea abies*, deblo 5 cm, ldBMa, lit.RPa1993, 31.3.1993; ibidem, tThe, phPher phChal, lBMa dRPa, lit. RPa1993, 22.4.1993; 6.5.1993, 20.5.993, 2.6.1993, 12.6.1993, 22.6.1993, 10.7.1993, 25.7.1993, 15.8.1993, 2.9.1993; **Sorško polje, Hrastiče 3**, 14°23′03″, 46°11′21″, VM51, 364 m, *Picea abies*, deblo 7 cm, ldBMa, lit.RPa1993, 31.3.1993; ibidem, tThe, phPher, lBMa dRPa, lit.RPa1993, 22.4.1993, 6.5.1993, 20.5.993, 2.6.1993, 12.6.1993, 22.6.1993, 10.7.1993, 25.7.1993, 15.8.1993, 2.9.1993; **Sorško polje, Hrastiče 4**, 14°22′55″, 46°11′16″, VM51, 366 m, *Picea abies*, deblo 10 cm, ldBMa, lit.RPa1993, 31.3.1993; ibidem, lovni vejni kup, lBMa dRPa, lit.RPa1993, 22.4.1993, 6.5.1993, 20.5.1993, 28.5.1993, 10.6.1993; **Sorško polje, Hrastiče 5**, 14°22′59″, 46°11′09″, VM51, 362 m, *Picea abies*, veja 5 cm, ldBMa, lit.RPa1993, 31.3.1993; **Sorško polje, Hrastiče 6**, 14°23′16″, 46°11′13″, VM51, 362 m, *Picea abies*, deblo 10 cm, ldBMa, lit.RPa1993, 31.3.1993; ibidem, tThe, phChal, lBMa dRPa, lit.RPa1993, 22.4.1993, 6.5.1993, 20.5.1993, 2.6.1993, 12.6.1993, 22.6.1993, 10.7.1993, 25.7.1993, 15.8.1993, 2.9.1993; ibidem, phPher, lBMa dRPa, lit.RPa1993, 22.4.1993, 6.5.1993, 20.5.1993, 2.6.1993, 12.6.1993, 22.6.1993, 10.7.1993, 25.7.1993, 15.8.1993, 2.9.1993; **Sorško polje, Lumar Trade 1**, 14°21′56″, 46°11′55″, VM51, 372 m, *Picea abies*, hlod 15 cm, ldRPa, lit.RPa2020c, 8.5.2006; **Sorško polje, Lumar Trade 2**, 14°21′58″, 46°11′55″, VM51, 372 m, *Picea abies*, drva, ldRPa, lit.RPa2020c, 8.5.2006; **Sorško polje, Lumar Trade 3**, 14°21′47″, 46°11′53″, VM51, 374 m, *Picea abies*, deblo 15 cm, ldRPa, lit.RPa2020c, 8.5.2006;

Sorško polje, Lumar Trade 4, 14°21′47″, 46°12′00″, VM51, 373 m, *Pinus sylvestris*, veja 7 cm, ldRPa, lit.RPa2020c, 8.5.2006; **Sorško polje, Senožeti**, 14°21′50″, 46°11′04″, VM51, 369 m, *Picea abies*, veja, ldRPa, lit.RPa1992b, 25.5.1992; **Srednja Vas pri Šenčurju 1**, 14°26′18″, 46°14′52″, VM52, 407 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Srednja Vas pri Šenčurju 3**, 14°26′31″, 46°14′23″, VM52, 398 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2021a, 16.8.2021; **Srednja Vas pri Šenčurju 4**, 14°26′05″, 46°15′27″, VM52, 418 m, *Picea abies*, veja 3 cm, ldRPa, lit.RPa2022a, 11.8.2022; **Stara Fužina, Vorenčkojca, Bohinj**, 13°53′12″, 46°17′27″, VM12, 578 m, tWtr, phPher, ldDBo, lit.NOg2020, 17.4.2018; **Strmica, Bukovščica**,14°16′, 46°14′, VM42, 500 m, ldSBr, cSBr, 15.5.1994; **Sveta Gora, Izlake**, 14°54′, 46°08′, VM90, 720 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978; **Sveti Jakob, Hraše**, 14°28′, 46°11′, VM51, 340 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Šenčur, Beleharjeva cesta 1**, 14°26′25″, 46°14′08″, VM52, 392 m, *Picea abies*, veja 3 cm rs, odRPa, lit. RPa2021a, 15.10.2021; ibidem, veja 5 cm rs, odRPa, lit.RPa2021a, 15.10.2021; ibidem, vrhač 10 cm rs, odRPa, lit.RPa2021a, 15.10.2021; **Šenčur, Beleharjeva cesta 2**, 14°26′29″, 46°14′07″, VM52, 392 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2022a, 31.5.2022; ibidem, vrhač 4 cm rs, odRPa, lit.RPa2022a, 31.5.2022; **Šenčur, izvoz Brnik 2**, 14°26′12″, 46°13′40″, VM51, 384 m, *Picea abies*, deblo 15 cm rs, odRPa, lit.RPa2020b, 12.8.2019; **Šenčur, izvoz Brnik 3**, 14°26′13″, 46°13′35″, VM51, 383 m, tEco, phGaPP, ldRPa, lit.RPa2019b, 10.7.2017, 17.7.2017, 20.7.2017, 24.7.2017, 26.7.2017, 28.5.2018, 31.5.2018, 4.6.2018, 7.6.2018, 11.6.2018, 14.6.2018, 19.6.2018, 21.6.2018, 25.6.2018, 28.6.2018, 1.7.2018, 6.6.2019, 10.6.2019, 15.6.2019, 20.6.2019, 26.6.2019, 1.7.2019, 5.7.2019, 8.7.2019, 12.7.2019, 15.7.2019, 18.7.2019, 23.7.2019, 26.7.2019, 31.7.2019, 31.8.2019; **Šenčur, izvoz Brnik 4**, 14°26′23″, 46°13′29″, VM52, 380 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 30.10.2015; ibidem, deblo 35 cm, ldRPa, lit.RPa2020c, 31.5.2011, 11.11.2011; ibidem, tThe, phPher phChal, ldRPa, lit.RPa2020c, 31.5.2011, 11.11.2011; **Šenčur, Partizanska ulica 1**, 14°24′25″, 46°15′06″, VM52, 413 m, tRid, phEcIT phEcPC, ldRPa, lit.RPa2022a, 31.7.2022; ibidem, lit.RPa2023a, 30.5.2023, 14.6.2023, 28.6.2023, 12.7.2023, 24.7.2023, 7.8.2023, 21.8.2023, 6.9.2023, 20.9.2023, 4.10.2023, 18.10.2023, 27.10.2023; **Šenčur, poslovna cona 1**, 14°24′28″, 46°13′57″, VM52, 387 m, *Picea abies*, vejni kup, ldRPa, lit.RPa2020c, 4.6.2008; ibidem, tThe, phPher, ldRPa, lit.RPa2020c, 4.6.2008; **Šenčur, poslovna cona 3**, 14°24′19″, 46°13′58″, VM52, 387 m, *Picea abies*, hlod 20 cm, ldRPa, lit.RPa2020c, 4.6.2008; **Šenčur, poslovna cona 4**, 14°24′22″, 46°14′09″, VM52, 393 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021a, 6.10.2021; **Šenčur, pri krožišču, skladišče sekancev**, 14°24′20″, 46°14′27″, VM52, 398 m, tThe, pdEcIT phEcPC, ldRPa, lit.RPa2021a, 27.5.2021; **Šenčur, proti Voklu 1**, 14°25′06″, 46°13′58″, VM52, 390 m, tThe, phPher phChal, ldRPa, lit.RPa2020c, 30.5.2012; **Šenčur, proti Voklu 2**, 14°25′10″, 46°13′58″, VM52, 390 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 13.10.2017; **Šenčur, v Križancah**, 14°24′47″, 46°14′13″, VM52, 394 m, tCev, phPher phChal, ldRPa, lit. RPa1991a, 8.4.1989, 14.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 8.9.1989, 22.9.1989; ibidem, tThe, phPher phChal, ldRPa, lit. RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 9.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 14.10.1989; **Šenčur, Zlato polje 1,** 14°24′11″, 46°15′01″, VM52, 414 m, tThe, Kont, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 14.7.1989, 11.8.1989, 18.8.1989, 5.5.1989, 12.5.1989, 23.6.1989, 28.7.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 4.8.1989, 11.8.1989, 18.8.1989, 25.8.1989,

1.9.1989, 8.9.1989, 15.9.1989, 22.9.1989, 29.9.1989, 6.10.1989, 14.10.1989, 20.10.1989, 27.10.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989, 29.9.1989; **Šenčur, Zlato polje 2,** 14°24′42″, 46°14′53″, VM52, 408 m, tThe, Kont, ldRPa, lit.RPa1991a, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 11.8.1989, 18.8.1989, 25.8.1989, 1.9.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 28.4.1989, 5.5.1989, 12.5.1989, 19.5.1989, 26.5.1989, 2.6.1989, 9.6.1989, 16.6.1989, 23.6.1989, 30.6.1989, 7.7.1989, 14.7.1989, 21.7.1989, 28.7.1989, 11.8.1989, 18.8.1989, 25.8.1989; **Šmarjetna gora, Kranj**, 14°20′10″, 46°14′37″, VM42, 641 m, *Picea abies*, deblo 20 cm, ldRPa, lit.RPa2014c, 26.2.1995; **Tržič, Kajžarjeva guba**, 14°17′18″, 46°22′44″, VM43, 824 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020e, 11.7.2018; **Udin boršt, Naklo**, 14°20′, 46°18′, VM42, 460 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Velesovo 1**, 14°26′46″, 46°15′46″, VM52, 424 m, *Picea abies*, deblo 3 cm rs, odRPa, lit.RPa2021a, 20.2.2021; **Velesovo 2**, 14°26′43″, 46°15′43″, VM52, 424 m, *Picea abies*, veja 2 cm rs, odRPa, lit.RPa2021a, 20.2.2021; **Velesovo 3**, 14°26′45″, 46°15′51″, VM52, 424 m, *Picea abies*, veja 4 cm rs, odRPa, lit.RPa2021a, 20.2.2021; **Velika planina, Kamniške Alpe**, 14°39′, 46°18′, VM72, ~1600 m, ldJSd, cJSd, 19.6.1930; **Vodice 1**, 14°29′27″, 46°10′43″, VM61, 476 m, *Pinus sylvestris*, veja 5 cm, ldRPa, lit.RPa2014c, 18.8.2008; **Vodice 2**, 14°29′31″, 46°11′51″, VM61, 358 m, *Pinus sylvestris*, veja 5 cm, ldRPa, lit.RPa2014c, 18.8.2008; **Vodice 3**, 14°32′01″, 46°11′19″, VM61, 330 m, *Picea abies*, deblo 15 cm gLEŠ, lDBo dRPa, lit.NOg2020, 3.4.2017; ibidem, tWtr, phChal, ldDBo, lit.NOg2020, 24.3.2017; **Voglje 8**, 14°27′18″, 46°11′47″, VM51, 363 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2021a, 15.6.2021; **Voklo, pri Petrol BS 1**, 14°25′37″, 46°13′33″, VM51, 382 m, *Picea abies*, deblo 10 cm rs, odRPa, lit.RPa2020b, 12.8.2019; **Voklo, pri Petrol BS 5**, 14°25′39″, 46°13′37″, VM51, 384 m, *Picea abies*, deblo 15 cm rs, odRPa, lit.RPa2020b, 12.8.2019; ibidem, tEco, phGaPP, ldRPa, lit. RPa2019b, 10.7.2017, 13.7.2017, 17.7.2017, 20.7.2017, 24.7.2017, 26.7.2017, 28.5.2018, 31.5.2018, 4.6.2018, 7.6.2018, 11.6.2018, 14.6.2018, 19.6.2018, 21.6.2018, 25.6.2018, 28.6.2018, 1.7.2018, 6.6.2019, 10.6.2019, 15.6.2019, 20.6.2019, 26.6.2019, 1.7.2019, 5.7.2019, 8.7.2019, 12.7.2019, 15.7.2019, 18.7.2019, 23.7.2019, 26.7.2019, 31.7.2019, 31.8.2019; **Volčji Potok, arboretum, drevesnica 2**, 14°36′39″, 46°11′24″, VM61, 352 m, *Chamaecyparis lawsoniana* »globosa«, deblo 5 cm, lVDo dRPa, lit.RPa2020a, 3.5.2010; ibidem, *Chamaecyparis lawsoniana* »green globe«, visoko cepljen, deblo 5 cm, lVDo dRPa, lit.RPa2020a, 3.5.2010; ibidem, *Chamaecyparis lawsoniana* »star dust«, deblo 3 cm, lVDo dRPa, lit.RPa2020a, 19.5.2010; ibidem, *Pinus strobus* "nana", visoko cepljen, deblo 5 cm, lVDo dRPa, lit.RPa2020a, 3.5.2010; ibidem, *Pinus wallichiana,* deblo 5 cm, lVDo dRPa, lit.RPa2020a, 3.5.2010; **Volčji Potok, arboretum, drevesnica 4**, 14°36′37″, 46°11′24″, VM61, 351 m, *Picea abies*, deblo 5 cm, lVDo dRPa, lit.RPa2020a, 3.5.2010; **Volčji Potok, arboretum, Vrtni center 1**, 14°36′22″, 46°11′11″, VM61, 339 m, tThe, phEcPC, ldVDo, lit.RPa2020a, 16.6.2020; **Volčji Potok, arboretum, Zgornji angleški park**, 14°36′44″, 46°11′25″, VM61, 351 m, tThe, phEcPC, ldVDo, lit.RPa2020a, 29.6.2020; **Vopovlje 1**, 14°29′41″, 46°13′27″, VM61, 362 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021a, 2.10.2021; **Vrata, Aljažev dom, Julijske Alpe**, 13°51′, 46°25′, VM14, 970 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1974; **Vršič, Koča na Gozdu**, 13°45′55″, 46°26′08″, VM04, 1364 m, tThe, phCemp, ldRPa, lit.RPa1995b, 16.6.1994, 14.7.1994; **Zavrh pod Šmarno goro**, 14°28′, 46°08′, VM50, 340 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Zbilje, Medvode**, 14°25′, 46°09′, VM51, 340 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Zgornja Kokra 1**, 14°29′, 46°20′, VM63, 650 m, *Picea abies*, vrhač, ldJTi, lit.JTi1983, 3.1973; **Zgornja Kokra 2**, 14°29′, 46°20′, VM53, 750 m,

Picea abies, vrhač, ldJTi, lit.JTi1983, 3.1973; **Zgornje Bitnje 3**, 14°19′32″, 46°13′20″, VM41, 395 m, tWit, Kont, ldRPa, lit.RPa2008, 16.7.2008; **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; **Zgornje Bitnje 5**, 14°19′38″, 46°13′18″, VM41, 395 m, *Picea abies*, hlod 15 cm, ldRPa, lit.RPa2020c, 29.5.2008; **Zgornje Jezersko, pri Kazini**, 14°30′03″, 46°23′34″, VM64, 880 m, tThe, phChal, ldRPa, lit.RPa1995b, 30.7.1995; **Zgornji Brnik 1**, 14°27′46″, 46°14′20″, VM51, 368 m, *Picea abies*, deblo 5 cm, ldRPa, lit.RPa2014c, 1.5.2008; **Zgornji Brnik 2**, 14°27′46″, 46°14′25″, VM51, 369 m, *Picea abies*, deblo 7 cm, ldRPa, lit.RPa2014c, 1.5.2008; **Zgornji Log, Poljanska dolina**, 14°14′, 46°08′, VM40, 430 m, *Picea abies*, ldJTi, lit.JTi1983, 3.1972; **Zvirče, Tržič**, 14°16′03″, 46°19′40″, VM43, 482 m, *Picea abies*, veja, ldRPa, lit.RPa1992b, 7.8.1991.

NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 5.5.2017, 19.5.2017; **Borovnica**, 14°22′, 45°55′, VL58, 470 m, *Picea abies*, ldJTi, lit.JTi1983, 3.1973; **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, *Picea abies*, ldMJu, cBFG, 5.5.2017; ibidem, tWit, phEtan, ldTHa, lit.THa2018, 5.5.2017; **Brezovnik, Koče, Prestranek**, 14°09′35″, 45°43′30″, VL36, 599 m, *Picea abies*, deblo 10 cm rs, odDDe vRPa, lit.RPa2021a, 22.10.2021; **Bukovje, Postojna**, 14°08′, 45°49′, VL37, 590 m, ldJTi, cSBr, 1989; **Bukovje, Vrhe, Studeno**, 14°08′24″, 45°49′02″, VL37, 527 m, *Picea abies*, deblo 19 cm rs, odMTu vRPa, lit.RPa2022a, 7.12.2022; **Cerknica**, 14°22′, 45°48′, VL57, ~600 m, *Picea abies*, debelce gEZ, odFPe, lit.FPe1969, 8.1967, 4.1968; ibidem, veja, odFPe, lit.FPe1969, 5.1967; ibidem, vejni kup, odFPe, lit.FPe1969, 5.1967; ibidem, vrhač, odFPe, lit.FPe1969, 5.1967; **Črni Vrh, Idrija**, 14°03′, 45°55′, VL28, 740 m, *Picea abies*, rs, odJTi, lit.JTi1983, 10.1977; **Godovič**, 14°06′, 45°57′, VL29, 595 m, *Picea abies*, ldJTi, lit.JTi1983, 10.1977; **Goli vrh, Razdrto**, 14°03′, 45°45′, VL26, 590 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1973; **Golobičevec, Planina**, 14°15′, 45°47′, VL47, 690 m, *Picea abies*, hlod 15 cm, ldRPa, lit.RPa2020c, 28.10.2011; **Horjul**, 14°18′, 46°01′, VL49, 420 m, *Picea abies*, vrhač, ldJTi, lit.JTi1983, 4.1972; **Hotedršica**, 14°09′, 45°56′, VL38, 545 m, *Picea abies*, ldJTi, lit.JTi1983, 10.1977; **Idrija, okolica**, (14°02′), (46°00′), (VL29), *, *Picea abies*, lovno drevo rs, odJŠl, lit.JŠl1948, 1947; ibidem, *Picea abies*, odŽKv, lit.ŽKv1953, 1951-2000; **Idrija, Vodnikova ulica 1**, 14°02′03″, 45°59′32″, VL29, 340 m, *Picea abies*, deblo 10 cm rs, odLCu vRPa, lit.RPa2023a, 20.11.2023; **Idrijska Bela, Kotenski rob**, 13°59′17″, 45°57′13″, VL28, 627 m, *Picea abies*, vrhač 15 cm, ldRPa, lit.RPa2020e, 23.9.2013; **Kalce**, 14°12′, 45°54′, VL38, 492 m, *Picea abies*, ldJTi, lit.JTi1983, 10.1977; **Ledenica pri Planinci, Krim**, 14°27′, 45°57′, VL58, 490 m, lHEg, cJSs, pred 1951; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017; **Ljubljanski vrh 2**, 14°17′55″, 45°55′41″, VL48, 729 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Malni, Planina**, 14°15′, 45°49′, VL47, 458 m, tThe, phPher, ldMPe, lit.MPe2001, 12.5.1997, 23.6.1997, 28.7.1997, 1.9.1997, 20.4.1998, 25.5.1998, 29.6.1998, 3.8.1998; **Planina, Mali laz**, 14°14′, 45°49′, VL47, 664 m, tThe, phPher, ldMPe, lit.MPe2001, 12.5.1997, 23.6.1997, 28.7.1997, 1.9.1997, 20.4.1998, 25.5.1998, 29.6.1998, 3.8.1998; **Podpeč, Ljubljansko barje**, 14°26′, 45°58′, VL59, 380 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 11.1971; **Ravbarkomanda, Postojna 1**, 14°13′53″, 45°47′24″, VL47, 615 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 26.5.2016; ibidem, tThe, phEcPC, ldRPa, lit.RPa2020c, 26.5.2016; **Ravbarkomanda, Postojna 2**, 14°13′51″, 45°47′38″, VL47, 590 m, *Picea abies*, hlod 10 cm, ldRPa, lit.RPa2020c, 26.5.2016; **Ravbarkomanda, Postojnska Vrata**, 14°15′, 45°48′, VL47, 626 m, tThe, phPher, ldMPe, lit.MPe2001, 12.5.1997, 23.6.1997, 28.7.1997, 1.9.1997, 20.4.1998, 25.5.1998, 29.6.1998, 3.8.1998; **Senadole**, 13°59′09″, 45°43′23″, VL26, 508 m, *Pinus nigra*, veja, ldRPa, lit.RPa2014c, 17.7.2004; **Senožeče, Razdrto**, 14°03′, 45°44′, VL26, 520 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Smrečje, Rovte**, 14°12′, 46°01′, VL39, 650 m, *Picea abies*, ldJTi, lit.JTi1983, 3.1972; **Snežnik**, 14°26′, 45°36′, VL54, 1389 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 9.5.2013; ibidem, vrhač 5 cm, ldRPa, lit.RPa2020c,

9.5.2014; **Snežnik, Leskova dolina**, 14°28′, 45°37′, VL55, 840 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Sviščaki, Snežnik**, 14°24′, 45°34′, VL54, 1200 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Štivan, Matenja Vas, drevesnica Štivan**, 14°10′58″, 45°44′35″, VL36, 534 m, *Chamaecyparis lawsoniana*, sadika, ldIRe, lit.PSm2019, 23.6.2007, 3.9.2007; ibidem, sadika rs, odIRe, lit. PSm2019, 1.7.2005; ibidem, *Larix decidua*, sadika, ldIRe, lit.PSm2019, 7.6.2007; ibidem, *Picea abies*, sadika, ldIDJu, lit.PSm2019, 16.6.2002; ibidem, ldIRe, lit.PSm2019, 7.6.2007, 3.9.2007; ibidem, *Picea abies*, sadika rs, odIRe, lit.PSm2019, 1.7.2005; ibidem, *Picea omorika*, sadika rs, odIRe, lit.PSm2019, 1.7.2005; ibidem, *Pinus mugo*, sadika, ldIRe, lit.PSm2019, 3.9.2007; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017, 19.5.2017, 2.6.2017, 25.8.2017; **Vrhnika**, 14°17′42″, 45°56′14″, VL48, 567 m, *Picea abies*, hlod 15 cm, ldRPa, lit.RPa2020c, 4.11.2016; ibidem, tThe, phEcPC, ldRPa, lit.RPa2020c, 4.11.2016; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit. THa2018, 21.4.2017, 5.5.2017.

LJUBLJANA Z OKOLICO: **Babni Dol, Staneželiče**, 14°24′, 46°05′, VM50, 370 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Belo, Polhograjsko hribovje**, 14°21′, 46°04′, VM40, 680 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Bormes, Staneželiče**, 14°25′, 46°06′, VM50, 350 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Brezovica pri Medvodah**, 14°23′, 46°06′, VM50, 640 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, *Pinus sylvestris*, veja 5 cm, ldRPa, lit. RPa2020c, 4.6.2013, 25.10.2013; **Golo Brdo, Staneželiče**, 14°25′, 46°07′, VM50, 360 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Legastja, Polhograjsko hribovje**, 14°22′, 46°07′, VM51, 440 m, tThe, phChal, ldMJe, lit. MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cAGs, 12.4.1930; ibidem, ldJSd, cJSd, 10.6.1928, 22.4.1930; **Ljubljana, Podrožnik, drevesnica IGLG**, 14°29′, 46°03′, VM60, 330 m, *Pinus strobus*, debelce, ldJTi, lit.JTi1983, 1967; **Ljubljana, Šentvid**, 14°28′, 46°06′, VM50, 360 m, *Picea abies,* veja, ldJTi, lit.JTi1983, 8.1970; ibidem, vrhač, ldJTi, lit.JTi1983, 8.1970; **Ljubljana, Večna pot 83, vrt**, 14°28′40″, 46°03′00″, VL59, 301 m, *Pinus strobus*, deblo 10 cm rs, odRPa, lit.RPa2020b, 10.9.2018; ibidem, deblo 20 cm rs, odRPa, lit.RPa2020b, 10.9.2018; **Ljubljana, Večna pot, parkirišče Biološkega središča**, 14°28′10″, 46°03′14″, VM50, 303 m, *Picea abies,* veja 3 cm rs, odRPa, lit.RPa2022a, 8.7.2022; **Ljubljana, Večna pot, parkirišče ZOO**, 14°28′17″, 46°03′10″, VM50, 302 m, *Picea abies*, veja 3 cm rs, odRPa, lit.RPa2022a, 15.4.2022; ibidem, veja 5 cm rs, odRPa, lit.RPa2022a, 20.4.2022; **Ljubljana, Vodnikova 25, vrt**, 14°29′31″, 46°03′53″, VM60, 308 m, *Picea pungens* var. Glauca, veja, ldRPa, lit.RPa2014c, 15.9.2004; **Podlipoglav, Češnjica**, 14°37′, 46°01′, VL79, 430 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1978; **Rašica 1**, 14°31′04″, 46°07′54″, VM60, 417 m, tThe, phChal, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 2**, 14°30′25″, 46°08′20″, VM60, 495 m, tThe, phChal, ldMBj, lit. MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 3**, 14°30′22″, 46°08′27″, VM60, 531 m, tThe, phChal, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 4**, 14°30′48″, 46°08′20″, VM60, 632 m, tThe, phChal, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 5**, 14°30′17″, 46°08′32″, VM60, 516 m, tThe, phChal, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 6**, 14°30′39″, 46°08′54″, VM61, 489 m, tThe, phChal, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 7**, 14°31′07″, 46°09′32″, VM61, 336 m, tThe, phChal, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rašica 8**, 14°31′36″, 46°09′39″, VM61, 355 m, tThe, phChal, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008,

17.7.2008, 19.8.2008, 12.10.2008; **Rašica 9**, 14°31′46″, 46°09′40″, VM61, 364 m, tThe, phChal, ldMBj, lit.MBj2014, 25.4.2008, 22.6.2008, 17.7.2008, 19.8.2008, 12.10.2008; **Rožnik, Ljubljana 3**, 14°28′34″, 46°03′04″, VL59, 329 m, *Pinus strobus*, veja 5 cm, ldRPa, lit.RPa2020c, 9.10.2009; **Rožnik, Ljubljana 4**, 14°28′31″, 46°03′06″, VL59, 342 m, *Picea abies*, veja 5 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Staneže**, 14°26′, 46°07′, VM50, 340 m, tThe, phChal, ldMJe, lit. MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Šmarna gora**, 14°28′, 46°07′, VM50, 600 m, *Picea abies*, ldJTi, lit.JTi1973, 2.1972; **Tehovec, Polhograjsko hribovje**, 14°22′, 46°07′, VM50, 680 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Vikrče**, 14°26′, 46°07′, VM50, 330 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005; **Žlebe**, 14°24′, 46°07′, VM50, 380 m, tThe, phChal, ldMJe, lit.MJe2005, 26.4.2004, 21.5.2005, 18.6.2005, 22.7.2005, 24.8.2005, 28.9.2005.

DOLENJSKO: **Banjaloka**, 14°53′, 45°31′, VL94, 560 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Borovec pri Karlovici**, 14°36′, 45°48′, VL67, 560 m, tThe, phPher, lČVi dSBr, cSBr, 10.6.1992; **Borovec pri Karlovici, Mala Slevica 1**, 14°35′38″, 45°47′50″, VL67, 574 m, *Picea abies*, hlod 20 cm, ldRPa, lit.RPa2020e, 30.8.2018; ibidem, vrhač 10 cm, ldRPa, lit.RPa2020e, 8.6.2011; **Borovec pri Karlovici, Mala Slevica 2**, 14°36′01″, 45°48′07″, VL67, 598 m, *Picea abies*, hlod 15 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Brunk, Radeče**, 15°11′, 46°02′, WL19, 510 m, *Picea abies*, veja, ldJTi, lit.JTi1969, 1963, 1966; ibidem, vrhač, ldJTi, lit.JTi1969, 1963, 1966; **Debeli vrh, Glažuta, Goteniška gora**, 14°40′, 45°41′, VL75, 1050 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Dobrava, Bizeljsko**, 15°39′14″, 45°56′27″, WL58, 161 m, tThe, phPher phChal, ldRPa, lit. RPa2014c, 4.10.1990; **Dobrava, Radeče**, 15°11′, 46°03″, WL19, 250 m, *Picea abies*, deblo, ldJTi, lit.JTi1969, 1963, 1966; ibidem, hlod, ldJTi, lit.JTi1969, 1963, 1966; ibidem, veja, ldJTi, lit. JTi1969, 1963, 1966; ibidem, vrhač, ldJTi, lit.JTi1969, 1963, 1966; **Gorenje Kališče, Mala Slevica**, 14°34′34″, 45°49′00″, VL67, 695 m, *Picea abies*, vrhač 15 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Gorenje, Kočevje 1**, 14°51′46″, 45°40′42″, VL85, 470 m, *Picea abies*, hlod 20 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Gorenje, Kočevje 2**, 14°51′23″, 45°40′50″, VL85, 475 m, *Picea abies*, hlod 20 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Gorica, Ig**, 14°31′05″, 45°57′23″, VL68, 325 m, *Picea abies*, kontrolno deblo, ldARe, lit.ARe2014, 7.2008, 5.2009; **Gornje Ložine, Dolenja Vas**, 14°47′08″, 45°41′33″, VL85, 496 m, *Picea abies*, hlod 20 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Gradec, Kobilje, Gorjanci**, 15°20′51″, 45°47′28″, WL27, 468 m, *Picea abies*, vrhač 15 cm, ldRPa, lit.RPa2020e, 26.9.2013, 28.8.2018; **Grčarice**, 14°45′, 45°39′, VL85, 770 m, *Picea abies*, ldJTi, lit. JTi1983, 8.1981; **Grosuplje**, 14°39′, 45°57′, VL78, 430 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1978; ibidem, *Picea abies*, deblo, ldJŠl, lit.JŠl1958, 22.3.1952; ibidem, *Picea abies*, talni vzorci gEZ, ldJŠl, lit.JŠl1958, 29.3.1952; **Hotemež, Radeče 1**, 15°12′, 46°03′, WL19, 240 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1963, 1966; ibidem, hlod, ldJTi, lit.JTi1983, 1963, 1966; ibidem, veja, ldJTi, lit. JTi1983, 1963, 1966; ibidem, vrhač, ldJTi, lit.JTi1983, 1963, 1966; **Hudi Konec, Sodražica**, 14°40′, 45°47′, VL77, 700 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Ivanja Vas, Mirna Peč**, 15°05′, 45°52′, WL07, 328 m, *Picea abies*, deblo, ldJŠl, lit.JŠl1958, 11.4.1952; ibidem, *Picea abies*, talni vzorci gEZ, ldJŠl, lit.JŠl1958, 16.4.1952; **Jatna, Podkum**, 15°05′, 46°03′, WL09, 700 m, *Picea abies*, veja, ldJTi, lit.JTi1983, 1963, 1966; ibidem, vrhač, ldJTi, lit.JTi1983, 1963, 1966; **Junčje, Mala Slevica**, 14°32′13″, 45°40′23″, VL85, 918 m, *Picea abies*, hlod 15 cm, ldRPa, lit. RPa2020e, 30.8.2018; **Klinger, Kočevska Mala gora**, 14°53′13″, 45°40′32″, VL95, 477 m, *Picea abies*, hlod 15 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Klinja Vas, Kočevska Mala gora 1**, 14°52′13″, 45°40′23″, VL85, 474 m, *Picea abies*, hlod 20 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Klinja Vas, Kočevska Mala gora 2**, 14°52′17″, 45°40′10″, VL85, 477 m, *Picea abies*, hlod 15 cm, ldRPa, lit. RPa2020e, 9.7.2018; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, ldSBr, cSBr, 30.7.1948; ibidem, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Kočevska Mala gora**, 14°54′13″, 45°40′28″, VL95, 473 m, *Picea*

abies, hlod 15 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Krakovski gozd**, 15°25′, 45°54′, WL38, 210 m, *Pinus strobus*, ldJTi, lit.JTi1983, 7.1979; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 15.7.1977, 8.8.1981, 15.8.1985; **Krka, Muljava**, 14°47′, 45°53′, VL88, 290 m, *Picea abies*, veja, ldJTi, lit.JTi1983, 10.1972; **Krvavi kamen, Gorjanci**, 15°19′, 45°46′, WL26, 1050 m, *Picea abies*, vrhač, ldJTi, lit.JTi1983, 10.1973; **Kurešček, Visoko**, 14°34′, 45°53′, VL68, 740 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Laporje 1**, 14°37′46″, 45°51′55″, VL77, 536 m, *Picea abies*, deblo 5 cm rs, oARu dRPa, lit.RPa2021a, 30.10.2021; **Linca, Žimarice 1**, 14°35′14″, 45°47′39″, VL67, 724 m, *Picea abies*, vrhač 15 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Linca, Žimarice 2**, 14°35′21″, 45°47′27″, VL67, 746 m, *Picea abies*, vrhač 10 cm, ldRPa, lit.RPa2020e, 8.6.2011; **Luče, Višnja Gora**, 14°44′, 45°55′, VL78, 340 m, *Picea abies*, ldNHa, lit.NHa2009, 24.8.2006; **Mala Gora, Kočevje 1**, 14°51′34″, 45°41′20″, VL85, 479 m, *Picea abies*, hlod 15 cm, ldRPa, lit.RPa2020e, 9.7.2018; **Medvedica, Želimlje**, 14°37′36″, 45°54′35″, VL78, 426 m, *Picea abies*, deblo 8 cm gLEŠ, lDBo dRPa, lit.NOg2020, 25.4.2018; ibidem, tWtr, phChal, ldDBo, lit.NOg2020, 2.4.2018; **Mikunca, Žimarice**, 14°35′, 45°47′, VL67, ~800 m, tThe, phPher, lČVi dSBr, cSBr, 12.5.1992, 10.6.1992; **Močilno, Radeče**, 15°09′, 46°03′, WL19, 540 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 1963, 1966; ibidem, hlod, ldJTi, lit.JTi1983, 1963, 1966; ibidem, veja, ldJTi, lit.JTi1983, 1963, 1966; ibidem, vrhač, ldJTi, lit.JTi1983, 1963, 1966; **Mokrec**, 14°32′, 45°54′, VL68, ~900 m, ldSBr, cSBr, 18.7.1980; **Mokrec 4**, 14°31′44″, 45°53′39″, VL68, 1016 m, *Picea abies*, deblo 13 cm gLEŠ, lDBo dRPa, lit.NOg2020, 25.4.2018; ibidem, tWtr, phChal, ldDBo, lit.NOg2020, 19.4.2018; **Mokrec, Erjavčev laz**, 14°30′22″, 45°53′10″, VL68, 849 m, *Picea abies*, deblo 9 cm gLEŠ, lDBo dRPa, lit.NOg2020, 25.4.2018; ibidem, tWtr, phChal, ldDBo, lit.NOg2020, 8.4.2018; **Mozelj**, 14°57′, 45°35′, VL94, 500 m, ldSBr, cSBr, 29.7.1948; ibidem, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1981; **Podkogelj, Mišja dolina 1**, 14°36′06″, 45°48′30″, VL67, 570 m, *Picea abies*, vrhač 10 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Podkogelj, Mišja dolina 2**, 14°36′09″, 45°48′48″, VL67, 580 m, *Picea abies*, vrhač 10 cm, ldRPa, lit.RPa2020e, 30.8.2018; **Podtabor, Struška dolina**, 14°46′, 45°47′, VL87, 520 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Prestrana, Muljava**, 14°45′, 45°54′, VL88, 460 m, *Picea abies*, ldNHa, lit.NHa2009, 24.8.2006; **Pugled, Kočevje**, 14°51′14″, 45°40′43″, VL85, 475 m, *Picea abies*, kontrolno deblo, ldARe, lit.ARe2014, 6.2008, 5.2009; **Radeče**, 15°10′, 46°04′, WM10, 250 m, *Picea abies*, ldJTi, lit.JTi1983, 1963, 1966; **Rimš, Leskovec pri Krškem, drevesnica HPG Brežice**, 15°24′32″, 45°55′04″, WL38, 181 m, *Picea abies*, veja, ldJTi, lit. JTi1973, 6.1971; ibidem, vrhač, ldJTi, lit.JTi1973, 6.1971; ibidem, *Picea omorika*, veja, lit. MJu1996, 1951-2000; ibidem, vrhač, lit.MJu1996, 1951-2000; **Rudna Vas, Radeče**, 15°10′, 46°03′, WL19, 540 m, *Picea abies*, veja, ldJTi, lit.JTi1969, 1963, 1966; ibidem, vrhač, ldJTi, lit.JTi1969, 1963, 1966; **Ruperčvrh, Stranska Vas**, 15°09′, 45°46′, WL16, 350 m, *Pinus strobus*, ldJTi, lit. JTi1983, 6.1980; **Senuše, Leskovec pri Krškem**, 15°26′, 45°56′, WL38, 270 m, *Pinus strobus*, ldJTi, lit.JTi1983, 1970; **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 2.6.2017; **Sopota, Podkum**, 15°03′, 46°04′, WM00, 540 m, ldSBr, cSBr, 6.5.1988; **Soteska, proti Peči**, 15°00′23″, 45°46′20″, WL06, 455 m, tThe, phChal, ldRPa, lit. RPa2014c, 23.9.1995; **Spodnje Duplice**, 14°41′, 45°58′, VL79, 360 m, *Picea abies*, ldNHa, lit. NHa2009, 24.8.2006; **Stari Trg ob Kolpi**, 15°05′, 45°30′, WL03, 340 m, tThe, phLino, lNSm dSBr, cSBr, 29.6.1990; **Stična**, 14°48′, 45°57, VL88, 430 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Stranska Vas**, 15°10′, 45°45′, WL16, 190 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Stružnica, Banjaloka**, 14°52′, 45°30′, VL83, 570 m, ldSBr, cSBr, 28.4.2004; **Šahen, Kočevje**, 14°55′, 45°37′, VL95, 480 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Škocjan ob Radulji**, 15°18′, 45°54′, WL28, 240 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phPher, lGBa dSBr, cSBr, 18.6.1993; **Škrilje, Ig**, 14°33′, 45°55′, VL68, 570 m, ldSBr, cSBr, 2.5.1980; **Temenica, Šentvid pri Stični**, 14°53′, 45°58′, VL99, 380 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Travna gora, Sodražica**, 14°39′, 45°44′, VL76, 880 m, *Picea abies*,

ldJTi, lit.JTi1983, 8.1981; **Trnovec, Kočevski Rog**, 14°57′, 45°41′, VL95, 530 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979; **Turjak**, 14°36′58″, 45°52′00″, VL77, 510 m, *Picea abies*, deblo 7 cm gLEŠ, lDBo dRPa, lit.NOg2020, 25.4.2018; ibidem, tWtr, phChal, ldDBo, lit.NOg2020, 13.4.2018; **Velika Slevica, Velike Lašče**, 14°37′12″, 45°49′06″, VL77, 606 m, tThe, phPher phChal, lTSt dRPa, lit.RPa2014c, 27.6.1994, 21.7.1994; **Velike Lašče**, 14°38′, 45°50′, VL77, 580 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Velike Lipljene**, 14°38′, 14°54′, VL78, 460 m, *Picea abies*, ldJTi, lit. JTi1983, 8.1981; **Veliki Ločnik 2**, 14°36′13″, 45°54′26″, VL68, 510 m, *Picea abies*, deblo 4 cm rs, odMFr vRPa, lit.RPa2021a, 22.10.2021; **Veliko Trebeljevo 1**, 14°44′31″, 46°00′43″, VL89, 554 m, *Picea abies*, ldMJu, cBFG, 4.8.2000; **Zdenska Vas, Dobrepolje**, 14°42′, 45°51′, VL77, 420 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1978; **Željne, Kočevje**, 14°53′, 45°39′, VL95, 470 m, lSDe dSBr, cSBr, 18.5.1992.

BELA KRAJINA: **Izvir Krupe, Krupa**, 15°13′, 45°38′, WL15, 170 m, ldSBr, cSBr, 13.9.1984, 23.5.1986; **Sodevci, Stari Trg ob Kolpi**, 15°05′, 45°29′, WL03, 358 m, tThe, phChal, lAPi dSBr, cAPi, 4.7.2011.

ŠTAJERSKO: Apaško polje, Gornja Radgona, 15°54′, 46°41′, WM67, 200 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Babič, Slovenske Konjice 1**, 15°26′06″, 46°19′25″, WM33, 606 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020b, 3.3.2020; **Babič, Slovenske Konjice 2**, 15°26′03″, 46°19′20″, WM33, 719 m, *Picea abies*, veja 5 cm, ldRPa, lit.RPa2020b, 3.3.2020; **Boč, Poljčane**, 15°36′, 46°17′, WM42, 800 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1974; **Celje, Breg**, 15°15′52″, 46°13′26″, WM21, 262 m, *Picea abies*, phGaPP, ldMJu, cBFG, 10.5.2022; ibidem, tWit, phGaPP, ldTŽu, lit.TŽu2020, 24.7.2018, 27.8.2018; **Celje, Teharje**, 15°17′48″, 46°13′44″, WM21, 242 m, tWit, phGaPP, ldTŽu, lit.TŽu2020, 27.5.2018; **Čelovnik, Zidani Most**, 15°11′, 46°05′, WM10, 510 m, *Picea abies*, veja, ldJTi, lit.JTi1969, 1963, 1966; ibidem, vrhač, ldJTi, lit.JTi1969, 1963, 1966; **Golte, Mozirska koča**, 14°54′, 46°22′, VM93, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1980; **Gornji Dolič, Mislinja**, 15°11′, 46°25′, WM14, 520 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Gornji Grad**, 14°49′, 46°28′, VM84, 460 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1979; ibidem, *Pinus sylvestris*, ldJTi, lit.JTi1983, 6.1979; **Gornji Grad, Šemprimožnik**, 14°49′17″, 46°17′23″, VM82, 766 m, tThe, phChal, ldRPa, lit.RPa1995b, 4.8.1995; **Grobelno, Šentjur**, 15°27′, 46°13′, WM31, 330 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1979; **Janževski vrh, Ribnica na Pohorju**, 15°18′, 46°34′, WM25, 830 m, tThe, phCemp, ldSSu, lit.RPa1995b, 29.7.1994; **Javor, Knezdol, Gabrsko**, 15°01′, 46°11′, WM01, 900 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Javorski vrh, Kladje, Pohorje**, 15°23′12″, 46°28′32″, WM24, 1304 m, *Picea abies*, ldJPo, lit.JPo2016, 2009; **Josipdol, Baumscule, Ribnica na Pohorju**, 15°18′, 46°31′, WM25, 850 m, tThe, phCemp, ldSSu, lit.RPa1995b, 21.7.1994; **Josipdol, Lavtar, Pohorje**, 15°18′58″, 46°30′19″, WM24, 1230 m, *Picea abies*, ldJPo, lit.JPo2016, 7.2011; **Josipdol, Pohorje**, 15°17′24″, 46°31′16″, WM25, 700 m, *Picea abies*, ldJPo, lit.JPo2016, 6.2011, 7.2011, 6.2012, 7.2012; **Kašni vrh, Savinjske Alpe 2**, 14°42′49″, 46°17′29″, VM72, 1217 m, tThe, phChal, ldRPa, lit.RPa1995b, 6.8.1995; ibidem, phPher phChal, ldRPa, lit.RPa1996, 16.6.1996; **Konjiška gora, Slovenske Konjice**, 15°23′, 46°20′, WM23, 820 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1974; **Kopitnik, Gore, Rimske Toplice**, 15°10′, 46°07′, WM01, 810 m, Picea abies, ldJTi, lit.JTi1983, 9.1978; **Kozje, Kozjansko**, 15°34′, 46°04′, WM40, 540 m, *Picea abies*, neobeljen gradbeni les, ldJTi, lit.JTi1983, 7.1973, ibidem, vrhač, ldJTi, lit.JTi1983, 7.1973; **Krakovo, Orešje nad Sevnico**, 15°18′, 46°03′, WL29, 300 m, *Picea abies*, delno obeljene hmeljevke, ldJŠl, lit.JŠl1948, 19.7.1947; **Maribor, Betnava**, 15°39′, 46°32′, WM45, 280 m, ldAGs, cAGs, pred 1951; **Maribor, Radvanje, drevesnica Semesadike Mengeš**, 15°37′06″, 46°31′54″, WM45, 288 m, *Picea abies*, sadika, ldDJu, lit.PSm2019, 6.6.2002; ibidem, ldMJu, lit.PSm2019, 22.6.2000; ibidem, sadika rs, odIRe, lit.PSm2019, 29.6.2005; ibidem, *Picea omorika,* sadika, ldIRe, lit.PSm2019, 16.6.2004; ibidem, ldMJu, lit.PSm2019, 22.6.2000; ibidem, sadika rs, odIRe, lit.PSm2019, 29.6.2005; ibidem, *Picea pungens,* sadika, ldIRe, lit.PSm2019, 16.6.2004; ibidem,

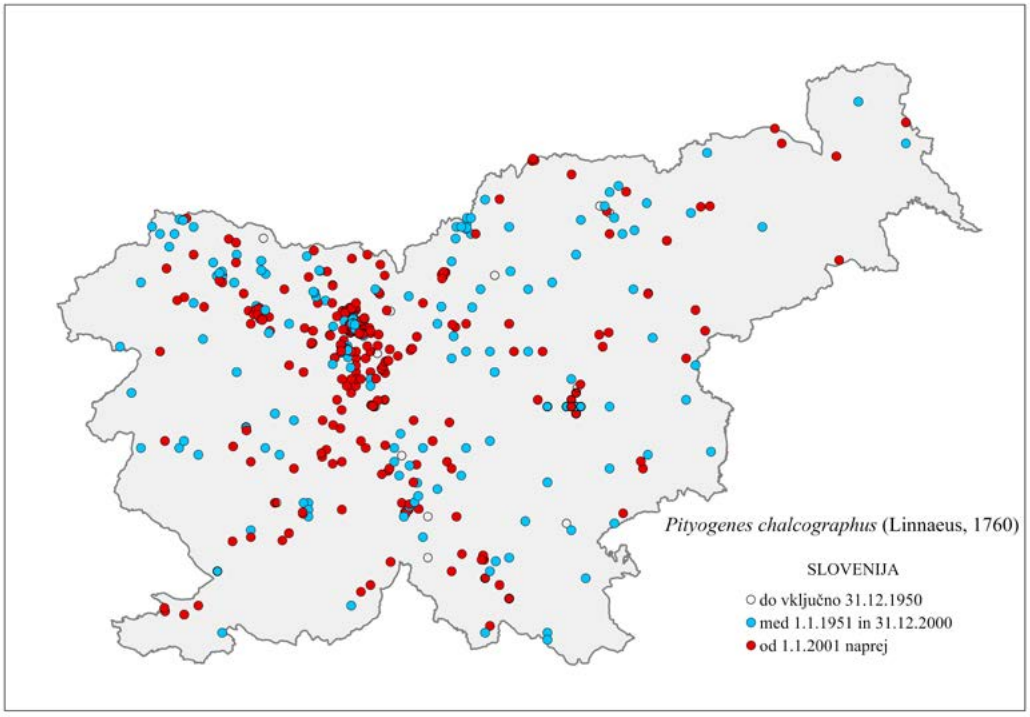
ldMJu, lit.PSm2019, 22.6.2000; ibidem, sadika rs, odIRe, lit.PSm2019, 29.6.2005; ibidem, *Pinus heldreichii,* sadika rs, odIRe, lit.PSm2019, 29.6.2005; ibidem, *Picea abies,* sadika, ldIRe, lit. PSm2019, 31.6.2005; **Obrežje pri Zidanem Mostu**, 15°11′16″, 46°05′45″, WM10, 335 m, *Picea abies*, hlod 20 cm rs, odSBo vRPa, lit.RPa2021a, 30.10.2021; **Pečovnik, Celjska koča**, 15°16′34″, 46°11′42″, WM21, 640 m, *Pseudotsuga menziesii*, deblo, ldRPa, lit.RPa1995b, 23.8.1995; **Pesek, Koča na Pesku, Pohorje**, 15°20′43″, 46°28′00″, WM24, 1382 m, tRöc, phLino, ldRPa, lit. RPa2014c, 20.5.2009; **Planina pod Šumikom, Močnik, Pohorje**, 15°30′, 46°27′, WM34, 850 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1978; **Podčetrtek**, 15°36′, 46°09′, WM41, 250 m, ldEJa vSBr, cEJa, 1.5.1930; ibidem, lEJa, cAGs, pred 1951; **Pohorje**, (15°18′), (46°28′), (WM24), *, *Picea abies*, deblo, odŽKv, lit.ŽKv1953, 1951-2000; ibidem, lovno drevo, odŽKv, lit.ŽKv1953, 1951-2000; ibidem, veja, odŽKv, lit.ŽKv1953, 1951-2000; ibidem, vrhač, odŽKv, lit.ŽKv1953, 1951-2000; **Poljšak 1**, 14°43′13″, 46°22′08″, VM72, 789 m, *Picea abies*, veja 2 cm rs, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak 3**, 14°42′56″, 46°22′06″, VM72, 1086 m, *Picea abies*, veja 2 cm, ldRPa, lit. RPa2021a, 23.6.2021; **Poljšak 4**, 14°42′59″, 46°22′12″, VM72, 1118 m, *Picea abies*, deblo 5 cm, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak 5**, 14°42′53″, 46°22′08″, VM72, 1137 m, *Picea abies*, veja 2 cm rs, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak 6**, 14°43′17″, 46°22′27″, VM72, 1158 m, *Picea abies*, vrhač 10 cm rs, ldRPa, lit.RPa2021a, 23.6.2021; **Poljšak p2c**, 14°42′58″, 46°21′33″, VM72, 813 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2021c, 28.7.2021, 4.8.2021, 11.8.2021; **Poljšak p3a**, 14°43′13″, 46°21′48″, VM72, 754 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021c, 26.5.2021; 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; ibidem, phPher, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021; **Poljšak p6a**, 14°43′41″, 46°22′26″, VM72, 888 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Poljšak p6b**, 14°43′41″, 46°22′24″, VM72, 891 m, tThe, phPher, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Poljšak p7a**, 14°43′19″, 46°22′30″, VM72, 1088 m, tThe, phEcIT phEcPC, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Poljšak p7b**, 14°43′18″, 46°22′30″, VM72, 1090 m, tThe, phPher, ldRPa, lit.RPa2021c, 26.5.2021, 2.6.2021, 9.6.2021, 16.6.2021, 23.6.2021, 29.6.2021, 13.7.2021, 21.7.2021, 28.7.2021, 4.8.2021, 11.8.2021; **Preval, Gabrsko**, 15°04’, 46°11’, WM01, 730 m, ldSBr, cSBr, 27.6.1989; **Puščava, kmetija Kikel, Pohorje**, 15°25′46″, 46°32′25″, WM35, 492 m, tThe, phChal, ldRPa, lit. RPa1995b, 17.8.1995; **Radmirje, Ljubno**, 14°51′, 46°20′, VM83, 460 m, *Picea abies,* vejni kup, ldJTi, lit.JTi1983, 6.1973; **Raduha, Savinjske Alpe**, 14°45′, 46°24′, VM83, 1350 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Rdeči Breg, Lovska koča Klančnik, Pohorje**, 15°21′28″, 46°34′04″, WM25, 854 m, *Picea sitkaensis*, veja 5 cm gLEŠ, dRPa, lit.RPa2020b, 17.7.2019; ibidem, tThe, phCemp, ldSSu, lit.RPa1995b, 29.7.1994; **Rdeči Breg, Pohorje**, 15°19’54″, 46°34’55″, WM25, 450 m, *Picea abies*, ldJPo, lit.JPo2016, 2012; **Ribnica na Pohorju**, 15°16′, 46°32′, WM25, 950 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Ribnica na Pohorju, Kapelvald**, 15°17′, 46°32′, WM25, 640 m, tThe, phCemp, ldSSu, lit.RPa1995b, 21.7.1994; **Rogaška Slatina, enota**, (15°38′), (46°14′), (WM42), *, tCev, phPher, ldMCi, lMCi1988, 5.1987, 6.1987, 7.1987, 8.1987; ibidem, tThe, phPher, ldMCi, lMCi1988, 5.1987, 6.1987, 7.1987, 8.1987; **Rudnica, Podčetrtek**, 15°34′, 46°10′, WM41, ~500 m, *Picea abies*, odMCi, lMCi1986, 1985; **Sveti Bolfenk, Hočko Pohorje**, 15°35′, 46°31′, WM45, 1100 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1979; **Sveti Primož, Ljubno ob Savinji**, 15°35′, 46°31′, WM45, 460 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1979; **Šmihel nad Mozirjem**, 14°57′17″, 46°22′36″, VM93, 710 m, tThe, phChal, ldRPa, lit.RPa1995b, 4.8.1995; **Tabor, Šmartno ob Paki**, 15°01′, 46°20′, WM03, 310 m, *Picea abies*, veja, ldJTi, lit.JTi1983, 4.1973; Tabor, **Šmartno ob Paki**, 15°01′, 46°20′, WM03, 310 m, *Picea abies,* vrhač, ldJTi, lit.JTi1983, 4.1973; **Trojane**, 14°53′,

46°11′, VM91, 730 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1972; **Velenje, Šalek**, 15°06′, 46°21′, WM03, 400 m, *Picea abies*, debelce, ldJTi, lit.JTi1983, 9.1973; ibidem, veja, ldJTi, lit.JTi1983, 9.1973; **Velika Kopa, Pohorje**, 15°12′, 46°30′, WM14, 1400 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Velika Nedelja, Ormož, vodno zbirališče**, 16°06′03″, 46°24′12″, VM83, 196 m, *Picea abies*, deblo 10 cm, ldRPa, lit.RPa2020c, 21.5.2015, 11.6.2015, 29.10.2015, 6.10.2017; ibidem, tThe, phPher phChal, ldRPa, lit.RPa2020c, 11.6.2015; **Veliko Širje, Zidani Most 1**, 15°11′55″, 46°06′14″, WM10, 368 m, *Picea abies*, deblo 5 cm rs, odKBa vRPa, lit.RPa2021a, 24.10.2021; **Vransko**, 14°57′, 46°15′, VM92, 350 m, *Picea abies*, ldJTi, lit.JTi1983, 1.1972; **Vurberk, Zlatoličje, Dolgi kamen**, 15°50′, 46°29′, WM64, 380 m, tThe, phCemp, ldRRe, lit.RPa2014c, 6.5.1994; 19.5.1994, 1.6.1994, 16.6.1994, 8.7.1994, 14.7.1994, 1.8.1994, 18.8.1994, 2.9.1994, 15.9.1994; ibidem, lRRe dRPa, lit.RPa2014c, 30.9.1994, **Zgornje Dobrenje, rezervat**, 15°38′24″, 46°39′40″, WM46, 364 m, *Picea abies*, deblo, ldRPa, lit.RPa2020c, 19.4.2013; **Žepovci, Žepovski Travniki, ob Muri**, 15°52′36″, 46°43′08″, WM67, 220 m, ldBDr, cZRC, 1999.

KOROŠKO: **Javorje, Sveta Magdalena**, 14°55′36″, 46°27′22″, VM94, 1092 m, tThe, phChal, ldRPa, lit.RPa1995b, 12.8.1995; **Košenjak, Kobansko 2**, 15°01′48″, 46°38′29″, WM06, 1400 m, tThe, Kont, ldARi, lit.ARi2007, 22.6.2005, 18.8.2005; ibidem, phChal, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005, 6.8.2005, 18.8.2005, 29.8.2005, 10.9.2005, 22.9.2005; ibidem, phCurW, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 18.8.2005; ibidem, phPher, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005, 6.8.2005, 18.8.2005, 29.8.2005; **Košenjak, Kobansko 3**, 15°02′20″, 46°38′34″, WM06, 1415 m, tThe, Kont, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 29.8.2005, 22.9.2005; ibidem, phChal, ldARi, lit. ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005, 6.8.2005, 18.8.2005, 29.8.2005, 10.9.2005, 22.9.2005; ibidem, phCurW, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 6.8.2005, 18.8.2005, 29.8.2005; ibidem, phPher, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005, 18.8.2005, 29.8.2005, 10.9.2005; **Košenjak, Kobansko 4**, 15°01′59″, 46°38′49″, WM06, 1480 m, tThe, Kont, ldARi, lit.ARi2007, 22.6.2005; ibidem, phChal, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005, 6.8.2005, 18.8.2005, 29.8.2005, 10.9.2005, 22.9.2005; ibidem, phCurW, ldARi, lit.ARi2007, 22.6.2005, 27.7.2005, 10.9.2005; ibidem, phPher, ldARi, lit.ARi2007, 22.6.2005, 2.7.2005, 14.7.2005, 27.7.2005, 6.8.2005, 18.8.2005, 29.8.2005; **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, *Picea abies,* hlod, ldRPa vcSBr, lit.RPa1994a, 9.6.1994; ibidem, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 5.7.1994, 18.7.1994, 26.8.1994; ibidem, ldRPa vcSBr, lit.RPa1994a, 22.6.1994, vcSBr, lit.RPa1994a, 31.7.1994; ibidem, ldRPa, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994; ibidem, phCemp, ldRPa, lit.RPa1995a, 8.6.1995, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995; **Peca, Karavanke**, 14°46′, 46°29′, VM84, 1260 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 31.7.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994, 8.9.1994; ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995, 17.7.1995, 30.7.1995, 12.8.1995, 7.9.1995, 20.9.1995; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994, 26.8.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 25.8.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994, 8.9.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994, 8.9.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 12.8.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a,

21.6.1995, 17.7.1995, 30.7.1995, 12.8.1995, 25.8.1995, 7.9.2005; **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a, 8.6.1995, 17.7.1995, 30.7.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 9.6.1994, 22.6.1994, 5.7.1994, 18.7.1994, 31.7.1994, 13.8.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995, 12.8.1995; **Poljana, proti Holmcu**, 14°51′59″, 46°32′56″, VM85, 640 m, tThe, phPher phChal, ldRPa, lit.RPa1995b, 16.7.1995; **Prevalje**, 14°55′, 46°33′, VM95, 480 m, tThe, phPher phChal, ldRPa, lit.RPa2020c, 24.5.2010, 25.5.2010, 26.5.2010; ibidem, tWit, phGaPr, ldRPa, lit.RPa2014c, 17.10.2011; **Pristava, Črna na Koroškem**, 14°50′, 46°28′, WM84, 430 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Šumel, Koprivna**, 14°45′49″, 46°27′19″, VM84, 781 m, *Picea abies*, hlod, ldRPa, lit.RPa1995b, 18.8.1995; **Topla, Peca**, 14°47′, 46°29′, VM84, 1000 m, ldSBr, cSBr, 19.5.1993; **Uršlja Gora**, 14°57′, 46°29′, VM94, 1160 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979.

PREKMURJE: **Bukovnica, Dobrovnik**, 16°20′, 46°41′, XM07, 230 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1982; **Mačkovci, Goričko**, 16°10′, 46°47′, WM88, 300 m, *Picea abies*, ldJTi, lit. JTi1983, 7.1977; **Prosenjakovci, gozdni rezervat**, 16°20′, 46°44′, XM07, 230 m, *Picea abies*, vrhač, ldJTi, lit.JTi1988, 1981; ibidem, deblo, ldJTi, lit.JTi1988, 1982, 1983; **Tišina, drevesnica Semesadike Mengeš**, 16°05′26″, 46°39′10″, WM86, 195 m, *Picea abies*, sadika, ldIRe, lit. PSm2019, 21.6.2005; ibidem, *Picea omorika,* sadika, ldIRe, lit.PSm2019, 21.6.2005; ibidem, *Picea pungens,* sadika, ldIRe, lit.PSm2019, 21.6.2005.



Slika 138: ŠESTEROZOBI ZVEZDAR *Pityogenes chalcographus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 138: *Pityogenes chalcographus*, distribution map according to historical and recent data

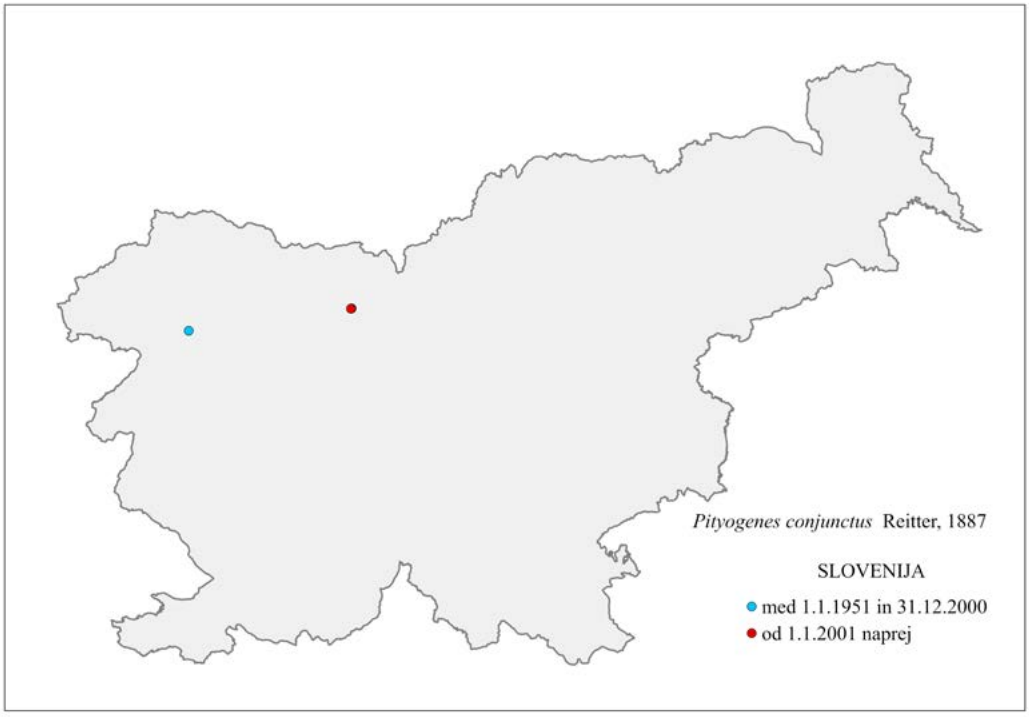
30.05. *Pityogenes conjunctus* Reitter, 1887 ALPSKI ZVEZDAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityogenes conjunctus* Reitter, 1887; PFEFFER & KNÍŽEK 1993: *Pityogenes conjunctus* (Reitter, 1887); PFEFFER 1995: *P. conjunctus* (Reitter, 1887).

E: AU BU CZ FR GE HU IT RO SK SL SZ UK **A:** ES FE HEB JA LIA MG TR WS

Vrsta se pojavlja v pogorjih srednje in južne Evrope (Pireneji, Alpe), na Karpatih, Balkanu, Sibiriji, Mandžuriji in na Japonskem. Pri nas je bila vrsta najdena v Julijskih Alpah na 1700 m nadmorske višine na *Pinus mugo*, večkrat pa tudi v pasteh na Brdu pri Kranju (slika 139). Gostitelji: *Pinus mugo*, *P. cembra*, *P. heldreichii*, *P. sibirica*, *P. pumila* in *P. peuce*. Vrsta letno razvije eno generacijo. Dolbe zvezdaste rovne sisteme s 3–5 materinskimi rovi. Dolžina adultov znaša 2,2–2,8 mm. Morfološko je vrsta podobna

The species occurs in the mountain ranges of central and southern Europe (Pyrenees, Alps), the Carpathians, the Balkans, Siberia, Manchuria and Japan. In Slovenia, the species has been found in the Julian Alps at 1700 m a.s.l. on *Pinus mugo*, and several times in traps at Brdo pri Kranju (Figure 139). Hosts: *Pinus mugo*, *P. cembra*, *P. heldreichii*, *P. sibirica*, *P. pumila* and *P. peuce*. The species develops one generation per year. It bores star-shaped tunnel systems with 3-5 maternal galleries. Adult length is 2.2-2.8 mm. Morphologically, the



Slika 139: ALPSKI ZVEZDAR *Pityogenes conjunctus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 139: *Pityogenes conjunctus*, distribution map according to historical and recent data

krivozobemu zvezdarju (*P. bistridentatus*), za zanesljivo determinacijo je pogosto treba opraviti meritve dolžine in širine pokrovk. Vrsta je pri nas redka in brez ekonomskega pomena.

species is similar to *P. bistridentatus*, but for reliable determination it is often necessary to measure the length and width of the elytra. The species is rare and of no economic importance in Slovene territory.

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: ldJTi, cSBr, 1951-2000; ldJTi, cŠFS, 1951-2000.
GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2023b, 12.7.2023, 26.7.2023, 23.8.2023; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2023b, 12.7.2023, 26.7.2023; **Šija, Vogel, Julijske Alpe**, 13°50′, 46°14′, VM12, 1700 m, *Pinus mugo*, ldJTi, lit.JTi1983, 8.1980.

30.06. *Pityogenes quadridens* (Hartig, 1834) štirizobi zvezdar

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Grüne 1979: *Pityogenes quadridens* Hartig, 1834; Freude, Harde, Lohse 1981: *Pityogenes quadridens* Hartig; Pfeffer & Knížek 1993: *P. quadridens* (Hartig, 1834); Pfeffer 1995: *P. quadridens* (Hartig, 1834).

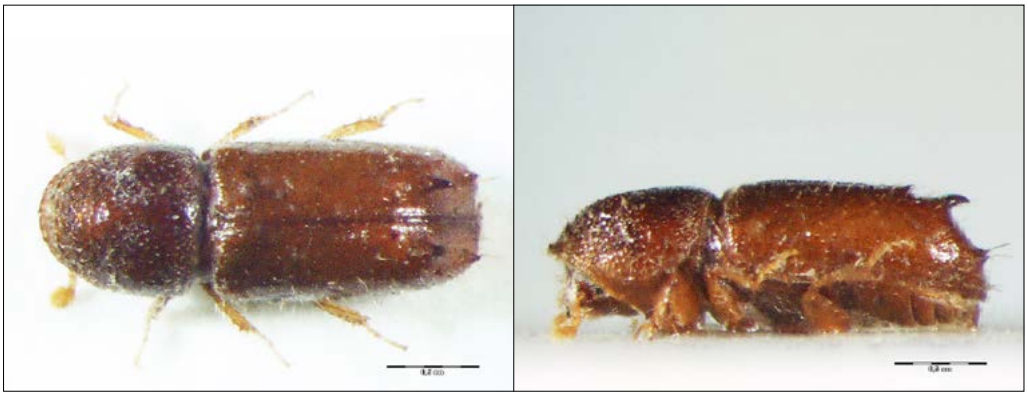
E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LS LT MC MD NR NT PL SK SL SP ST SV SZ UK YU **A:** ES FE KZ TR WS

Vrsta se pojavlja v srednji in severni Evropi, na območju Balkana, na Kavkazu in v Sibiriji. Pri nas je vrsta pogostejša na Gorenjskem, drugje po Sloveniji se pojavlja posamično (slika 141). Gostitelji so *Pinus sylvestris*, *P. mugo*, *P. heldraichii*, *P. nigra*, *P. strobus*, *P. peuce*, *Picea* spp., *Abies* spp., *Larix* spp. in *Pseudotsuga menziesii*. V Sloveniji so bile najpogostejše najdbe na *Pinus sylvestris*, redkejše pa na *P. nigra* in *P. mugo*. Letno osnuje do dve generaciji. Je poligamna vrsta, rovni sistem je zvezdast, z 2–7 materinskimi rovi. Velikost adultov je 1,6–2,2 mm. Samček ima na koničniku na vsakem obronku po 2 večja zobčka, zgornji je zakrivljen navzdol, spodnji je stožčast. Suturalni zobček je zelo majhen ali celo manjka. Samičke imajo namesto zobčkov le manjše grbice (slika 140). Štirizobi zvezdar je izrazito sekundarna vrsta Saproksil. Feromon: Chalcogran, 1-Hexanol v ♂ ♂ (Gerken 1977).

The species occurs in central and northern Europe, the Balkans, the Caucasus and Siberia. In Slovenia, it is more common in Gorenjska, but occurs sporadically elsewhere (Figure 141). Hosts include *Pinus sylvestris*, *P. mugo*, *P. heldraichii*, *P. nigra*, *P. strobus*, *P. peuce*, *Picea* spp., *Abies* spp., *Larix* spp. and *Pseudotsuga menziesii*. In Slovenia, it has been most commonly found on *Pinus sylvestris*, more rarely on *P. nigra* and *P. mugo*. It produces up to two generations per year. Polygamous species, the tunnel system is star-shaped, with 2-7 maternal galleries. Adult size is 1,6-2,2 mm. The male has 2 larger denticles on the elytra apex on each side, the upper one curved downwards, the lower one conical. The sutural denticle is very small or even missing. Females have only small humps instead of denticles (Figure 140). *P. quadridens* is a distinctly secondary species with no economic importance. Saproxylum. Pheromone: Chalcogran, 1-Hexanol in ♂ ♂ (Gerken 1977).

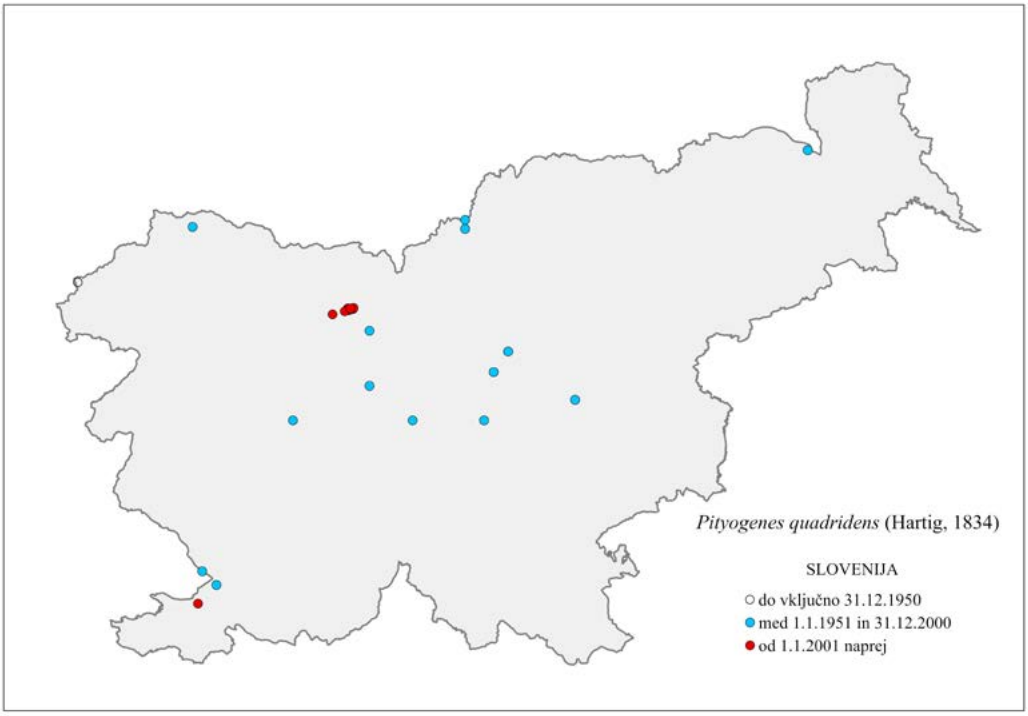
Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Kastelec**, 13°52′09″, 45°34′17″, VL14, 300 m, tRöc, phLino, ldRPa, lit.RPa2014c, 16.5.2009; **Kokoš, vznožje, Lokev**, 13°53′, 45°39′, VL15, 400 m, *Pinus nigra*, vejni kup, ldJTi, lit.

JTi1983, 1968; **Videž, Kozina**, 13°56′, 45°37′, VL15, 520 m, *Pinus nigra*, opožarjeno drevo veja, ldJTi, lit.JTi1983, 1968; ibidem, opožarjeno drevo vrhač, ldJTi, lit.JTi1983, 1968.
GORENJSKO: **Brdo pri Kranju 1/34**, 14°24′32″, 46°17′10″, VM52, 457 m, *Pinus sylvestris*, deblo 10 cm, ldRPa, lit.RPa2003, 6.9.2003; **Brdo pri Kranju 1/36**, 14°24′39″, 46°17′18″, VM52, 457 m,



Slika 140: ŠTIRIZOBI ZVEZDAR *Pityogenes quadridens*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 140: *Pityogenes quadridens*, dorsal, lateral (Photo: Maja Jurc)



Slika 141: ŠTIRIZOBI ZVEZDAR *Pityogenes quadridens*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 141: *Pityogenes quadridens*, distribution map according to historical and recent data

Pinus sylvestris, deblo 10 cm, ldRPa, lit.RPa2003, 6.9.2003; **Brdo pri Kranju 1/53**, 14°23′48″, 46°17′09″, VM52, 459 m, *Pinus sylvestris*, sušica 10 cm, ldRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/54**, 14°23′44″, 46°17′00″, VM52, 452 m, *Pinus sylvestris*, deblo 25 cm, ldRPa, lit.RPa2003, 10.10.2003; **Brdo pri Kranju 1/63**, 14°23′30″, 46°17′13″, VM52, 461 m, *Pinus sylvestris*, veja 5 cm, ldRPa, lit.RPa2003, 8.8.2003; **Brdo pri Kranju 1/75**, 14°23′09″, 46°16′58″, VM52, 449 m, *Pinus sylvestris*, veja 6 cm, ldRPa, lit.RPa2003, 15.8.2003; **Brdo pri Kranju 2/3**, 14°22′49″, 46°16′48″, VM52, 424 m, *Pinus sylvestris*, veja 2 cm, ldRPa, lit.RPa2004, 3.9.2004; **Brdo pri Kranju 2/6**, 14°24′02″, 46°17′14″, VM52, 470 m, *Pinus sylvestris*, veja 1 cm, ldRPa, lit.RPa2004, 22.8.2004; ibidem, veja 5 cm, ldRPa, lit.RPa2004, 22.8.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014a, 23.7.2014, 6.8.2014, 20.8.2014, 3.9.2014; ibidem, **Brnik**, 14°28′, 46°14′, VM52, 390 m, *Pinus sylvestris*, veja, ldJTi, lit.JTi1983, 4.1972; **Čemšeniška planina**, 14°57′, 46°11′, VM91, 1020 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 8.1977; **Gozd Martuljek**, 13°51′, 46°29′, VM14, 840 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 3.1977; **Kanin, Julijske Alpe**, 13°27′, 46°21′, UM83, *, ldJPe vSBr, cJPe, pred 1951; **Mlaka pri Kranju, Francelj**, 14°20′16″, 46°16′23″, VM42, 430 m, *Pinus sylvestris*, deblo 15 cm, ldRPa, lit.RPa2014c, 13.6.2002; **Sveta Gora, Izlake**, 14°54′, 46°08′, VM90, 830 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 9.1978.
NOTRANJSKO: **Smrečje, Rovte,** 14°12′, 46°01′, VL39, 520 m, *Pinus sylvestris*, ldJTi, lit. JTi1983, 3.1972.
LJUBLJANA Z OKOLICO: **Ljubljana, Šentvid,** 14°28′, 46°06′, VM50, 390 m, *Pinus sylvestris*, veja, ldJTi, lit.JTi1983, 6.1971; ibidem, vrhač, ldJTi, lit.JTi1983, 6.1971; **Podlipoglav, Češnjica**, 14°37′, 46°01′, VL79, 370 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 1.1978.
DOLENJSKO: **Bogenšperk, Črni Potok**, 14°52′, 46°01′, VL89, 450 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Prnovše, Radeče**, 15°11′, 46°04′, WM10, 430 m, *Pinus sylvestris*, veja, ldJTi, lit.JTi1983, 1967; ibidem, vrhač, ldJTi, lit.JTi1983, 1967.
ŠTAJERSKO: Gornja Radgona, Kunejev grad, 15°59′40″, 46°40′01″, WM76, 220 m, ldBDr, cZRC, 1999.
KOROŠKO: **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1994a, 9.6.1994; ibidem, phCemp, ldRPa vSBr, lit.RPa1994a, 5.7.1994; **Peca, Dom na Peci**, 14°48′, 46°30′, VM84, 1550 m, *Pinus mugo*, ldJTi, lit.JTi1983, 7.1979.

30.07. *Pityogenes trepanatus* (Nördlinger, 1848) BOROV ZVEZDAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityogenes trepanatus* Nördlinger, 1848; FREUDE, HARDE, LOHSE 1981: *Pityogenes trepanatus* Nördlinger; TITOVŠEK 1988: *Pityogenes trepanatus* (Nördlinger); PFEFFER & KNÍŽEK 1993: *P. trepanatus* (Nördlinger, 1848); PFEFFER 1995: *P. trepanatus* (Nördlinger, 1848).

E: AU BE BH BU BY CT CZ DE EN FI FR GB GE HU IT LA NL NR NT PL PT RO SL* SK SP ST SV SZ UK YU

Vrsta je razširjena v severni in srednji Evropi, v Pirenejih in na JV evropskem delu nekdanje Sovjetske zveze. V Sloveniji bila najdena le nekajkrat, na Primorskem in Notranjskem na *Pinus nigra*, na Gorenjskem samo v pasteh (slika 142). V literaturi se kot gostiteljski vrsti navajata *P. nigra* in *P. sylvestris*. Letno razvije

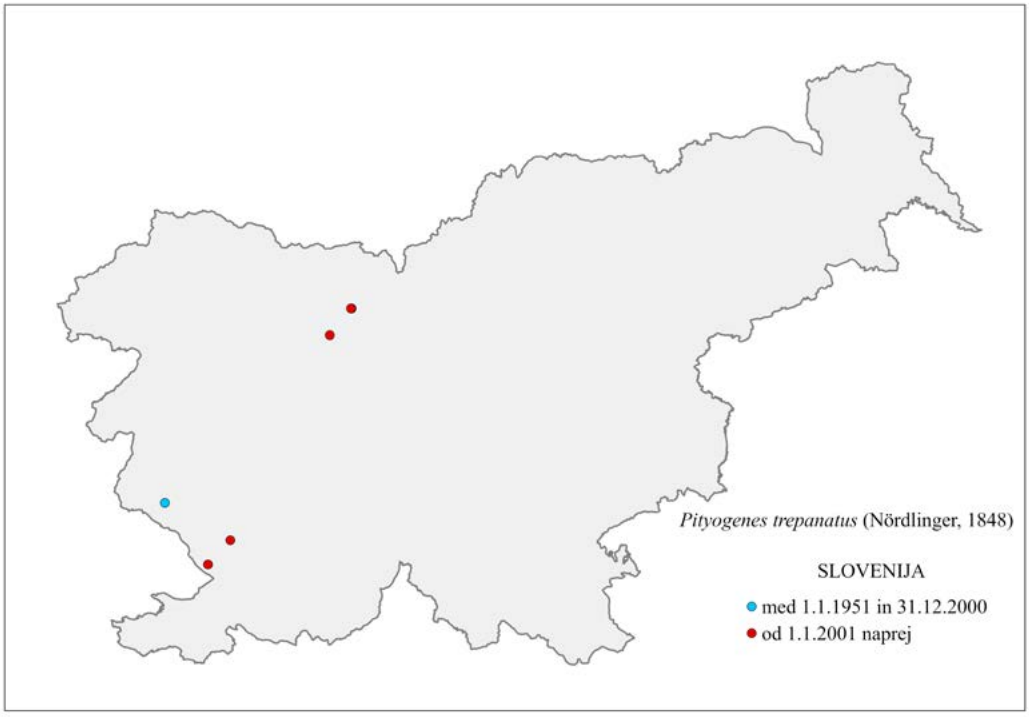
The species is distributed in northern and central Europe, the Pyrenees, and the south-eastern European part of the former Soviet Union. In Slovenia it has been found only a few times, in Primorska and Notranjska on *Pinus nigra*, in Gorenjska only in traps (Figure 142). In literature, *P. nigra* and, *P. sylvestris* are mentioned as host

2–3 generacije, na Krasu roji prvič marca in aprila. Zalega na tankolubne drevesne dele, predvsem na veje in vejice, kjer dolbe zvezdaste rovne sisteme. Kotilnica in (običajno) samo trije materinski rovi so pogreznjeni globoko v beljavo. Dolžina adultov je 2,2–2,5 mm. Samčki imajo na koničniku na vsakem obronku po tri stožčaste zobčke, prvi in drugi sta bližje kot drugi in tretji. Samičke imajo na istih mestih na obronku namesto zobčkov le majhne grbice. Samica ima na sredi čela veliko in globoko okroglo vdolbinico, po čemer se razlikuje od šesterozobega zvezdarja (*P. chalcographus*). Izrazito sekundarna vrsta, ki naseljuje le oslabljene gostitelje.

species. It develops 2-3 generations per year, in the Karst it swarms for the first time in March and April. It breeds on thin-bark tree parts, mainly on branches and twigs, where it forms star-shaped tunnel systems. The brood chamber and (usually) only three maternal galleries are deeply buried in the sapwood. The length of the imagoes is 2.2-2.5 mm. The males have 3 conical denticles on the elytra apex on each side of elytra margin, the first and second being closer than the second and third. Females have only small humps instead of denticles in the same places on the elytra margin. The female has a large and deep circular depression in the middle of the forehead, which distinguishes it from *P. chalcographus*. This distinctly secondary species inhabits only weakened hosts.

Najdišča v Sloveniji / Localities in Slovenia

PRIMORSKO: **Komen**, 13°45′, 45°49′, VL07, 280 m, *Pinus nigra*, veja, ldJTi, lit.JTi1983, 1970; **Lipica, Mlave**, 13°54′, 45°40′, VL15, 400 m, *Pinus nigra*, opožarjeno drevo, ldMJu, lit.MJu2001, 16.8.2001.



Slika 142: BOROV ZVEZDAR *Pityogenes trepanatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 142: *Pityogenes trepanatus*, distribution map according to hostorical and recent data

GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014a, 23.7.2014; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tThe, phPher, ldRPa, lit.RPa2014b, 13.8.2005; ibidem, tWit, phPher, ldRPa, lit.RPa2008, 7.10.2008; **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit. RPa2008, 13.8.2008, 7.10.2008.
NOTRANJSKO: **Senadole, pogorišče**, 13°58′41″, 45°43′33″, VL26, 518 m, *Pinus nigra*, deblo 15 cm, ldRPa, lit.RPa2014c, 18.8.2001.

31.00. *Pityokteines* Fuchs, 1911 JELKAR

31.01 *Pityokteines curvidens* (Germar, 1824) KRIVOZOBI JELKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Bostrychus curvidens* Germ.; GRÜNE 1979: *Pityokteines curvidens* Germar, 1825; FREUDE, HARDE, LOHSE 1981: *Pityokteines curvidens* Germar; TITOVŠEK 1988: *Pityokteines curvidens* (Germar); PFEFFER & KNÍŽEK 1993: *P. curvidens* (Germar, 1824); PFEFFER 1995: *P. curvidens* (Germar, 1824).

E: AU BE BH BU BY CR CT CZ FR GE GR HU IT LA LT LU MC NT PL PT RO SK SL SP ST SZ UK YU **A:** ES JA TR **AFR NTR**

Vrsta je razširjena v arealu jelke v srednji in južni Evropi, od Pirenejev do Kavkaza, na Korziki, Balkanu, Mali Aziji, Japonskem ter na afrotropskem in neotropskem območju. SIEGEL (1866) navaja, da je bila vrsta »na Kranjskem občasno pogostna, v jelkah«. V Sloveniji je vrsta pogosta povsod, kjer uspeva jelka, manjka na SV delu države (slika 144). Gostitelji so pretežno jelke: *Abies alba*, *A. cephalonica*, *A. nordmanniana*, *A. borisii-regis*, *A. bornmülleriana*, *A. cilicica*, *A. firma* in *A. sachalinensis*, redkeje *Picea abies*, *P. orientalis*, *Larix decidua* in *Pinus sylvestris*. Pri nas je najden izključno na *A. alba*. Številne najdbe v pasteh, nameščenih v čiste sestoje *Pinus sylvestris* (Brdo pri Kranju), so posledica učinkovitega privabljanja feromonov. Letno razvije dve generaciji, roji aprila in avgusta. Zalega na debelolubne dele drevesa. Rovni sistem je prečno zvezdast, število materinskih hodnikov je lahko različno, največkrat pa so štirje in oblikujejo obrnjeno črko »H«, s 4 materinskimi rovi (=dvojni dvokraki prečni sistem). Dolžina adultov je 2,5–3,2 mm. Pokrovki na koncu strmo padata k zadnjemu sternitu. Samčki imajo na obeh obronkih

The species is distributed in the fir range in central and southern Europe, from the Pyrenees to the Caucasus, Corsica, the Balkans, Asia Minor, Japan, the Afrotropics and the Neotropics. SIEGEL (1866) states that the species was "occasionally common in Carniola, in fir trees". In Slovenia, the species is common wherever fir trees flourish, but is absent in the NE part of the country (Figure 144). Hosts are mainly *Abies alba*, *A. cephalonica*, *A. nordmanniana*, *A. borisii-regis*, *A. bornmülleriana*, *A. cilicica*, *A. firma* and *A. sachalinensis*, less frequently *Picea abies*, *P. orientalis*, *Larix decidua* and *Pinus sylvestris*. In Slovenia it is found exclusively on *A. alba*. Numerous records in traps set in pure stands of *Pinus sylvestris* (Brdo pri Kranju) are due to effective attraction of pheromones. It develops two generations per year, swarming in April and August. It breeds on the thick-bark parts of the tree. The tunnel system is transversely star-shaped, the number of maternal galleries may vary, but most often there are four, forming an inverted 'H', with 4 maternal galleries (=double double-arched transversal system). Adult length is 2.5-3.2 mm. The elytra fall abruptly to the posterior sternite (ventral plate) at the end. Males

koničnika po tri večje in po dva manjša zobčka. Prvi večji (suturalni) zobček je navpičen, drugi štrli nazaj in je ukrivljen navzdol, tretji pa je skoraj vodoraven. Med drugim in tretjim večjim zobčkom sta oba manjša zobčka. Samičke imajo na koničniku namesto zobčkov le majhne stožčaste izrastke, na čelu in prednjem delu vratnega ščita pa ščetko iz gostih, dolgih, rumenih dlačic (slika 143). Spolno zreli hrošči prezimujejo v deblih zdravih jelk, zato je vrsta hkrati sekundarna in primarna. Pri nas se pogosto pojavlja skupaj z jelovim zrnarjem (*Cryphalus piceae*) in predstavljata veliko nevarnost za jelove gozdove. Feromon: [S]-(-)-Ipsenol (Harring, Candace s sod. 1975; Harring, Candace 1978).

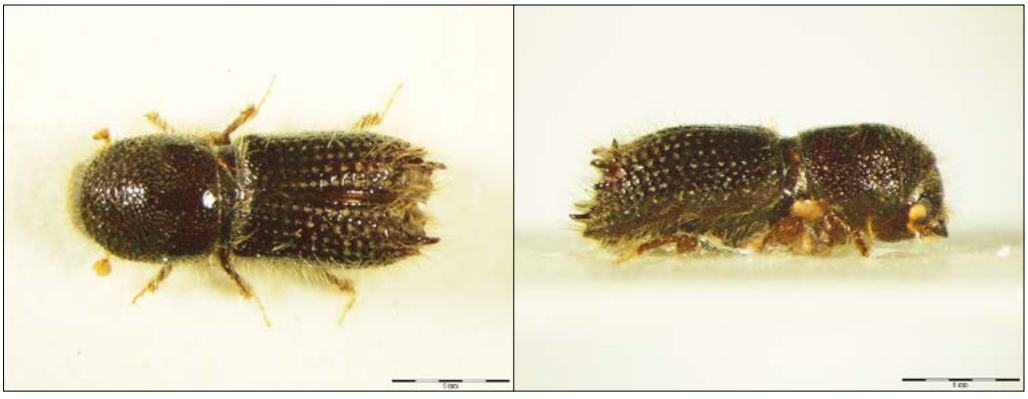
have three larger and two smaller denticles on each side of the elytra apex. The first larger (sutural) denticle is vertical, the second protrudes backwards and curves downwards, and the third is almost horizontal. Between the second and third major denticles are the two minor denticles. Females have only small conical protrusions on the elytra apex instead of denticles, and a brush of dense, long, yellow hairs on the forehead and anterior part of the neck shield (Figure 143). Young sexually mature beetles overwinter in the trunks of healthy fir trees, making the species both secondary and primary. In Slovene territory it often occurs together with *Cryphalus piceae* and is a major threat to fir forests. Pheromone: [S]-(-)-Ipsenol (Harring, Candace et al. 1975; Harring, Candace 1978).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Abies alba*, ldMSi, lit.MSi1866, pred 1951.

ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2018d, 9.8.2018, 3.9.2018, 23.10.2018; ibidem, lit.RPa2019c, 28.8.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2014b, 1.7.2014, 31.7.2014; ibidem, lit.RPa2015b, 2.9.2015; ibidem, lit.RPa2018b, 9.8.2018; ibidem, lit.RPa2019d, 24.10.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 1.7.2014; ibidem, lit. RPa2015b, 2.6.2015, 2.9.2015; ibidem, lit.RPa2019d, 31.7.2019, 25.9.2019; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2018e, 3.9.2018; ibidem, lit.RPa2019e, 28.8.2019, 25.9.2019, 24.10.2019.

PRIMORSKO: **Buje, Žagarjev boršt**, 14°05′54″, 45°39′05″, VL25, 422 m, *Abies alba*, deblo 30 cm rs, odJDet vRPa, lit.RPa2023a, 18.11.2023; **Čepovan, žaga**, 13°48′, 46°03′, VM00, 600 m, *Abies alba*, hlod, ldJŠl, lit.JŠL1948, 7.7.1947; **Nova Gorica, Panovec 1**, 13°39′57″, 45°56′33″, UL98, 100 m, *Abies alba*, deblo 20 cm, odRPa, lit.RPa2021a, 14.9.2021.

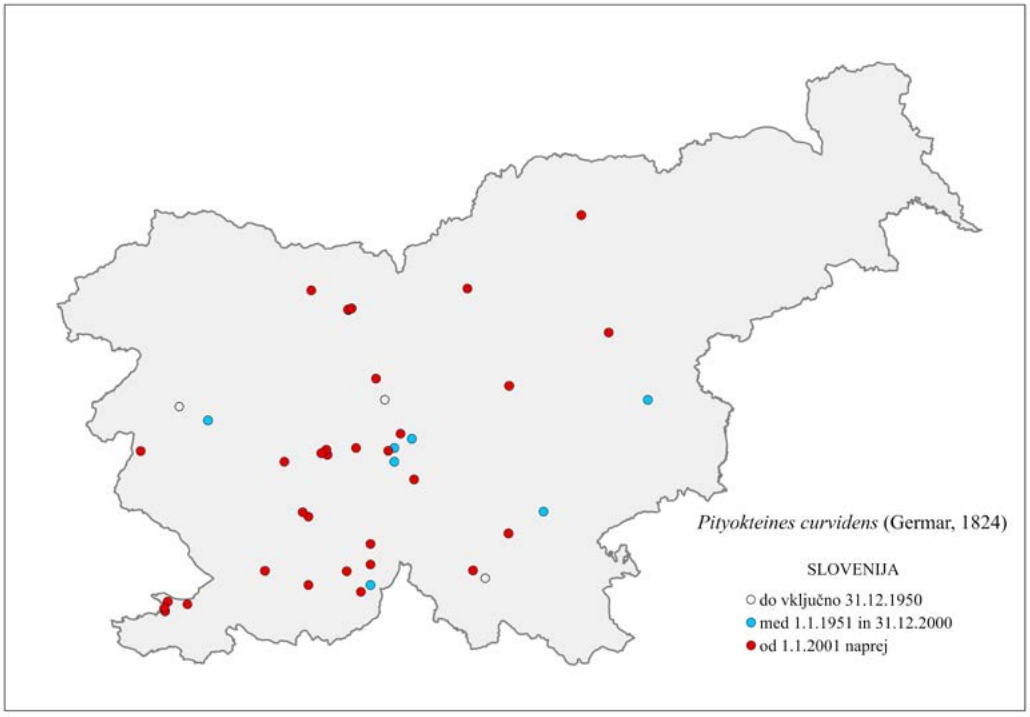


Slika 143: krivozobi jelkar *Pityokteines curvidens*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 143: *Pityokteines curvidens*, dorsal, lateral (Photo: Maja Jurc)

GORENJSKO: **Brdo pri Kranju 1/78**, 14°23′20″, 46°17′01″, VM52, 441 m, *Abies alba*, deblo 25 cm, ldRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 2/4**, 14°23′18″, 46°17′04″, VM52, 453 m, *Abies alba*, deblo 20 cm, ldRPa, lit.RPa2004, 21.7.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2023b, 28.6.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2013a, 10.7.2013; ibidem, lit.RPa2014a, 30.4.2014; ibidem, lit.RPa2015a, 15.4.2015, 29.4.2015, 13.5.2015, 27.5.2015, 10.6.2015, 24.6.2015, 8.7.2015, 22.7.2015; ibidem, lit.RPa2016a, 13.4.2016, 27.4.2016, 25.5.2016, 7.6.2016, 17.8.2016; ibidem, lit.RPa2017a, 12.4.2017, 25.5.2017, 8.6.2017, 30.8.2017; ibidem, lit. RPa2018a, 25.4.2018, 24.5.2018, 26.9.2018; ibidem, lit.RPa2019a, 10.4.2019, 24.4.2019, 3.6.2019, 19.6.2019, 3.7.2019, 18.7.2019, 31.7.2019, 14.8.2019, ibidem, lit.RPa2020d, 8.4.2020, 22.4.2020, 6.5.2020, 17.6.2020, 12.8.2020, 23.9.2020; ibidem, lit.RPa2021b, 5.5.2021, 6.10.2021, ibidem, lit. RPa2022d, 6.4.2022, 20.4.2022, 4.5.2022, 18.5.2022, 29.6.2022, 7.9.2022, 28.10.2022; ibidem, lit. RPa2023b, 6.4.2023, 3.5.2023, 17.5.2023, 1.6.2023, 14.6.2023, 28.6.2023, 12.7.2023, 23.8.2023, 20.9.2023, 4.10.2023; **Brdo, Tržič**, 14°15′38″, 46°19′50″, VM43, 491 m, *Abies alba*, deblo 30 cm rs, odŽŠt vRPa, lit.RPa2023a, 20.11.2023; **Požarje, Zagorje ob Savi**, 14°57′, 46°06′, VM90, 680 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002.

NOTRANJSKO: **Bistra, Vrhnika**, 14°19′, 45°56′, VL48, 620 m, *Abies alba*, ldMJu, lit. MJu2002b, 2002; **Dedna gora, Javorniki**, 14°23′, 45°39′, VL55, ~1100 m, *Abies alba*, ldMJu, lit. MJu2002b, 2002; **Golobičevec, Planina**, 14°15′, 45°47′, VL47, 690 m, *Abies alba*, hlod 25 cm, ldRPa, lit.RPa2020c, 28.10.2011; **Knežak, Ilirska Bistrica**, 14°15′, 45°37′, VL45, 600 m, *Abies*



Slika 144: KRIVOZOBI JELKAR *Pityokteines curvidens*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 144: *Pityokteines curvidens*, distribution map according to historical and recent data

alba, ldMJu, lit.MJu2002b, 2002; **Preserje, Kamnik pod Krimom**, 14°25′, 45°57′, VL58, 360 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Ravbarkomanda, Postojna 2**, 14°13′51″, 45°47′38″, VL47, 590 m, *Abies alba*, hlod 25 cm, ldRPa, lit.RPa2020c, 26.5.2016; **Ravnik pri Hotedrščici**, 14°10′, 45°55′, VL38, 680 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Snežnik**, 14°26′, 45°36′, VL54, 1389 m, *Abies alba*, hlod 20 cm, ldRPa, lit.RPa2020c, 9.5.2013; ibidem, hlod 25 cm, ldRPa, lit.RPa2020c, 9.5.2014; **Snežnik 3**, 14º28′, 45º40′, VL55, 720 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 2015; **Snežnik, Leskova Dolina**, 14°28′, 45°37′, VL55, 900 m, *Abies alba*, ldJTi, lit.JTi1983, 6.1978; **Stari Trg pri Ložu**, 14°28′, 45°43′, VL56, 600 m, *Abies alba*, ldMJu, lit. DJu2003, 2002; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017, 5.5.2017; **Vojsko, Idrija**, 13°54′, 46°01′, VL19, 980 m, *Abies alba*, ldJTi, lit.JTi1983, 5.1976; **Vrhnika**, 14°17′42″, 45°56′14″, VL48, 567 m, *Abies alba*, hlod 35 cm, ldRPa, lit.RPa2020c, 4.11.2016.

LJUBLJANA Z OKOLICO: **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, tWit, phGaHo, ldRPa, lit.RPa2013b, 14.8.2013, 20.9.2013, 25.10.2013; **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, pred 1951; **Šmarje-Sap**, 14°36′40″, 45°58′20″, VL69, 387 m, *Abies alba*, ldRPa, lit.RPa2014c, 23.6.1994.

DOLENJSKO: **Dobravica, Ig**, 14°31′42″, 45°56′34″, VL85, 394 m, *Abies alba*, deblo 20 cm rs, odMMl vRPa, lit.RPa2023a, 24.11.2023; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 2.5.1980, 2.4.1981; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, cBFG, 10.8.1948; **Laporje 2**, 14°37′07″, 45°52′25″, VL78, 547 m, *Abies alba*, veja 4 cm rs, odRMi vRPa, lit.RPa2021a, 22.10.2021; **Mahovnik, Kočevje**, 14°49′29″, 45°39′08″, VL85, 675 m, *Abies alba*, veja, lAVi dIRe, lit.IRe2002, 22.7.2002; **Reber, Stari Log**, 14°56′53″, 45°44′32″, VL96, 780 m, *Abies alba*, deblo, lFGl dIRe, lit. IRe2002, 22.7.2002; **Straža, Novo Mesto**, 15°04′11″, 45°47′44″, WL07, 443 m, *Abies alba*, deblo, ldRPa, lit.RPa2014c, 24.6.1994; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, *Abies alba*, ldMJu, lit.DJu2002, 2002; **Škrilje, Ig**, 14°33′, 45°55′, VL68, 570 m, ldSBr, cSBr, 2.5.1980, 2.4.1981.

ŠTAJERSKO: Bohor, 15°26′, 46°04′, WM30, 740 m, *Abies alba*, ldJTi, lit.JTi1983, 7.1977; **Celje, Teharje**, 15°17′48″, 46°13′44″, WM21, 242 m, tWit, phGaPP, ldTŽu, lit.TŽu2020, 27.5.2018, 10.6.2018, 9.7.2018; **Ljubno ob Savinji**, 14°48′16″, 46°20′06″, WM83, 832 m, *Abies alba*, deblo 15 cm rs, oANe dRPa, lit.RPa2021a, 21.10.2021; **Kope, Pohorje, Pahernikova posest**, 15°12′05″, 46°30′41″, WM15, 1350 m, tPfall, phAlfa phEtan, lTAd dTHa, lit.THa2022a, 31.7.2020.

31.02. *Pityokteines spinidens* (Reitter, 1895) OSTROZOBI JELKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Grüne 1979: *Pityokteines spinidens* Reitter, 1895; Freude, Harde, Lohse 1981: *Pityokteines spinidens* Reitter; Titovšek 1988: *Pityokteines spinidens* (Reitter); Pfeffer & Knížek 1993: *Pityokteines spinidens* (Reitter, 1894); Pfeffer 1995: *P. spinidens* (Reitter, 1894).

E: AU BH BU CR CZ FR GE GR HU IT LS NT PL RO SK SL* SP ST SZ YU **A:** SC TR

Vrsta je razširjena v srednji in jugovzhodni Evropi v arealu jelk, na Korziki, Kavkazu, zahodni Ukrajini in Mali Aziji. Pri nas je ostrozobi jelkar najpogostejši podlubnik na jelki, najdišča so, z izjemo Prekmurja in Bele krajine, po vsej Sloveniji (slika 146).

The species is distributed in in the fir range of central and south-eastern Europe, Corsica, the Caucasus, western Ukraine and Asia Minor. In Slovenia, *P. spinidens* is the most common bark beetle on fir, with sites throughout the country, with the exception of Prekmurje and Bela

Glavne gostiteljske rastline so *Abies alba*, *A. cephalonica* in *A. nordmanniana*, redkeje *Picea abies*, *P. orientalis*, *Larix decidua* in *Pinus sylvestris*. Pri nas je bila vrsta najdena izključno na *A. alba*. Številne najdbe v pasteh, nameščenih v čiste sestoje *Pinus sylvestris* (Brdo pri Kranju), so posledica učinkovitega privabljanja feromonov. Letno razvije dve generaciji, roji aprila in avgusta. Rovni sistem je zvezdast, običajno s štirimi materinskimi rovi, ki so pogosto vzdolžno orientirani. Naseljuje tankolubne in debelolubne drevesne dele, predvsem zgornji, tanjši del debla in debelejše veje. Dolžina adultov je 1,9–2,8 mm. Pokrovki na koncu strmo padata k zadnjemu sternitu. Samčki imajo na obeh obronkih koničnika po tri večje in dva manjša zobčka. Vsi večji zobčki so skoraj vodoravni, dva manjša zobčka pa sta med drugim in tretjim večjim zobčkom. Samice imajo na obronku namesto zobčkov le majhne izrastke, iz čela pa jim izraščajo goste rumene dlačice (slika 145). Spolno zreli hrošči prezimujejo v deblih zdravih jelk, zato je vrsta hkrati sekundarna in primarna. Pogosto se naselijo na spodnjem, debelejšem delu debla skupaj s krivozobim jelkarjem (*P. curvidens*). Zaradi splošne razširjenosti ima ostrozobi jelkar pri nas med vsemi podlubniki velik ekonomski pomen. Feromoni: Ipsenol, Ipsdienol v ♂ ♂ (Harring, Candace s sod. 1975; Harring, Candace 1978).

Krajina (Figure 146). The main hosts are *Abies alba*, *A. cephalonica* and *A. nordmanniana*, less frequently *Picea abies*, *P. orientalis*, *Larix decidua* and *Pinus sylvestris*. In Slovene territory, the species has been found exclusively on *A. alba*. The numerous records in traps set in pure stands of *Pinus sylvestris* (Brdo pri Kranju) are due to the effective attraction of pheromones. It develops two generations per year, swarming in April and August. The tunnel system is star-shaped, usually with 4 maternal galleries, often longitudinally oriented. It inhabits thin-bark and thick-bark parts of trees, especially the upper, thinner part of the trunk and the thicker branches. Adult length is 1.9-2.8 mm. The elytra curve abruptly to the posterior sternite at the end. Males have three larger and two smaller denticles on each side of the apex. All the larger denticles are almost horizontal, the two smaller denticles are located between the second and third larger denticles. Females have only small protrusions on the apex instead of denticles, and thick, yellow hairs on the forehead (Figure 145). Young sexually mature beetles overwinter in the trunks of healthy fir trees, making the species both secondary and primary. It is often found in the lower, thicker part of the trunk together with *P. curvidens*. Due to its broad range. P. s*pinidens* has the great economic importance among all bark beetles in our country. in Slovenia. Pheromones: Ipsenol, Ipsdienol in ♂ ♂ (Harring, Candace et al. 1975; Harring, Candace 1978).

Slika 145: ostrozobi jelkar *Pityokteines spinidens*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 145: *Pityokteines spinidens*, dorsal, lateral (Photo: Maja Jurc)

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi, cSBr, 1951-2000.

ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2017c, 4.7.2017; ibidem,
lit.RPa2018d, 27.7.2018, 9.8.2018, 3.9.2018, 26.9.2018, 23.10.2018; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2014b, 31.7.2014; ibidem, lit. RPa2015b, 6.5.2015, 2.6.2015; ibidem, lit.RPa2016b, 26.5.2016, 28.9.2016; ibidem, lit.RPa2018b, 14.6.2018, 3.9.2018, 23.10.2018; ibidem, lit.RPa2019d, 19.6.2019, 24.10.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 31.7.2014, 1.9.2014; lit.RPa2015b, 6.5.2015, 2.7.2015; ibidem, lit.RPa2018b, 3.9.2018; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2018e, 3.9.2018, 23.10.2018; ibidem, lit.RPa2019e, 19.6.2019, 25.9.2019.

PRIMORSKO: **Gospodova senožet, Trnovski gozd**, 13°50′04″, 45°57′59″, VL09, 1120 m, *Abies alba*, hlod, ldRPa, lit.RPa2014c, 9.8.1996; **Predmeja**, 13°51′13″, 45°57′37″, VL19, 980 m, *Abies alba*, hlod, ldRPa, lit.RPa2014c, 9.8.1996.

GORENJSKO: **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, Kont, lGBa dSBr, cSBr, 9.7.1993, 15.7.1993; ibidem, phLino, lGBa dSBr, cSBr, 13.4.1993, 9.7.1993, 15.7.1993; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2013a, 30.10.2013; ibidem, lit.RPa2014a, 20.8.2014; ibidem, lit.RPa2019a, 19.6.2019, 6.11.2019; ibidem, lit.RPa2020d, 26.8.2020; ibidem, lit.RPa2021b, 6.10.2021; ibidem, ldRPa, lit.RPa2022b, 13.7.2022,19.10.2022; ibidem, lit.RPa2023b, 1.6.2023, 14.6.2023, 28.6.2023, 12.7.2023, 23.8.2023, 27.10.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; ibidem, phGaPr, ldRPa, lit.RPa2011a, 6.7.2011, 4.8.2011, 21.9.2011, 11.10.2011; ibidem, lit.RPa2012, 28.6.2012, 10.10.2012; ibidem, phGaP2, ldRPa, lit.RPa2013a, 15.5.2013, 12.6.2013, 26.6.2013, 10.7.2013, 24.7.2013, 21.8.2013, 4.9.2013, 18.9.2013, 4.10.2013, 16.10.2013, 30.10.2013; ibidem, lit.RPa2014a, 16.4.2014, 30.4.2014, 14.5.2014, 28.5.2014, 11.6.2014, 25.6.2014, 9.7.2014, 23.7.2014, 6.8.2014, 20.8.2014, 3.9.2014, 17.9.2014, 1.10.2014, 15.10.2014, 29.10.2014, 13.11.2014; ibidem, lit.RPa2015a, 15.4.2015, 29.4.2015, 13.5.2015, 27.5.2015, 10.6.2015, 24.6.2015, 8.7.2015, 18.8.2015, 30.9.2015, 14.10.2015, 28.10.2015; ibidem, lit.RPa2016a, 13.4.2016, 27.4.2016, 11.5.2016, 25.5.2016, 7.6.2016, 22.6.2016, 6.7.2016, 20.7.2016, 24.9.2016, 12.10.2016; ibidem, lit.RPa2017a, 12.4.2017, 25.5.2017, 8.6.2017, 21.6.2017, 19.7.2017, 16.8.2017, 13.9.2017, 13.10.2017, 25.10.2017; ibidem, lit.RPa2018a, 25.4.2018, 9.5.2018, 6.6.2018, 20.6.2018, 4.7.2018, 18.7.2018, 1.8.2018, 12.9.2018, 26.9.2018, 12.10.2018, 24.10.2018, 7.11.2018, 21.11.2018; ibidem, lit.RPa2019a, 27.3.2019, 10.4.2019, 24.4.2019, 8.5.2019, 22.5.2019, 3.6.2019, 19.6.2019, 3.7.2019, 18.7.2019, 31.7.2019, 14.8.2019, 28.8.2019, 11.9.2019, 11.10.2019, 23.10.2019, 6.11.2019; ibidem, lit.RPa2020d, 22.4.2020, 6.5.2020, 20.5.2020, 3.6.2020, 17.6.2020, 1.7.2020, 15.7.2020, 29.7.2020, 12.8.2020, 9.9.2020, 23.9.2020, 7.10.2020; ibidem, lit.RPa2021b, 7.4.2021, 5.5.2021, 19.5.2021, 31.5.2021, 16.6.2021, 30.6.2021, 14.7.2021, 28.7.2021, 11.8.2021, 8.9.2021, 22.9.2021, 6.10.2021, 20.10.2021, 3.11.2021; ibidem, lit.RPa2022d, 4.5.2022, 18.5.2022, 2.6.2022, 15.6.2022, 29.6.2022, 13.7.2022, 27.7.2022, 7.9.2022, 21.9.2022, 5.10.2022, 19.10.2022, 28.10.2022, 2.11.2022; ibidem, lit.RPa2023b, 3.5.2023, 17.5.2023, 1.6.2023, 14.6.2023, 28.6.2023, 9.8.2023, 23.8.2023, 6.9.2023, 20.9.2023, 4.10.2023, 18.10.2023, 27.10.2023; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2015a, 14.10.2015; ibidem, lit.RPa2017a, 25.5.2017; ibidem, lit.RPa2020d, 23.9.2020; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 27.4.1992; ibidem, phPher, lFPo dSBr, cSBr, 21.5.1990, 4.6.1990, 18.7.1990; **Kranj, Zoisova ulica 22, vrt**, 14°21′28″, 46°14′59″, VM52, 400 m, tWit, phGaPP, ldRPa, lit.RPa2023a, 12.8.2023; ibidem, phGaPP phEtan, ldRPa, lit. RPa2023a, 14.8.2023, 17.8.2023, 19.8.2023, 23.8.2023, 14.9.2023, 20.9.2023, 4.10.2023, 18.10.2023,

7.11.2023; **Požarje, Zagorje ob Savi**, 14°57′, 46°06′, VM90, 680 m, *Abies alba*, ldMJu, lit. MJu2002b, 2002.

NOTRANJSKO: **Bistra, Vrhnika**, 14°19′, 45°56′, VL48, 620 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Dedna gora, Javorniki**, 14°23′, 45°39′, VL55, ~1100 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Idrija, okolica**, (14°02′), (46°00′), (VL29), *, *Abies alba*, hlod, ldFUl, lit.FUl1957, 1952; ibidem, lovno drevo, ldFUl, lit.FUl1957, 18.4.1952; ibidem, vrhač, ldFUl, lit.FUl1957, 1952; **Knežak, Ilirska Bistrica**, 14°15′, 45°37′, VL45, 600 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Logatec**, 14°13′, 45°55′, VL38, 480 m, *Abies alba*, ldMJu, lit.DJu2003, 5.2002, 7.2022; **Preserje, Kamnik pod Krimom**, 14°25′, 45°57′, VL58, 360 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Ravbarkomanda, Postojna 2**, 14°13′51″, 45°47′38″, VL47, 590 m, *Abies alba*, hlod 25 cm, ldRPa, lit.RPa2020c, 26.5.2016; **Ravnik pri Hotedršči**, 14°10′, 45°55′, VL38, 680 m, *Abies alba*, ldMJu, lit.MJu2002b, 2002; **Snežnik**, 14°26′, 45°36′, VL54, 1389 m, tWit, phGaPr, ldRPa, lit.RPa2022a, 9.6.2011; **Snežnik, Kozlovka 1**, 14°28′30″, 45°39′46″, VL55, 703 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 18.5.2015, 31.5.2015, 14.6.2015, 22.6.2015, 5.7.2015, 16.7.2015, 31.7.2015, 12.8.2015, 27.8.2015; **Snežnik, Kozlovka 2**, 14°28′27″, 45°39′49″, VL55, 686 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 18.5.2015, 31.5.2015, 14.6.2015, 22.6.2015, 5.7.2015, 16.7.2015, 31.7.2015, 12.8.2015, 27.8.2015; **Snežnik, Kozlovka 3**, 14°28′21″, 45°39′45″, VL55, 721 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 18.5.2015, 31.5.2015, 14.6.2015, 22.6.2015, 5.7.2015, 16.7.2015, 31.7.2015, 12.8.2015, 27.8.2015; **Snežnik, Kozlovka 4**, 14°28′02″, 45°39′52″, VL55, 747 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 18.5.2015, 31.5.2015, 14.6.2015, 22.6.2015, 5.7.2015, 16.7.2015, 31.7.2015, 12.8.2015, 27.8.2015; **Snežnik, Kozlovka 5**, 14°28′03″, 45°39′51″, VL55, 746 m, *Abies alba,* deblo, ldEPe, lit.EPe2017, 18.5.2015, 31.5.2015, 14.6.2015, 22.6.2015, 5.7.2015, 16.7.2015, 31.7.2015, 12.8.2015, 27.8.2015; **Snežnik, Flegarice 1**, 14°27′23″, 45°40′27″, VL55, 766 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 18.5.2015, 31.5.2015, 14.6.2015, 22.6.2015, 5.7.2015, 16.7.2015, 31.7.2015, 12.8.2015, 27.8.2015; **Snežnik, Flegarice 2**, 14°27′34″, 45°40′28″, VL55, 768 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 18.5.2015, 31.5.2015, 14.6.2015, 22.6.2015, 5.7.2015, 16.7.2015, 31.7.2015, 12.8.2015, 27.8.2015; **Snežnik, Leskova Dolina, Sladka voda 1**, 14°25′29″, 45°37′06″, VL55, 892 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 31.5.2015, 14.6.2015, 22.6.2015, 5.7.2015, 16.7.2015, 31.7.2015, 12.8.2015, 12.10.2015; **Snežnik, Leskova Dolina, Sladka voda 2**, 14°25′44″, 45°37′04″, VL55, 888 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 31.5.2015, 14.6.2015, 22.6.2015, 5.7.2015, 16.7.2015, 31.7.2015, 12.8.2015, 12.10.2015; **Snežnik, Leskova Dolina, Sladka voda 3**, 14°25′38″, 45°37′07″, VL55, 876 m, *Abies alba*, deblo, ldEPe, lit.EPe2017, 12.8.2015, 12.10.2015; **Stari Trg pri Ložu**, 14°28′, 45°43′, VL56, 600 m, *Abies alba*, ldMJu, lit.DJu2003, 2002; **Vojsko, Idrija**, 13°54′, 46°01′, VL19, 960 m, *Abies alba*, ldJTi, lit.JTi1983, 5.1976; **Vrhnika**, 14°17′42″, 45°56′14″, VL48, 567 m, *Abies alba*, hlod 30 cm, ldRPa, lit.RPa2020c, 4.11.2016.

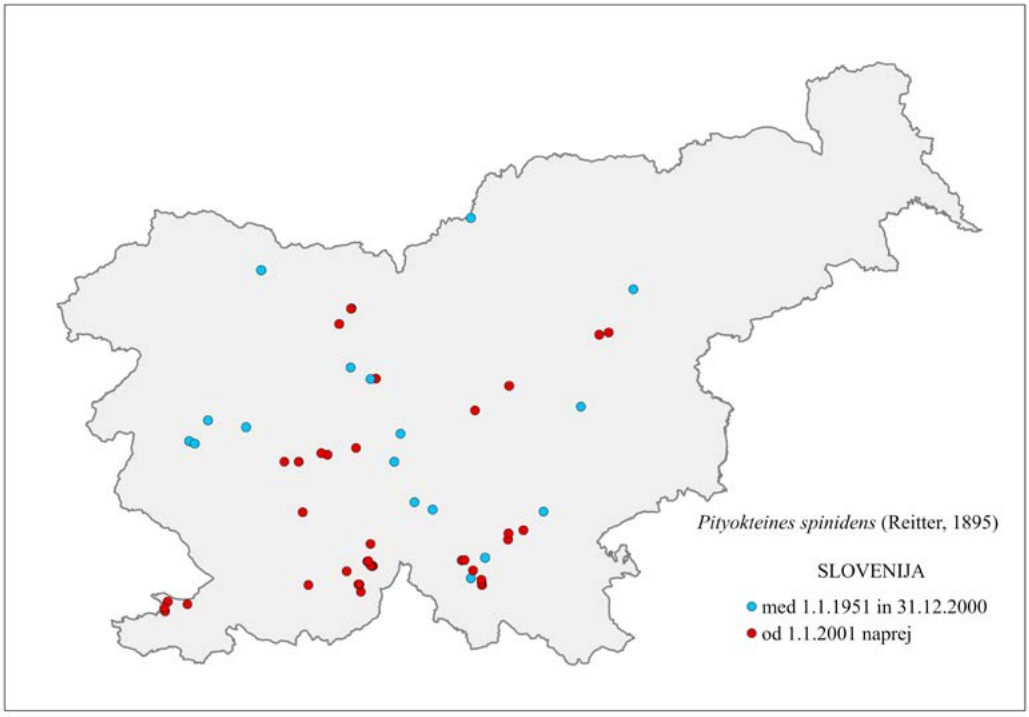
LJUBLJANA Z OKOLICO: **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, tWit, phGaHo, ldRPa, lit.RPa2013b, 14.8.2013, 20.9.2013, 25.10.2013; **Šmarna gora**, 14°28′, 46°07′, VM50, 480 m, *Abies alba*, deblo, ldJTi, lit.JTi1983, 5.1972.

DOLENJSKO: **Dolga Vas, Fridrihštajn**, 14°51′20″, 45°37′00″, VL85, 900 m, *Abies alba*, deblo, lAVi dIRe, lit.IRe2002, 22.7.2002; **Grmače, Šmartno pri Litiji**, 14°49′52″, 46°02′28″, VL89, 295 m, tEco, phGaPP, ldEGr, lit.EGr2019, 2018; **Hotemež, Radeče 1**, 15°12′, 46°03′, WL19, 220 m, *Abies alba*, hlod, ldJTi, lit.JTi1973, 10.1972; **Ledenik, Kočevje, pragozd Strmec**, 14°49′, 45°38′, VL95, 875 m, *Fagus sylvatica*, deblo, lMKa dBDr, cZRC, 26.6.1994; **Ložinski vrh, Gornje Ložine 1**, 14°47′04″, 45°40′36″, VL85, 820 m, *Abies alba*, veja, lSPl dIRe, lit.IRe2002, 22.7.2002; **Ložinski vrh, Gornje Ložine 2**, 14°47′41″, 45°40′38″, VL85, 840 m, *Abies alba*, deblo, lAVi dIRe, lit.IRe2002, 22.7.2002; **Mahovnik, Kočevje**, 14°49′29″, 45°39′08″, VL85, 675 m, *Abies alba*, veja, lAVi dIRe, lit.IRe2002, 22.7.2002; **Mala Gora, Kočevje**, 14°52′, 45°41′, VL96, 490 m, *Abies alba*, deblo 40 cm, ldRPa, lit.RPa2014c, 21.7.1994; **Mestni vrh, Dolga Vas**, 14°51′14″, 45°37′18″, VL85,

870 m, *Abies alba*, deblo, lAVi dIRe, lit.IRe2002, 22.7.2002; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 700 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1981; **Pečka, pragozd Pečka**, 15°00′, 45°45′, WL06, 875 m, *Abies alba*, deblo, ldMka, cZRC, 15.5.2002; **Podstenice, Stari Log**, 14°56′48″, 45°43′38″, VL96, 630 m, *Abies alba*, deblo, lFGl dIRe, lit.IRe2002, 22.7.2002; **Reber, Stari Log**, 14°56′53″, 45°44′32″, VL96, 780 m, *Abies alba*, deblo, lFGl dIRe, lit.IRe2002, 22.7.2002; **Straža, Novo Mesto**, 15°04′11″, 45°47′44″, WL07, 443 m, *Abies alba*, deblo, ldRPa, lit.RPa2014c, 24.6.1994; **Sveti Frančišek, Kočevje**, 14°51′13″, 45°37′45″, VL85, 640 m, *Abies alba*, deblo, lAVi dIRe, lit.IRe2002, 22.7.2002; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, *Abies alba*, deblo, ldMJu, lit.DJu2002, 2002; ibidem, tThe, Kont, lGBa dSBr, cSBr, 18.6.1993, 2.7.1993; ibidem, phLino, lGBa dSBr, cSBr, 18.6.1993,16.7.1993; ibidem, phPher, lFPo dSBr, cSBr, 18.7.1990; **Škrilje, Ig**, 14°33′, 45°55′, VL68, 570 m, ldSBr, cSBr, 2.7.1980; **Velika Slevica, Velike Lašče**, 14°37′12″, 45°49′06″, VL77, 606 m, tThe, phPher phChal, lTSt dRPa, lit.RPa2014c, 11.7.1994, 21.7.1994.

ŠTAJERSKO: Celje, Breg, 15°15′52″, 46°13′26″, WM21, 262 m, tWit, phGaPP, ldTŽu, lit. TŽu2020, 27.5.2018, 9.7.2018; **Celje, Teharje**, 15°17′48″, 46°13′44″, WM21, 242 m, tWit, phGaPP, ldTŽu, lit.TŽu2020, 10.6.2018, 24.8.2018; **Konjiška gora, Slovenske Konjice**, 15°23′, 46°20′, WM23, 870 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1974.

KOROŠKO: **Podpeca, Trčovo**, 14°48′59″, 46°30′17″, VM85, 1120 m, tThe, phCemp, ldRPa vSBr, lit.RPa1994a, 13.8.1994.



Slika 146: OSTROZOBI JELKAR *Pityokteines spinidens*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 146: *Pityokteines spinidens*, distribution map according to historical and recent data

31.03. *Pityokteines vorontzowi* (Jakobson, 1896) VORONTZOWOV JELKAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Pityokteines vorontzovi* Jakobson, 1895; FREUDE, HARDE, LOHSE 1981: *Pityokteines vorontzowi* Jakobs; TITOVŠEK 1988: *Pityokteines vorontzovi* (Jakobson); PFEFFER & KNÍŽEK 1993: *Pityokteines vorontzowi* (Jakobson, 1895); PFEFFER 1995: *P. vorontzowi* (Jakobson, 1895).

E: AU BH BU CR CZ FR GE GR HU IT MC PL RO SK SL SP ST SZ UK YU **A:** TR

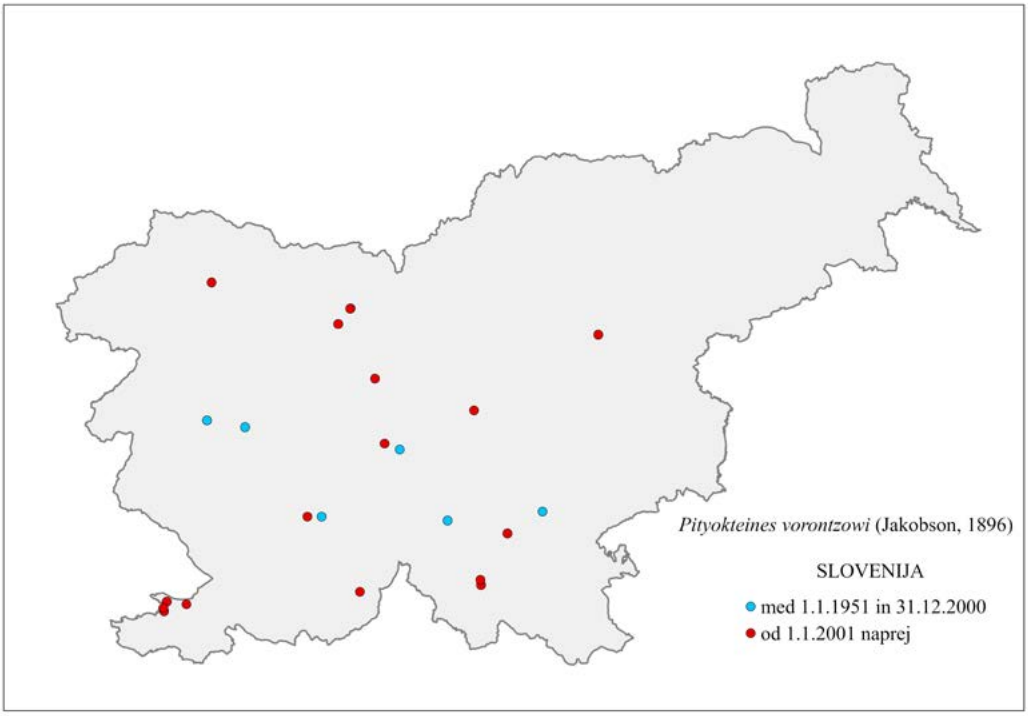
Vrsta je razširjena v arealu jelke od južne Francije do Kavkaza, Bolgarije, zahodne Ukrajine in Turčije. Prisotnost vrste je bila podcenjena, njena razširjenost v Sloveniji je primerljiva z razširjenostjo drugih dveh vrst jelkarjev, vendar se običajno pojavlja v manjšem obsegu (slika 148). Gostitelji vornotzowovega jelkarja so *Abies alba*, *A. cephalonica*, *A. nordmanniana* in *A. bornmülleriana*, redkeje *Larix decidua*, *Picea abies*, *Pseudotsuga menziesii* in *Pinus sylvestris*. Pri nas je bila vrsta najdena izključno na *A. alba*. Številne najdbe v pasteh, nameščenih v čiste sestoje *Pinus sylvestris* (Brdo pri Kranju), so posledica učinkovitega privabljanja feromonov. Poligamna vrsta letno razvije dve generaciji, roji aprila in avgusta. Zalega zlasti v tankolubne drevesne dele, v veje do premera 1 cm in v zgornje dele debelc. Pri mladih jelkah naseli celotno deblo. Rovni sistem je zvezdast, prečno usmerjen, z 2–8 materinskimi rovi. Velika kotilnica je globoko vtisnjena v beljavo. Dolžina adultov je 1,6–2,4 mm. Samček ima na obeh obronkih koničnika po tri večje in en manjši zobček. Prvi (suturalni) zobček štrli poševno navzgor, drugi je odebeljen in vodoraven, tretji pa je usmerjen rahlo navzgor. Med drugim in tretjem zobčkom je običajno le en manjši zobček. Pri samički so zobčki slabo razviti, sredi čela ima vzdolžni grebenček, iz čela ji izrašča tudi ščetka iz gostih, rumenih dlačic (slika 147). Je sekundarna vrsta, ki na jelkah spremlja druge vrste jelovih podlubnikov. Feromoni: [S]-(-)-Ipsenol in [R]-(-)-Ipsdienol (HARRING, CANDACE s sod. 1975; HARRING, CANDACE 1978).

The species is distributed in the fir range from southern France to the Caucasus, Bulgaria, western Ukraine and Turkey. The species has been underestimated and its distribution in Slovenia is comparable to that of the other two species of the genus *Pityokteines*, but it usually occurs on a smaller scale (Figure 148). Hosts of *P. vorontzowi* are *Abies alba*, *A. cephalonica*, *A. nordmanniana* and *A. bornmülleriana*, and less frequently *Larix decidua*, *Picea abies*, *Pseudotsuga menziesii* and *Pinus sylvestris*. In Slovene territory, the species has been found exclusively on *A. alba*. The numerous records in traps set in pure stands of *Pinus sylvestris* (Brdo pri Kranju) are due to the effective attraction of pheromones. A polygamous species, it develops two generations per year, swarming in April and August. It breeds mainly in thin-bark parts of trees, in branches up to 1 cm in diameter and in the upper parts of trunks. In young fir trees it colonises the entire trunk. The tunnel system is star-shaped, transversely oriented, with 2-8 maternal galleries. The large brood chamber is deeply embedded in the sapwood. Adult length is 1.6-2.4 mm. The male has three major and one minor denticle on each side of the elytra apex. The first (sutural) denticle projects obliquely upwards, the second is thickened and horizontal, and the third protrudes slightly upwards. There is usually only one smaller denticle between the second and third denticles. The female has poorly developed denticles, a longitudinal ridge in the middle of the forehead and a brush of dense, yellow hairs growing out of the forehead (Figure 147). A secondary species that accompanies other species of fir bark beetles. Pheromones: [S]-(-)-Ipsenol and [R]-(-)-Ipsdienol (HARRING, CANDACE ET AL. 1975; HARRING, CANDACE 1978).

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: ldJTi, cSBr, 1951-2000.
ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2018d, 7.6.2018; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2016b,

Slika 147: VORONTZOWOV JELKAR *Pityokteines vorontzowi*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 147: *Pityokteines vorontzowi*, dorsal, lateral (Photo: Maja Jurc)



Slika 148: VORONTZOWOV JELKAR *Pityokteines vorontzowi*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 148: *Pityokteines vorontzowi*, distribution map according to historical and recent data

31.8.2016; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit. RPa2014b, 31.7.2014, 1.9.2014; ibidem, lit.RPa2015b, 2.6.2015; ibidem, lit.RPa2016b, 30.6.2016; ibidem, lit.RPa2018b, 14.6.2018, 23.10.2018; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2015b, 2.9.2015; ibidem, lit.RPa2016b, 28.9.2016; ibidem, lit. RPa2018b, 14.6.2018; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit. RPa2018e, 27.7.2018.

GORENJSKO: **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2022b, 13.7.2022; ibidem, ldRPa, lit.RPa2023b, 17.5.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaPr, ldRPa, lit.RPa2011a, 6.7.2011, 4.8.2011, 21.9.2011, 11.10.2011; ibidem, lit.RPa2012a, 28.6.2012, 25.7.2012, 29.8.2012, 10.10.2012; ibidem, phGaP2, ldRPa, lit.RPa2013a, 30.4.2013, 15.5.2013, 29.5.2013, 12.6.2013, 26.6.2013, 10.7.2013, 21.8.2013, 4.9.2013, 18.9.2013, 4.10.2013, 30.10.2013; ibidem, lit.RPa2014a, 16.4.2014, 30.4.2014, 14.5.2014, 9.7.2014, 23.7.2014, 6.8.2014, 20.8.2014, 3.9.2014, 1.10.2014, 15.10.2014, 29.10.2014; ibidem, lit.RPa2015a, 13.5.2015, 8.7.2015, 4.8.2015, 18.8.2015, 30.9.2015, 14.10.2015; ibidem, lit.RPa2016a, 25.5.2016, 7.6.2016, 22.6.2016, 17.8.2016, 28.9.2016; ibidem, lit.RPa2017a, 25.5.2017, 8.6.2017, 19.7.2017, 2.8.2017, 25.5.2017, 25.5.2017; ibidem, lit.RPa2018a, 25.4.2018, 18.7.2018, 12.10.2018, 24.10.2018; ibidem, lit.RPa2019a, 24.4.2019, 8.5.2019, 22.5.2019, 3.6.2019, 19.6.2019, 3.7.2019, 18.7.2019, 31.7.2019, 11.9.2019, 11.10.2019; ibidem, lit.RPa2020d, 22.4.2020, 6.5.2020, 20.5.2020, 3.6.2020, 1.7.2020, 15.7.2020, 26.8.2020, 9.9.2020, 23.9.2020, 7.10.2020; ibidem, lit.RPa2021b, 7.4.2021, 19.5.2021, 4.6.2021, 28.7.2021, 11.8.2021, 25.8.2021,6.10.2021; ibidem, lit.RPa2022d, 20.4.2022, 18.5.2022, 29.6.2022, 27.7.2022, 7.9.2022, 2.11.2022; ibidem, lit. RPa2023b, 3.5.2023, 17.5.2023, 1.6.2023, 14.6.2023, 28.6.2023, 12.7.2023, 23.8.2023, 4.10.2023, 18.10.2023, 27.10.2023; **Kranj, Zoisova ulica 22, vrt**, 14°21′28″, 46°14′59″, VM52, 400 m, tWit, phGaPP phEtan, ldRPa, lit.RPa2023a, 14.8.2023, 14.9.2023; **Pokljuka, Planina Krasca**, 13°55′, 46°21′, VM13, 1450 m, ldcAPi, lit.APi2015, 14.10.2014.

NOTRANJSKO: **Golobičevec, Planina**, 14°15′, 45°47′, VL47, 690 m, *Abies alba*, hlod 25 cm, ldRPa, lit.RPa2020c, 28.10.2011; **Idrija, okolica**, (14°02′), (46°00′), (VL29), *, *Abies alba*, lovno drevo, ldFUl, lit.FUl1957, 18.4.1952; **Rakov Škocjan, Javorniki**, 14°18', 45°47', VL47, 600 m, *Abies alba*, veja, ldJTi, lit.JTi1983, 4.1972; **Snežnik**, 14°26′, 45°36′, VL54, 1389 m, tWit, phGaPr, ldRPa, lit.RPa2014c, 6.9.2011; **Vojsko, Idrija**, 13°54′, 46°01′, VL19, 960 m, *Abies alba*, ldJTi, lit. JTi1983, 5.1976.

LJUBLJANA Z OKOLICO: **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, tWit, phGaHo, ldRPa, lit.RPa2013b, 20.9.2013, 25.10.2013.

DOLENJSKO: **Dolga Vas, Fridrihštajn**, 14°51′20″, 45°37′00″, VL85, 900 m, *Abies alba*, veja, lAVi dIRe, lit.IRe2002, 22.7.2002; **Grmače, Šmartno pri Litiji**, 14°49′52″, 46°02′28″, VL89, 295 m, tEco, phGaPP, ldEGr, lit.EGr2019, 2018; **Ig**, 14°31′09″, 45°57′37″, VL68, 307 m, tWit, phGaPP, ldRPa, lit.RPa2020a, 2.8.2016; **Mala gora, Ribnica**, 14°44′21″, 45°46′26″, VL76, 744 m, *Abies alba*, deblo, ldRPa, lit.RPa2014c, 17.6.1994; **Pijava Gorica, Šmarje-Sap**, 14°34′19″, 45°56′47″, VL68, 401 m, *Abies alba*, veja, ldRPa, lit.RPa2014c, 23.6.1994; ibidem, vrhač, ldRPa, lit.RPa2014c, 23.6.1994; **Reber, Stari Log**, 14°56′53″, 45°44′32″, VL96, 780 m, *Abies alba*, veja, lFGl dIRe, lit.IRe2002, 22.7.2002; **Straža, Novo Mesto**, 15°04′11″, 45°47′44″, WL07, 443 m, *Abies alba*, deblo, ldRPa, lit.RPa2014c, 24.6.1994; **Sveti Frančišek, Kočevje**, 14°51′13″, 45°37′45″, VL85, 640 m, *Abies alba*, veja, lAVi dIRe, lit.IRe2002, 22.7.2002.

ŠTAJERSKO: Celje, Breg, 15°15′52″, 46°13′26″, WM21, 262 m, tWit, phGaPP, ldTŽu, lit. TŽu2020, 9.7.2018, 27.8.2018.

32.00. *Scolytus* Geoffroy, 1762 BELJAVAR

32.01. *Scolytus carpini* (Ratzeburg, 1837) GABROV BELJAVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Scolytus carpini* (Ratzeburg, 1837); FREUDE, HARDE, LOHSE 1981: *Scolytus carpini* Ratzeburg; PFEFFER & KNÍŽEK 1993: *S. carpini* (Ratzeburg, 1837); PFEFFER 1995: *S. carpini* (Ratzeburg, 1837).

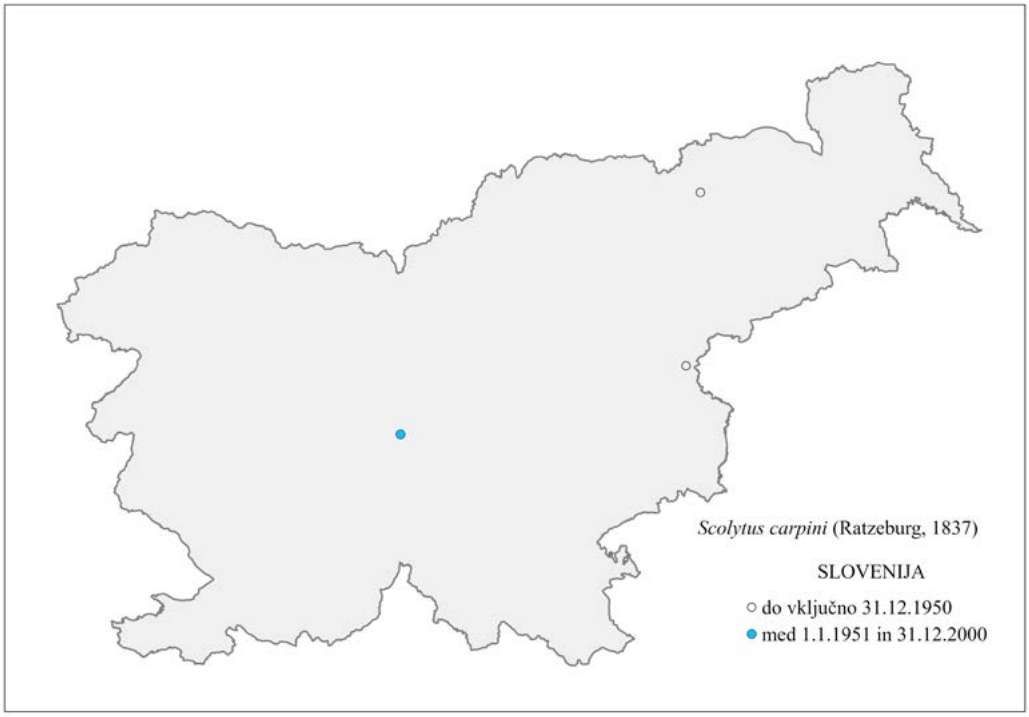
E: AU BE BH BU CR CT CZ EN FR GE GR HU IT LA LU NL PL RO SK SL SP ST SV SZ UK YU »Kaukasus« **A:** TR

Vrsta je prisotna v srednji, južni in jugovzhodni Evropi, na Kavkazu, Krimu, južnem delu Švedske in v Turčiji. Vrsta je pri nas redka, znana so le tri najdišča, na Dolenjskem in Štajerskem, brez zabeleženih gostiteljev (slika 150). Po literaturi so gostitelji *Carpinus betulus*, *C. orientalis*, *Ostrya carpinifolia*, *Fagus sylvatica*, *F. orientalis*, *Quercus petraea*, *Q. pubescens*, *Q. robur* in *Corylus avellana*. Je floemofagna monogamna vrsta, roji junija. V skorjo dolbe kratke, 3–4 cm dolge, enokrake prečne rove, ki se dotikajo beljave. Rovi ličink so dolgi do 10 cm. Dolžina adultov je 2,0–3,6 mm in so črno-rjave barve. Pokrovki potekata skoraj vodoravno do konca zadka, kjer sta okroglo pristriženi. Prva dva segmenta zadka (sternita) sta vodoravna, preostali se poševno dvigajo k analnemu segmentu. Pri samčkih je čelo ravno in poraščeno z dolgimi

The species is found in central, southern and south-eastern Europe, the Caucasus, the Crimea, southern Sweden and Turkey. Only two sites are known in Slovenia, in Dolenjska and Štajerska, with no recorded hosts. The species is rare here (Figure 150). According to the literature, the hosts are *Carpinus betulus*, *C. orientalis*, *Ostrya carpinifolia*, *Fagus sylvatica*, *F. orientalis*, *Quercus petraea*, *Q. pubescens*, *Q. robur* and *Corylus avellana*. Floemophagous monogamous species, swarming in June. Short, 3-4 cm long, uniramous transverse tunnels in the bark, touching the sapwood. The larval tunnels are up to 10 cm long. Adults are 2.0-3.6 mm long and blackish brown in colour. The elytra run almost horizontally to the end of the abdomen, where they are roundly truncated. The first two segments of the abdomen (sternites) are horizontal, the others rise obliquely to the anal segment. In males the

Slika 149: GABROV BELJAVAR *Scolytus carpini*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 149: *Scolytus carpini*, dorsal, lateral (Photo: Maja Jurc)



Slika 150: GABROV BELJAVAR *Scolytus carpini*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 150: *Scolytus carpini*, distribution map according to historical and recent data

rumenkastimi dlačicami. Pri samičkah je čelo izbočeno in redko poraščeno s kratkimi dlačicami (slika 149).

forehead is flat and covered in long yellowish hairs. In females the forehead is convex and sparsely covered in short hairs (Figure 149).

Najdišča v Sloveniji / Localities in Slovenia

DOLENJSKO: **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, phPher, lGBa dSBr, cSBr, 2.7.1993.

ŠTAJERSKO: Podčetrtek, Graben, 15°34′, 46°09′, WM41, *, ldEJa vSBr, cEJa, 12.6.1930; **Maribor, Mariborski otok, Kamnica**, 15°37′, 46°34′, WM45, 280 m, lJPe dHKr vJTi, cJPe, pred 1951.

32.02. *Scolytus intricatus* (Ratzeburg, 1837) HRASTOV BELJAVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Scolytus intricatus* Rtzb.; GRÜNE 1979: *Scolytus intricatus* Ratzeburg, 1837; FREUDE, HARDE, LOHSE 1981: *Scolytus intricatus* Ratzeburg; TITOVŠEK 1988: *Scolytus intricatus* (Ratzeburg); PFEFFER & KNÍŽEK 1993: *S. intricatus* (Ratzeburg, 1837); PFEFFER 1995: *S. intricatus* (Ratzeburg, 1837).

E: AB AU BE BH BU BY CT CR CZ DE EN FI FR GB GE GR HU IT KZ LA LT LU MC NL NR NT PL RO SK SL SP ST SV SZ YU »Caucasus« **N:** AG MO TU **A:** IN NC TR

Vrsta je prisotna v južni, srednji in vzhodni Evropi, v severni Evropi (z izjemo južnošvedskega visokogorja), na Kavkazu, v zahodnem Kazahstanu, Mali Aziji in severni Afriki (Tunizija, Alžirija, Maroko). Siegel (1866) navaja, da vrsta »na Kranjskem ni redka, v stoječih in podrtih hrastih«. V Sloveniji je vrsta razmeroma pogosta, manjkajo le najdišča na Koroškem in v Beli krajini (slika 152). Gostitelji so*: Quercus canariensis*, *Q. castaneifolia*, *Q. cerris*, *Q. coccifera*, *Q. frainetto*, *Q. ilex*, *Q. lusitanica*, *Q. petraea*, *Q*, *pubescens*, *Q. robur*, *Fagus orientalis*, *F. sylvatica*, *Ostrya carpinifolia*, *Castanea sativa*, *Carpinus betulus*, *Betula verrucosa*, *Populus tremula*, *P. alba*, *Sorbus aria*, *Ulmus* spp. in *Parrotia persica*. V Sloveniji je bil hrastov beljavar najden na *Quercus petraea*, *Q. robur* in le enkrat na *Ostrya carpinifolia.* Floemofagna monogamna vrsta razvije 1–2 generaciji letno, prvič roji maja in junija, drugič septembra. Rovni sistem je enokrak, prečni, materinski hodnik je dolg le 1–3 cm. Rovi ličink potekajo vzdolžno. Naseljuje debla in veje. Telo je kratko, cilindrično, dolžina znaša 2,4–4,2 mm. Pokrovki potekata skoraj vodoravno do konca zadka, kjer sta okroglo pristriženi. Zadek se od 2. sternita poševno dviga k pokrovkam. Telo je črne barve, tipalke, noge in elitre so rdečkasto rjave. Pri samčku na glavi, z roba čelnega ščita, štrlita, kot dva rožička, šopka dolgih dlačic. Pri samički je čelo nekoliko izbočeno in razbrazdano (slika 151). Mladi hrošči opravljajo zrelostno hranjenje na lanskoletnih in letošnjih hrastovih poganjkih ali brstih, zato je vrsta hkrati primarna in sekundarna.

The species is found in southern, central and eastern Europe, northern Europe (with the exception of the southern Swedish highlands), the Caucasus, western Kazakhstan, Asia Minor, and northern Africa (Tunisia, Algeria, Morocco). Siegel (1866) states that the species is "not rare in Carniola, in standing and fallen oaks". The species is relatively common in Slovenia, with only Koroška and Bela Krajina having no sites (Figure 152). Hosts include *Quercus canariensis*, *Q. castaneifolia*, *Q. cerris*, *Q. coccifera*, *Q. frainetto*, *Q. ilex*, *Q. lusitanica*, *Q. petraea*, *Q*, *pubescens*, *Q. robur*, *Fagus orientalis*, *F. sylvatica*, *Ostrya carpinifolia*, *Castanea sativa*, *Carpinus betulus*, *Betula verrucosa*, *Populus tremula*, *P. alba*, *Sorbus aria, Ulmus* spp. and *Parrotia persica*. In Slovenia, *S. intricatus was* found on *Quercus petraea*, *Q. robur* and only once on *Ostrya carpinifolia. The* phloemophagous monogamous species develops 1-2 generations per year, the first swarming in May and June, the second in September. The maternal tunnel system is uniramous transverse, the maternal gallery is only 1-3 cm long. The larval tunnels are longitudinal. Inhabits trunks and branches. The body is short, cylindrical, 2.4-4.2 mm long. The elytra run almost horizontally to the end of the abdomen, where they are roundly truncated. The abdomen rises obliquely from the 2nd sternite to the elytra. The body is black, the antennae, legs and elytra are reddish brown. The males two tufts of long hairs protrude like two rosettes on the head, from the edge of the frontal shield. In females the forehead is slightly convex and furrowed (Figure 151). The young beetles perform maturity feeding on last year's and this year's oak shoots or buds, so the species is both primary and secondary.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Quercus* spp., ldMSi, lit.MSi1866, pred 1951.

PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, ldABi vSBr, cABi, pred 1951; **Sveta gora, Solkan**, 13°39′33″, 45°59′41″, UL99, 543 m, *Ostrya carpinifolia,* deblo 7 cm, odRPa, lit. RPa2021a, 15.9.2021; **Trstelj, Škrbina**, 13°42′, 45°52′, UL98, 620 m, *Quercus* sp., veja, ldBKo vMJu, lit.BKo2005, 9.8.2004.

GORENJSKO: **Brdo pri Kranju 1/29**, 14°24′29″, 46°16′55″, VM52, 447 m, *Quercus robur*, veja 7 cm rs, odRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/30**, 14°24′31″, 46°16′58″, VM52, 446 m, *Quercus robur*, veja 5 cm rs, odRPa, lit.RPa2003, 18.10.2003; **Brdo pr Kranju 2/1**,

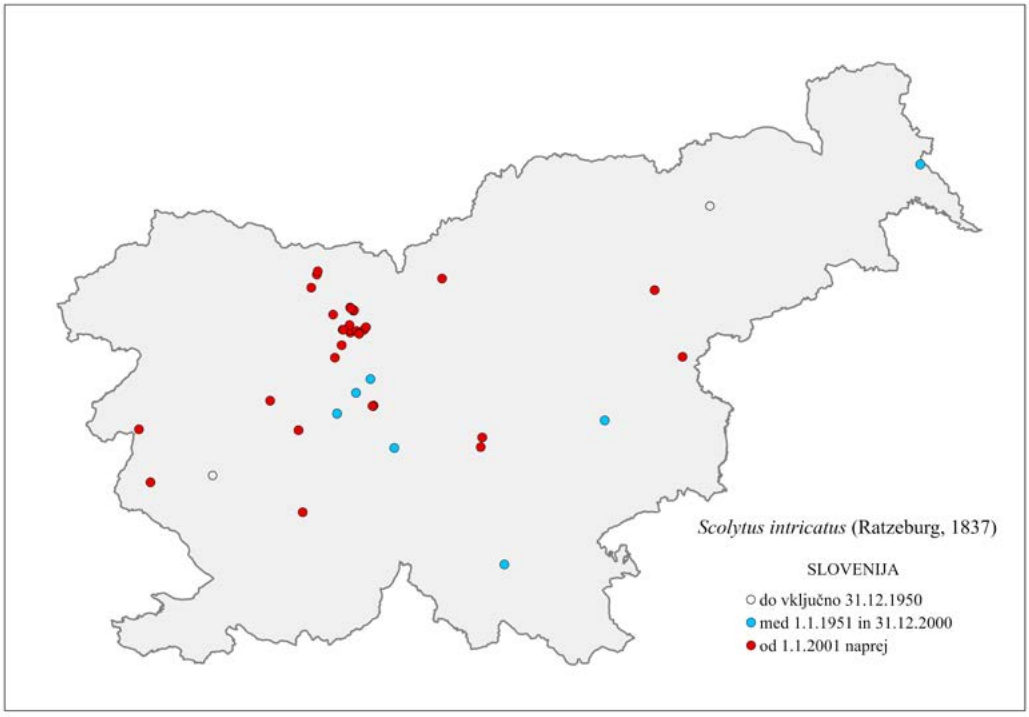
Slika 151: HRASTOV BELJAVAR *Scolytus intricatus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 151: *Scolytus intricatus*, dorsal, lateral (Photo: Maja Jurc)

14°16′49″, 46°22′07″, VM52, 423 m, *Quercus robur*, sušica 10 cm rs, odRPa, lit.RPa2004, 24.8.2004; **Brdo pri Kranju 2/2**, 14°17′00″, 46°22′36″, VM52, 430 m, *Quercus robur*, veja 3 cm, ldRPa, lit. RPa2004, 20.7.2004; **Brdo pri Kranju 2/5**, 14°23′45″, 46°17′22″, VM52, 469 m, *Quercus petraea,* veja 5 cm rs, odRPa, lit.RPa2004, 30.7.2004; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, *Quercus petraea*, veja 5 cm rs, odRPa, lit.RPa2023a, 19.4.2023; **Brnik, krožišče Cargo 9**, 14°26′39″, 46°14′07″, VM52, 392 m, *Quercus robur*, veja 5 cm rs, odRPa, lit.RPa2022a, 28.10.2022; **Hrastje, Kranj 1**, 14°23′40″, 46°14′01″, VM52, 386 m, *Quercus robur*, deblo 8 cm rs, odRPa, lit.RPa2023a, 25.10.2023; **Hrastje, Kranj, Agromehanika 3**, 14°23′47″, 46°13′44″, VM51, 381 m, *Quercus robur*, deblo 10 cm rs, odRPa, lit.RPa2021a, 27.5.2021; **Hrastje, Kranj, Klanec 1**, 14°23′40″, 46°14′05″, VM52, 389 m, *Quercus robur*, deblo 8 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hrastje, Kranj, Klanec 3**, 14°23′36″, 46°14′07″, VM52, 3889 m, *Quercus robur*, deblo 25 cm rs, odRPa, lit.RPa2023a, 29.5.2023; **Hudo, Kovor 2**, 14°15′37″, 46°20′13″, VM43, 527 m, *Quercus* sp., deblo 45 cm rs, oRBe dRPa, lit.RPa2021a, 22.10.2021; **Kranj, ob avtocesti 7**, 14°23′36″, 46°14′49″, VM52, 402 m, *Quercus robur*, deblo 10 cm rs, odRPa, lit.RPa2021a, 6.10.2021; **Kranj, pri Mestnem pokopališču 1**, 14°22′12″, 46°14′09″, VM52, 387 m, *Quercus robur*, veja 10 cm rs, odRPa, lit.RPa2020b, 17.10.2020; **Kranj, pri Mestnem pokopališču 3**, 14°22′16″, 46°14′09″, VM52, 387 m, *Quercus robur*, deblo 10 cm rs, odRPa, lit.RPa2021a, 21.2.2021; **Kranj, pri Mestnem pokopališču 4**, 14°22′20″, 46°14′09″, VM52, 387 m, *Quercus robur*, deblo 15 cm rs, odRPa, lit.RPa2021a, 21.2.2021; **Lipica, Škofja Loka, nad pokopališčem 4**, 14°20′33″, 46°10′07″, VM41, 350 m, *Quercus robur*, deblo 10 cm rs, odRPa, lit.RPa2021a, 20.1.2021; **Mlaka pri Kranju, ob tekaški stezi 3**, 14°20′12″, 46°16′21″, VM42, 431 m, *Quercus robur*, veja 7 cm rs, odRPa, lit. RPa2020c, 6.6.2007; **Osoje, Žiri**, 14°07′01″, 46°03′51″, VM30, 631 m, *Quercus robur*, deblo 20 cm rs, odLSe vRPa, lit.RPa2023a, 19.11.2023; **Praprotna Polica 1**, 14°27′03″, 46°14′30″, VM52, 396 m, *Quercus robur*, veja 5 cm rs, odRPa, lit.RPa2020b, 11.10.2019; **Sorško polje, Lumar Trade 2**, 14°21′58″, 46°11′55″, VM51, 372 m, *Quercus robur*, veja 5 cm rs, odRPa, lit.RPa2020c, 8.5.2006; **Šenčur, proti Voklu 1**, 14°25′06″, 46°13′58″, VM52, 390 m, *Quercus robur,* veja 5 cm rs, odRPa, lit.RPa2020c, 13.10.2017; **Voklo, pri Petrol BS 1**, 14°25′37″, 46°13′33″, VM51, 382 m, *Quercus robur*, deblo 15 cm rs, odRPa, lit.RPa2020b, 12.8.2019; **Voklo, pri Petrol BS 3**, 14°25′37″, 46°13′37″, VM51, 384 m, *Quercus robur*, deblo 7 cm rs, odRPa, lit.RPa2020b, 30.7.2019.

NOTRANJSKO: **Brezje pri Dobrovi**, 14°21′, 46°02′, VL49, 340 m, lMZd dSBr, cSBr, 8.1984; **Ravbarkomanda, Postojna 2**, 14°13′51″, 45°47′38″, VL47, 590 m, *Quercus robur*, hlod 15 cm,

ldRPa, lit.RPa2020c, 26.5.2016; **Rovte 2**, 14°12′58″, 45°59′35″, VL39, 640 m, *Quercus petraea*, deblo 30 cm rs, odATr vRPa, lit.RPa2022a, 10.12.2022.
LJUBLJANA Z OKOLICO: **Rožnik, Ljubljana 3**, 14°28′34″, 46°03′04″, VL59, 329 m, *Quercus robur*, deblo 4 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Rožnik, Ljubljana 4**, 14°28′31″, 46°03′06″, VL59, 342 m, *Quercus robur*, deblo 10 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Rožnik, Ljubljana 5**, 14°28′31″, 46°03′07″, VL59, 348 m, *Quercus robur*, deblo 15 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Rožnik, Ljubljana 6**, 14°28′38″, 46°03′09″, VM50, 349 m, *Quercus* sp., deblo 30 cm rs, odLSk vRPa, lit.RPa2021a, 4.11.2021; **Rožnik, Ljubljana, pri parkirišču ZOO**, 14°28′25″, 46°03′05″, VL59, 309 m, *Quercus robur*, deblo 20 cm rs, odRPa, lit.RPa2020b, 25.11.2020; **Šmarna gora**, 14°28′, 46°07′, VM50, 550 m, *Quercus petraea*, ldJTi, lit.JTi1983, 3.1974; **Toško Čelo**, 14°25′, 46°05′, VM50, 560 m, *Quercus petraea*, ldJTi, lit.JTi1983, 1.1978.
DOLENJSKO: **Boštanj, Sevnica**, 15°17′, 46°01′, WL29, 230 m, *Quercus petraea*, ldJTi, lit. JTi1983, 4.1974; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 11.6.1977; **Kren, Kočevje**, 14°56′, 45°40′, VL95, 575 m, *Quercus* sp., veja, lMKa dBDr, cZRC, 29.6.1994; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 31.5.2017; **Velike Češnjice 3**, 14°51′23″, 45°58′32″, VL89, 432 m, tBak, phEtan, ldLPa vTHa, lit.LPa2019, 7.6.2017.
ŠTAJERSKO: Breg pri Konjicah, 15°27′25″, 46°19′52″, WM33, 296 m, *Quercus petraea*, veja 5 cm rs, odRPa, lit.RPa2020b, 3.3.2020; **Maribor, Betnava**, 15°39′, 46°32′, WM45, 280 m, ldJPe vSBr, cJPe, pred 1951; **Poljšak p2c**, 14°42′58″, 46°21′33″, VM72, 813 m, tWit, phAlfa phEtan,



Slika 152: HRASTOV BELJAVAR *Scolytus intricatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 152: *Scolytus intricatus*, distribution map according to historical and recent data

ldRPa, lit.RPa2021c, 28.7.2021, 4.8.2021; ibidem, lTHa dRPa, lit.RPa2021c, 1.9.2021; **Rudnica, Spodnje Tinsko**, 15°33′16″, 46°10′13″, WM41, 349 m, *Quercus petraea*, deblo 40 cm rs, odJKr vRPa, lit.RPa2023a, 17.11.2023.
PREKMURJE: **Žitkovci, Dobrovnik**, 16°23′, 46°38′, XM06, 190 m, *Quercus robur*, ldJTi, lit. JTi1983, 6.1971.

32.03. *Scolytus laevis* Chapuis, 1869 GLADKI BELJAVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Scolytus laevis* Chapuis, 1869; FREUDE, HARDE, LOHSE 1981: *Scolytus laevis* Chapuis; TITOVŠEK 1988: *S. laevis* Chapuis; PFEFFER & KNÍŽEK 1993: *S. laevis* Chapuis, 1869; PFEFFER 1995: *S. laevis* Chapuis, 1869.

E: AU BU BY CR CT CZ DE EN FR GB GE GG GR HU IT LA LS NR NT PL SK SL SP ST SV SZ UK YU »Caukasus«

Vrsto najdemo v srednji Evropi, na Balkanu, v južnem delu Skandinavije, Rusiji, Ukrajini in na Kavkazu. Vrsta v Sloveniji ni pogosta, odsotna je na SV delu države (slika 154). Gostitelji so pretežno *Ulmus carpinifolia*, *Ulmus hollandica*, *U. laevis* in *U. elliptica*, občasno *Quercus robur*, *Tilia cordata*, *Alnus glutinosa*, *Pyrus* spp. in *Malus* spp.. Pri najdiščih v Sloveniji gostitelji, z izjemo *Ulmus glabra* in *Ostrya carpinifolia,* večinoma niso zabeleženi. Je monogamna vrsta. Rovni sistem je enokrak vzdolžni, dolžina materinskega hodnika je 5–6 cm. Naseljuje debla in debelejše veje. Dolžina adulta je 3,0–4,5 mm. Na drugem sternitu nima zobčka, le majhno izboklinico (slika 153). Gladki beljavar pogosteje se pojavlja le v oslabljenih sestojih. Prenaša, tako kot vsi beljavarji spore gliv *Ophiostoma ulmi* in *O. novo-ulmi*, ki na brestu povzročata holandsko brestovo bolezen.

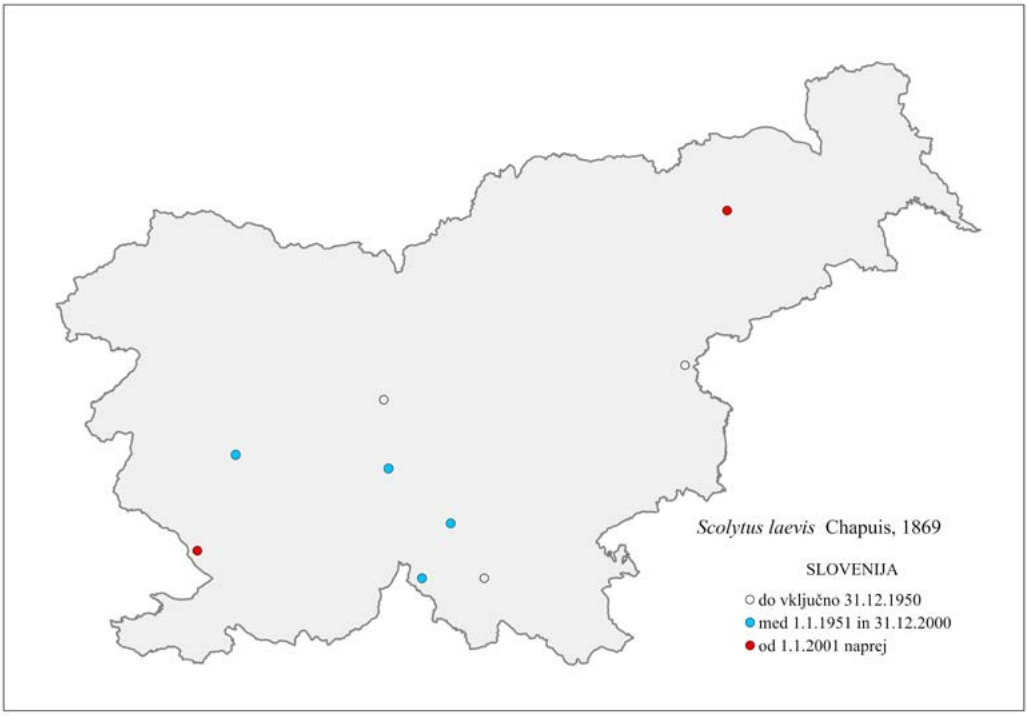
The species is present in Central Europe, the Balkans, southern Scandinavia, Russia, Ukraine and the Caucasus. It is uncommon in Slovenia and absent in the NE of the country (Figure 154). Hosts are mainly *Ulmus carpinifolia*, *Ulmus hollandica*, *U. laevis* and *U. elliptica*, occasionally *Quercus robur*, *Tilia cordata*, *Alnus glutinosa*, *Pyrus* spp. and *Malus* spp.. Hosts are mostly absent from sites in Slovenia, with the exception of *Ulmus glabra* and *Ostrya carpinifolia*. Monogamous species. The maternal tunnel system is longitudinal, the length of the maternal galleries is 5-6 cm. Inhabits trunks and thicker branches. Imago length is 3.0-4.5 mm. The second sternite has no denticles, only a small protuberance (Figure 153). It is not a particularly aggressive species, occurring more frequently only in weakened stands. Like all elm bark beetles, it transmits Dutch elm disease (*Ophiostoma ulmi* and *O. novo-ulmi*).

Najdišča v Sloveniji / Localities in Slovenia
PRIMORSKO: **Sežana**, 13°52′, 45°42′, VL16, 370 m, *Ostrya carpinifolia*, deblo 15 cm, ldRPa, lit. RPa2014c, 25.7.2005; **Zadlog, Trnovski gozd**, 14°00′, 45°56′, VL28, 750 m, ldSBr, cSBr, 5.7.1987.
NOTRANJSKO: **Zadlog, Trnovski gozd**, 14°00′, 45°56′, VL28, 750 m, ldSBr, cSBr, 5.7.1987.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSs, cJSd, 5.7.1936, 29.6.1937, 30.6.1938, 1.8.1940.
DOLENJSKO: **Draga, Goteniška gora**, 14°39′, 45°38′, VL75, 820 m, *Ulmus glabra*, ldJTi, lit. JTi1983, 8.1981; **Kočevje**, 14°52′, 45°38′, VL85, 470 m, ldVKo vZKa, cŠFS, pred 1951; **Mala gora, Ribnica**, 14°45′, 45°46′, VL86, ~700 m, ldSBr, cSBr, 25.5.1986; **Mokrec**, 14°32′, 45°54′,

VL68, ~900 m, ldSBr, cSBr, 18.7.1980; **Mokrec, Sive doline**, 14°32′, 45°54′, VL68, ~900 m, ldSBr, cSBr, 6.6.1982, 5.7.1984.
ŠTAJERSKO: Podčetrtek, Graben, 15°34′, 46°09′, WM41, *, ldEJa vSBr, cEJa, 13.6.1930; **Zgornji Duplek**, 15°42′47″, 46°31′22″, WM55, 242 m, *Quercus petraea*, deblo 24 cm rs, oAMU dRPa, lit.RPa2023a, 9.11.2023.

Slika 153: GLADKI BELJAVAR *Scolytus laevis*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 153: *Scolytus laevis*, dorsal, lateral (Photo: Maja Jurc)



Slika 154: GLADKI BELJAVAR *Scolytus laevis*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 154: *Scolytus laevis*, distribution map according to historical and recent data

32.04. *Scolytus mali* (Bechstein, 1805) SADNI BELJAVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Scolytus mali* (Bechstein, 1805); FREUDE, HARDE, LOHSE 1981: *Scolytus mali* Bechstein; TITOVŠEK 1988: *Scolytus mali* Bechstein; PFEFFER & KNÍŽEK 1993: *S. mali* (Bechstein, 1805); PFEFFER 1995: *S. mali* (Bechstein, 1805).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LT LU MA MC NL NR NT PL RO SK SL SP ST SV SZ UK YU »Caucasus« **N:** AG EG MO **A:** ES FE IN JIL LIA TR WS **NAR**

Vrsta je prisotna v Evropi, na Kavkazu, Uralu, v severni Afriki, Aziji in na nearktičnem območju. Vrsta je pri nas zabeležena v osrednjem delu države, vendar ni pogosta (slika 156). Gostitelji so sadna drevesa iz družine Rosaceae (*Cotoneaster multiflorus*, *Malus* spp., *Pirus* spp., *Sorbus aria*, *S. aucuparia*, *S. intermedia*), tudi njihovi divji sorodniki v gozdovih ter vrste iz rodov *Ulmus* in *Corylus*. V Sloveniji so kot gostitelji zabeležena samo sadna drevesa, *Malus domestica*, *Pyrus communis* in *Prunus domestica*. Je monogamna vrsta, letno razvije dve generaciji, prvič roji maja in junija, drugič avgusta in septembra. Rovni sistem je enokrak vzdolžni, materinski rov je dolg 3–10 cm, s 30–60 larvalnimi rovi, ki so usmerjeni prečno. Dolžina adulta je 3,0–4,5 mm. Zadek se od 2. sternita poševno strmo dviga k pokrovkam (slika 155). Je sekundarna vrsta, ki naseli fiziološko oslabljena debla in veje. Prenaša spore gliv *Ophiostoma ulmi* in *O. novo-ulmi*, ki na brestu povzročata nevarno holandsko brestovo bolezen.

The species is present in Europe, the Caucasus, the Urals, North Africa, Asia and the Nearctic. It has been recorded in the central part of the country but is not common (Figure 156). Hosts are fruit trees of the Rosaceae family (*Cotoneaster multiflorus*, *Malus* spp., *Pirus* spp., *Sorbus aria*, *S. aucuparia*, *S. intermedia*), also their wild forest relatives, and species of the genera *Ulmus* and *Corylus*. In Slovenia, only fruit trees, *Malus domestica*, *Pyrus communis* and *Prunus domestica,* have been recorded as hosts. A monogamous species, it develops two generations per year, the first swarming in May and June, the second in August and September. The maternal tunnel system is longitudinal, the maternal gallery is 3-10 cm long, with 30-60 larval tunnels oriented transversely. Adult length is 3.0-4.5 mm. The abdomen rises obliquely from the 2nd sternite towards the elytra (Figure 155). It colonises physiologically weakened trunks and branches. However, like all elm bark beetles it transmits Dutch elm disease (*Ophiostoma ulmi* and *O. novo-ulmi*).

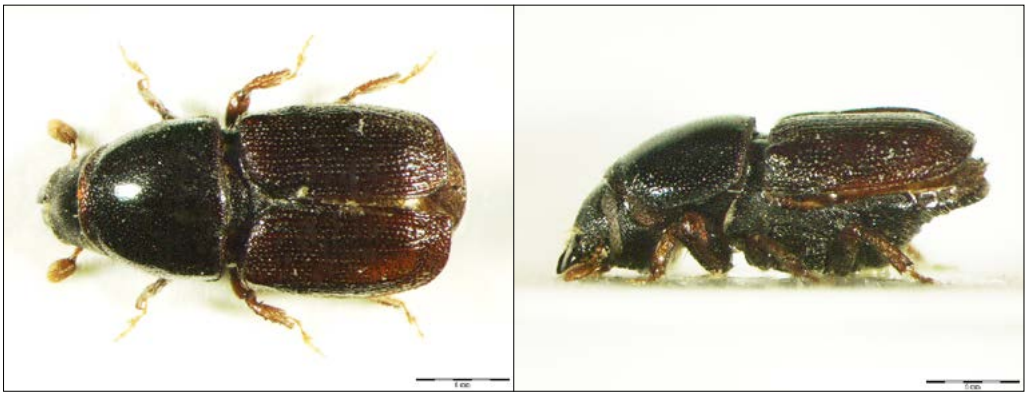
Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi, cŠFS, 1951-2000.

GORENJSKO: **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 20.7.1992; **Gozd, Golnik, kmetija Vrač 1**, 14°20′08″, 46°20′26″, VM43, 890 m, *Malus domestica*, deblo 40 cm rs, odRPa, lit.RPa2014c, 29.9.1994; **Preddvor, Pungart 4, vrt**, 14°25′07″, 46°18′09″, VM52, 483 m, *Pyrus communis*, deblo 50 cm rs, oTAr dRPa, lit.RPa2023a, 6.7.2014; **Rovišče, Sveta Gora, Izlake**, 14°54′, 46°08′, VM90, 700 m, *Malus domestica*, ldJTi, lit. JTi1983, 9.1978.

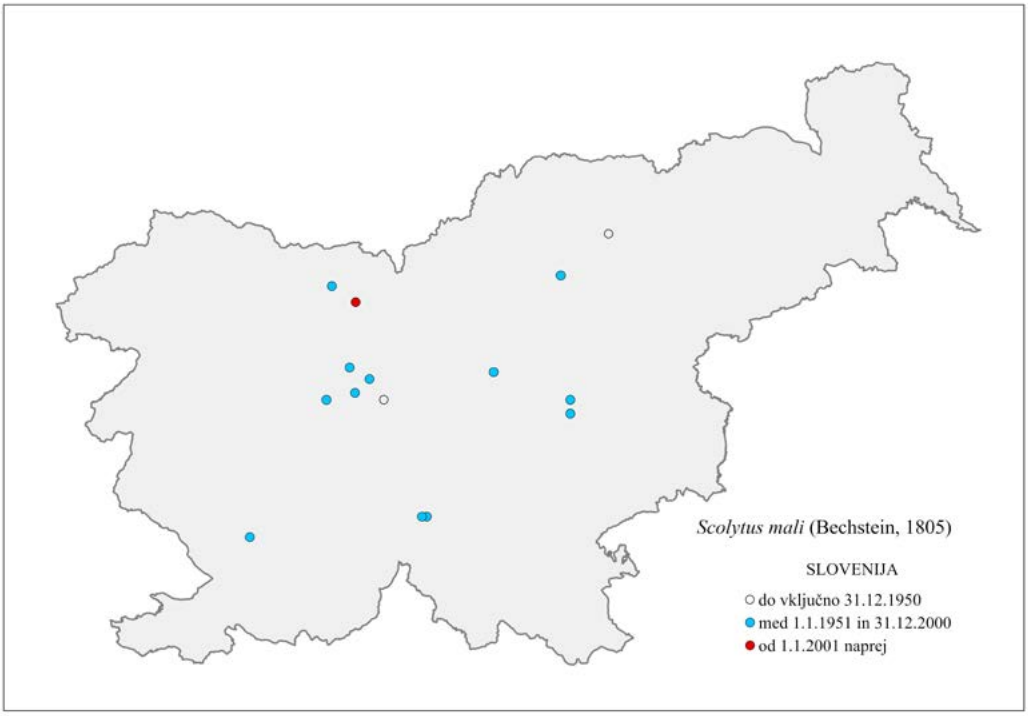
NOTRANJSKO: **Polhov Gradec**, 14°19′, 46°04′, VM40, 370 m, *Malus domestica*, deblo, ldJTi, lit.JTi1983, 2.1973; ibidem, veja, ldJTi, lit.JTi1983, 2.1973; **Senožeče, Razdrto**, 14°03′, 45°44′, VL26, 550 m, *Malus domestica*, ldJTi, lit.JTi1983, 7.1977.

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSs, cJSd, 26.8.1920, 6.9.1920, 12.7.1933; ibidem, ldSBr, cSBr, 1.7.1947; **Ljubljana, Bežigrad**, 14°31′, 46°04′, VM60, 300 m, ldSBr, cSBr, 2.7.1947; **Šmarna gora**, 14°28′, 46°07′, VM50, 600 m, *Malus domestica*, ldJTi, lit.JTi1983, 3.1972; **Toško Čelo**, 14°25′, 46°05′, VM50, 560 m, *Prunus domestica*, ldJTi, lit.JTi1983, 11.1978.



Slika 155: SADNI BELJAVAR *Scolytus mali*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 155: *Scolytus mali*, dorsal, lateral (Photo: Maja Jurc)



Slika 156: SADNI BELJAVAR *Scolytus mali*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 156: *Scolytus mali*, distribution map according to historical and recent data

DOLENJSKO: **Hojče, Sodražica**, 14°39′, 45°47′, VL77, 700 m, *Malus domestica*, ldJTi, lit. JTi1983, 8.1981; **Hudi Konec, Sodražica**, 14°40′, 45°47′, VL77, 700 m, *Malus domestica*, ldJTi, lit.JTi1983, 8.1981; **Leskovec v Podborštu, Šentjanž**, 15°10′, 46°02′, WL19, 710 m, *Malus domestica*, deblo, ldJTi, lit.JTi1983, 7.1965; **Radeče**, 15°10′, 46°04′, WM10, 310 m, *Malus domestica*, ldJTi, lit.JTi1973, 1.1965; **Sveti Gregor, Sodražica**, 14°39′, 45°47′, VL77, 700 m, *Malus domestica*, ldJTi, lit.JTi1983, 8.1981.
ŠTAJERSKO: Pohorje, (15°18′), (46°28′), (WM24), *, lit.GFu1905, pred 1951; **Velenje, Šalek**, 15°08′, 46°22′, WM13, 460 m, *Malus domestica*, veja, ldJTi, lit.JTi1983, 9.1973.

32.05. *Scolytus multistriatus* (Marsham, 1802) MNOGOČRTNI BELJAVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Scolytus multistriatus* (Marsham, 1802); FREUDE, HARDE, LOHSE 1981: *Scolytus multistriatus* Marsham; TITOVŠEK 1988: *Scolytus multistriatus* (Marsham); PFEFFER & KNÍŽEK 1993: *Scolytus multistriatus* (Marsham, 1802) a. m. *multistriatus* s. str.; PFEFFER 1995: *Scolytus multistriatus multistriatus* (Marsham, 1802).

E: AL AU BE BU BY CR CT CZ DE EN FR GB GE GR HU IR IT LA LT LU MC NL NR NT PL PT RO SK SL SP ST SV SZ YU **N:** AG EG MO TU **A:** IN TR UZ **AUR NAR NTR**

Vrsta je razširjena v Evropi, na južnem in zahodnem območju evropskega dela Rusije, v Ukrajini, severni Afriki, Aziji ter na avstralskem, nearktičnem in neotropskem območju. Vrsta je bila v 20. stoletju razširjena po večjem delu Slovenije z izjemo SV dela države. Po letu 2000 sta znani le dve novi najdišči (slika 158). Populacije so verjetno v upadanju zaradi propadanja brestov. Gostitelji so pretežno *Ulmus carpinifolia*, *U. laevis* in *U. hollandica*, izjemoma *Prunus domestica* in *Populus tremula*. Kot gostitelja sta v Sloveniji zabeležena samo *Ulmus minor* in *U. glabra*. Je floemofagna in monogamna vrsta. V južni Evropi letno razvije dve generaciji, na severnih območjih Evrope pa eno generacijo. Zalega v tankolubne drevesne dele, v krošnjo in v tanjše dele debla oslabljenih in hirajočih starih dreves. Rovni sistem je enokraki vzdolžni, leži pretežno v skorji, materinski hodnik dosega dolžino 6 cm. Rovi ličink so gosto posejani in potekajo prečno. Dolžina adultov je 2,0–4,0 mm. Zadek se od 2. sternita poševno dviga k pokrovkam. Na 2. zadkovem sternitu je dolg, zaobljen, vodoraven izrastek. Samčki imajo čelo sploščeno in poraslo s štrlečimi

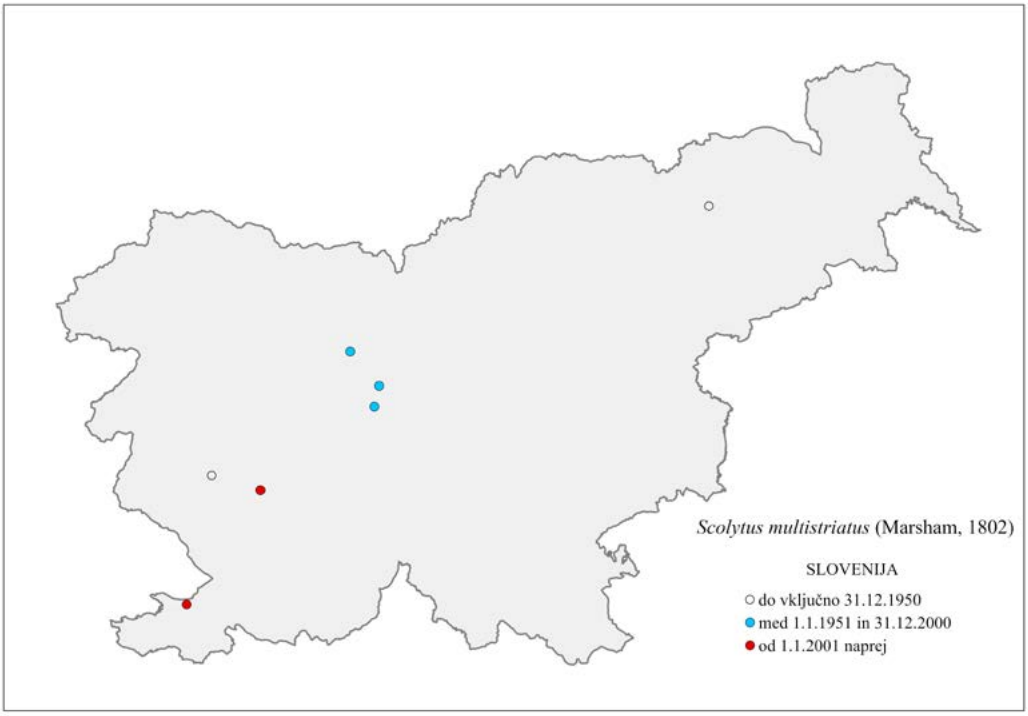
The species is distributed in Europe, in the southern and western parts of European Russia, Ukraine, North Africa, Asia, Australia, the Nearctic and the Neotropics. In the 20th century, the species was distributed throughout most of Slovenia, with the exception of the NE. Only two new sites are known after 2000 (Figure 158). Populations are probably in decline due to elm dieback. Hosts are mainly *Ulmus carpinifolia*, *U. laevis* and *U. hollandica*, with exceptions of *Prunus domestica* and *Populus tremula*. Only *Ulmus minor* and *U. glabra* have been recorded as hosts in Slovenia. Phloemophagous and monogamous species. Develops two generations annually in southern Europe and one generation in northern Europe. It infests thin-trunked tree parts, the canopy and thinner trunk parts of weakened and dying old trees. The maternal tunnel system is longitudinally uniramous, lying mainly in the bark, the maternal gallery reaching 6 cm in length. The larval tunnels are dense and run transversely. Adult length is 2.0-4.0 mm. The abdomen rises obliquely from the 2nd sternite towards the elytra. A long, rounded, horizontal protrusion is located on the 2nd posterior sternite. Males have a flattened forehead covered with

dlačicami, pri samičkah pa je čelo izbočeno in poraslo z redkimi dlačicami, pogosto pa je tudi brez dlačic (slika 157). Mladi hrošči opravljajo zrelostno hranjenje na vejicah in listnih pecljih,

protruding hairs, while in females the forehead is convex and covered with sparse hairs, often without hairs (Figure 157). Young beetles perform maturity feeding on twigs and leaf

Slika 157: MNOGOČRTNI BELJAVAR *Scolytus multistriatus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 157: *Scolytus multistriatus*, dorsal, lateral (Photo: Maja Jurc)



Slika 158: MNOGOČRTNI BELJAVAR *Scolytus multistriatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 158: *Scolytus multistriatus*, distribution map according to historical and recent data

zato je vrsta hkrati sekundarna in primarna. Mladi hrošči prenašajo trose gliv *Ophiostoma ulmi* in *O. novo-ulmi*, ki povzročata nevarno holandsko brestovo bolezen, zato skupaj z brestovim beljavarjem (*S. scolytus*) spada med dve ekonomsko najpomembnejši vrsti podlubnikov na brestih. Feromoni: (−)-*threo*-4-methyl-3-Heptanol in (−)-ð-multi-striatin pri ♀ ♀ (Gerken 1977, Gerken s sod. 1978); (−)-**α-multistriatin pri** ♀ ♀ (Peacock s sod. 1975, Pearce s sod. 1975, Lanier s sod. 1977).

petioles, making the species both secondary and primary. Young *S. multistriatus* beetles carry the spores of dangerous diseases Dutch elm disease (*Ophiostoma ulmi* and *O. novo-ulmi*), and therefore, together with *S. scolytus*, it is one of the two most economically important species of elm bark beetle. Pheromones: (−)-*threo*-4-methyl-3-Heptanol and (−)-ð-multistriatin in ♀ ♀ (Gerken 1977, Gerken et al. 1978); (−)-**α**-multistriatin in ♀ ♀ (Peacock et al. 1975, Pearce et al. 1975, Lanier et al. 1977).

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: ldJTi, cSBr, 1951-2000.
ISTRA: **Urbanci 2**, 13°49′45″, 45°34′09″, VL04, 280 m, tWit, Kont, ldRPa, lit.RPa2016e, 28.9.2016.
PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, ldABi vSBr, cABi, pred 1951.
GORENJSKO: **Mavčiče, Sorško polje**, 14°24′, 46°11′, VM51, 320 m, *Ulmus minor*, ldJTi, lit. JTi1983, 2.1974.
NOTRANJSKO: **Hrušica 1**, 14°05′12″, 45°50′51″, VL27, 777 m, *Ulmus glabra*, deblo 25 cm rs, odSPe vRPa, lit.RPa2021a, 25.10.2021.
LJUBLJANA Z OKOLICO: **Ljubljana, Črnuče 1**, 14°30′, 46°06′, VM60, 300 m, *Ulmus minor*, debelce, ldJTi, lit.JTi1983, 3.1972; ibidem, veja, ldJTi, lit.JTi1973, 3.1972; **Ljubljana, Podrožnik**, 14°29′, 46°03′, VM60, 310 m, *Ulmus minor*, ldJTi, lit.JTi1983, 4.1974.
ŠTAJERSKO: Maribor, (15°39′), (46°32′), (WM55), ~270 m, ldJPe vSBr, cJPe, pred 1951.

32.06. *Scolytus pygmaeus* (Fabricius, 1787) pritlikavi beljavar

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Grüne 1979: *Scolytus pygmaeus* Fabricius, 1787; Freude, Harde, Lohse 1981: *Scolytus pygmaeus* Fabricius; Titovšek 1988: *Scolytus pygmaeus* (Fabricius); Pfeffer & Knížek 1993: *S. pygmaeus* (Fabricius, 1787); Pfeffer 1995: *S. pygmaeus* (Fabricius, 1787).

E: AB AU BE BU CR CT CZ FI FR GB GE GG GR HU IT LT MC NL PL PT RO SK SL SP ST SV SZ UK YU **A:** TR

Vrsta je razširjena v južni in srednji Evropi, v severnem Kavkazu, Ukrajini, Krimu in Turčiji. Vrsta je bila pri nas najdena v 70. letih 20. stoletja le na dveh lokacijah, na Razdrtem in v Črnučah (slika 159). Gostitelji so pretežno *Ulmus carpinifolia*, *U. levis*, *U. glabra*, izjemoma na *Carpinus betulus*, *Fagus sylvatica*, *Prunus armenica*, občasno tudi *Olea europaea*. V Sloveniji je bil najden samo na *Ulmus minor*. Razvije dve generaciji letno. Rovni sistem je enokrak (včasih dvokrak) vzdolžni, materinski rovi so kratki, dolgi 2–5 cm. Dolžina adulta je 1,5–2,5 mm. Tudi

The species is distributed in southern and central Europe, the northern Caucasus, Ukraine, Crimea and Turkey. It was found in only two sites in the 1970s, in Razdrto and Črnuče (Figure 159). Hosts are mainly *Ulmus carpinifolia*, *U. levis*, *U. glabra*, exceptionally *Carpinus betulus*, *Fagus sylvatica*, *Prunus armenica*, occasionally also *Olea europaea*. In Slovenia it was found only on *Ulmus minor*. It develops two generations per year. The maternal tunnel system is uniramous (sometimes biramous) longitudinal, the maternal galleries are short, 2-5 cm long.

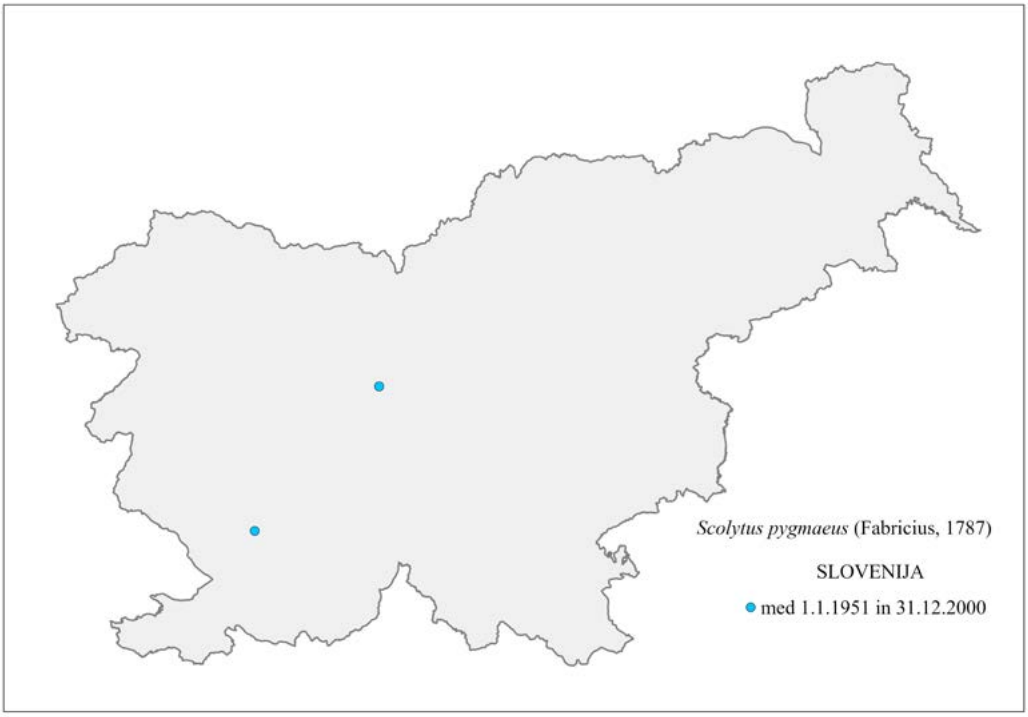
za pritlikavega beljavarja je potrjeno, da mladi hrošči prenašajo trose gliv *Ophiostoma ulmi* in *O. novo-ulmi*, ki povzročata holandsko brestovo bolezen.

Length (adultus) is 1.5-2.5 mm. *S. pygmaeus* is also confirmed as a vector of the dangerous Dutch elm disease (*Ophiostoma ulmi* and *O. novo-ulmi*).

Najdišča v Sloveniji / Localities in Slovenia

NOTRANJSKO: **Razdrto, Senožeče**, 14°04′, 45°45′, VL26, 550 m, *Ulmus minor*, ldJTi, lit. JTi1983, 7.1977.

LJUBLJANA Z OKOLICO: **Ljubljana, Črnuče 1**, 14°30′, 46°06′, VM60, 300 m, *Ulmus minor*, debelce, ldJTi, lit.JTi1983, 3.1972; ibidem, veja, ldJTi, lit.JTi1983, 3.1972.



Slika 159: PRITLIKAVI BELJAVAR *Scolytus pygmaeus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 159: *Scolytus pygmaeus*, distribution map according to historical and recent data

32.07. *Scolytus ratzeburgii* E. W. Janson, 1856 BREZOV BELJAVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Scolytus ratzeburgi* Janson, 1856; FREUDE, HARDE, LOHSE 1981: *Scolytus ratzeburgi* Janson; TITOVŠEK 1988: *Scolytus ratzeburgi* Janson; PFEFFER & KNÍŽEK 1993: *S. ratzeburgii* Janson, 1856; PFEFFER 1995: *S. ratzeburgii* Janson, 1856.

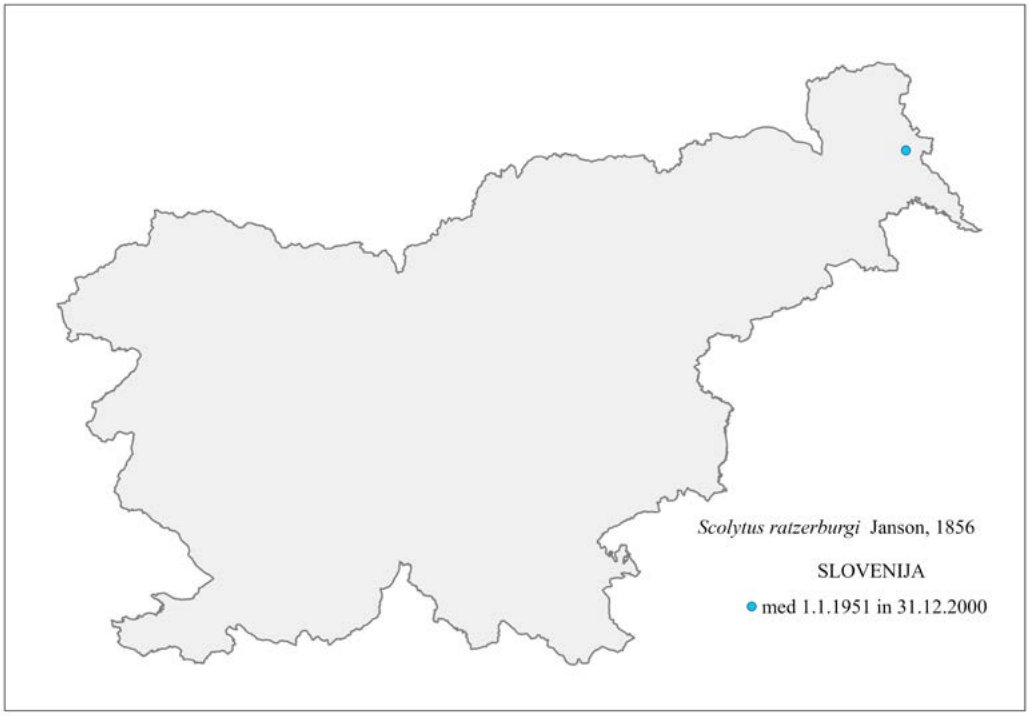
E: AU BE BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA LT LU NL NR NT PL RO SK SL SP ST SV SZ YU »Caucasus« **A:** ES FE HEI IN JA JIL KZ MG NC SC TR WS

Vrsta je razširjena v srednji in severni Evropi, v evropskem delu Rusije, Sibiriji, Koreji, na Japonskem in Kitajskem. Vrsta je bila pri nas najdena le enkrat, v Prekmurju, leta 1985 (slika 161). Oligofagna vrsta na brezah, gostitelji

The species is distributed in central and northern Europe, the European part of Russia, Siberia, Korea, Japan and China. It has only been recorded once in Slovenia, in Prekmurje in 1985 (Figure 161). Oligophagous species on birch, hosts

Slika 160: BREZOV BELJAVAR *Scolytus ratzeburgii*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 160: *Scolytus ratzeburgii*, dorsal, lateral (Photo: Maja Jurc)



Slika 161: BREZOV BELJAVAR *Scolytus ratzeburgii*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 161: *Scolytus ratzeburgii*, distribution map according to historical and recent data

so *Betula pubescens*, *B. pendula*, *B. raddeana*, *B. dahurica*, *B. ermanii*, *B. platyphylla* in *B. costata*. Je floemofagna, monogamna vrsta, ki ima enoletno generacijo, roji junija in julija. Rovni sistem je enokrak, vzdolžni, materinski hodnik je dolg do 13 cm, opremljen je z okroglimi odprtinami za zračenje. Rovi ličink dosegajo dolžino do 25 cm. Brezov beljavar je naš največji beljavar, dolžina adulta znaša 4,0–6,5 mm. Zadek se od 2. sternita poševno strmo dviga k pokrovkam. Samček ima na 3. sternitu gumbasto izboklino, na 4. sternitu pa dvodelno nabreklino (slika 160). Naseli območje krošnje in pozneje debelolubne dele drevesa. Je sekundarna vrsta, a se dopolnilno hrani na mladih vejicah.

are *Betula pubescens*, *B. pendula*, *B. raddeana*, *B. dahurica*, *B. ermanii*, *B. platyphylla* and *B. costata*. This phloemophagous, monogamous species has an annual generation, swarming in June and July. The materna tunnel system is uniramous, the longitudinal maternal gallery is up to 13 cm long, and has rounded openings for ventilation. The larval tunnels reaches a length of up to 25 cm. *S. rugulosus* is the largest Scolytus in Slovenia, with a length (adultus) of 4.0-6.5 mm. The abdomen ascends abruptly from the 2nd sternite towards the elytra. The male has a button-shaped protuberance on the 3rd sternite and a two-lobed swell on the 4th sternite (Figure 160). It colonises the canopy area and later the thick-trunked parts of the tree. Secondary species, that is supplementary feeding on young twigs.

Najdišča v Sloveniji / Localities in Slovenia
PREKMURJE: **Bukovniško jezero, Dobrovnik**, 16°20′, 46°40′, XM06, 220 m, *Betula* sp., ldJTi, cSBr, 1985.

32.08. *Scolytus rugulosus* (Müller, 1818) BRAZDASTI BELJAVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Scolytus rugulosus* (Müller, 1818); FREUDE, HARDE, LOHSE 1981: *Scolytus rugulosus* Müll.; TITOVŠEK 1988: *Scolytus rugulosus* (Müller); PFEFFER & KNÍŽEK 1993: *Scolytus rugulosus* (P. W. J. Müller, 1818); PFEFFER 1995: *S. rugulosus* (Müller, 1818).

E: AB AL AU AZ BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LT LU MA MC NL NR NT PL PT RO SK SL SP ST SV SZ UK YU »Caucasus« **N:** AG EG- MO TU **A:** CY ES GAN IN IQ IS KZ LE MG PA SA SY TR WS XIN **NAR NTR ORR**

Vrsta je razširjena v srednji in v južni Evropi, v južnem delu severne Evrope, na severnem Kavkazu, Krimu, zahodni Sibiriji, Mali Aziji, severni Afriki ter na nearktičnem, neotropskem in orientalnem območju. Pri nas je splošno razširjena, z izjemo SV dela Slovenije, vendar ni pogosta (slika 163). Gostitelji so številne vrste sadnega in gozdnega drevja iz družine Rosaceae: *Amelanchier ovalis*, *Aronia rotundifolia*, *Cotoneaster multiflora*, *C. pyracantha*, *Crataegus melanocarpa*, *C. orientalis*, *C. oxyacantha*, *Cydonia vulgaris*, *Frangula alnus*, *Mespilus germanica*, *Persica*

The species is distributed in central and southern Europe, the southern part of northern Europe, the northern Caucasus, the Crimea, western Siberia, Asia Minor, northern Africa, and the Nearctic, Neotropics and Orientals. Widespread in Slovenia, except in the NE part of Slovenia, but not common (Figure 163). Hosts include many species of fruit and forest trees in the Rosaceae family: *Amelanchier ovalis*, *Aronia rotundifolia*, *Cotoneaster multiflora*, *C. pyracantha*, *Crataegus melanocarpa*, *C. orientalis*, *C. oxyacantha*, *Cydonia vulgaris*, *Frangula alnus*, *Mespilus germanica*, *Persica*

vulgaris, *Pirus communis*, *P. malus*, *Prunus dulcis*, *P. angustifolia*, *P. avium*, *P. armeniaca*, *P. cerasus*, *P. mahaleb*, *P. padus*, *P. serotina*, *P. spinosa*, *Rhamnus catharticus*, *Sorbus aria*, *S. aucuparia*, *S. torminalis*, *Rosa* spp. ter redkeje vrste iz rodov *Betula*, *Alnus*, *Ulmus*, *Corylus* in *Fagus*. V Sloveniji bila vrsta pogosto najdena na *Malus domestica*, po enkrat tudi na *Amelanchier ovalis* in *Prunus* sp.. Je monogamna vrsta, razvije 1–2 generaciji na leto, roji junija in julija. Rovni sistem je enokrak vzdolžni. Dolžina adulta je 1,4–3,2 mm. Telo je črno, pokrovki sta rdeče-rjavi s temnimi pikami v brazdah in temnim medialnim pasom (slika 162). Raziskave kažejo, da je brazdasti beljavar v gozdovih pogosto parazitiran s številnimi parazitoidi, zato so gostote njegovih populacij nizke.

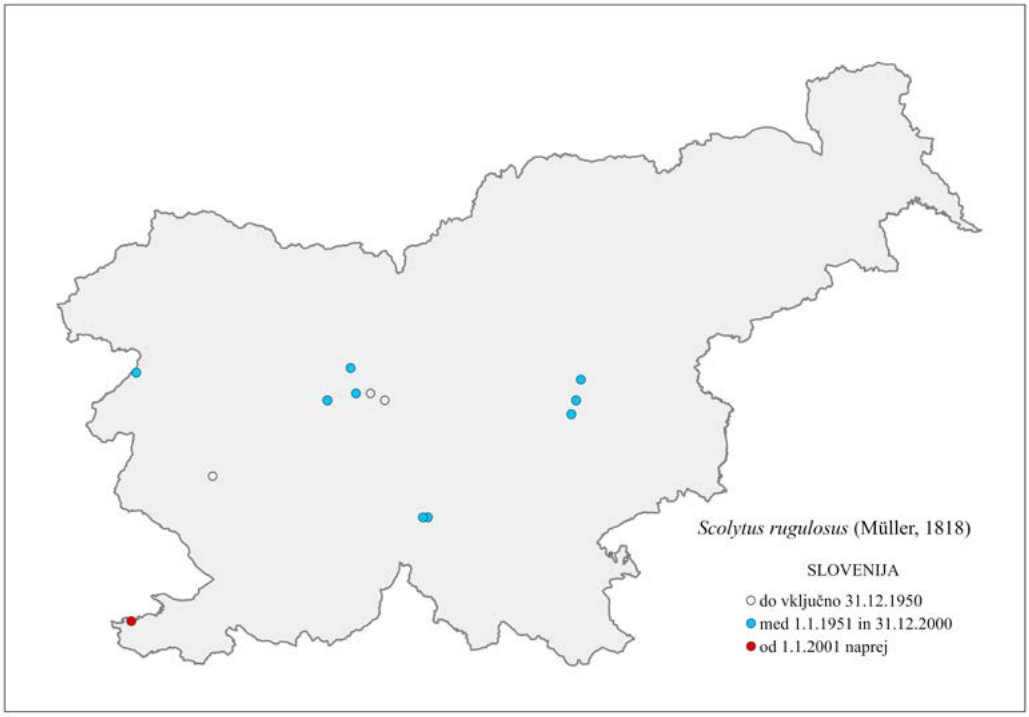
vulgaris, *Pirus communis*, *P. malus*, *Prunus dulcis*, *P. angustifolia*, *P. avium*, *P. armeniaca*, *P. cerasus*, *P. mahaleb*, *P. padus*, *P. serotina*, *P. spinosa*, *Rhamnus catharticus*, *Sorbus aria*, *S. aucuparia*, *S. torminalis*, *Rosa* spp. and rarer species of the genera *Betula*, *Alnus*, *Ulmus*, *Corylus* and *Fagus*. In Slovenia, the species has been frequently found on *Malus domestica*, once also on *Amelanchier ovalis* and *Prunus* sp.. Monogamous species, develops 1-2 generations per year, swarms in June and July. The maternal tunnel system is longitudinal uniramous. Length (adultus) is 1.4-3.2 mm. The body is black, the elytra are red-brown with dark spots in the furrows and a dark medial band (Figute 162). Research shows that *S. rugulosus* is frequently parasitised by many parasitoids in forests, and therefore its population densities are low.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951; ldJTi, cSBr, 1951-2000; ldJTi, cŠFS, 1951-2000.
ISTRA: **Dobrava, Izola, ob parkirišču**, 13°37′57″, 45°31′50″, UL94, 81 m, *Prunus* sp., veja 2 cm, ldRPa, lit.RPa2021a, 30.10.2021.
PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, ldABi vSBr, cABi, pred 1951; **Kambreško, Kanal**, 13°39′, 46°08′, UM90, 540 m, *Malus domestica*, ldJTi, lit.JTi1983, 7.1974.
GORENJSKO: **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 10.6.1991, 25.6.1991, 17.6.1992.
NOTRANJSKO: **Polhov Gradec**, 14°19′, 46°04′, VM40, 370 m, *Malus domestica*, deblo, ldJTi, lit.JTi1983, 2.1973; ibidem, veja, ldJTi, lit.JTi1983, 2.1973.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cJSd, 30.6.1938; **Ljubljana, Dravlje**, 14°28′, 46°05′, VM50, 310 m, lJSs, cJSd, pred 1951; **Toško Čelo**,

Slika 162: BRAZDASTI BELJAVAR *Scolytus rugulosus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 162: *Scolytus rugulosus*, dorsal, lateral (Photo: Maja Jurc)



Slika 163: BRAZDASTI BELJAVAR *Scolytus rugulosus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 163: *Scolytus rugulosus*, distribution map according to historical and recent data

14°25′, 46°05′, VM50, 560 m, *Malus domestica*, deblo, ldJTi, lit.JTi1983, 1.1973; ibidem, veja, ldJTi, lit.JTi1983, 1.1973.
DOLENJSKO: **Hojče, Sodražica**, 14°39′, 45°47′, VL77, 700 m, *Malus domestica*, ldJTi, lit. JTi1983, 8.1981; **Hudi Konec, Sodražica**, 14°40′, 45°47′, VL77, 700 m, *Malus domestica*, ldJTi, lit.JTi1983, 8.1981; **Leskovec v Podborštu, Šentjanž**, 15°10′, 46°02′, WL19, 710 m, *Malus domestica*, deblo, ldJTi, lit.JTi1983, 1.1965; ibidem, veja, ldJTi, lit.JTi1983, 1.1965; **Prnovše, Radeče**, 15°11′, 46°04′, WM10, 400 m, *Amelanchier ovalis*, ldJTi, lit.JTi1983, 7.1969; **Sveti Gregor, Sodražica**, 14°39′, 45°47′, VL77, 700 m, *Malus domestica*, ldJTi, lit.JTi1983, 8.1981.
ŠTAJERSKO: Rimske Toplice, 15°12′, 46°07′, WM10, 380 m, *Malus domestica*, debelce, ldJTi, lit.JTi1983, 3.1972; ibidem, veja, ldJTi, lit.JTi1973, 3.1972.

32.09. *Scolytus scolytus* (Fabricius, 1775) BRESTOV BELJAVAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Scolytus destructor* Ol.; GRÜNE 1979: FREUDE, HARDE, LOHSE 1981: *Scolytus scolytus* Fabricius; TITOVŠEK 1988: *Scolytus scolytus* (Fabricius); PFEFFER & KNÍŽEK 1993: *S. scolytus* (Fabricius, 1775); PFEFFER 1995: *S. scolytus* (Fabricius, 1775).

E: AU BE BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LT LU NL NT PL PT RO SL SK SP ST SV SZ UK YU »Caucasus« **A:** ES IN KZ TR UZ WS

Vrsta je razširjena v Evropi, severno sega do Švedske, v vzhodni in zahodni Sibiriji, Kazahstanu, Turčiji in Uzbekistanu. Siegel (1866) navaja, da je bila vrsta »na Kranjskem redka«. Vrsta je bila v 20. stoletju razširjena po večjem delu Slovenije z izjemo SV dela države. Po letu 2000 sta znani le dve novi najdišči (slika 165). Populacije so verjetno v upadanju zaradi propadanja bresta. Gostitelji so *Ulmus carpinifolia*, *U. laevis*, *U. glabra* in *Zelkova carpinifolia*, redkeje *Quercus suber*, *Fraxinus excelsior*, *Carpinus betulus*, *Prunus dulcis*, *Prunus armeniaca*, *Populus nigra*, *Salix nigra* in *Juglans regia*. V Sloveniji je bila vrsta najdena na *Ulmus minor*, *U. glabra* in *U. campestris*. Je monogamna vrsta, razvije dve generaciji letno, roji maja in junija. Naseljuje debelolubne dele drevesa, debla in debelejše veje. Rovni sistem je enokrak, vzdolžni, leži skoraj v celoti v skorji, materinski hodnik je dolg 2–3 cm. Dolžina adulta je 3,0–6,0 mm. Zadek se od 2. sternita poševno dviga k pokrovkam, na 3. in 4. sternitu ima po eno manjšo gumbasto grbico. Spolni dimorfizem se kaže v obliki čela in v šopku dlačic na analnem sternitu (slika 164). Mladi osebki opravljajo zrelostno prehranjevanje na listnih pecljih in vejicah. Vrsta prenaša trose gliv *Ophiostoma ulmi* in *O. novo-ulmi*, zato je brestov beljavar ekonomsko zelo pomembna vrsta. Feromoni: ♂ ♂ (+)-*threo*-4-Methyl-3-heptanol; ♂ ♂ *threo*-4-Methyl-3-heptanol in α-Multistriatin **(**Blight s sod. 1977; Gerken 1977).

The species is distributed in Europe, extending north to Sweden, eastern and western Siberia, Kazakhstan, Turkey and Uzbekistan. Siegel (1866) states that the species was “rare in Carniola”. In the 20th century, the species was distributed throughout most of Slovenia, with the exception of the NE. Only two new records are known after 2000 (Figure 165). Populations are probably in decline due to elm dieback. Hosts include *Ulmus carpinifolia*, *U. laevis*, *U. glabra* and *Zelkova carpinifolia*, less frequently *Quercus suber*, *Fraxinus excelsior*, *Carpinus betulus*, *Prunus dulcis*, *Prunus armeniaca*, *Populus nigra*, *Salix nigra* and *Juglans regia*. In Slovenia, the species has been found on *Ulmus minor*, *U. glabra* and *U. campestris*. Monogamous species, develops two generations per year, swarms in May and June. Inhabits the thick-trunked parts of the tree, trunks and thicker branches. The tunnel system is longitudinal, located almost entirely in the bark, the maternal gallery is 2-3 cm long. Adult length is 3.0-6.0 mm. The abdomen rises obliquely from the 2nd sternite towards the elytra, with one small button-shaped bump on the 3rd and 4th sternites. Sexual dimorphism is evident in the shape of the forehead and in the tuft of hairs on the anal sternite (Figure 164). The young beetles perform maturity feeding on leaf petioles and twigs. The species carries spores of the dangerous Dutch elm disease (*Ophiostoma ulmi* and *O. novo-ulmi*), making *S. scolytus* an economically very important species. Pheromones: ♂ ♂ (+)-*threo-4-Methyl-3-heptanol*; ♀ ♀ *threo-4-Methyl-3-heptanol* and **α-**Multistriatin (Blight et al. 1977; Gerken 1977).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJTi, cŠFS, 1951-2000; ldMSi, lit.MSi1866, pred 1951.

PRIMORSKO: **Gorica**, (13°38′), (45°56′), (UL98), ~100 m, ldJPe vSBr, cJPe, pred 1951.

GORENJSKO: **Mavčiče, Sorško polje**, 14°24′, 46°11′, VM51, 320 m, *Ulmus minor*, ldJTi, lit. JTi1983, 2.1974; **Mežakla**, 14°00′, 46°25′, VM24, 1000 m, *Ulmus campestris*, deblo 35 cm rs, odRPa, lit.RPa2020c, 17.10.2008; **Stolnik, Kamnik**, 14°35′16″, 46°15′09″, VM62, 436 m, *Ulmus glabra*, deblo 35 cm rs, odMRa vRPa, lit.RPa2023a, 19.11.2023.

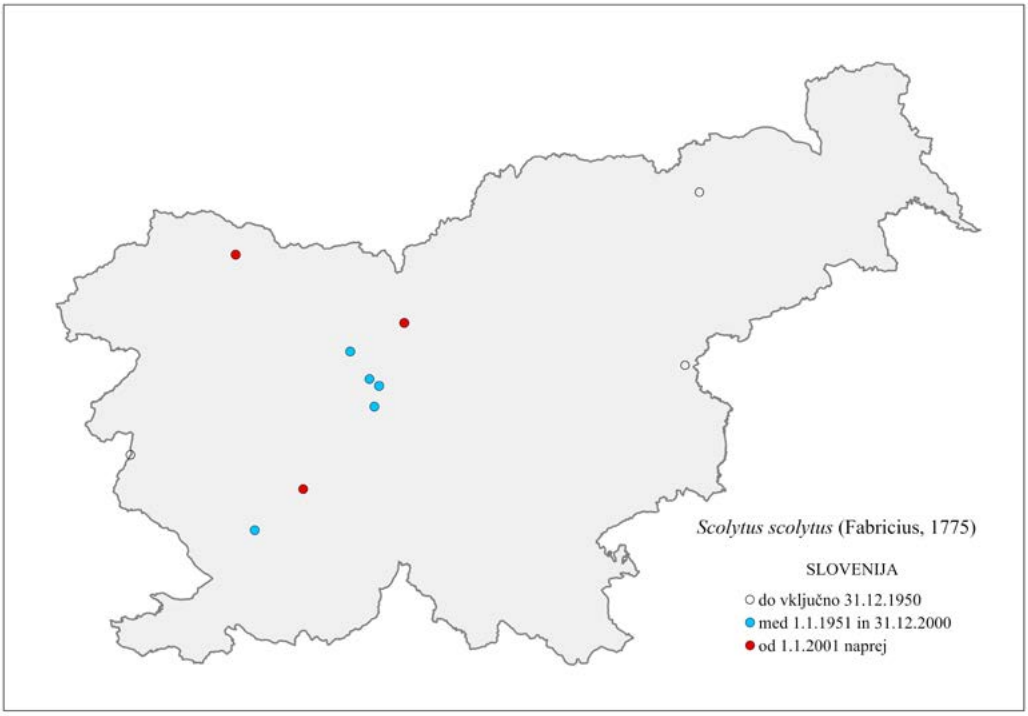
NOTRANJSKO: **Liplje, Planina**, 14°14′10″, 45°51′00″, VL47, 640 m, *Ulmus glabra*, deblo 55 cm rs, odŽKo vRPa, lit.RPa2021a, 22.10.2021; **Razdrto, Senožeče**, 14°04′, 45°45′, VL26, 550 m, *Ulmus minor*, ldJTi, lit.JTi1983, 7.1977.

LJUBLJANA Z OKOLICO: **Ljubljana, Črnuče 1**, 14°30′, 46°06′, VM60, 300 m, *Ulmus minor*, ldJTi, lit.JTi1983, 3.1972; **Ljubljana, Podrožnik**, 14°29′, 46°03′, VM60, 310 m, *Ulmus minor*,

ldJTi, lit.JTi1983, 4.1974; **Šmarna gora**, 14°28′, 46°07′, VM50, 400 m, *Ulmus glabra*, deblo, ldJTi, lit.JTi1983, 2.1972; ibidem, 600 m, *Ulmus glabra*, deblo, ldJTi, lit.JTi1983, 2.1972.
ŠTAJERSKO: Maribor, Mariborski otok, Kamnica, 15°37′, 46°34′, WM45, 280 m, ldJPe vSBr, cJPe, pred 1951; **Podčetrtek, Graben**, 15°34′, 46°09′, WM41, *, ldJPe vSBr, cEJa, 7.6.1930.

Slika 164: BRESTOV BELJAVAR *Scolytus scolytus*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 164: *Scolytus scolytus*, dorsal, lateral (Photo: Maja Jurc)



Slika 165: BRESTOV BELJAVAR *Scolytus scolytus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 165: *Scolytus scolytus*, distribution map according to hostorical and recent data

33.00. *Ambrosiodmus* Hopkins, 1915 AMBROZIJAR

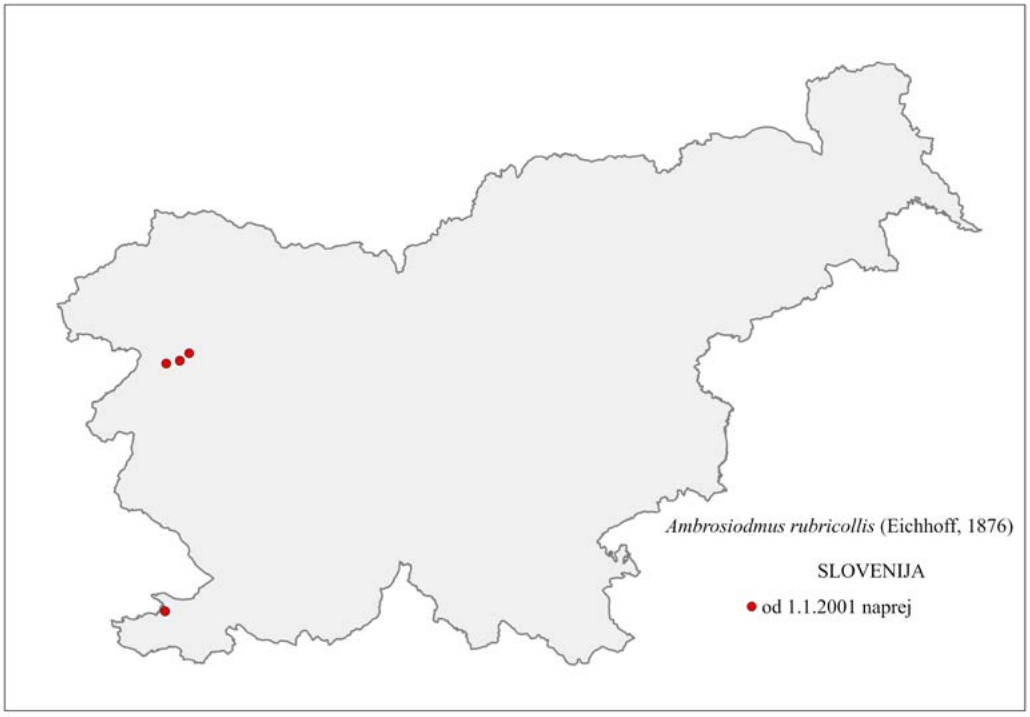
33.01. *Ambrosiodmus rubricollis* (Eichhoff, 1876) RDEČEVRATNI AMBROZIJAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name:
LÖBL, SMETANA 2011; RABAGLIA S SOD. 2006; FACCOLI S SOD. 2009.

E: IT SL* **A:** ANH BEI FUJ GUI HEB HEI HUN IT JA NC SC SCH SHA SHN SHX TAI XIZ YUN ZHE **AUR NAR ORR**

Tujerodna vrsta iz vzhodne Azije, razširjena v Evropi (Italija, Slovenija), Aziji (Fujian, Japonska, Severna Koreja, Južna Koreja, Shanxi, Tianjin) in na nearktičnem območju (ZDA, Kanada). Zanesen je tudi v Južno Ameriko in Avstralijo. En osebek je bil najden med monitoringom tujerodnega črnega ambrozijevca (*Xylosandrus germanus*) v pasti z etanolom na lokaciji Klavže septembra leta 2017. Leta 2018 je bil zato vzpostavljen poseben koničnika močno in enakomerno punktirani.

It is a non-native species native to East Asia, distributed in Europe (Italy, Slovenia), Asia (Fujian, Japan, North Korea, South Korea, Shanxi, Tianjin) and the Nearctic (USA, Canada). It has also been introduced into South America and Australia. One specimen was found during the monitoring of the non-native *Xylosandrus germanus* in an ethanol trap at the Klavže location in September 2017. In 2018, a special



Slika 166: RDEČEVRATNI AMBROZIJAR *Ambrosiodmus rubricollis*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 166: *Ambrosiodmus rubricollis*, distribution map according to historical and recent data

monitoring z namenom izboljšanja znanja o pojavljanju in razširjenosti rdečevratnega ambrozijarja v naši državi. Prisotnost vrste je bila ugotovljena še na treh lokacijah na Primorskem v pasteh z etanolom. Istega leta je bil zabeležen tudi njen ulov v Luki Koper (slika 166). Vrsta je polifagna. Dolžina adulta je 2,5–2,8 mm. Telo je rdeče rjave barve in močno poraščeno z dlačicami. Pokrovki sta do konca

monitoring was established in Slovenia to improve knowledge on the occurrence and distribution of *A. rubricollis* in the country. The presence of the species was also detected in three other locations in Primorska in ethanol traps. The same year, it was also recorded in the Port of Koper (Figure 166). The species is polyphagous. Adult length is 2.5-2.8 mm. The body is red-brown and heavily covered in hairs. The elytra are strongly and evenly punctated to the tip of the apex.

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit. RPa2018b, 27.7.2018.

PRIMORSKO: **Klavže, Kneža**, 13°48′07″, 46°09′39″, VM01, 213 m, tWit, phEtan, lBRe dTHa, 9.2017, lit.THa2019a, 3.6.2018, 17.6.2018, 24.6.2018, 15.7.2018, 29.7.2018, 4.8.2018, 12.8.2018, 25.8.2018, 2.9.2018, 9.9.2018; **Loje, Kneža**, 13°50′06″, 46°10′44″, VM11, 409 m, tWit, phEtan, lBRe dTHa, lit.THa2019a, 30.6.2018, 7.7.2018, 22.7.2018, 29.7.2018, 4.8.2018, 25.8.2018, 2.9.2018, 15.9.2018; **Most na Soči**, 13°45′17″, 46°09′15″, VM01, 211 m, tWit, phEtan, lBRe dTHa, lit. THa2019a, 27.5.2018, 10.6.2018, 17.6.2018, 24.6.2018, 22.7.2018, 4.8.2018.

34.00. *Ambrosiophilus* Hulcr & Cognato, 2009 AMBROZIJOFIL

34.01. *Ambrosiophilus atratus* (Eichhoff, 1876) ČRNI AMBROZIJOFIL

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Löbl, Smetana 2011; Rabaglia s sod. 2006.

E: IT SL* **A:** FUJ JA NC SC SHX TAI **NAR**

Tujerodna vrsta izvira iz vzhodne Azije. Razširjena je v Evropi (Italija, Slovenija), v Aziji (Japonska, Severna Koreja, Južna Koreja, Kitajska) in na nearktičnem območju. V Sloveniji je edino znano nahajališče Most na Soči, kjer je bila vrsta najdena med monitoringom tujerodnih podlubnikov leta 2018 v pasti z etanolom (slika 167). Je ksilomicetofagna vrsta, polifag na listavcih in redkeje na iglavcih (Pinaceae). Naseljuje tanjša debla, rovni sistem je sestavljen iz vhodnega kanala, ki se nato dihotomno večkrat razcepi na kratke hodnike. Dolžina adulta je 3,3–3,5 mm, telo je bleščeče, temnorjave barve, pokrovki sta do konca koničnika razločno punktirani. Po obliki in velikosti spominja na vrtnega različneža (*Anisandrus dispar*) (slika 168).

A non-native species native to East Asia, it is distributed in Europe (Italy, Slovenia), Asia (Japan, North Korea, South Korea, China) and the Nearctic. In Slovenia, the only known site is Most na Soči, where the species was found in an ethanol trap during monitoring of non-native bark beetles in 2018 (Figure 167). Xylomycetophagous species, polyphagous on deciduous trees and less frequently on conifers (Pinaceae). It attacks thinner trunks, the tunnel system consists of an borehole which then repeatedly branches into short galleries. Body length (adultus) is 3.3-3.5 mm, the body is shiny, dark brown, the elytra are distinctly punctated to the end of the elytra apex. In shape and size it resembles *Anisandrus dispar* (Figure 168).

Slika 167: ČRNI AMBROZIJOFIL *Ambrosiophilus atratus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 167: *Ambrosiophilus atratus*, distribution map according to hostorical and recent data

Najdišča v Sloveniji / Localities in Slovenia
PRIMORSKO: **Most na Soči**, 13°45′17″, 46°09′15″, VM01, 211 m, tWit, phEtan, lBRe dTHa, lit. THa2019a, 29.4.2018, 5.5.2018.

35.00. *Anisandrus* Ferrari, 1867 RAZLIČNEŽ

35.01. *Anisandrus dispar* (Fabricius, 1792) VRTNI RAZLIČNEŽ

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Bostrychus dispar* Fab.; GRÜNE 1979: *Xyleborus dispar* Fabricius, 1792; FREUDE, HARDE, LOHSE 1981: *Xyleborus dispar* Fabricius; TITOVŠEK 1988: *Xyleborus dispar* (Fabricius); PFEFFER & KNÍŽEK 1993: *X. dispar* (Fabricius, 1792); PFEFFER 1995: *X. dispar* (Fabricius, 1792).

E: AB AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA LT MC MD NL NR NT PL SK SL SP ST SV SZ UK YU »Caucasus« **A:** ES FE HEI IN JA KZ MG NC SC SHA TR WS **NAR ORR**

Vrsta je razširjena v Evropi, Sibiriji, Mali Aziji, na Kavkazu, na nearktičnem in orientalskem

The species is distributed in Europe, Siberia, Asia Minor, the Caucasus, the Nearctic and the

območju. Siegel (1866) navaja, da je bila vrsta »na Kranjskem pogostna, na hrastih, bukvah itd.«. Tudi danes je pogosta vrsta, razširjena po skoraj vsej Sloveniji, manjkajo le najdišča na Koroškem in v Prekmurju (slika 169). Je polifagna vrsta na mnogih listavcih, gostitelji: *Betula pubescens*, *B. pendula*, *Alnus incana*, *A. glutinosa*, *Aesculus hippocastani*, *Castanea sativa*, *Platanus occidentalis*, *P. orientalis*, *Prunus armeniaca*, *P. avium*, *P. cearsus*, *P. domestica*, *P. insititia*, *P. padus*, *P. persica*, *P. syriaca*, *Rosa* spp., *Salix* spp., *Sambucus nigra*, *Sorbus torminalis*, *Tilia cordata*, *Rhamnus cathartica*, *Frangula alnus*, *Robinia pseudoacacia*, *Fagus sylvatica*, *Juglans regia*, *Koelreuteria paniculata*, *Populus tremula*, *Malus* spp., *Pyrus communis, P. malus*, *Ulmus carpinifolia*, *Vitis vinifera*, *Sorbus aucuparia*, *Acer* spp., *Fraxinus excelsior*, *Quercus robur*, *Q. rubra*, *Q. petraea*, *Corylus avellana*, *Carpinus betulus*, *Pinus sylvestris*, *Thuja occidentalis, T. orientalis* in *Juniperus* spp.. V Sloveniji se je vrsta na večini najdišč ujela v pasti. Zabeležena je bila tudi na gozdnem drevju (*Castanea sativa*, *Fagus sylvatica* in *Quercus petraea*), v sadovnjakih (*Malus domestica*) in drevesnicah (*Liquidambar styraciflua*). Je poligamna ksilomicetofagna vrsta, letno razvije eno generacijo, roji aprila in maja. Dolbe lestvičast rovni sistem. Primarni materinski hodniki potekajo po braniki, sekundarni, ki se od njih odcepijo, pa v smeri lesnih vlaken, torej vzdolžno. Ličinke živijo na račun micelija gliv, ki ga prenašajo samice (primer ektosimbioze). Za image je značilen izrazit spolni dimorfizem, dolžina samičke znaša 3,2–3,6 mm, samčka pa le 1,8–2,1 mm. Pri samički se koničnik začne na začetku druge polovice pokrovk. Samčki imajo kratko, jajčasto telo in srčast vratni ščit, drugi (letalni) par kril pri njih ni razvit (slika 168). Vrsta je zelo nevarna za sadno drevje. Veliko škodo lahko naredi v mladih nasadih kostanja in orehov, ki so oslabljeni zaradi suše ali presaditvenega šoka. Nevarna je tudi za oslabljeno gozdno drevje. Zaradi gradnje rovnih sistemov pride do tehničnega razvrednotenja lesa.

Orient. Siegel (1866) states that the species was "common in Carniola, on oaks, beeches, etc.". It is common and widespread in almost the whole of Slovenia, except in Koroška and Prekmurje (Figure 169). Polyphagous species on many deciduous trees, hosts include *Betula pubescens*, *B. pendula*, *Alnus incana*, *A. glutinosa*, *Aesculus hippocastani*, *Castanea sativa*, *Platanus occidentalis*, *P. orientalis*, *Prunus armeniaca*, *P. avium*, *P. cearsus*, *P. domestica*, *P. insititia*, *P. padus*, *P. persica*, *P. syriaca*, *Rosa* spp, *Salix* spp., *Sambucus nigra*, *Sorbus torminalis*, *Tilia cordata*, *Rhamnus cathartica*, *Frangula alnus*, *Robinia pseudoacacia*, *Fagus sylvatica*, *Juglans regia*, *Koelreuteria paniculata*, *Populus tremula*, *Malus* spp, *Pyrus communis, P. malus*, *Ulmus carpinifolia*, *Vitis vinifera*, *Sorbus aucuparia*, *Acer* spp., *Fraxinus excelsior*, *Quercus robur*, *Q. rubra*, *Q. petraea*, *Corylus avellana*, *Carpinus betulus*), *Pinus sylvestris*, *Thuja occidentalis, T. orientalis* and *Juniperus* spp.. In Slovenia, the species has been caught in traps in most of the sites. It has also been recorded in forest trees (*Castanea sativa*, *Fagus sylvatica* and *Quercus petraea*), orchards (*Malus domestica*) and nurseries (*Liquidambar styraciflua*). A polygamous xylomycetophagous species, it develops one generation per year, swarming in April and May. It has a ladder-shaped tunnel system. Primary maternal galleries run along the tree rings, and secondary galleries branching off from them run in the direction of the wood fibres, i.e. longitudinally. The larvae live on fungal mycelium carried by the females (an example of ectosymbiosis). The imago is characterised by prominent sexual dimorphism, with female length of 3.2-3.6 mm and male length of only 1.8-2.1 mm. In the female, the elyra apex starts at the beginning of the second half of the elytra. Males have a short, ovoid body and a heart-shaped neck shield; the second (flight) pair of wings is not developed (Figure 168). The species is very dangerous to fruit trees. It can cause severe damage in young chestnut and walnut groves that have been weakened by drought or transplant shock. It is also dangerous to weakened forest trees. The construction of tunnel systems leads to the technical degradation of timber.

Slika 168: VRTNI RAZLIČNEŽ *Anisandrus dispar* (♀ 2x – dorzalo, lateralno, ♂ 2x – dorzalno, lateralno) (Foto: Maja Jurc)

Figure 168: *Anisandrus dispar* (♀ 2x – dorsal, lateral, ♂ 2x – dorsal, lateral) (Photo: Maja Jurc)

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Fagus sylvatica*, ldMSi, lit.MSi1866, pred 1951; *Quercus* spp., ldMSi, lit. MSi1866, pred 1951.

ISTRA: **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRpa, lit.RPa2014c, 21.6.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2016b, 31.8.2016; ibidem, lit.RPa2018b, 14.6.2018.

PRIMORSKO: **Klavže, Kneža**, 13°48′07″, 46°09′39″, VM01, 213 m, tWit, phEtan, lBRe dTHa, lit. THa2019b, 8.4.2018, 15.4.2018, 22.4.2018, 5.5.2018, 13.5.2018, 3.6.2018, 10.6.2018, 17.6.2018, 24.6.2018, 30.6.2018, 7.7.2018, 15.7.2018, 22.7.2018, 29.7.2018, 4.8.2018, 12.8.2018, 19.8.2018, 25.8.2018, 2.9.2018, 9.9.2018, 15.9.2018; **Loje, Kneža**, 13°50′06″, 46°10′44″, VM11, 409 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 22.4.2018, 5.5.2018, 13.5.2018, 3.6.2018, 10.6.2018, 17.6.2018, 26.4.2018, 30.6.2018, 7.7.2018, 15.7.2018, 4.8.2018, 12.8.2018, 19.8.2018, 25.8.2018, 15.9.2018, 7.10.2018; **Most na Soči**, 13°45′17″, 46°09′15″, VM01, 211 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 8.4.2018, 5.5.2018, 3.6.2018, 10.6.2018, 17.6.2018, 24.6.2018, 30.6.2018, 7.7.2018, 15.7.2018, 22.7.2018, 29.7.2018, 19.8.2018, 15.9.2018; **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, lRJe dSBr, cSBr, 4.4.1989, 14.5.1991; **Trstelj, Škrbina**, 13°42, 45°52′, UL98, 620 m, *Quercus* sp., veja, ldBKo vMJu, lit.BKo2005, 9.8.2004.

GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022; **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit.

THa2022b, 13.5.2022, 27.5.2022, 24.6.2022, 8.7.2022, 22.7.2022; **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022, **Ambrož pod Krvavcem 5**, 14°31′42″, 46°17′03″, VM62, 1402 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 24.6.2022; **Ambrož pod Krvavcem 6**, 14°32′10″, 46°17′26″, VM62, 1478 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010a, 9.6.2010; ibidem, lit.RPa2015a, 15.4.2015; ibidem, lit.RPa2018a, 1.8.2018; ibidem, lit.RPa2020d, 22.4.2020; ibidem, lit.RPa2023b, 3.5.2023, 17.5.2023; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tEkl, phAlKi, ldSRu vSBr, lit.SRu2007, 22.5.2005, 2.6.2005; **Brdo pri Kranju, GIS 6**, 14°24′09″, 46°17′19″, VM52, 477 m, tEkl, phAlKi, ldSRu vSBr, lit.SRu2007, 8.5.2005, 22.5.2005, 12.6.2005, 9.7.2005, 17.7.2005, 9.8.2005, 31.8.2005; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 23.5.1991, 3.6.1991; **Katarija, Moravče**, 14°44′41″, 46°07′07″, VM80, 529 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Kranj, Struževo**, 14°20′21″, 46°15′16″, VM42, 397 m, tWit, phGaPP, ldRPa, lit.RPa2018c, 18.6.2018; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017; **Rudnik pri Moravčah 1**, 14°43′44″, 46°08′07″, VM70, 363 m, tPfall, phEtan veCo, lTPe dTHa, lit.THa2022c, 24.4.2020; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 24.6.2022, 8.7.2022, 22.7.2022; **Stiška Vas, Krvavec 2**, 14°31′20″, 46°16′03″, VM62, 884 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 24.6.2022, 8.7.2022, 22.7.2022; **Sveta Trojica, Dob**, 14°41′, 46°07′, VM70, 530 m, lAPi dSBr, cSBr, 21.5.2005; **Volčji Potok, arboretum, Vrtni center 2**, 14°36′23″, 46°11′10″, VM52, 339 m, *Liquidambar styraciflua*, deblo 3 cm, lVDo dRPa, lit.RPa2020, 31.5.2012; **Zgornje Bitnje 1**, 14°19′40″, 46°13′17″, VM41, 395 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008, 10.9.2008.

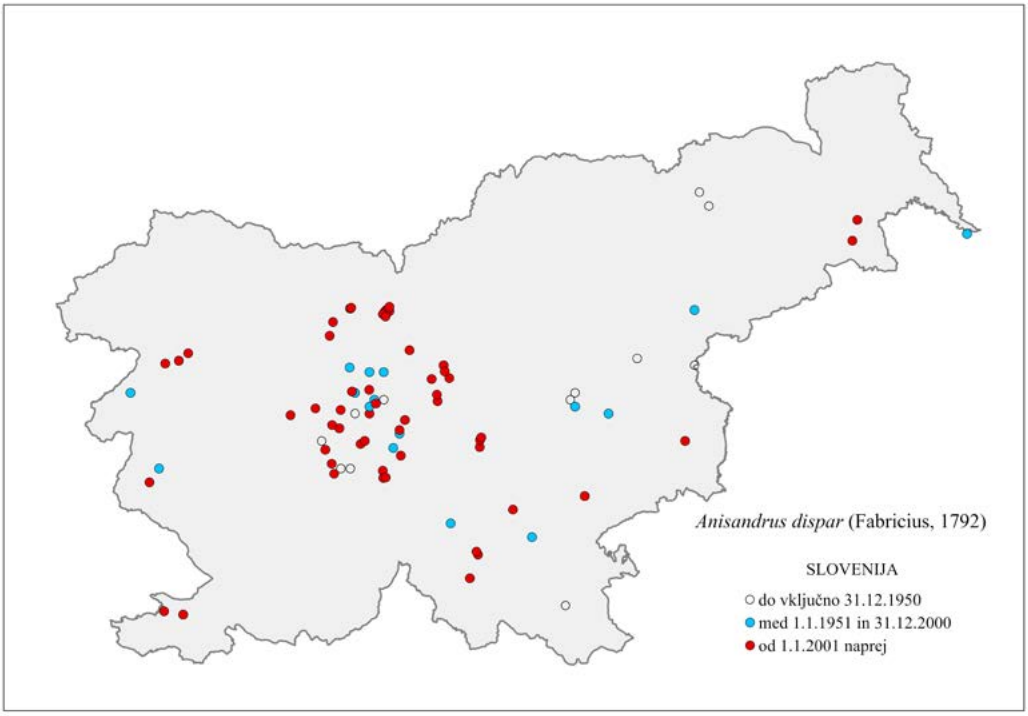
NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017, 9.5.2017; **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017, 3.11.2017; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017; **Podpeč, Ljubljansko barje 3**, 14°26′07″, 45°57′35″, VL59, 344 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2014c, 14.9.2011; **Pokojišče, Borovnica**, 14°22′, 45°54′, VL58, 730 m, ldJSd, cJSd, 4.1930; **Pokojišče, Borovnica 1**, 14°20′35″, 45°53′14″, VL48, 713 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 25.8.2017, 8.9.2017; **Samotorica, Horjul**, 14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Šentjošt nad Horjulom**, 14°11′29″, 46°01′45″, VL39, 801 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017, 30.6.2017, 14.7.2017, 25.8.2017; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Vrhnika**, 14°18′, 45°58′, VL49, 295 m, ldAGs, cAGs, 1.6.1937; **Zabočevo, Brezovica**, 14°24′, 45°54′, VL58, 400 m, ldAGs, cAGs, 29.4.1934; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017.

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldAGs, cAGs, pred 1951; ibidem, ldJSd, cJSd, 4.1930; ibidem, lHEg, cJSs, pred 1951; **Ljubljana, Mestni log, Cesta v**

Gorice, 14°28′, 46°02′, VL59, 290 m, lAPi dSBr, cAPi, 30.6.2011; **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 25.8.2017; **Ljubljana, Šiška**, 14°29′, 46°04′, VM60, 305 m, ldSBr, cSBr, 8.4.1986; **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 28.7.2017, 25.8.2017; **Radna, Brezovica pri Ljubljani**, 14°25′, 46°02′, WL59, 310 m, ldAGs, cAGs, 11.8.1912; **Rašica, Ljubljana**, 14°31′, 46°08′, VM61, 480 m, *Castanea sativa*, ldJTi, cŠFS, 1.5.1963; **Rožnik, Ljubljana**, 14°28′, 46°03′, VM50, ~390 m, *Quercus petraea*, hlod, ldJTi, cSBr, 1965; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Šmarna gora, Grmada**, 14°28′, 46°08′, VM50, 676 m, ujeto v letu, ldJTi, lit. JTi1974, 6.1973; **Toško Čelo**, 14°25′, 46°05′, VM50, ~590 m, lVFu dSBr, cVFu, 26.4.1987; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017.

DOLENJSKO: **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 13.6.1977, 16.6.1977, 1.6.1978, 5.6.1978, 2.5.1980; **Dvor, Žužemberk, nasad jablan**, 14°58′, 45°48′, VL97, 192 m, tPal, phEtan, ldKPa ldSTr, lit.KPa2007, 2.4.2006, 7.4.2006, 9.4.2006, 13.4.2006, 16.4.2006, 19.4.2006, 22.4.2006, 26.4.2006, 4.5.2006, 8.5.2006, 11.5.2006, 16.5.2006, 20.5.2006, 28.5.2006, 11.6.2006, 18.6.2006, 29.6.2006, 5.7.2006, 10.7.2006; **Gora, Brestanica, nasad jablan**, 14°27′, 45°58′, WL39, 430 m, tPal, phEtan, ldKPa ldSTr, lit.KPa2007, 2006; ibidem, tRebA, phEtan, ldKPa ldSTr, lit.KPa2007, 2006; ibidem, tRebR, phEtan, ldKPa ldSTr, lit.KPa2007, 2006; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 15.5.1977, 17.5.1980, 16.7.1980, 17.5.1981, 31.5.1981; **Ledenik, Kočevje, pragozd Strmec**, 14°49′, 45°38′, VL95, 875 m, *Fagus sylvatica*, deblo, ldMKa, cZRC, 16.5.2002; **Janče, Jevnica**, 14°42′14″, 46°03′48″, VM70, 589 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Kočevje, Koblarji 2**, 14°50′42″, 45°41′26″, VL85, 470 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 22.5.2020; **Kočevje, Koblarji 3**, 14°50′23″, 45°41′54″, VL86, 472 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 24.4.2020, 8.5.2020; **Laze pri Dolskem**, 14°42′07″, 46°04′45″, VM70, 452 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 27.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Mala gora, Ribnica**, 14°45′, 45°46′, VL86, ~700 m, ldSBr, cSBr, 25.5.1986; **Mokrec 1**, 14°30′49″, 45°53′41″, VL68, 860 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017; **Mokrec 2**, 14°30′53″, 45°52′39″, VL68, 900 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 21.4.2017, 2.6.2017, 16.6.2017, 30.6.201714.7.2017, 22.9.2017; **Mokrec 3**, 14°31′24″, 45°52′42″, VL68, 941 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017; **Otočec, Novo Mesto, nasad jablan**, 15°13′, 45°50′, WL17, 173 m, *Malus domestica*, ldKPa ldSTr, lit.KPa2007, 27.6.1905; ibidem, tRebA, phEtan, ldKPa ldSTr, lit.KPa2007, 2.4.2006, 5.4.2006, 11.4.2006, 17.4.2006, 24.4.2006, 1.5.2006, 10.5.2006, 16.5.2006, 25.5.2006, 5.6.2006, 15.6.2006, 24.6.2006, 13.7.2006, 26.7.2006, 9.8.2006, 18.8.2006, 26.8.2006; ibidem, tRebR, phEtan, ldKPa ldSTr, lit.KPa2007, 10.5.2006, 16.5.2006, 25.5.2006, 5.6.2006, 15.6.2006, 24.6.2006, 13.7.2006, 26.7.2006, 9.8.2006, 18.8.2006, 26.8.2006; **Podturn pri Dolenjskih Toplicah**, 15°02′, 45°44′, WL06, 175 m, lMka dBDr, cZRC, 2.6.1996; **Radeče**, 15°10′, 46°04′, VM10, 230 m, ldAGs, cAGs, 22.4.1924; **Radeče, Dobrava**, 15°11′, 46°03″, WL19, 360 m, *Castanea sativa*, sečni ostanki, ldJTi, lit.JTi1983, 5.1971; ibidem, veja, ldJTi, lit.JTi1983, 5.1971; **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 319 m, tThe, phLino, lGBa dSBr, cSBr, 28.4.1993; **Škofljica**, 14°34′16″, 45°59′36″, VL69, 319 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 21.4.2017, 19.5.2017,

16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 8.9.2017; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 7.6.2017, 14.6.2017, 20.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; **Velike Češnjice 2**, 14°51′07″, 45°58′08″, VL89, 381 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 17.5.2017, 7.6.2017, 14.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; **Velike Češnjice 3**, 14°51′23″, 45°58′32″, VL89, 432 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 31.5.2017, 14.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017.
BELA KRAJINA: **Dobliče, Črnomelj**, 15°09′, 45°34′, WL14, 170 m, ldAGs, cAGs, 21.5.1933.
ŠTAJERSKO: Arnovo Selo, Krško, nasad jablan, 15°34′, 45°58′, WL49, 200 m, tPal, phEtan, ldKPa ldSTr, lit.KPa2007, 2006; ibidem, tRebA, phEtan, ldKPa ldSTr, lit.KPa2007, 2006; ibidem, tRebR, phEtan, ldKPa ldSTr, lit.KPa2007, 2006; **Boč, Poljčane**, 15°36′, 46°17′, WM42, ~800 m, ldSBr, cSBr, 25.4.1953; **Kalobje, Kostrivnica**, 15°24′, 46°10′, WM31, 620 m, ldVKo, cBFG, 20.5.1930; ibidem, ldVKo, cŠFS, 24.4.1930; **Maribor**, (15°39′), (46°32′), (WM55), ~270 m, ldJPe vSBr, cJPe, pred 1951; **Maribor, Mariborski otok, Kamnica**, 15°37′, 46°34′, WM45, 280 m, ldJPe vSBr, cJPe, pred 1951; **Orešje nad Sevnico**, 15°18′, 46°02′, WL29, 370 m, *Castanea sativa*, hlod, ldJTi, lit.JTi1983, 5.1972; **Podčetrtek**, 15°36′, 46°09′, WM41, 220 m, ldEJa vSBr, cEJa, pred 1951; **Stanovno, Ormož**, 16°09′, 46°27′, WM84, 230 m, lAPi dSBr, cAPi, 27.6.2011; **Zidani Most**, 15°11′, 46°05′, WM10, 200 m, ldAGs, cAGs, pred 1951; **Žerovinci, Ljutomer**, 16°10′, 46°30′, WM85, 230 m, lAPi dSBr, cAPi, 27.6.2011.
PREKMURJE: **Podturen**, 16°33′, 46°28′, XM14, 150 m, *Fagus sylvatica*, ldJTi, lit.JTi1983, 6.1981.



Slika 169: VRTNI RAZLIČNEŽ *Anisandrus dispar*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 169: *Anisandrus dispar*, distribution map according to historical and recent data

36.00. *Xyleborinus* Reitter, 1913 LESARČEK

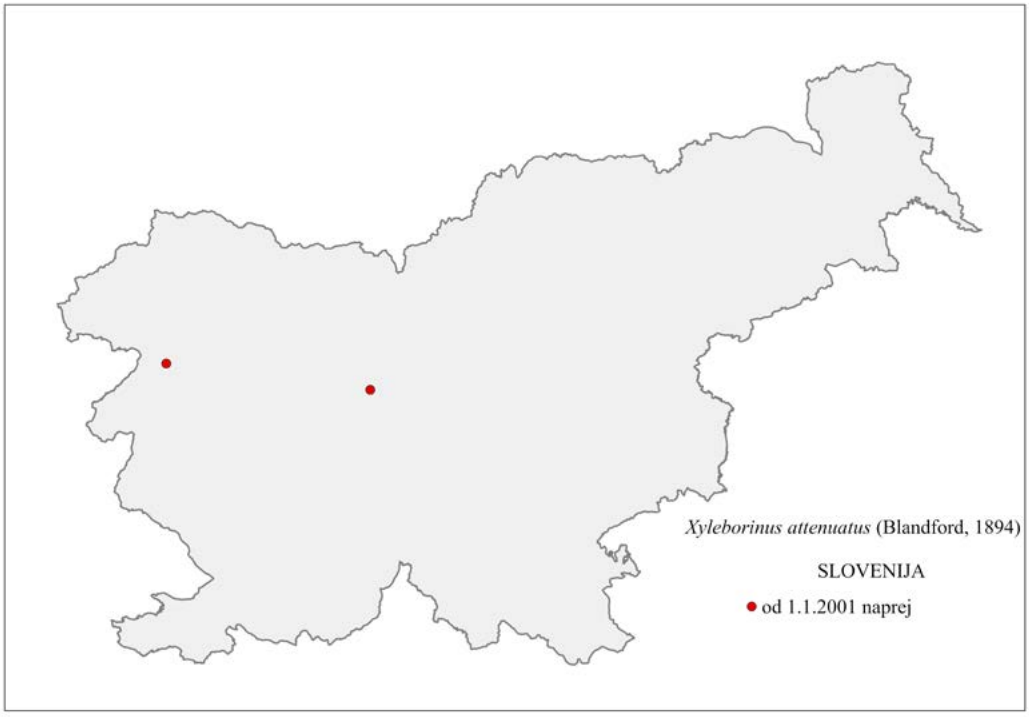
36.01. *Xyleborinus attenuatus* (Blandford, 1894) PIKČASTI LESARČEK

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: PFEFFER 1995: *Xleborus alni* Niijima, 1909.

E: AU CT CZ GE NL NT PL SK SL* SP SV SZ UK **A**: FE JA SC TAI **NAR**

Je tujerodna vrsta, ki izvira iz vzhodne Azije, a se je uspešno razširila v Avstriji, Nemčiji, na Nizozemskem, Švedskem, Poljskem, v Češki republiki, na Slovaškem, v Ukrajini, Rusiji, na Japonskem, jugovzhodu Kitajske, Tajvanu in nearktičnem območju. Vrsta je bila v Sloveniji prvič ugotovljena leta 2017 v Ljubljani, naslednje leto pa še v Mostu na Soči, obakrat v pasti z etanolom (slika 170). Po literaturi so gostitelji *Salix* spp., *Alnus*

A non-native species native to East Asia, it is widespread in Austria, Germany, the Netherlands, Sweden, Poland, the Czech Republic, Slovakia, Ukraine, Russia, Japan, south-eastern China, Taiwan and the Nearctic area. The species was first recorded in Slovenia in 2017 in Ljubljana and the following year in Most na Soči, both times in ethanol traps (Figure 170). According to the literature, the hosts are *Salix* spp., *Alnus glutinosa*, *A. hirsuta*, *Quercus*



Slika 170: PIKČASTI LESARČEK *Xyleborinus attenuatus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 170: *Xyleborinus attenuatus*, distribution map according to historical and recent data

glutinosa, *A. hirsuta*, *Quercus robur*, *Corylus avellana, Betula platyphylla* var. *japonica*, *Tilia amurensis* in *Pinus* spp.. Samčki merijo v dolžino 1,8–2,2 mm, samičke pa 2,5–2,9 mm. Sprednji del vratnega ščita je pokrit z grbicami, zadnji pa je punktiran. Bazalni del vratnega ščita in začetek pokrovk sta porasla s štrlečimi dlačicami. Na koničniku iz 5. medprostora izraščajo ostri zobčki, katerih konice so usmerjene navzdol. Pikčasti lesarček je podoben vrsti malemu lesarčku (*X. saxesenii*), zato obstaja možnost zamenjav.

robur, *Corylus avellana, Betula platyphylla* var. *japonica*, *Tilia amurensis* and *Pinus* spp.. The males measure 1.8-2.2 mm in length and the females 2.5-2.9 mm. The anterior part of the neck shield is covered with humps and the posterior part is punctated. The basal part of the neck shield and the beginning of the elytra are covered with protruding hairs. On the elytra apex of the 5th interspace sharp denticles protrude from the apex, the tips of which are directed downwards. *X. attenuatus* is similar to *X. saxesenii*, so there is a possibility of confusion.

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PRIMORSKO: **Most na Soči**, 13°45′17″, 46°09′15″, VM01, 211 m, tWit, phEtan, lBRe dTHa, lit. THa2019a, 15.4.2018.
LJUBLJANA Z OKOLICO: **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 28.7.2017.

36.02. *Xyleborinus saxesenii* (Ratzeburg, 1837) MALI LESARČEK

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Xyleborus saxeseni* Ratzeburg, 1837; FREUDE, HARDE, LOHSE 1981: *Xyleborinus saxeseni* Ratzeburg; PFEFFER & KNÍŽEK 1993: *Xyleborus saxeseni* (Ratzeburg, 1837), PFEFFER 1995: *Xyleborus saxesenii* (Ratzeburg, 1837).

E: AB AL AU AZ BE BU BY CR CT CZ DE EN FR GB GR HU IT LA LT LU MA MC MD NL NR NT PL PT RO SK SL SP ST SV SZ UK YU »Caucasus« **N:** AG CI EG LB MO MR TU **A:** ANH ES FE FUJ GUI GUX HEB HEI HUN IN IS JA JIA JIL JIX KA KI KZ MG NC NE NIN SC SCH SD SHA SHX SY TAI TD TM TR UP WS XIZ YUN ZHE **AFR AUR NAR NTR ORR**

Vrsta je razširjena v Evropi, centralni Aziji, Kavkazu, Iranu, Mali Aziji, Mongoliji, na severnem Kitajskem, Koreji, Japonskem, ZDA, Kanadi, Avstraliji in Braziliji. Razširjenost vrste je bila pri nas podcenjena, gre za eno najpogostejših vrst podlubnikov v Sloveniji, manjkajo le najdišča v Beli krajini, Koroškem in v Prekmurju (slika 172). Mali lesarček je polifag na številnih listavcih, na *Alnus glutinosa*, *Alnus* spp., *Aesculus hippocastanum*, *Betula pubescens*, *B. pendula*, *Castanea sativa*, *Fagus sylvatica*, *Fraxinus excelsior*, *F. ornus*, *Juglans regia*, *Koelreuteria paniculata*, *Pyrus communis*, *P. malus*, *Populus nigra*, *Prunus armeniaca*, *P. avium*, *P. cerasus*, *P. domestica*, *P. padus*,

The species is distributed in Europe, Central Asia, the Caucasus, Iran, Asia Minor, Mongolia, northern China, Korea, Japan, the USA, Canada, Australia and Brazil. The distribution of the species in Slovenia has been underestimated, and it is one of the most common species of bark beetle in the country, with only Koroška and Prekmurje not having any confirmed sites (Figure 172). *X. saxesenii* is a polyphage on many deciduous trees, *Alnus glutinosa*, *Alnus* spp., *Aesculus hippocastanum*, *Betula pubescens*, *B. pendula*, *Castanea sativa*, *Fagus sylvatica*, *Fraxinus excelsior*, *F. ornus*, *Juglans regia*, *Koelreuteria paniculata*, *Pyrus communis*, *P. malus*, *Populus nigra*, *Prunus armeniaca*, *P. avium*, *P. cerasus*, *P. domestica*, *P. padus*, *P.*

P. persica, *P. spinosa*, *Quercus pedunculata*, *Q. petraea* in *Sorbus torminalis*, redkeje na *Carpinus* spp., *Ulmus* spp., *Acer* spp., *Corylus* spp., *Tilia* spp., *Salix* spp., *Malus* spp. in *Prunus* spp.. Včasih se pojavlja na iglavcih (*Pinus* spp., *Larix* spp., *Picea* spp., *Cedrus* spp., *Abies* spp., *Tsuga* spp.). Pri nas se je pogosto masovno lovil v pasti. Med gostitelji so v Slovenji zabeleženi le *Quercus petraea* (panj), *Picea abies* (debelca in panji) in *Liquidambar styraciflua* (v drevesnici). Je ksilomicetofagna vrsta, letno razvije 1–2 generaciji, roji aprila in junija. Naseljuje zlasti srednje dele stoječih debel, fiziološko oslabljenih ali sveže posekanih dreves. Rovni sistem je družinsko ploskovni. Na koncu plitvega vhodnega radialnega rova (dolžine 2–7 cm) samica izdolbe materinske rove, ki so usmerjeni po braniki. V te rove odlaga jajčeca, izlegle ličinke nato gradijo svoj družinski rov (ali več rovov dolžine 2–6 cm), ki se širi/širijo paralelno z lesno strukturo (vzdolžno) in oblikujejo votlino s površine do 20 cm^2. Ličink je lahko do 80. Vrsta v rove vnaša glive, ki razkrajajo les, s katerim se prehranjujejo ličinke. Dolžina samčkov znaša 1,6–1,8 mm, dolžina samičk pa 2,0–2,4 mm. Telo je rdeče-rjavo do črno. Vratni ščit in začetek pokrovk sta skoraj brez dlačic. Na koničniku so na pokrovkah v bližini šiva pokrovk ter v 3. in 5. medprostoru topi, drobni zobčki (slika 171). Vrsta je zelo pogosta v mešanih listnatih gozdovih. Rovi so relativno plitvo v lesu, zato vrsta nima posebnega gospodarskega pomena, razen ob naselitvi na plemenite listavce. Pogosto se pojavlja z drugimi floemofagnimi in ksilomicetofagnimi podlubniki. Od črnega ambrozijevca (*Xylosandrus germanus*) in azijskega ambrozijevca (*Xylosandrus crassiusculus)* se razlikuje po tem, da iz rovnega sistema ne izriva črvine v obliki palčk.

persica, *P. spinosa*, *Quercus pedunculata*, *Q. petraea* and *Sorbus torminalis*, less frequently on *Carpinus* spp, *Ulmus* spp., *Acer* spp., *Corylus* spp., *Tilia* spp., *Salix* spp., *Malus* spp. and *Prunus* spp.. It sometimes occurs on conifers (*Pinus* spp., *Larix* spp., *Picea* spp., *Cedrus* spp., *Abies* spp., *Tsuga* spp.). *X. saxesenii* is often caught en masse in traps in our area. In Slovenia, only *Quercus petraea* (stump), *Picea abies* (trunks and stumps) and *Liquidambar styraciflua* (in the nursery) have been recorded as hosts. A xylomycetophagous species, it develops 1-2 generations per year, swarming in April and June. It inhabits mainly the middle parts of the trunks of standing, physiologically weakened or freshly felled trees. The tunnel system is familially planar. At the end of the shallow entrance a radial tunnel (2-7 cm long), the female excavates the maternal galleries, which are oriented along the tree ring. She deposits eggs in these tunnels, the hatched larvae then build their own tunnel (or several tunnels 2-6 cm long), which expand / extend parallel to the wood structure (longitudinally) to form a cavity with a surface area of up to 20 cm^2. The species introduces fungi into the tunnels which decompose the wood on which the larvae feed. Males are 1.6-1.8 mm long and females 2.0-2.4 mm. The body is reddish brown to black. The neck shield and the beginning of the elytra are almost hairless. On the elytra apex, blunt, fine denticles are present on the elytra near the elytral suture and in the 3rd and 5th interspaces (Figure 171). The species is very common in mixed deciduous forests. The tunnels are relatively shallow in the wood, so the species is not particularly economically damaging, except when established on precious deciduous trees. It often co-occurs with other phloemophagous and xylomycetophagous bark beetles. It differs from the species *Xylosandrus germanus* and *Xylosandrus crassiusculus* in that it does not eject rod-shaped droppings from the tunnel system.

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ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2018d, 7.6.2018; **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRpa, lit.RPa2010b, 21.6.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit. RPa2014b, 23.5.2014, 1.7.2014, 31.7.2014, 1.9.2014, 23.10.2014; ibidem, lit.RPa2015b, 6.5.2015,

Slika 171: MALI LESARČEK *Xyleborinus saxesenii*, dorzalno, lateralno (Foto: Maja Jurc)

Figure 171: *Xyleborinus saxesenii*, dorsal, lateral (Photo: Maja Jurc)

2.7.2015, 2.9.2015; ibidem, lit.RPa2016b, 31.8.2016, 27.10.2016; ibidem, lit.RPa2017b, 31.5.2017, 3.8.2017, 6.9.2017; ibidem, lit.RPa2018b, 14.6.2018, 27.7.2018, 9.8.2018, 26.9.2018, 23.10.2018; ibidem, lit.RPa2019d, 19.6.2019, 31.7.2019, 28.8.2019, 24.10.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2018b, 27.7.2018, 25.9.2019; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2015b, 2.9.2015; ibidem, lit.RPa2016b, 27.7.2016; ibidem, lit.RPa2018b, 23.10.2018; ibidem, lit.RPa2019d, 25.9.2019; **Osp, Črni Kal**, 13°52′, 45°34′, VL14, 60 m, lCKr dSBr, cSBr, 10.9.1990; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2018e, 3.9.2018; ibidem, lit. RPa2019e, 23.5.2019, 31.7.2019; **Urbanci 2**, 13°49′45″, 45°34′09″, VL04, 280 m, tWit, Kont, ldRPa, lit.RPa2016e, 30.6.2016.

PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ldABi vSBr, cABi, pred 1951; **Klavže, Kneža**, 13°48′07″, 46°09′39″, VM01, 213 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 8.4.2018, 15.4.2018, 22.4.2018, 29.4.2018, 5.5.2018, 13.5.2018, 20.5.2018, 27.5.2018, 3.6.2018, 10.6.2018, 17.6.2018, 24.6.2018, 30.6.2018, 7.7.2018, 15.7.2018, 22.7.2018, 29.7.2018, 4.8.2018, 12.8.2018, 19.8.2018, 25.8.2018, 2.9.2018, 9.9.2018, 15.9.2018, 22.9.2018, 30.9.2018, 7.10.2018; **Loje, Kneža**, 13°50′06″, 46°10′44″, VM11, 409 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 15.4.2018, 22.4.2018, 29.4.2018, 5.5.2018, 13.5.2018, 27.5.2018, 3.6.2018, 10.6.2018, 17.6.2018, 24.6.2018, 30.6.2018, 7.7.2018, 15.7.2018, 22.7.2018, 29.7.2018, 4.8.2018, 12.8.2018, 19.8.2018, 25.8.2018, 2.9.2018, 9.9.2018, 15.9.2018, 22.9.2018, 14.10.2018; **Most na Soči**, 13°45′17″, 46°09′15″, VM01, 211 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 8.4.2018, 15.4.2018, 22.4.2018, 29.4.2018, 5.5.2018, 13.5.2018, 27.5.2018, 3.6.2018, 10.6.2018, 17.6.2018, 24.6.2018, 30.6.2018, 7.7.2018, 15.7.2018, 22.7.2018, 29.7.2018, 4.8.2018, 12.8.2018, 19.8.2018, 25.8.2018, 2.9.2018, 9.9.2018, 15.9.2018, 22.9.2018, 30.9.2018,14.10.2018; **Na Skali, Vrsnik, Julijske Alpe**, 13°42', 46°20', UM93, 950 m, ldSBr, cSBr, 11.7.1987; **Sabotin, Nova Gorica**, 13°38′, 45°59′, UL99, ~560 m, lGSe dSBr, cSBr, 26.4.2000; **Sužid, Kobarid**, 13°33′, 46°14′, UM92, 250 m, ldSBr, cSBr, 21.5.1983.

GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 5.8.2022; **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit. THa2022b, 13.5.2022, 24.6.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 22.7.2022; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, phPher phChal, lGBa

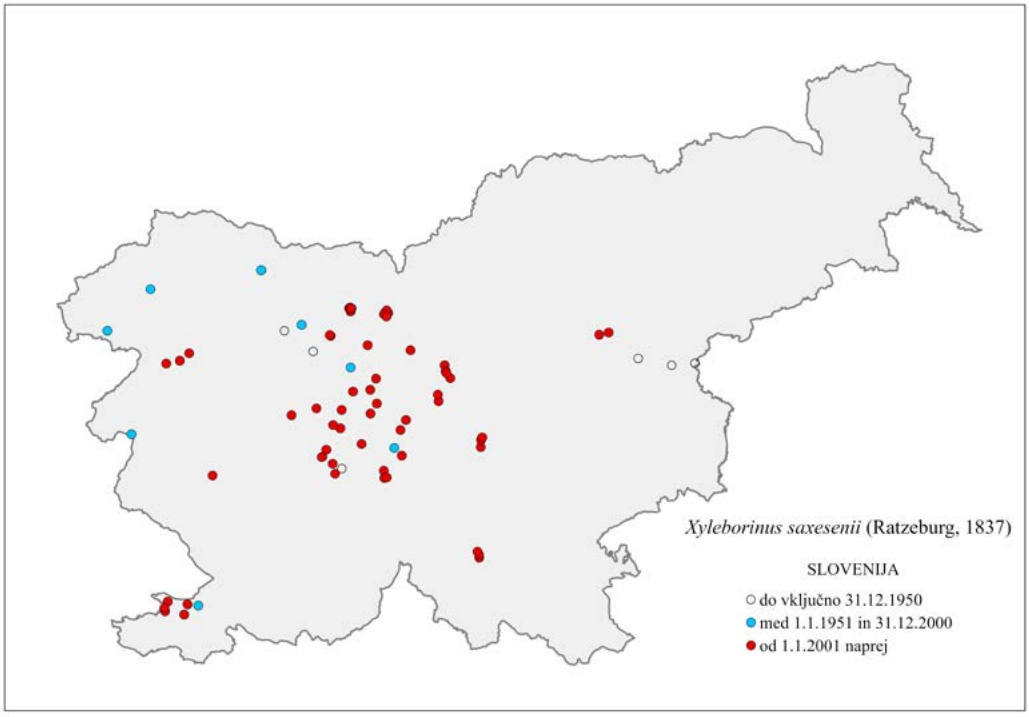
dSBr, cSBr, 2.4.1993; **Brdo pri Kranju 1/1**, 14°23′50″, 46°16′46″, VM52, 439 m, tThe, phLino, ldRPa, lit.RPa2003, 8.8.2003; **Brdo pri Kranju 1/2**, 14°23′31″, 46°17′14″, VM52, 463 m, tThe, phLino, ldRPa, lit.RPa2003, 26.7.2003; **Brdo pri Kranju 2/5**, 14°23′45″, 46°17′22″, VM52, 469 m, *Quercus petraea*, panj 50 cm, ldRPa, lit.RPa2004, 30.7.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; ibidem, lit.RPa2010a, 9.6.2010, 20.7.2010; ibidem, lit.RPa2011a, 6.7.2011, 4.8.2011, 21.9.2011; ibidem, lit. RPa2012, 29.8.2012; ibidem, ldRPa, lit.RPa2013a, 17.4.2013, 30.4.2013, 15.5.2013, 29.5.2013, 26.6.2013, 8.8.2013, 21.8.2013, 4.9.2013, 18.9.2013, 30.10.2013; ibidem, lit.RPa2014a, 19.3.2014, 16.4.2014, 30.4.2014, 14.5.2014, 28.5.2014, 11.6.2014, 25.6.2014, 23.7.2014, 6.8.2014, 20.8.2014, 3.9.2014, 17.9.2014, 1.10.2014, 15.10.2014; ibidem, lit.RPa2015a, 1.4.2015, 15.4.2015, 29.4.2015, 13.5.2015, 27.5.2015, 10.6.2015, 24.6.2015, 8.7.2015, 22.7.2015, 4.8.2015, 2.9.2015, 16.9.2015, 30.9.2015; ibidem, lit.RPa2016a, 13.4.2016, 27.4.2016, 11.5.2016, 25.5.2016, 7.6.2016, 22.6.2016, 6.7.2016, 20.7.2016, 3.8.2016, 17.8.2016, 31.8.2016, 14.9.2016, 28.9.2016,12.10.2016; ibidem, lit. RPa2017a, 29.3.2017, 12.4.2017, 26.4.2017, 10.5.2017, 25.5.2017, 8.6.2017, 21.6.2017, 5.7.2017, 19.7.2017, 2.8.2017, 16.8.2017, 30.8.2017; ibidem, lit.RPa2018a, 11.4.2018, 25.4.2018, 9.5.2018, 24.5.2018, 6.6.2018, 20.6.2018, 18.7.2018, 1.8.2018, 15.8.2018, 29.8.2018, 12.9.2018, 26.9.2018, 12.10.2018; ibidem, lit.RPa2019a, 13.3.2019, 27.3.2019, 10.4.2019, 24.4.2019, 8.5.2019, 3.6.2019, 29.6.2019, 3.7.2019, 18.7.2019, 31.7.2019, 14.8.2019, 23.10.2019; ibidem, lit.RPa2020d, 25.3.2020, 8.4.2020, 22.4.2020, 20.5.2020, 17.6.2020, 15.7.2020, 3.6.2020, 1.7.2020, 29.7.2020, 12.8.2020, 26.8.2020; ibidem, lit.RPa2021b, 7.4.2021, 5.5.2021, 19.5.2021, 4.6.2021, 16.6.2021, 30.6.2021, 28.7.2021, 11.8.2021, 25.8.2021; ibidem, lit.RPa2022b, 20.4.2022, 4.5.2022, 18.5.2022, 2.6.2022, 15.6.2022, 29.6.2022, 13.7.2022, 27.7.2022, 10.8.2022, 24.8.2022, 7.9.2022, 21.9.2022; ibidem, lit. RPa2023b, 6.4.2023, 19.4.2023, 3.5.2023, 17.5.2023, 1.6.2023, 14.6.2023, 28.6.2023, 26.7.2023, 23.8.2023, 6.9.2023, 20.9.2023, 4.10.2023, 18.10.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2013a, 17.4.2013, 30.4.2013, 29.5.2013; ibidem, lit.RPa2015a, 8.7.2015; ibidem, lit.RPa2016a, 13.4.2016, 27.4.2016, 11.5.2016, 22.6.2016, 31.8.2016; ibidem; lit.RPa2017a, 12.4.2017, 25.5.2017, 30.8.2017, 12.4.2017, 12.4.2017, 12.4.2017, 12.4.2017, 12.4.2017; ibidem, lit.RPa2018a, 1.8.2018, 15.8.2018, 29.8.2018, 12.9.2018; ibidem, lit. RPa2019a, 19.6.2019, 3.7.2019, 18.7.2019, 31.7.2019, 14.8.2019; ibidem, lit.RPa2020d, 25.3.2020, 22.4.2020, 29.7.2020; ibidem, lit.RPa2022d, 6.4.2022, 4.5.2022, 10.8.2022; ibidem, lit.RPa2023b, 6.4.2023, 3.5.2023, 17.5.2023, 14.6.2023, 12.7.2023, 9.8.2023, 4.10.2023; ibidem, phGaWi, ldRPa, lit.RPa2010a, 9.6.2010, 20.7.2010; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2011a, 6.7.2011; ibidem, lit.RPa2015a, 13.5.2015, 8.7.2015, 22.7.2015, 18.8.2015, 16.9.2015; ibidem, lit.RPa2016a, 27.4.2016, 25.5.2016, 22.6.2016; ibidem, lit.RPa2017a, 12.4.2017, 25.5.2017; ibidem, 1.8.2018, 15.8.2018; ibidem, lit.RPa2019a, 3.6.2019, 14.8.2019, 11.9.2019; ibidem, lit.RPa2022b, 4.6.2022, 24.8.2022; ibidem, lit.RPa2023b, 6.4.2023, 3.5.2023, 17.5.2023; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tWit, phPher, ldRPa, lit. RPa2008, 7.10.2008; ibidem, lit.RPa2010a, 9.6.2010, 8.9.2010; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 5.3.1992, 24.3.1992; **Katarija, Moravče**, 14°44′41″, 46°07′07″, VM80, 529 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 3.11.2017; **Lubnik, Škofjeloško hribovje**, 14°16′, 46°11′, VM41, 450 m, ldJSd, cJSd, 2.7.1938; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017; **Prevoje, Zabrekve, Korošc**, 14°13′37″, 46°14′52″, VM42, 610 m, *Picea abies*, neobeljen panj 50 cm, lFJa dJTi, lit.FJa1997, 27.7.1995; ibidem,, neobeljen panj 68 cm, lFJa dJTi, lit.FJa1997, 27.7.1995; **Rudnik pri Moravčah 1**, 14°43′44″, 46°08′07″, VM70, 363 m, tPfall, phEtan veCo, lTPe dTHa, lit.THa2022c, 10.4.2020, 17.4.2020,

24.4.2020, 15.5.2020; **Rudnik pri Moravčah 2**, 14°43′56″, 46°07′51″, VM70, 378 m, tPfall, phEtan veCo, lTPe dTHa, lit.THa2022c, 10.4.2020, 17.4.2020, 24.4.2020, 30.4.2020, 15.5.2020, 29.5.2020; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit. THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022, 5.8.2022; **Stiška Vas, Krvavec 2**, 14°31′20″, 46°16′03″, VM62, 884 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022, 5.8.2022; **Voglje 1**, 14°27′26″, 46°11′54″, VM51, 367 m, tHat, phEtan vePs, ldRPa, lit.RPa2021a, 15.6.2021; **Volčji Potok, arboretum, Vrtni center 2**, 14°36′23″, 46°11′10″, VM52, 339 m, *Liquidambar styraciflua*, deblo 3 cm, lVDo dRPa, lit.RPa2020, 31.5.2012; **Zgornje Bitnje 1**, 14°19′40″, 46°13′17″, VM41, 395 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008; **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit.RPa2008, 16.7.2008, 10.9.2008, 7.10.2008; **Železniki**, 14°10′, 46°14′, VM32, 450 m, ldJSd, cJSd, 9.7.1923.

NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017; **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 6.10.2017, 20.10.2017; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 6.10.2017, 20.10.2017; **Ljubljanski vrh 2**, 14°17′55″, 45°55′41″, VL48, 729 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 3**, 14°17′52″, 45°55′39″, VL48, 715 m, *Picea abies*, deblo 10 cm, ldTHa, lit. THa2020, 29.6.2018; ibidem, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 4**, 14°17′48″, 45°55′39″, VL48, 707 m, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Podpeč, Ljubljansko barje 3**, 14°26′07″, 45°57′35″, VL59, 344 m, tWit, phAlfa phEtan, ldRPa, lit. RPa2014c, 14.9.2011; **Pokojišče, Borovnica**, 14°22′, 45°54′, VL58, 730 m, ldJSd, cJSd, 18.4.1920, 27.4.1930; **Pokojišče, Borovnica 1**, 14°20′35″, 45°53′14″, VL48, 713 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017; 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Samotorica, Horjul**, 14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 22.9.2017; **Šentjošt nad Horjulom**, 14°11′29″, 46°01′45″, VL39, 801 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 22.9.2017, 20.10.2017; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017.

LJUBLJANA Z OKOLICO: **Gameljne, ob Savi**, 14°29′10″, 46°07′03″, VM60, 296 m, tWit, phGaHo, ldRPa, lit.RPa2013b, 14.8.2013, 20.9.2013; **Ljubljana, Mestni log, Cesta v Gorice**, 14°28′, 46°02′, VL59, 294 m, lAPi dSBr, cAPi, 23.6.2011, 30.6.2011; **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 4.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 3.11.2017; **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2018, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017,

22.9.2017, 20.10.2017; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017, 3.11.2017.
DOLENJSKO: **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 16.6.1977, 5.6.1978; **Janče, Jevnica**, 14°42′14″, 46°03′48″, VM70, 589 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Kočevje, Koblarji 1**, 14°50′44″, 45°41′00″, VL85, 471 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 24.4.2020, 30.4.2020; **Kočevje, Koblarji 2**, 14°50′42″, 45°41′26″, VL85, 470 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 30.4.2020, 15.5.2020, 22.5.2020; **Kočevje, Koblarji 3**, 14°50′23″, 45°41′54″, VL86, 472 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 17.4.2020, 24.4.2020, 30.4.2020, 8.5.2020, 15.5.2020, 29.5.2020; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 15.07.1979, 15.8.1985, 6.8.1986, 8.5.1988; **Laze pri Dolskem**, 14°42′07″, 46°04′45″, VM70, 452 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017; **Mokrec 1**, 14°30′49″, 45°53′41″, VL68, 860 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 2.6.2017, 16.6.2017, 30.6.2017, 11.8.2017; **Mokrec 2**, 14°30′53″, 45°52′39″, VL68, 900 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 14.7.2017, 11.8.2017, 8.9.2017, 3.11.2017; **Mokrec 3**, 14°31′24″, 45°52′42″, VL68, 941 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2018, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017; **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa,



Slika 172: MALI LESARČEK *Xyleborinus saxesenii*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 172: *Xyleborinus saxesenii*, distribution map according to historical and recent data

lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017, 3.11.2017; **Škofljica**, 14°34′16″, 45°59′36″, VL69, 319 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 17.5.2017, 24.5.2017, 7.6.2017; ibidem, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 24.5.2017, 7.6.2017, 14.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 3.5.2017, 17.5.2017, 24.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; **Velike Češnjice 2**, 14°51′07″, 45°58′08″, VL89, 381 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 14.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 17.5.2017, 24.5.2017, 7.6.2017, 20.6.2017; **Velike Češnjice 3**, 14°51′23″, 45°58′32″, VL89, 432 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 24.5.2017, 31.5.2017; ibidem, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 24.5.2017, 7.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 17.5.2017, 24.5.2017.
ŠTAJERSKO: Celje, Breg, 15°15′52″, 46°13′26″, WM21, 262 m, tWit, phGaPP, ldTŽu, lit. TŽu2020, 9.7.2018, 24.7.2018, 27.8.2018; **Celje, Teharje**, 15°17′48″, 46°13′44″, WM21, 242 m, tWit, phGaPP, ldTŽu, lit.TŽu2020, 14.8.2018, 27.8.2018; **Kalobje, Kostrivnica**, 15°24′, 46°10′, WM31, 620 m, ldVKo, cŠFS, 28.5.1930; **Loka pri Žusmu**, 15°31′, 46°09′, WM31, 250 m, ldEJa vSBr, cEJa, 13.5.1929; **Podčetrtek**, 15°35′53″, 46°09′18″, WM 41, 207 m, ldVKo, cŠFS, 20.4.1933.

37.00. *Xyleborus* Eichhoff, 1864 LESAR

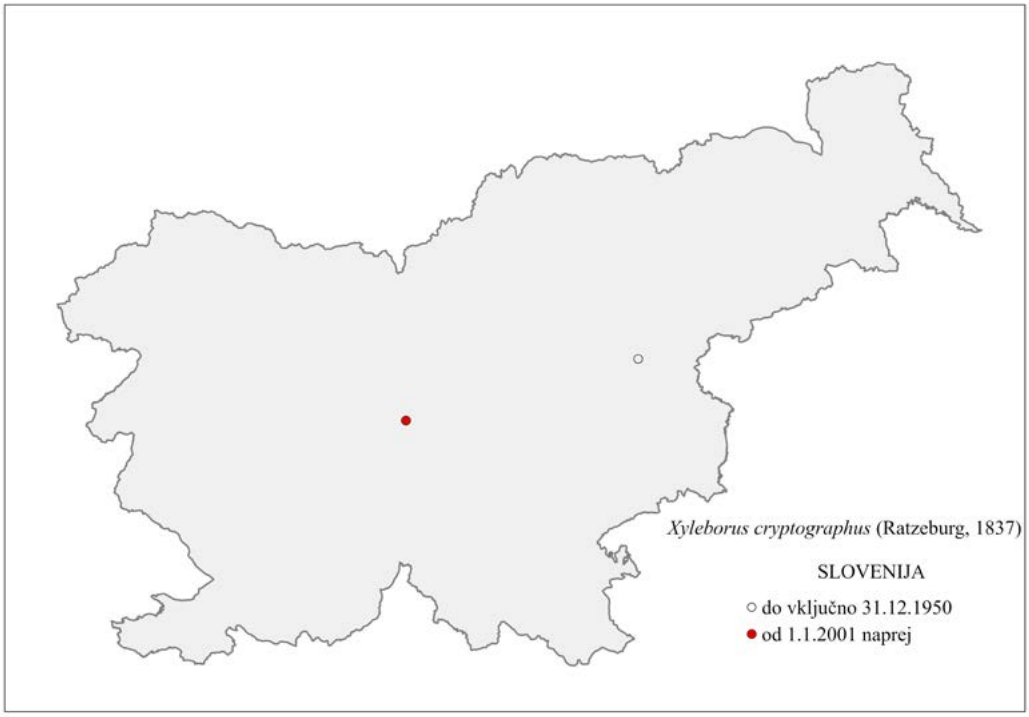
37.01. *Xyleborus cryptographus* (Ratzeburg, 1837) TOPOLOV LESAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Bostrychus cryptographus* Rtzb.; GRÜNE 1979: *Xyleborus cryptographus* Ratzeburg, 1837; FREUDE, HARDE, LOHSE 1981: *Xyleborus cryptographus* Ratzeburg; PFEFFER & KNÍŽEK 1993: *X. cryptographus* (Ratzeburg, 1837); PFEFFER 1995: *X. cryptographus* (Ratzeburg, 1837).

E: AU BE BY CR CT CZ DE EN FI FR GE GR HU IT LA MC MD NR NT PL SK SL SP ST SV SZ UK YU »Caucasus« **A:** ES FE KZ WS

Vrsta se pojavlja v Evropi, Sibiriji, vzhodni Rusiji in Kazahstanu. SIEGEL (1866) navaja, da je bila vrsta »na Kranjskem redka, v trhlih topolih«. V Sloveniji je bila v 20. stoletju vrsta zabeležena samo enkrat, leta 1929 na Štajerskem (slika 173). Naslednja najdba, v bližini Ljubljane, je bila šele leta 2018. Na podlagi teh podatkov lahko trdimo, da je vrsta pri nas redka. Gostitelji so *Populus tremula*, *P. nigra* in *P. alba*. Razen podatka Siegla za Slovenijo nimamo podatkov o gostiteljih, osebek v bližini Ljubljane se je ujel v past z etanolom. Dolžina samčka znaša 1,5 mm, samičke pa 2,3–2,5 mm. Telo je valjasto. Vratni ščit je kroglaste oblike, zmerno gosto in zmerno globoko punktiran.

The species occurs in Europe, Siberia, eastern Russia and Kazakhstan. SIEGEL (1866) states that the species was “rare in Carniola, in rotting poplars”. In Slovenia, the species was recorded only once in the 20th century, in 1929 in Štajerska (Figure 173). The next record, near Ljubljana, was made only in 2018. Based on these data, it can be stated that the species is rare in Slovenia. Hosts include *Populus tremula*, *P. nigra* and *P. alba*. Except for Siegel's data, we have no host data for Slovenia; the specimen near Ljubljana was caught in an ethanol trap. The length of the male is 1.5 mm and that of the female 2,3-2,5 mm. The body is cylindrical. The neck shield is spherical, moderately densely and moderately deeply punctated.



Slika 173: TOPOLOV LESAR *Xyleborus cryptographus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 173: *Xyleborus cryptographus*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia
SLOVENIJA: *Populus* spp., ldMSi, lit.MSi1866, pred 1951.
LJUBLJANA Z OKOLICO: **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWpr, phEtan, ldTHa, lit.THa2018, 25.8.2017.
ŠTAJERSKO: Kalobje, Kostrivnica, 15°24′, 46°10′, WM31, 620 m, ldVKo, vZKa, cŠFS, 9.6.1929.

37.02. *Xyleborus dryographus* (Ratzeburg, 1837) ZRNATI LESAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Bostrychus dryographus* Er.; GRÜNE 1979: *Xyleborus dryographus* Ratzeburg, 1837; FREUDE, HARDE, LOHSE 1981: *Xyleborus dryographus* Ratzeburg; TITOVŠEK 1988: *X. dryographus* Ratzeburg; PFEFFER & KNÍŽEK 1993: *X. dryographus* (Ratzeburg, 1837); PFEFFER 1995: *X. dryographus* (Ratzeburg, 1837).

E: AB AU BE BH BU CR CZ FR GB GE GR HU IT LU MC PL PT SK SL SP ST SZ UK YU **N:** AG EG LB MO TU **A:** IN IQ JA TR

Vrsta je razširjena v Evropi, v severni Afriki in Aziji (Mala Azija, Japonska). Siegel (1866) navaja, da je bila vrsta »na Kranjskem redka, v hrastovem lesu«. V Sloveniji je splošno razširjena vrsta, manjkajo le najdišča iz slovenske Istre, Koroške in Prekmurja (slika 175). Gostitelja sta *Quercus robur* in *Q. petraea*, redkeje *Fagus sylvatica*, *Aesculus hippocastanum*, *Carpinus* spp., *Acer* spp., *Ulmus* spp., *Tilia* spp. in *Prunus laurocerasus*. Novejše najdbe so rezultat ulova v pasti z etanolom. Dolžina samčkov je 1,9–2,0 mm, samičk pa 2,1–2,7 mm. Vsi medprostori na koničniku so opremljeni z vrstami drobnih zobčkov (slika 174). Je ksilomicetofagna vrsta, razvije dve generaciji letno, roji maja in julija. Gradijo viličasti rovni sistem, ki je sestavljen iz radialnega vhodnega kanala, od katerega se v različnih smereh odcepijo materinski hodniki, v katere samica odlaga jajčeca.

The species is distributed in Europe, North Africa and Asia (Asia Minor, Japan). Siegel (1866) states that the species was "rare in Carniola, in oak wood". A common species in Slovenia, it has been recorded everywhere except in Koroška and Prekmurje (Figure 175). Hosts are *Quercus robur* and *Q. petraea*, less frequently *Fagus sylvatica*, *Aesculus hippocastanum*, *Carpinus* spp., *Acer* spp., *Ulmus* spp., *Tilia* spp. and *Prunus laurocerasus.* Recent records are the result of ethanol trapping. Males are 1.9-2.0 mm long and females 2.1-2.7 mm. All the interspaces on the apex are equipped with rows of small denticles (Figure 174). A xylomycetophagous species, it develops two generations a year, swarming in May and July. They build a fork-shaped tunnel system consisting of a radial entrance canal from which the maternal galleries branch off in different directions.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldJPe, cJPe, 17.6.1917; *Quercus* spp., ldMSi, lit.MSi1866, pred 1951.

PRIMORSKO: **Dolanci, Goče**, 13°53′, 45°49′, VL17, 180 m, lAPi dSBr, cSBr, 18.6.2005; **Klavže, Kneža**, 13°48′07″, 46°09′39″, VM01, 213 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 13.5.2018, 27.5.2018, 3.6.2018;

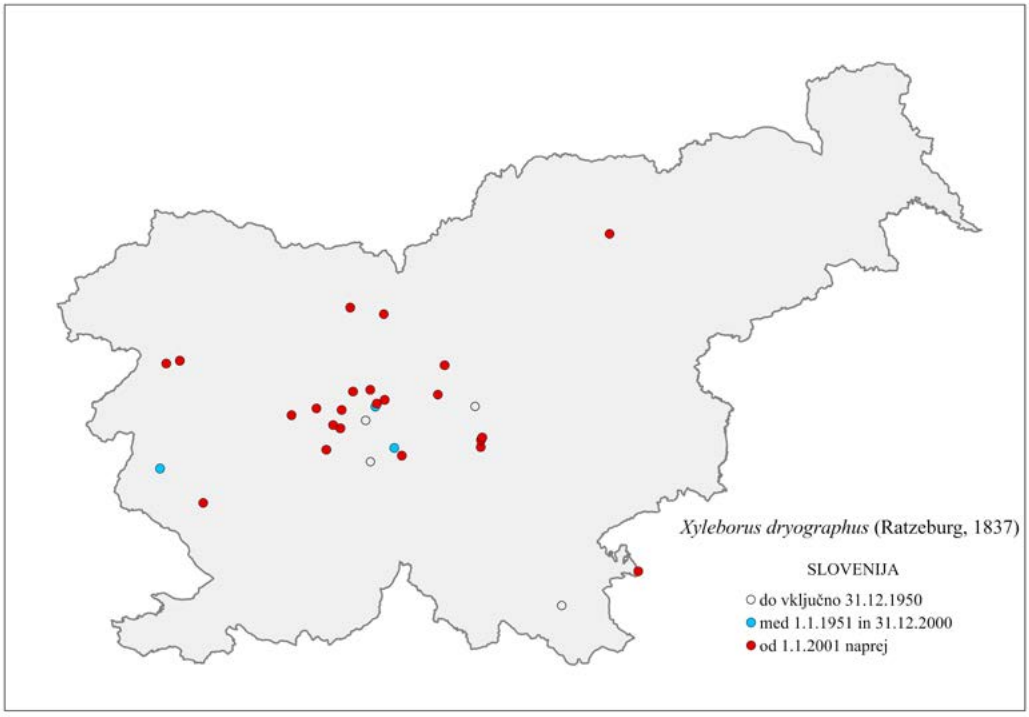
Most na Soči, 13°45′17″, 46°09′15″, VM01, 211 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 3.6.2018, 2.9.2018; **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, lRJe dSBr, cSBr, 13.5.1989, 10.6.1992.

GORENJSKO: **Brdo pri Kranju 2/5**, 14°23′45″, 46°17′22″, VM52, 469 m, *Quercus petraea*, panj 50 cm, ldRPa, lit.RPa2004, 30.7.2004; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m,

Slika 174: zrnati lesar *Xyleborus dryographus*, dorzalo, lateralno (Foto: Maja Jurc)

Figure 174: *Xyleborus dryographus*, dorsal, lateral (Photo: Maja Jurc)

tWit, phEtan, lDBo dTHa, lit.THa2018, 2.6.2017, 16.6.2017; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 10.6.2022, 24.6.2022.
NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 2.6.2017, 16.6.2017, 30.6.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Brezje pri Dobrovi 1**,l4°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 25.8.2017, 8.9.2017; **Krim**, 14°28′, 45°55′, VL58, *, ldJSd, cJSd, 1.6.1929; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 11.8.2017, 25.8.2017; **Samotorica, Horjul**, 14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 2.6.2017; **Šentjošt nad Horjulom**, 14°11′29″, 46°01′45″, VL39, 801 m, tWit, phEtan, ldTHa, lit.THa2018, 2.6.2017, 16.6.2017; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit. THa2018, 16.6.2017, 11.8.2017.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cJSd, 19.5.1916, 10.2.1918; ibidem, lHEg, cJSs, pred 1951; **Ljubljana, Mestni log**, 14°27′, 46°01′, VL59, 293 m, ldSBr, cSBr, 19.6.1947; **Ljubljana, Podrožnik**, 14°29′, 46°03′, VM60, 300 m, *Quercus petraea*, ldJTi, lit.JTi1983, 9.1982; **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 2.6.2017, 16.6.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 14.7.2017, 28.7.2017, 11.8.2017; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 2.6.2017, 16.6.2017.



Slika 175: ZRNATI LESAR *Xyleborus dryographus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 175: *Xyleborus dryographus*, distribution map according to historical and recent data

DOLENJSKO: **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 23.5.1998; **Laze pri Dolskem**, 14°42′07″, 46°04′45″, VM70, 452 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 14.7.2017, 8.9.2017; **Sitarjevec, Šmartno pri Litiji**, 14°49′53″, 46°03′02″, VL89, 325 m, tEco, phGaPP, ldEGr, lit.EGr2019, 2018; **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 2.6.2017, 16.6.2017, 25.8.2017; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 14.6.2017, 21.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 21.6.2017; **Velike Češnjice 2**, 14°51′07″, 45°58′08″, VL89, 381 m, tBak, phEtan, ldLPa vTHa, lit.LPa2019, 24.5.2017, 7.6.2017, 21.6.2017; **Velike Češnjice 3**, 14°51′23″, 45°58′32″, VL89, 432 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 14.6.2017; ibidem, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 31.5.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 24.5.2017, 14.6.2017.
BELA KRAJINA: **Mavrlen, Črnomelj**, 15°08′, 45°34′, WL14, 370 m, ldJPe, cJPe, 21.5.1938; **Rakovec, Metlika**, 15°24′, 45°39′, WL35, 358 m, lAPi dSBr, cAPi, 10.6.2011.
ŠTAJERSKO: Pohorje, (15°18′), (46°28′), (WM24), *, ldJPe, cAGs, pred 1951.

37.03. *Xyleborus eurygraphus* (Ratzeburg, 1837) BOROV LESAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Xyleborus eurygraphus* Ratzeburg, 1837; FREUDE, HARDE, LOHSE 1981: *Xyleborus eurygraphus* Ratzeburg; PFEFFER 1995: *X. eurygraphus* (Ratzeburg, 1837).

E: AU BH CR CT CZ FR GE GR HU IT LU MC MD NL PL PT SK SL* SP ST SZ UK YU **N:** AG EG LB MO TU **A:** TR

Vrsta je razširjena v južni in v srednji Evropi, na Krimu, Kavkazu, Ukrajini, severni Afriki in Turčiji. Vrsta je bila med letoma 2010 in 2019 večkrat najdena na štirih lokacijah v slovenskem delu Istre (slika 176). Po literaturi so gostitelji *Pinus sylvestris*, *P. nigra* in *P. maritima*. Vse najdbe v Sloveniji so rezultat ulova v pasteh z različnimi atraktanti. Je ksilomicetofagna vrsta z enoletno generacijo, roji od aprila do junija. Rovni sistem je viličast, sestavljen je iz vhodnega kanala, ki se razveja v 2–4 materinske hodnike. Dolžina adultov je 3,5–4,0 mm. Samička se zlahka loči od sorodnih vrst lesarjev, saj ima njen vratni ščit (gledano od zgoraj) skoraj kvadratno obliko.

The species is distributed in southern and central Europe, Crimea, the Caucasus, Ukraine, North Africa and Turkey. It has been recorded several times between 2010 and 2019 at four lsites in the Slovene part of Istria (Figure 176). According to the literature, the hosts are *Pinus sylvestris*, *P. nigra* and *P. maritima*. All records in Slovenia are the result of trapping with different attractants. Xylomycetophagous species with annual generation, swarming from April to June. The tunnel system is forked, consisting of a borehole branching into 2-4 maternal galleries. The female is easily distinguishable from related species of the genus *Xyleborus*, as her neck shield (viewed from above) is almost square in shape.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2018d, 7.6.2018; ibidem, lit.RPa2019c, 19.6.2019; **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRpa, lit.RPa2010b, 21.6.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2016b, 31.8.2016; ibidem, lit.RPa2018b, 14.6.2018; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2016b, 26.5.2016, 28.9.2016;

Slika 176: BOROV LESAR *Xyleborus eurygraphus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 176: *Xyleborus eurygraphus*, distribution map according to historical and recent data

ibidem, lit.RPa2018b, 27.7.2018; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit.RPa2014b, 23.5.2014, 1.7.2014; ibidem, lit.RPa2015b, 2.6.2015, 4.8.2015, 2.9.2015; ibidem, lit.RPa2016b, 26.5.2016, 30.6.2016; ibidem, lit.RPa2019d, 19.6.2019, 25.9.2019, 24.10.2019; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2019e, 25.9.2019.

37.04. *Xyleborus monographus* (Fabricius, 1792) HRASTOV LESAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Bostrychus monographus* Fab.; GRÜNE 1979: *Xyleborus monographus* Fabricius, 1792; FREUDE, HARDE, LOHSE 1981: *Xyleborus monographus* Fabricius; TITOVŠEK 1988: *Xyleborus monographus* (Fabricius); PFEFFER & KNÍŽEK 1993: *X. monographus* (Fabricius, 1792); PFEFFER 1995: *X. monographus* (Fabricius, 1792).

E: AB AL AU BE BU BY CR CZ DE EN FR GB GE GR HU IT LA LU MC NL NR NT PL PT RO SK SL SP ST SV SZ UK YU **N:** AG MO **A**: IQ SC TR

Vrsta je razširjena v južni, srednji in vzhodni Evropi, v Ukrajini, severni Afriki in Mali Aziji. SIEGEL (1866) navaja, da vrsta »na Kranjskem

The species is distributed in southern, central and eastern Europe, Ukraine, North Africa and Asia Minor. SIEGEL (1866) states that the

ni redka, v hrastih«. Vrsta je razširjena po vsej Sloveniji, manjkajo le najdišča v Beli krajini, Koroškem in v Prekmurju (slika 178). Gostitelji so *Quercus canariensis*, *Q. castaneifolia*, *Q. cerris*, *Q. coccifera*, *Q. ilex*, *Q. lusitanica*, *Q. petraea*, *Q. pubescens*, *Q. robur* in *Q. suber*. Redkeje se pojavlja tudi na *Acer* spp., *Fagus sylvatica*, *F. orientalis*, *Ulmus laevis*, *Ulmus* spp., *Carpinus betulus*, *Betula pendula*, *Juglans regia*, *Castanea sativa* in *Prunus avium*. Pri nas je bila večina primerkov ujetih v pasti, med gostitelji pa so zabeleženi *Quercus petraea*, *Q. robur*, enkrat tudi *Picea abies* (panj). Je ksilomicetofagna vrsta, letno razvije dve generaciji, prvo rojenje poteka marca in aprila, drugo junija in julija. Rovni sistem je viličast, od 5 do 15 cm dolgega radialnega vhodnega hodnika se v razne smeri odcepijo do 12 cm dolgi materinski rovi, ki ležijo približno v isti ravnini. Hodniki prodrejo globoko v črnjavo. Samčki merijo v dolžino 2,0–2,5 mm, samičke pa 3,0–3,5 mm. Hroščki so podolgovate valjaste oblike. Pri obeh spolih je koničnik sploščen, na njem so štirje manjši zobčki, ki so razporejeni v obliki kvadrata. Pri samčku je sprednji rob vratnega ščita močno izbočen (slika 177). Samčki so v populaciji 8,5-krat manj zastopani kot samičke. Hrastov lesar je ambrozijski podlubnik, ki naseljuje le sveže posekan les in poškodovano stoječe drevje. Vrsta povzroča pomembno tehnično škodo na hrastu.

species is “not rare in Carniola, in oaks”. It is common throughout Slovenia, with Koroška and Prekmurje the only regions without recorded presence (Figure 178). Hosts are *Quercus canariensis*, *Q. castaneifolia*, *Q. cerris*, *Q. coccifera*, *Q. ilex*, *Q. lusitanica*, *Q. petraea*, *Q. pubescens*, *Q. robur* and *Q. suber*. It also occurs less frequently on *Acer* spp., *Fagus sylvatica*, *F. orientalis*, *Ulmus laevis*, *Ulmus* spp., *Carpinus betulus*, *Betula pendula*, *Juglans regia*, *Castanea sativa* and *Prunus avium*. Most specimens were reportedly trapped, with *Quercus petraea*, *Q. robur*, and once *Picea abies* (hive) recorded as hosts. A xylomycetophagous species, it develops two generations annually, the first swarming in March and April, the second in June and July. The tunnel system is fork-shaped, with up to 12 cm long maternal galleries branching off from the 5-15 cm long radial entrance tunnel in different directions, lying approximately in the same plane. The tunnels penetrate deep into the heartwood. Males measure 2.0-2.5 mm in length, females 3.0-3.5 mm. The beetles are elongated and cylindrical. In both sexes, the apex is flattened and there are four large protrusions arranged in a square shape. In the male, the anterior margin of the neck shield is strongly convex. Males are 8.5 times less abundant than females in the population (Figure 177). *X. monographus* is an ambrosia beetle that only inhabits freshly felled timber and damaged standing trees. The species causes significant technical damage to oaks.

Slika 177: HRASTOV LESAR *Xyleborus monographus*, dorzalo, lateralno (Foto: Maja Jurc)

Figure 177: *Xyleborus monographus*, dorsal, lateral (Photo: Maja Jurc)

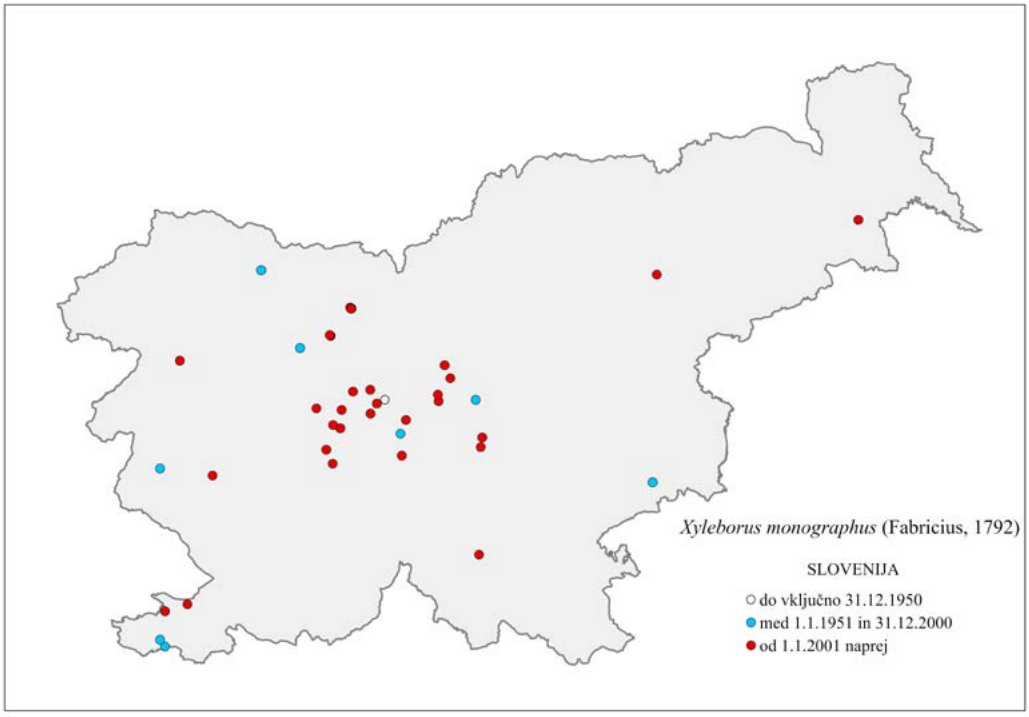
Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Quercus* spp., ldMSi, lit.MSi1866, pred 1951.

ISTRA: **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2016b, 28.9.2016; **Koštabona, potok Supot, Dragonja**, 13°45′, 45°28′, VL03, 100 m, ldSBr, cSBr, 23.5.1987; **Puče, izvir Supot, Dragonja**, 13°44′, 45°29′, VL03, 320 m, lMTr dSBr, cSBr, 23.5.1987; **Urbanci 1**, 13°49′43″, 45°34′10″, VL04, 270 m, tWit, phGaPP, ldRPa, lit.RPa2019e, 25.9.2019.

PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, ldABi vSBr, cABi, pred 1951; **Klavže, Kneža**, 13°48′07″, 46°09′39″, VM01, 213 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 22.4.2018, 7.7.2018; **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, lRJe dSBr, cSBr, 16.4.1987, 10.5.1988, 16.5.1988, 5.5.1989, 13.5.1989, 26.4.1992, 10.6.1992, 25.6.1992.

GORENJSKO: **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, Kont, lGBa dSBr, cSBr, 18.6.1993; ibidem, phLino, lGBa dSBr, cSBr, 18.6.1993; **Brdo pri Kranju 2/5**, 14°23′45″, 46°17′22″, VM52, 469 m, *Quercus petraea*, panj 50 cm, ldRPa, lit.RPa2004, 30.7.2004; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2022b, 13.7.2022; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2018a, 25.4.2018, 20.6.2018; ibidem, lit.RPa2017a, 25.5.2017; ibidem, phGaWi, ldRPa, lit.RPa2010a, 9.6.2010; **Brdo pri Kranju, GIS 3**, 14°23′57″, 46°17′12″, VM52, 466 m, tWit, Kont, ldRPa, lit.RPa2014a, 14.5.2014; ibidem, lit.RPa2016a, 25.5.2016; **Katarija, Moravče**, 14°44′41″, 46°07′07″, VM80, 529 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 2.6.2017,



Slika 178: HRASTOV LESAR *Xyleborus monographus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 178: *Xyleborus monographus*, distribution map according to historical and recent data

16.6.2017; **Spodnja Luša, Ambruški potok, Ambrušč**, 14°13′17″, 46°11′30″, VM31, 530 m, *Picea abies*, neobeljen panj 51 cm, ldFJa, lit.FJa1997, 3.10.1995; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017; **Zgornje Bitnje 1**, 14°19′40″, 46°13′17″, VM41, 395 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008; **Zgornje Bitnje 4**, 14°19′29″, 46°13′22″, VM41, 398 m, tWit, phPher, ldRPa, lit.RPa2008, 16.7.2008.

NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 14.7.2017; **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 28.7.2017, 11.8.2017, 25.8.2017; **Samotorica, Horjul**, 14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 28.7.2017, 25.8.2017; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017.

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cJSd, 20.6.1916; **Ljubljana, Mestni log, Cesta v Gorice**, 14°28′, 46°02′, VL59, 290 m, lAPi dSBr, cAPi, 23.6.2011; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 25.8.2017, 8.9.2017; **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 2.6.2017, 16.6.2017, 30.6.2017; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017.

DOLENJSKO: **Janče, Jevnica**, 14°42′14″, 46°03′48″, VM70, 589 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 19.5.2017; **Kočevje, Koblarji 2**, 14°50′42″, 45°41′26″, VL85, 470 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 30.4.2020, 15.5.2020; **Laze pri Dolskem**, 14°42′07″, 46°04′45″, VM70, 452 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 28.7.2017; **Litija**, 14°50′, 46°04′, VM80, 280 m, *Quercus* sp., ldJTi, lit. JTi1983, 9.1975; **Sajevce, Krakovski gozd**, 15°27′, 45°52′, WL37, 150 m, ldSBr, cSBr, 5.5.1993; **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 11.8.2017; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, tThe, Kont, lGBa dSBr, cSBr, 2.7.1993; ibidem, phLino, lGBa dSBr, cSBr, 14.5.1993; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 7.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 24.5.2017, 31.5.2017, 7.6.2017, 21.6.2017; **Velike Češnjice 3**, 14°51′23″, 45°58′32″, VL89, 432 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 24.5.2017; ibidem, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 31.5.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 24.5.2017.

ŠTAJERSKO: Partovec, Oplotnica, 15°27′54″, 46°22′08″, WM33, 330 m, *Quercus robur*, deblo, ldRPa, lit.RPa2020c, 7.6.2016; **Žerovinci, Ljutomer**, 16°10′, 46°30′, WM85, 230 m, lAPi dSBr, cAPi, 27.6.2011.

37.05. *Xyleborus pfeilii* (Ratzeburg, 1837) JELŠEV LESAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Xyleborus pfeili* Ratzeburg, 1837; FREUDE, HARDE, LOHSE 1981: *Xyleborus pfeili* Ratzeburg; TITOVŠEK 1988: *Xyleborus pfeili* (Ratzeburg); PFEFFER & KNÍŽEK 1993: *Xyleborus pfeili* (Ratzeburg, 1837); PFEFFER 1995: *X. pfeilii* (Ratzeburg, 1837).

E: AU BE BU CR CT CZ FR GE GR HU IT PL RO SK SL SP ST SZ UK YU **N:** AG MO **A:** FUJ HUN JA SC SCH TR YUN **NAR**

Vrsta je razširjena v Evropi, na južnem evropskem delu nekdanje Sovjetske zveze, v severni Afriki, Aziji in na nearktičnem območju. V Sloveniji sta znani samo dve najdišči, eno v Prekmurju, drugo pa na skladišču lesa na Gorenjskem (slika 180). Gostitelji so *Alnus glutinosa*, *Alnus* spp., redkeje tudi *Populus tremula* in *Populus* spp.. Edini zabeleženi gostitelj v Sloveniji je *Alnus glutinosa* (Velika Polana, Prekmurje). Osebki na skladišču lesa v Goričanah so se ujeli v pasti s feromonom Linoprax®. Rovni sistem je viličast, nahaja se v lesu. Samčki merijo v dolžino 2,1–2,6 mm, samičke pa 3,0–3,6 mm. Na koničniku so ob šivu pokrovk in na tretjem medprostoru drobni zobčki (slika 179). Jelšev lesar je ambrozijski podlubnik.

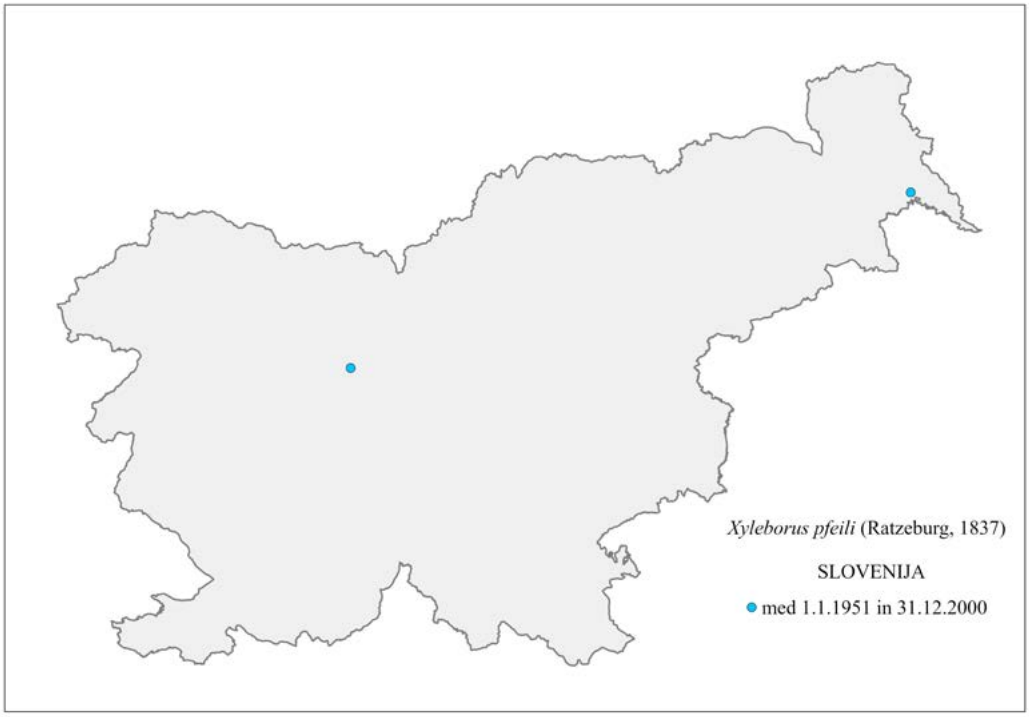
The species is distributed in Europe, the southern European part of the former Soviet Union, North Africa, Asia and the Nearctic. Only two sites are known in Slovenia, one in Prekmurje and the other in a wood depo in Gorenjska (Figure 180). The hosts are *Alnus glutinosa*, *Alnus* spp., and more rarely *Populus tremula* and *Populus* spp.. The only recorded host in Slovenia is *Alnus glutinosa* (Velika Polana, Prekmurje). The specimens at the wood depo in Goričane were caught in a trap with the Linoprax® pheromone. The tunnel system is forked, located in the wood. Males measure 2.1-2.6 mm in length and females 3.0-3.6 mm. On the apex there are tiny denticles along the suture of the elytra and on the third interlinear space (Figure 179). *X. pfeilii* is an ambrosia beetle.

Najdišča v Sloveniji / Localities in Slovenia

GORENJSKO: **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, tThe, phLino, lGBa dSBr, cSBr, 5.3.1992, 24.3.1992.

Slika 179: JELŠEV LESAR *Xyleborus pfeilii*, dorzalo, lateralno (Foto: Maja Jurc)

Figure 179: *Xyleborus pfeilii*, dorsal, lateral (Photo: Maja Jurc)



Slika 180: JELŠEV LESAR *Xyleborus pfeilii*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 180: *Xyleborus pfeilii*, distribution map according to historical and recent data

PREKMURJE: **Velika Polana**, 16°21′, 46°34′, XM05, 180 m, *Alnus glutinosa*, ldJTi, lit.JTi1983, 7.1980.

38.00. *Xylosandrus* Reiter, 1913 AMBROZIJEVEC

38.01. *Xylosandrus crassiusculus* (Motschulsky, 1866) AZIJSKI AMBROZIJEVEC

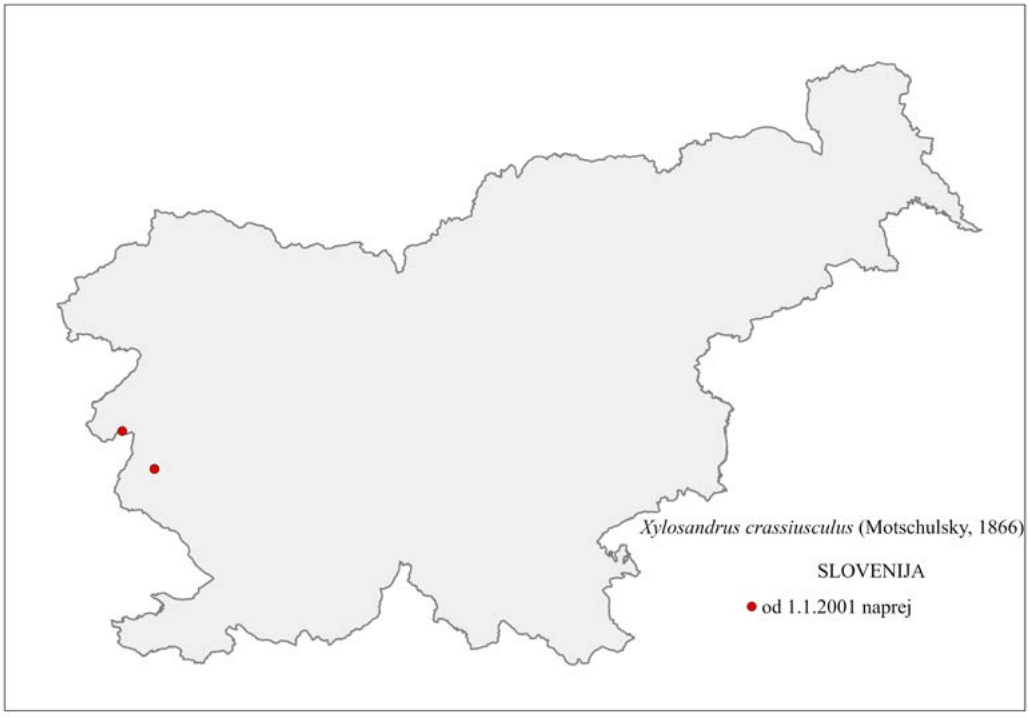
Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name:
WOOD, BRIGHT 1992; LÖBL, SMETANA 2011.
E: IT SL* **A:** ANH BT FUJ GUA GUI HKG HAI HEB HUB HUN HP JA NC NP SC SCH SD SHA SHN TAI UP XIZ YUN ZHE **AFR AUR NAR NTR ORR**

Tujerodna vrsta azijskega izvora (Butan, Fujdjan, Sikkim, Nepal, Japonska, Kitajska, Indija), pojavlja se tudi v Afriki, Severni, Srednji in Južni Ameriki ter v Oceaniji. V Evropi je bila prvič najdena leta 2003 v Toskani, v sestoju obmorskega bora (*Pinus pinaster*) in cera (*Quercus cerris*), pozneje se je razširila še v Francijo (2014)

A non-native species of Asian origin (Bhutan, Fujian, Sikkim, Nepal, Japan, China, India), it also occurs in Africa, North, Central and South America and Oceania. In Europe, it was first found in 2003 in Tuscany, in a stand of maritime pine (*Pinus pinaster*) and Turkey oak (*Quercus cerris*), later spreading to

in Španijo (2016). Azijski ambrozijevec je bil najden v Podsabotinu v Goriških brdih avgusta 2017 v pasti pri monitoringu škodljivih karantenskih organizmov, istega leta na lokaciji Prvačna, tudi v pasteh za monitoring škodljivih organizmov (slika 181). Po podatkih iz literature je azijski ambrozijevec polifag, ki naseljuje *Acacia* spp., *Alnus* spp., *Camellia* spp., *Cocos* spp., *Coffea* spp., *Fagus* spp., *Malus* spp., *Populus* spp., *Quercus* spp., *Salix* spp., *Ulmus* spp., *Vitis vinifera* in *Pinus* spp.. Letno razvije dve generaciji. Podobno kot črni ambrozijevec (*Xylosandrus germanus*) izdela družinski ploskovni rovni sistem. Iz naseljenih debel izriva črvino v obliki štrlečih 3–4 cm dolgih paličastih tvorb. Dolžina samčkov znaša 1,5 mm, samičk pa 3,0 mm. Koničnik je preprosto zaobljen. Je ambrozijska ksilomicetofagna vrsta, samice v rovni sistem vnašajo simbiontske glive iz roda *Ambrosiella*.

France (2014) and Spain (2016). In Slovenia, the species was recorded in 2017 in Primorska (Podsabotin, Prvačna), in pest monitoring traps (Figure 181). According to literature data, *X. crassiusculus* is a polyphagous species that inhabits *Acacia* spp., *Alnus* spp., *Camellia* spp., *Cocos* spp., *Coffea* spp., *Fagus* spp., *Malus* spp., *Populus* spp., *Quercus* spp., *Salix* spp., *Ulmus* spp., *Vitis vinifera* and *Pinus* spp.. It develops two generations per year. Similar to *Xylosandrus germanus,* it produces a familial planar tunnel system. It ejects droppings from infested trunks in the form of protruding 3-4 cm long rod-shaped formations. The males are 1.5 mm long and the females 3.0 mm. The apex is simply rounded. Ambrosial xylomycetophagous species, the females introduce symbiont fungi of the genus *Ambrosiella* into the tunnel system.



Slika 181: AZIJSKI AMBROZIJEVEC *Xylosandrus crassiusculus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 181: *Xylosandrus crassiusculus*, distribution map according to historical and recent data

Najdišča v Sloveniji / Localities in Slovenia
PRIMORSKO: **Podsabotin, Goriška brda**, 13°36′06″, 45°59′26″, UL99, 152 m, tWtr, phGLVp, ldAKv, lit.AKv2018, 1.8.2017, 10.8.2017; **Prvačina, Vogrsko**, 13°42′50″, 45°53′57″, VL08, 69 m, tWtr, phGLVp, ldAKv, lit.AKv2018, 10.8.2017.

38.02. *Xylosandrus germanus* (Blandford, 1894) ČRNI AMBROZIJEVEC

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Xylosandrus germanus* Blandford, 1894; FREUDE, HARDE, LOHSE 1981: *Xylosandrus germanus* Blandford; PFEFFER & KNÍŽEK 1993: *Xylosandrus germanus* (Blandford, 1894); PFEFFER 1995: *Xyleborus germanus* Blandford, 1894.

E: AU BE CR CZ FR GE GG HU IT NL SL* SP ST SZ **A:** ANH FE FUJ GUA GUI GUX HAI HEN HUB HUN JA NC SC SCH SHA SHX TAI TR XIZ YUN ZHE **NAR ORR**

Tujerodna vzhodnoazijska vrsta, prvič opisana na Japonskem. Pozneje je bila prenesena v ZDA, po drugi svetovni vojni pa v zahodno Evropo (Nemčijo, Francijo, Belgijo, zahodno Švico). Danes je vrsta razširjena tudi v Avstriji, na Hrvaškem, Madžarskem, Nizozemskem, v Češki republiki, Italiji, Španiji, Azij, na južnem območju evropskega dela Rusije ter na nearktičnem in orientalskem območju. Pri nas je bila prvič najdena na Sabotinu leta 2000. Številne novejše najdbe v pasteh kažejo, da je vrsta razširjena in pogosta po vsej Sloveniji z izjemo Prekmurja, Koroške in Bele krajine (slika 183). *Črni* ambrozijevec je polifag na trdih listavcih, redkeje na iglavcih. Gostitelji so: *Quercus robur*, *Q. petraea*, *Q. rubra* in *Fagus sylvatica*, redkeje *Betula pendula*, *Alnus glutinosa*, *Carpinus betulus*, *Ulmus laevis*, *Acer pseudoplatanus*, *Robinia pseudoacacia*, *Picea abies*, *Pinus strobus*, *P. densiflora*, *P. pentaphylla*, *Abies alba, Juglans* spp., *Prunus cerasus* in *Prunus* spp.. Vrsta je bila pri nas zabeležena na *Castanea sativa*, *Fagus sylvatica*, *Quercus petraea*, *Abies alba* in *Picea abies*. Je ksilomicetofagna vrsta, razvije 1–2 generaciji letno, roji maja. Naseljuje zlasti srednje in spodnje dele debel mlajših dreves z gladko skorjo. Vrsta dolbe družinski ploskovni rovni sistem, podobno kot azijski ambrozijevec (*Xylosandrus crassiusculus*), iz katerega izriva svetlo črvino v obliki štrlečih paličastih tvorb dolžine 2–3 cm. Dolžina adulta je 1,0–1,8 mm,

A non-native East Asian species first described in Japan, it was later introduced into the USA, and after World War II into Western Europe (Germany, France, Belgium, western Switzerland). Today, the species is also common in Austria, Croatia, the Czech Republic, Hungary, Italy, the Netherlands, Spain, the southern part of the European area of Russia, Asia, the Nearctic and Oriental regions. The species was first found in Slovenia in 2000 at Sabotin, and many more recent trap records indicate that it is widespread and common throughout Slovenia, with the exception of Prekmurje, Koroška and Bela Krajina (Figure 183). *X. germanus* is a polyphagous species on hard deciduous trees, less frequently on conifers. Hosts include *Quercus robur*, *Q. petraea*, *Q. rubra* and *Fagus sylvatica*, less frequently *Betula pendula*, *Alnus glutinosa*, *Carpinus betulus*, *Ulmus laevis*, *Acer pseudoplatanus*, *Robinia pseudoacacia*, *Picea abies*, *Pinus strobus*, *P. densiflora*, *P. pentaphylla*, *Abies alba, Juglans* spp, *Prunus cerasus* and *Prunus* spp.. The species has been recorded in Slovenia on *Castanea sativa*, *Fagus sylvatica*, *Quercus petraea*, *Abies alba* and *Picea abies*. Xylomycetophagous species, develops 1-2 generations per year, swarms in May. Inhabits mainly the middle and lower parts of the trunks of younger trees with smooth bark. It has a familial planar tunnel system (similar to *Xylosandrus crassiusculus*), from which it extrudes light-coloured droppings in the form of

so svetlo do temno rjavi, s poševnim koničnikom. Pokrovki sta različno punktirani, tipalki in noge so rumene barve (slika 182). Ambrozijski podlubnik v rovne sisteme vnaša ektosimbiontske glive.

protruding rod-shaped structures 2-3 cm long. The length of the adultus is 1,0-1,8 mm. The imagi are light to dark brown, with an oblique apex. The elytra are variably punctated, the antennae and legs are yellow (Figure 182). An ambrosia beetle, it introduces ectosymbiont fungi into its tunnel system.

Najdišča v Sloveniji / Localities in Slovenia

ISTRA: **Brageti**, 13°45′37″, 45°34′34″, VL04, 83 m, tWit, phGaPP, ldRPa, lit.RPa2018d, 7.6.2018; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit. RPa2018b, 27.7.2018.

PRIMORSKO: **Ajševica, Nova Gorica**, 13°42′, 45°57′, UL98, 100 m, *Castanea sativa*, deblo 10 cm, ldMJu, lit.MJu2010, 5.2010; **Klavže, Kneža**, 13°48′07″, 46°09′39″, VM01, 213 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 8.4.2018, 15.4.2018, 22.4.2018, 29.4.2018, 5.5.2018, 13.5.2018, 20.5.2018, 27.5.2018, 3.6.2018, 10.6.2018, 17.6.2018, 24.6.2018, 30.6.2018, 7.7.2018, 15.7.2018, 22.7.2018, 29.7.2018, 4.8.2018, 12.8.2018, 19.8.2018, 25.8.2018, 2.9.2018, 9.9.2018, 15.9.2018, 14.10.2018; **Loje, Kneža**, 13°50′06″, 46°10′44″, VM11, 409 m, tWit, phEtan, lBRe dTHa, lit. THa2019b, 15.4.2018, 22.4.2018, 29.4.2018, 5.5.2018, 13.5.2018, 20.5.2018, 27.5.2018, 3.6.2018, 10.6.2018, 17.6.2018, 24.6.2018, 30.6.2018, 7.7.2018, 15.7.2018, 22.7.2018, 29.7.2018, 4.8.2018, 12.8.2018, 19.8.2018, 25.8.2018, 2.9.2018; **Most na Soči**, 13°45′17″, 46°09′15″, VM01, 211 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 8.4.2018, 15.4.2018, 22.4.2018, 29.4.2018, 5.5.2018, 13.5.2018, 20.5.2018, 27.5.2018, 3.6.2018, 10.6.2018, 17.6.2018, 24.6.2018, 30.6.2018, 7.7.2018, 15.7.2018, 22.7.2018, 29.7.2018, 4.8.2018, 22.9.2018, 14.10.2018; **Sabotin, Nova Gorica**, 13°38′, 45°59′, UL99, ~560 m, ldGSe vSBr, cSBr, 26.4.2000.

GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022, 5.8.2022; **Ambrož pod Krvavcem 2**, 14°31′43″, 46°16′33″, VM62, 1107 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022, 5.8.2022; **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit. THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022, 5.8.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b,

Slika 182: ČRNI AMBROZIJEVEC *Xylosandrus germanus*, dorzalo, lateralno (Foto: Maja Jurc)

Fihure 182: *Xylosandrus germanus*, dorsal, lateral (Photo: Maja Jurc)

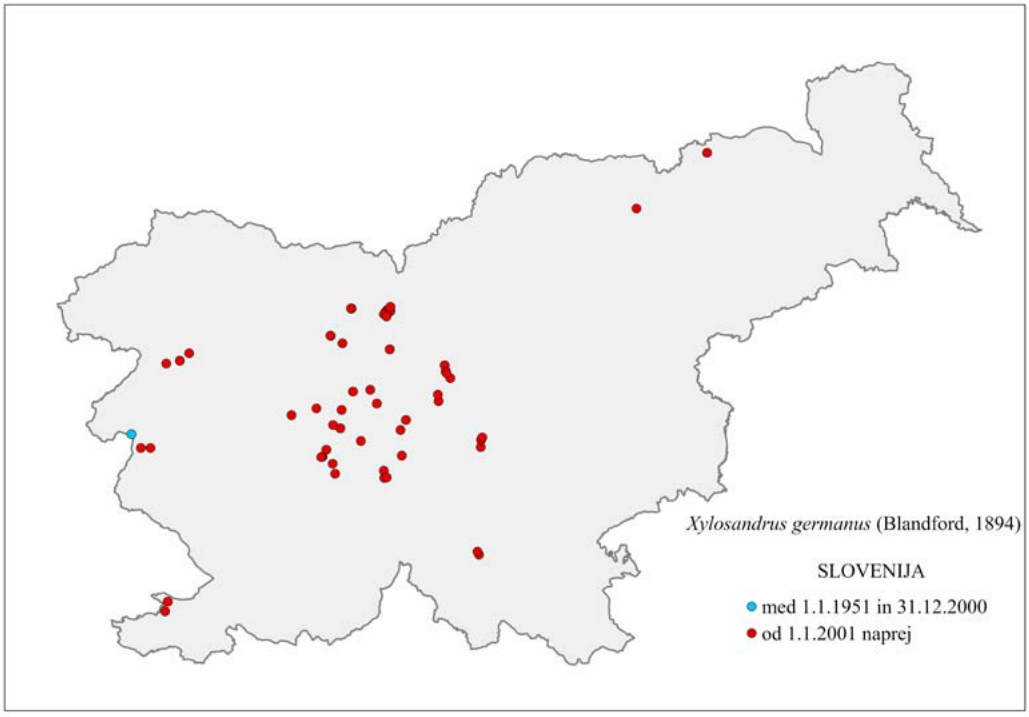
13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022, 5.8.2022; **Ambrož pod Krvavcem 5**, 14°31′42″, 46°17′03″, VM62, 1402 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022; **Ambrož pod Krvavcem 6**, 14°32′10″, 46°17′26″, VM62, 1478 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022, 5.8.2022; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; ibidem, lit.RPa2010a, 9.6.2010, 20.7.2010; ibidem, lit.RPa2015a, 10.6.2015; ibidem, lit.RPa2016a, 11.5.2016; ibidem, lit.RPa2018a, 9.5.2018; ibidem, lit.RPa2019a, 19.6.2019; ibidem, lit.RPa2023b, 1.6.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008, 13.8.2008; ibidem, lit.RPa2010a, 9.6.2010, 20.7.2010; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tWit, phPher, ldRPa, lit.RPa2010a, 9.6.2010; **Katarija, Moravče**, 14°44′41″, 46°07′07″, VM80, 529 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 6.10.2017; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.7.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017; **Rudnik pri Moravčah 1**, 14°43′44″, 46°08′07″, VM70, 363 m, tPfall, phEtan veCo, lTPe dTHa, lit. THa2022c, 15.5.2020,, 22.5.2020; **Rudnik pri Moravčah 2**, 14°43′56″, 46°07′51″, VM70, 378 m, tPfall, phEtan veCo, lTPe dTHa, lit.THa2022c, 24.4.2020, 15.5.2020, 22.5.2020, 29.5.2020; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 5.8.2022; **Stiška Vas, Krvavec 2**, 14°31′20″, 46°16′03″, VM62, 884 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022, 24.6.2022, 8.7.2022, 22.7.2022; **Sorško polje, Lumar Trade 5**, 14°22′09″, 46°12′11″, VM51, 372 m, *Quercus petraea*, deblo 20 cm, ldRPa, lit.RPa2014c, 7.6.2006; **Vodice 3**, 14°32′01″, 46°11′19″, VM61, 330 m, *Picea abies*, deblo 24 cm gLEŠ, lDBo dRPa, lit.RPa2020b, 16.3.2017; ibidem, deblo 25 cm gLEŠ, lDBo dRPa, lit.RPa2020b, 16.3.2017; **Zgornje Bitnje 1**, 14°19′40″, 46°13′17″, VM41, 395 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008; **Zgornje Bitnje 2**, 14°19′37″, 46°13′19″, VM41, 396 m, tWit, phGaWi, ldRPa, lit.RPa2008, 16.7.2008.

NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, *Abies alba*, deblo 40 cm, ldMJu, lit.MJu2010, 31.5.2009; ibidem, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 8.9.2017; **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit. THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017; **Ljubljanski vrh 1**, 14°17′57″, 45°55′44″, VL48, 753 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; ibidem, *Picea abies,* deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 2**, 14°17′55″, 45°55′41″, VL48, 729 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; ibidem, *Picea abies,* deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 3**, 14°17′52″, 45°55′39″, VL48, 715 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018: ibidem, *Picea abies,* deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 4**, 14°17′48″, 45°55′39″, VL48, 707 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; ibidem, *Picea abies*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Ljubljanski vrh 5**, 14°17′44″, 45°55′39″, VL48, 692 m, *Abies alba*, deblo 10 cm, ldTHa, lit.THa2020, 29.6.2018; **Podpeč, Ljubljansko barje**, 14°26′, 45°58′, VL59, 380 m, tWit, phEtan phAlfa, ldGMe, lit.MJu2010, 21.6.2010, 8.9.2010; **Pokojišče, Borovnica 1**, 14°20′35″, 45°53′14″, VL48, 713 m, tWit, phEtan, ldTHa, lit.THa2018, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 25.8.2017; **Samotorica, Horjul**, 14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017,

2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 22.9.2017; **Šentjošt nad Horjulom**, 14°11′29″, 46°01′45″, VL39, 801 m, tWit, phEtan, ldTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 14.7.2017, 11.8.2017, 8.9.2017; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017.

LJUBLJANA Z OKOLICO: **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 8.9.2017; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 22.9.2017, 20.10.2017; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017, 20.10.2017.

DOLENJSKO: **Janče, Jevnica**, 14°42′14″, 46°03′48″, VM70, 589 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017; **Kočevje, Koblarji 2**, 14°50′42″, 45°41′26″, VL85, 470 m, tPfall,



Slika 183: ČRNI AMBROZIJEVEC *Xylosandrus germanus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 183: *Xylosandrus germanus*, distribution map according to historical and recent data

phEtan veCo, ldSBu, lit.SBu2020, 15.5.2020, 22.5.2020, 29.5.2020; **Kočevje, Koblarji 3**, 14°50′23″, 45°41′54″, VL86, 472 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 8.5.2020, 15.5.2020, 29.5.2020; **Laze pri Dolskem**, 14°42′07″, 46°04′45″, VM70, 452 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 8.9.2017; **Mokrec 1**, 14°30′49″, 45°53′41″, VL68, 860 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017; **Mokrec 2**, 14°30′53″, 45°52′39″, VL68, 900 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 11.8.2017; **Mokrec 3**, 14°31′24″, 45°52′42″, VL68, 941 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2018, 11.8.2017, 25.8.2017, 8.9.2017; **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017, 25.8.2017, 20.10.2017, 3.11.2017; **Škofljica**, 14°34′16″, 45°59′36″, VL69, 319 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017, 28.7.2017, 11.8.2017; **Velike Češnjice 1**, 14°51′05″, 45°57′07″, VL89, 390 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; ibidem, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 3.5.2017, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 3.5.2017, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; **Velike Češnjice 2**, 14°51′07″, 45°58′08″, VL89, 381 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 24.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; ibidem, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 3.5.2017, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; **Velike Češnjice 3**, 14°51′23″, 45°58′32″, VL89, 432 m, tBak, Kont, ldLPa vTHa, lit.LPa2019, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; ibidem, phAlfa phEtan, ldLPa vTHa, lit.LPa2019, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017; ibidem, phEtan, ldLPa vTHa, lit.LPa2019, 10.5.2017, 17.5.2017, 24.5.2017, 31.5.2017, 7.6.2017, 14.6.2017, 20.6.2017.

ŠTAJERSKO: Kumen, Lovrenc na Pohorju, 15°23′37″, 46°31′39″, WM35, 704 m, *Abies alba*, hlod, ldRPa, lit.RPa2020b, 5.7.2016; **Zgornje Dobrenje, rezervat**, 15°38′24″, 46°39′40″, WM46, 364 m, *Fagus sylvatica*, deblo 50 cm, ldRPa, lit.RPa2020c, 19.4.2013.

39.00. ***Trypodendron*** Stephens, 1830 LESTVIČAR

39.01. *Trypodendron domesticum* (Linnaeus, 1758) BUKOV LESTVIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: Siegel, 1866: *Xyloterus domesticus* Lin.; Grüne 1979: *Trypodendron domesticum* Linné, 1758; Freude, Harde, Lohse 1981: *Xyloterus domesticus* Linné; Titovšek 1988: *Xyloterus domesticus* (Linné); Pfeffer & Knížek 1993: *Xyloterus domesticus* (Linnaues, 1758); Pfeffer 1995: *Xyloterus domesticus* (Linné, 1758).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LT LU MC NL NR NT PL RO SK SL SP ST SV SZ UK YU **A:** TR **NAR**

Vrsta je razširjena v Evropi, na Balkanu, Krimu, Kavkazu, v Aziji in na nearktičnem območju. Siegel (1866) navaja, da je bila vrsta

The species is distributed in Europe, the Balkans, Crimea, the Caucasus, Asia and the Nearctic. Siegel (1866) states that the species was "rare in

»na Kranjskem redka, v bukvah«, vendar najdišča kažejo, da je danes vrsta razširjena po vsej Sloveniji, manjkajo le nahajališča v Prekmurju, na Koroškem in v Beli krajini (slika 185). Bukov lestvičar je polifag na listavcih, pogost je na bukvi (*Fagus* spp.), hrastih (*Quercus* spp.) in gabrih (*Carpinus* spp.), naseljuje pa tudi druge listavce: *Acer pseudoplatanus*, *Acer* spp., *Alnus glutinosa*, *A. incana*, *Castanea sativa*, *Betula pubescens, Betula* spp., *Sorbus aucuparia*, *S. aria*, *Tilia* spp., *Prunus* spp., *Juglans regia*, *Morus alba*, *Robinia pseudoacacia*, *Crataegus* spp., *Fraxinus excelsior*, *Pyrus malus*, *Populus tremula* in *Salix* spp.. V Sloveniji je bila vrsta pogosto najdena v pasteh, na gostiteljih pa na *Fagus sylvatica* in le enkrat na *Quercus* sp.. Je monogamna ksilomicetofagna vrsta, na leto razvije eno generacijo, roji marca. Naseljuje sveže posekano ali zaradi ujm prizadeto drevje, zlasti debla in veje bukev. Naseljuje le svež les, ki omogoča razvoj gliv. Rovni sistem je lestvičast, vanj samičke prinesejo trose in micelij ektosimbiontskih gliv. Hodniki so prekriti z belim micelijem, s katerim se hranijo ličinke. Pozneje glive odmrejo, hodniki zato počrnijo. Dolžina adultov je 3,2–3,8 mm. Pokrovki sta rumeni, z vzdolžnimi temnejšimi progami in fino punktacijo. Na tipalkah je kij na notranji strani zašiljen, po čemer se razlikuje od preostalih vrst lestvičarjev (*Trypodendron*) (slika 184). Ambrozijski podlubnik povzroča velike ekonomske škode zaradi »mušičavosti« lesa, največja škoda nastane na deblovini bukve, ker v njej materinski rovi segajo zelo globoko. Je sekundarna vrsta, zaradi dolbenja rovnih sistemov se les lokalno obarva, po okužbi z glivami pa začne tudi trohneti. Feromon: 3-Hydroxy-3-methylbutan-2-on (Francke s sod. 1974, Francke & Heemann 1974).

Carniola, in beeches", but the sites show that the species is now widespread throughout Slovenia, with the only regions without confirmed records Prekmurje, Koroška and Bela Krajina (Figure 185). *T. domesticum* is polyphagous on deciduous trees, common on beech (*Fagus* spp.), oak (*Quercus* spp.) and hornbeam (*Carpinus* spp.), but it also infests other deciduous trees, *Acer pseudoplatanus*, *Acer* spp., *Alnus glutinosa*, *A. incana*, *Castanea sativa*, *Betula pubescens, Betula* spp., *Sorbus aucuparia*, *S. aria*, *Tilia* spp., *Prunus* spp, *Juglans regia*, *Morus alba*, *Robinia pseudoacacia*, *Crataegus* spp., *Fraxinus excelsior*, *Pyrus malus*, *Populus tremula* and *Salix* spp.. In Slovenia, the species is frequently found in traps and on *Fagus sylvatica,* and only once on *Quercus* sp.. A monogamous xylomycetophagous species, it develops one generation per year and swarms in March. It inhabits freshly felled or weather-damaged trees, especially beech trunks and branches. It only colonises fresh wood which allows the fungus to develop. The tunnel system is ladder-shaped, with the females bringing spores and mycelium of endosymbiont fungi into it. The tunnels are covered in white mycelium on which the larvae feed. Later, the fungi die and the tunnels turn black. Adult length is 3.2-3.8 mm. The elytra are yellow, with longitudinal darker stripes and fine punctation. The scape of the antenna is pointed on the inside, which distinguishes it from other species of the genus *Trypodendron* (Figure 184). An ambrosia beetle, it causes considerable economic damage due to the 'mushiness' of the wood, the greatest damage is caused to the trunk of beech, where the maternal galleries are very deep. It is a aecondary species, the wood is locally stained due to the boring of the tunnel system, and also begins to rot after fungal infection. Pheromone: 3-Hydroxy-3-methylbutan-2-one (Francke et al. 1974, Francke & Heemann 1974).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: *Fagus sylvatica*, ldMSi, lit.MSi1866, pred 1951.

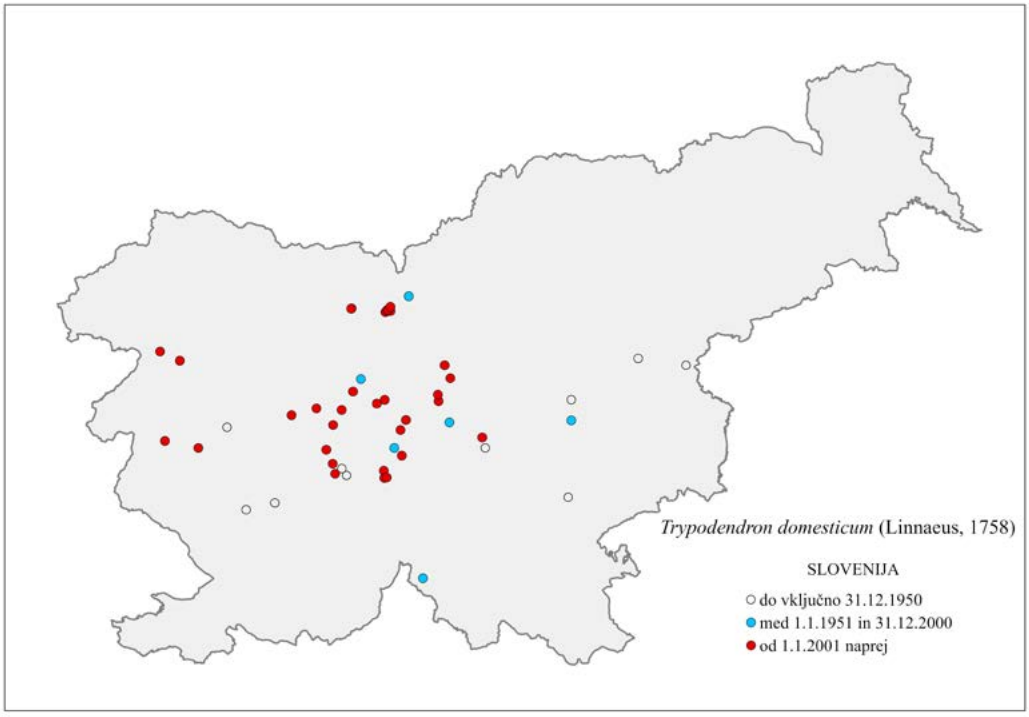
PRIMORSKO: **Klavže, Kneža**, 13°48′07″, 46°09′39″, VM01, 213 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 22.4.2018; **Predmeja, Trnovski gozd**, 13°52′, 45°57′, VL18, 1060 m, *Fagus sylvatica*, ldMJu, lit.DJu2003, 2002; **Tolmin**, 13°44′, 46°11′, VM01, 480 m, *Fagus sylvatica*, ldMJu, lit.DJu2003, 2002; **Trnovo, Nova Gorica**, 13°45', 45°58', VL09, 800 m, *Fagus sylvatica*,

ldMJu, lit.DJu2003, 2002; **Trnovski gozd**, (14°52′), (45°57′), (VL38), ~1100 m, *Fagus sylvatica*, deblo, ldJTi, lit.JTi1994, 1986.
GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 24.6.2022; **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Ambrož pod Krvavcem 4**, 14°31′23″, 46°16′56″, VM62, 1308 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 24.6.2022; **Ambrož pod Krvavcem 5**, 14°31′42″, 46°17′03″, VM62, 1402 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 29.4.2022, 13.5.2020, 27.5.2022; **Ambrož pod Krvavcem 6**, 14°32′10″, 46°17′26″, VM62, 1478 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit. RPa2016a, 16.3.2016; ibidem, lit.RPa2019a, 13.3.2019; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2016a, 30.3.2016; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, ~600 m, *Fagus sylvatica*, hlod, ldFUr, lit.JŠl1953, 4.3.1953; **Katarija, Moravče**, 14°44′41″, 46°07′07″, VM80, 529 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017, 2.6.2017, 10.3.2017, 24.3.2017, 2.6.2017; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017, 10.3.2017, 24.3.2017.
NOTRANJSKO: **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 16.6.2017; **Bukovje, Postojna**, 14°08′, 45°49′, VL37, 590 m, *Fagus sylvatica*, deblo, ldJTi, lit.JTi1994, 1986; **Idrijsko hribovje**, (13°58′), (46°00′), VL19, ~800 m, *Fagus sylvatica*, deblo, ldJTi, lit.JTi1994, 1986; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017; **Nanos**, (14°02′), (45°48′), VL27, ~1000 m, *Fagus sylvatica*, deblo, ldJTi, lit.JTi1994, 1986; **Pekel, Borovnica**, 14°23′, 45°53′, VL58, ~400 m, ldAGs, cAGs, 28.4.1931; **Pokojišče, Borovnica**, 14°22′, 45°54′, VL58, 730 m, ldJSd, cJSd, 9.9.1926; **Pokojišče, Borovnica 1**, 14°20′35″, 45°53′14″, VL48, 713 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 5.5.2017, 19.5.2017; **Samotorica, Horjul**, 14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 10.3.2017, 24.3.2017, 21.4.201719.5.2017; **Šentjošt nad Horjulom**, 14°11′29″, 46°01′45″, VL39, 801 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 16.6.2017; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 19.5.2017; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017.

Slika 184: BUKOV LESTVIČAR *Trypodendron domesticum*, dorzalo, lateralno (Foto: Maja Jurc)

Figure 184: *Trypodendron domesticum*, dorsal, lateral (Photo: Maja Jurc)

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldSBr, cSBr, 24.3.1949; ibidem, ldJSd, cJSd, 7.5.1919; ibidem, lHEg, cJSs, pred 1951; **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017, 7.4.2017, 5.5.2017, 19.5.2017, 2.6.2017; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 10.3.2017, 24.3.2017, 7.4.2017, 19.5.2017, 2.6.201716.6.2017; **Vikrče**, 14°26′, 46°07′, VM50, 350 m, ujeto v letu, ldJTi, lit.JTi1983, 3.1972.
DOLENJSKO: **Draga, Goteniška gora**, 14°39′, 45°38′, VL75, 800 m, *Fagus sylvatica*, ldJTi, lit. JTi1983, 8.1981; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 12.6.1977; **Janče, Jevnica**, 14°42′14″, 46°03′48″, VM70, 589 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017, 7.4.2017; **Laze pri Dolskem**, 14°42′07″, 46°04′45″, VM70, 452 m, tWit, phEtan, lDBo dTHa, lit. THa2018, 10.3.2017, 24.3.2017, 5.5.2017; **Mokrec 1**, 14°30′49″, 45°53′41″, VL68, 860 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017, 7.4.2017, 2.6.2017; **Mokrec 2**, 14°30′53″, 45°52′39″, VL68, 900 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 16.6.2017; **Mokrec 3**, 14°31′24″, 45°52′42″, VL68, 941 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017, 7.4.2017, 19.5.2017, 2.6.2017, 16.6.2017; **Novo Mesto, tovarna LIP**, 15°09′21″, 45°49′49″, WL17, 207 m, *Fagus sylvatica*, hlod, ldJŠl, lit. JŠl1953, 1952; **Radeče**, 15°10′, 46°04′, WM10, 300 m, *Fagus sylvatica*, krajnik, ldJTi, lit.JTi1983, 1966: **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017; **Šentjanž, Radeče**, 15°10′, 46°01′, WL19, 280 m, *Quercus* sp., deska, ldJTi, lit.JTi1983,



Slika 185: BUKOV LESTVIČAR *Trypodendron domesticum*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 185: *Trypodendron domesticum*, distribution map according to historical and recent data

11.1971; **Škofljica**,14°34′16″, 45°59′36″, VL69, 319 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 7.4.2017; **Velike Češnjice 3**, 14°51′23″, 45°58′32″, VL89, 432 m, tBak, phEtan, ldLPa vTHa, lit. LPa2019, 10.5.2017; **Veliko Trebeljevo 1**, 14°44′31″, 46°00′43″, VL89, 554 m, *Fagus sylvatica*, drva, ldMJu, cBFG, 15.9.2021; ibidem, ldMJu vSBr, cBFG, 4.8.2000.
ŠTAJERSKO: Kalobje, Kostrivnica, 15°24′, 46°10′, WM31, 620 m, ldVKo, cBFG, 1.3.1930; **Podčetrtek, Graben**, 15°34′, 46°09′, WM41, *, ldEJa vSBr, cEJa, 26.6.1930.

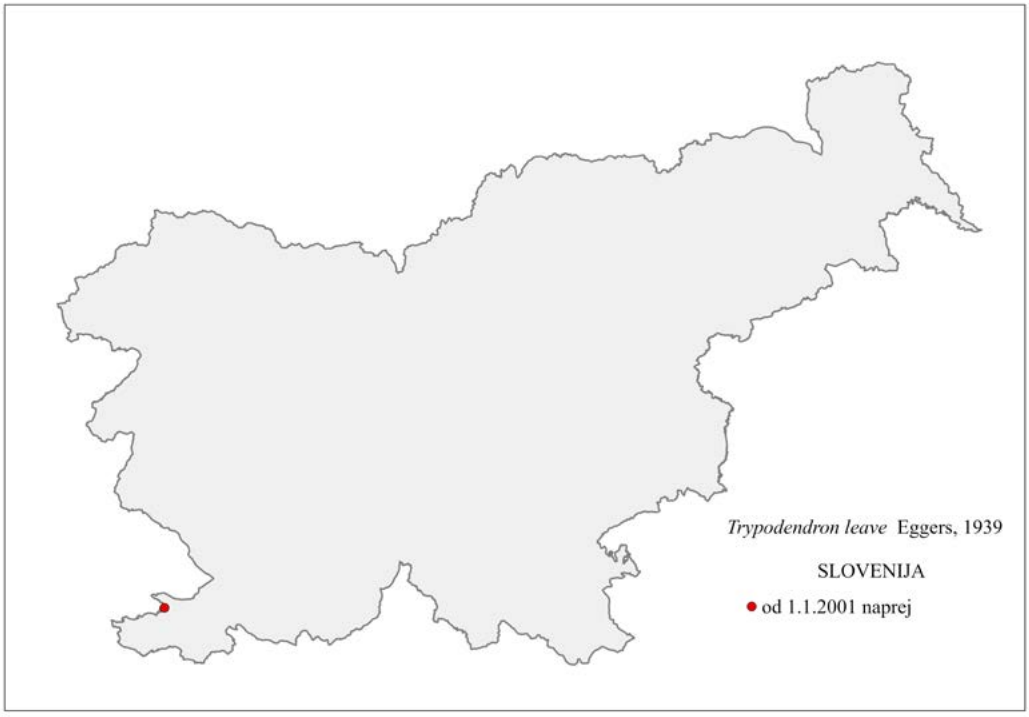
39.03. *Trypodendron leave* Eggers, 1939 TEMNONOGI LESTVIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: PFEFFER 1995: *Xyloterus leave* (Eggers, 1939).

E: AU CT CZ EN FI GE LA NR NT PL SK SL* SV SZ **A:** JA »China«

Vrsta je razširjena v nekaterih evropskih državah in na Japonskem. Novejše raziskave potrjujejo, da je vrsta v Evropi avtohtona. V Sloveniji je bila leta 2014 najdena v Luki Koper, v pasti na terminalu z avstrijskim lesom (slika 186). Ni

The species is distributed in some European countries and Japan. Recent research confirms that it is native to Europe. In Slovenia, it was found in 2014 in the Port of Koper, in a trap at a terminal storing Austrian timber (Figure 186).



Slika 186: TEMNONOGI LESTVIČAR *Trypodendron leave*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 186: *Trypodendron leave*, distribution map according to historical and recent data

izključeno, da je vrsta prisotna tudi na višjih nadmorskih legah severne Slovenije. Gostitelji: *Picea jezoensis*, *P. obovata*, *P. abies*, *Pinus sylvestris*. Dolžina adultov je 3,0–4,0 mm. Adulti so temni, z rjavimi pokrovkami, po katerih vzdolžno potekajo črne črte. Morfološko je vrsta podobna drugim lestvičarjem, a se od drugih razlikuje zlasti po temno obarvanih nogah. Je ambrozijski podlubnik, saproksil, njegova razširjenost in ekonomski pomen v Sloveniji nista znana.

Hosts include *Picea jezoensis*, *P. obovata*, *P. abies*, *Pinus sylvestris*. Adults are dark, with brown elytra, longitudinally streaked with black. Morphologically, the species is similar to other *Trypodendron* species, differing in particular by the dark colour of the legs. An ambrosia beetle and saproxil, its distribution and economic importance in Slovenia are not known.

Najdišča v Sloveniji / Localities in Slovenia
ISTRA: **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit. RPa2014b, 1.9.2014.

39.02. *Trypodendron lineatum* (Olivier, 1795) PROGASTI LESTVIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Xyloterus lineatus* Ol.; GRÜNE 1979: *Trypodendron lineatum* Olivier, 1795; FREUDE, HARDE, LOHSE 1981: *Xyloterus lineatus* Olivier; TITOVŠEK 1988: *Xyloterus lineatus* (Olivier); PFEFFER & KNÍŽEK 1993: *Xyloterus lineatus* (Olivier, 1795); PFEFFER 1995: *X. lineatus* (Olivier, 1795).

E: AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GR HU IR IT LA LS LT LU MC NL NR NT PL RO SK SL SP ST SV SZ YU **N:** AG EG LB MO TU **A:** ES FE GAN HEI IS JA JIL KZ MG NC NE NMO QIN SC SCH SHA SHN TR WS XIN **NAR**

Vrsta je prisotna v Evropi, severni Afriki, Aziji in na nearktičnem območju. SIEGEL (1866) navaja, da vrsta »na Kranjskem ni redka, skoraj v vseh koniferih«. Progasti lestvičar je razširjen in pogost v vsej Sloveniji (slika 188). Je polifag na iglavcih, gostitelji so *Picea abies*, *P. orientalis*, *P. jezoensis*, *P. obovata*, *P. omorica*, *P. orientalis*, *Pinus sylvestris*, *P. mugo*, *P. strobus*, *P. cembra, P. halepensis, P. heldreichi, P. peuce, P. pinaster, P. sibirica, P. sylvestris, P. nigra, Abies alba*, *A. nordmanniana*, *Larix decidua*, *L. sibirica*, *L. kaempferi*, *Cedrus atlantica*, *C. libani*, *Pseudotsuga menziesii*, *Tsuga canadensis*. V Sloveniji se je vrsta pogosto ulovila v pasti, zabeleženi gostitelji pa so *Picea abies*, *Pinus sylvestris*, *P. nigra*, *Abies alba* in *Larix decidua*. Je ksilomicetofagna monogamna vrsta, razvije eno generacijo letno, roji marca. Lestvičast rovni sistem je sestavljen iz vhodnega kanala,

The species is present in Europe, North Africa, Asia and the Nearctic. SIEGEL (1866) states that the species "is not rare in Carniola, almost in all conifers". *T. lineatum* is widespread and common throughout Slovenia (Figure188). Polyphagous on conifers, hosts include *Picea abies*, *P. orientalis*, *P. jezoensis*, *P. obovata*, *P. omorica*, *P. orientalis*, *Pinus sylvestris*, *P. mugo*, *P. strobus*, *P. cembra, P. halepensis, P. heldreichi, P. peuce, P. pinaster, P. sibirica, P. sylvestris, P. nigra, Abies alba*, *Abies pinaster, P. pinaster*, P. *sibirica, P. nordmanniana*, *Larix decidua*, *L. sibirica*, *L. kaempferi*, *Cedrus atlantica*, *C. libani*, *Pseudotsuga menziesii*, *Tsuga canadensis*. In Slovenia, the species has been frequently caught in traps, the recorded hosts being *Picea abies*, *Pinus sylvestris*, *P. nigra*, *Abies alba* and *Larix decidua*. A xylomycetophagous and monogamous species, it develops one generation per year and

materinskih hodnikov in rovov ličink. Po odmrtju ambrozijskih gliv rovi potemnijo. Dolžina hroščev je 3,0–3,4 mm. Pokrovki sta rumenkasti z vzdolžnimi progami, fino punktirani. Kij na tipalkah je jajčaste oblike (slika 187). Kot sekundarno-terciarna vrsta naseljuje poškodovana in posekana drevesa ter svežo hlodovino, ob zadostni vlažnosti naseli tudi obeljena debla. Povzroča velike tehnične škode v lesu iglavcev. Feromoni: etanol, ą-Pinen, 3-hydroxy-3-mathylbutan-2-on in Lineatin (Vité 1978, Borden 1968, Francke 1973, Francke & Heemann 1974, Bauer & Vité 1975).

swarms in March. The ladder-shaped tunnel system consists of a borehole, maternal galleries and larval tunnels. The tunnels darken after the death of the fungi. The length of the beetles is 3.0-3.4 mm. The elytra are yellowish with longitudinal stripes, finely punctate. The antenna scape is ovoid (Figure 187). As a secondary-tertiary species, it infests damaged and felled trees and fresh logs, also colonising debarked trunks when sufficient moisture is present. Pheromones: ethanol, ą-Pinene, 3-hydroxy-3-mathylbutan-2-one and Lineatin (Vité 1978, Borden 1968, Francke 1973, Francke & Heemann 1974; Bauer & Vité 1975).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: ldMSi, lit.MSi1866, pred 1951.

ISTRA: **Dekani**, 13°49′03″, 45°32′40″, VL04, 63 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2010b, 21.6.2010; **Koper, Luka Koper 1**, 13°45′02″, 45°33′09″, VL04, 2 m, tWit, phAlfa phEtan, ldRPa, lit. RPa2017b, 31.5.2017; ibidem, lit.RPa2018b, 27.7.2018, 9.8.2018; ibidem, lit.RPa2019d, 19.6.2019; **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit.RPa2016b, 28.9.2016; **Koper, Luka Koper 3**, 13°44′55″, 45°33′39″, VL04, 3 m, tWit, phGaP2, ldRPa, lit. RPa2014b, 23.5.2014, 1.7.2014, 31.7.2014; ibidem, lit.RPa2015b, 6.5.2015, 2.9.2015; ibidem, lit. RPa2016b, 30.6.2016, 27.7.2016, 27.10.2016; ibidem, lit.RPa2017b, 4.7.2017, 3.8.2017; ibidem, lit. RPa2019d, 31.7.2019, 24.10.2019.

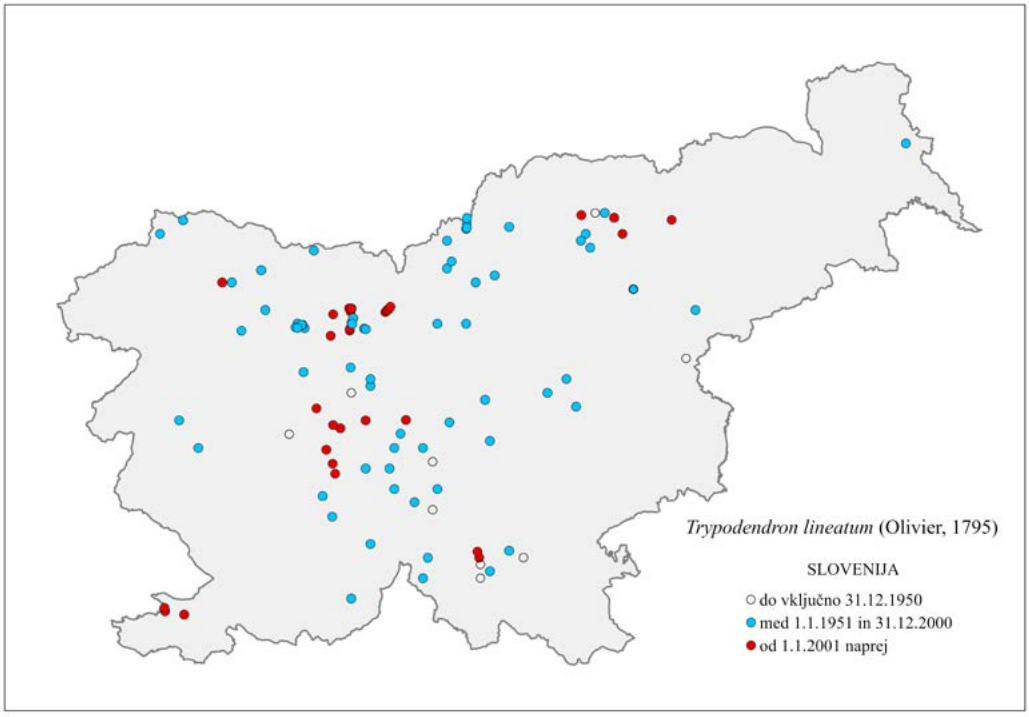
PRIMORSKO: **Lokve, Trnovski gozd**, 13°48′, 46°01′, VL09, 1100 m, *Abies alba*, ldJTi, lit. JTi1983, 8.1979; **Predmeja, Trnovski gozd**, 13°52′, 45°57′, VL18, 1060 m, *Pinus nigra*, ldJTi, lit. JTi1983, 8.1979.

GORENJSKO: **Bezovnica, Železniki**, 14°14′13″, 46°14 23″, VM42, 871 n, *Picea abies*, panj, ldRPa, lit.RPa2014c, 16.5.1994; **Bled, Rečica, skladišče lesa**, 14°05′09″, 46°22′45″, VM23, 524 m, tThe, Kont, lGBa, cSBr, 13.4.1993; ibidem, phLino, lGBa, cSBr, 13.4.1993; **Brdo pri Kranju 1/1**, 14°23′50″, 46°16′46″, VM52, 439 m, tThe, phLino, ldRPa, lit.RPa2003, 11.7.2003; **Brdo pri**

Slika 187: progasti lestvičar *Trypodendron lineatum*, dorzalo, lateralno (Foto: Maja Jurc)

Figure 187: *Trypodendron lineatum*, dorsal, lateral (Photo: Maja Jurc)

Kranju 1/2, 14°23′31″, 46°17′14″, VM52, 463 m, tThe, phLino, ldRPa, lit.RPa2003, 6.6.2003; **Brdo pri Kranju, GIS 1**, 14°24′01″, 46°17′14″, VM52, 470 m, tWit, phAlfa phEtan, ldRPa, lit. RPa2010a, 9.6.2010; ibidem, lit.RPa2015a, 1.4.2015; ibidem, lit.RPa2016a, 30.3.2016, 13.4.2016; ibidem, lit.RPa2017a, 29.3.2017; ibidem, lit.RPa2018a, 11.4.2018; ibidem, lit.RPa2019a, 13.3.2019, 27.3.2019, 10.4.2019, 24.4.2019, 3.6.2019; ibidem, lit.RPa2020d, 25.3.2020, 8.4.2020, 22.4.2020; ibidem, lit.RPa2021b, 5.5.2021; ibidem, lit.RPa2022b, 4.5.2022, 18.5.2022, 2.6.2022; ibidem, lit.RPa2023b, 22.3.2023; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2016a, 30.3.2016; **Britof, Kranj**, 14°24′05″, 46°15′13″, VM52, 413 m, tThe, phPher, ldRPa, lit.RPa1991a, 26.5.1989; **Brnik, letališče, Bivje**, 14°26′42″, 46°14′18″, VM52, 396 m, tThe, phChal, lRPa dJTi, lit.RPa1991a, 8.4.1989, 5.5.1989, 8.4.1989, 14.4.1989, 5.5.1989, 12.5.1989; **Brnik, letališče, pri parkirišču**, 14°26′59″, 46°14′14″, VM52, 393 m, tThe, Kont, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989; ibidem, phChal, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 21.4.1989, 12.5.1989; ibidem, phPher, ldRPa, lit.RPa1991a, 8.4.1989, 14.4.1989, 12.5.1989; **Črnivec, Kamnik,** 14°42′, 46°15′, VM72, 1010 m, *Picea abies*, hlod rs, odJTi, lit. JTi1983, 6.1973; **Goričane, skladišče lesa**, 14°23′50″, 46°08′41″, VM51, 323 m, *Picea abies*, hlod, ldGBa, lit.GBa1993, 6.1992; ibidem, tThe, phPher, lFPo dSBr, cSBr, 4.6.1990; **Hrastje, Kranj 1**, 14°23′40″, 46°14′01″, VM52, 386 m, *Picea abies*, deblo 30 cm, ldRPa, lit.RPa2020c, 21.5.2010; **Hrastje, Kranj, Planjava 3**, 14°23′39″, 46°14′17″, VM52, 393 m, *Picea abies*, deblo 25 cm, ldRPa, lit.RPa2014b, 1.6.2009; **Jureževa planina, pod Vošco, Karavanke**, 13°48′47″, 46°29′57″, VM05, 1415 m, tThe, phCemp, ldRPa, lit.RPa2014c, 16.6.1994, 14.7.1994; **Ljubelj, Šentanska**



Slika 188: PROGASTI LESTVIČAR *Trypodendron lineatum*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 188: *Trypodendron lineatum*, distribution map according to historical and recent data

dolina, 14°16′11″, 46°25′36″, VM44, 883 m, *Larix decidua*, hlod, ldRPa, lit.RPa1996, 15.6.1996; **Menina planina**, 14°48′, 46°15′, VM82, 1250 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1978; **Milje 1**, 14°24′23″, 46°15′50″, VM52, 425 m, tThe, phPher phChal, ldRPa, lit.RPa1991a, 23.6.1989; **Mlaka pri Kranju, ob tekaški stezi 4**, 14°20′12″, 46°16′22″, VM42, 429 cm, *Pinus sylvestris*, panj 10 cm rs, odRPa, lit.RPa2020c, 6.6.2007; **Planica, Rateče**, 13°44′, 46°28′, VM04, 1000 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1981; **Podblica, Koblarjev hrib, Blažon**, 14°12′44″, 46°15′03″, VM32, 705 m, *Picea abies*, neobeljen panj 84 cm, ldFJa, lit.FJa1997, 14.6.1995; **Pokljuka, Mrzli Studenec**, 13°59′, 46°21′, VM23, 1320 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Pokljuka, Rudna dolina**, 13°57′, 46°21′, VM13, 1320 m, ldcAPi, lit.APi2015, 18.10.2013; **Ponoviče, Litija**, 14°52′, 46°04′, VM80, 370 m, *Picea abies*, deblo, ldJTi, lit.JTi1983, 4.1971; **Prevoje, Bezovnica, Hkavšč**, 14°13′47″, 46°14′51″, VM32, 650 m, *Picea abies*, neobeljen panj 64 cm, ldFJa, lit.FJa1997, 16.6.1995; **Prevoje, Zabrekve, Knapovc**, 14°13′32″, 46°14′45″, VM42, 600 m, *Picea abies*, progasto obeljen panj 85 cm, ldFJa, lit.FJa1997, 17.6.1995; **Prevoje, Zabrekve, Korošc**, 14°13′37″, 46°14′52″, VM42, 610 m, *Picea abies*, progasto obeljen panj 69 cm, lFJa, lit.FJa1997, 27.7.1995; ibidem, progasto obeljen panj 70 cm, ldFJa, lit.FJa1997, 16.6.1995; ibidem, progasto obeljen panj 72 cm, ldFJa, lit.FJa1997, 11.9.1995; **Rovtarica, Jelovica**, 14°06′, 46°17′, VM32, 1000 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1977; **Selške Lajše, Kobivnk, Jelenc**, 14°12′19″, 46°14′31″, VM32, 650 m, *Picea abies*, progasto obeljen panj 64 cm, lFJa dJTi, lit.FJa1997, 13.6.1995; **Selške Lajše, Koblarjev hrib, Bitenc**, 14°12′43″, 46°14′25″, VM32, 510 m, *Picea abies*, neobeljen panj 45 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, neobeljen panj 65 cm, ldFJa, lit.FJa1997, 14.6.1995; ibidem, progasto obeljen panj 58 cm, ldFJa, lit.FJa1997, 25.7.1995; **Soriška planina, Litostrojska koča**, 14°01′E, 46°14′, VM22, 1000 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1980; **Šenčur, Zlato polje 1,** 14°24′11″, 46°15′01″, VM52, 414 m, tThe, phPher, ldRPa, lit.RPa1991a, 14.4.1989; **Zgornje Bitnje 1**, 14°19′40″, 46°13′17″, VM41, 395 m, tWit, phAlfa phEtan, ldRPa, lit.RPa2008, 16.7.2008; **Zgornji Log, Poljanska dolina**, 14°14′, 46°08′, VM40, 470 m, *Picea abies*, gradbeni les rs, odJTi, lit.JTi1983, 3.1972.

NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 19.5.2017; **Dolenja Vas, Cerknica**, 14°20′, 45°47′, VL47, 600 m, ldSBr, cSBr, 8.5.1996; **Ivanje Selo, Rakek**, 14°18′, 45°50′, VL47, 530 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1978; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017; **Pokojišče, Borovnica 1**, 14°20′35″, 45°53′14″, VL48, 713 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 21.4.2017, 19.5.2017; **Rakitna**, 14°27′, 45°54′, VL58, 820 m, *Abies alba*, hlod, ldJTi, lit.JTi1983, 9.1971; **Rovte, Logatec**, 14°11′, 45°59′, VL39, 710 m, *Picea abies*, ldJTi, lit.JTi1983, 1966; **Samotorica, Horjul**, 14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017; **Snežnik, Kalvarija**, 14°24′, 45°35′, VL54, 980 m, *Abies alba*, ldJTi, lit.JTi1983, 6.1978; **Stari Trg pri Ložu**, 14°28′, 45°43′, VL56, 600 m, tThe, phLino, lNSm dSBr, cSBr, 29.6.1990; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 2.6.2017; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017.

LJUBLJANA Z OKOLICO: **Babni Dol, Stanežiče**, 14°24′, 46°05′, VM50, 370 m, ldAGs, cAGs, 4.3.1946; **Ljubljana, Mestni log**, 14°27′, 46°01′, VL59, 293 m, ldAGs, cAGs, pred 1951; **Ljubljana, Šentvid**, 14°28′, 46°06′, VM50, 390 m, *Pinus sylvestris*, hlod, ldJTi, lit.JTi1983, 7.1971; **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017; **Šmarna gora**, 14°28′, 46°07′, VM50, 520 m, *Abies alba*, deblo rs, odJTi, lit.JTi1983, 4.1973.

DOLENJSKO: **Debeli vrh, Glažuta, Goteniška gora**, 14°40′, 45°41′, VL75, 1100 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1981; ibidem, *Picea abies*, ldJTi, lit.JTi1983, 8.1981; **Dobrava, Radeče**, 15°11′, 46°03″, WL19, 360 m, *Picea abies*, hlod, ldJTi, lit.JTi1983, 6.1966; **Draga, Goteniška**

gora, 14°39′, 45°38′, VL75, 750 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1981; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 27.5.1978, 1.6.1978; **Grosuplje**, 14°39′, 45°57′, VL78, 420 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1978; **Kočevje, Koblarji 1**, 14°50′44″, 45°41′00″, VL85, 471 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 30.4.2020, 15.5.2020, 22.5.2020; **Kočevje, Koblarji 3**, 14°50′23″, 45°41′54″, VL86, 472 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 10.4.2020, 17.4.2020, 24.4.2020, 8.5.2020, 15.5.2020; **Kočevje, okolica**, (14°51′), (45°38′), (VL85), *, *Picea abies*, hlod, ldJŠl, lit.JŠl1953, 5.1948; ibidem, odrzan hlod, ldJŠl, lit.JŠl1953, 5.1948; **Kočevje, okolica, skladišče lesa**, (14°51′), (45°38′), (VL85), *, *Picea abies*, hlod, ldJŠl, lit.JŠl1953, 5.1948; ibidem, obeljen hlod, ldJŠl, lit.JŠl1953, 5.1948; **Mali Kum, Podkum**, 15°05′, 46°05′, WM00, 810 m, lVFu dSBr, cVFu, 6.5.1988; **Mokrec**, 14°32′, 45°54′, VL68, ~900 m, ldSBr, cSBr, 25.7.1980; **Mokrec, Sive doline**, 14°32′, 45°54′, VL68, ~900 m, ldSBr, cSBr, 6.6.1982; **Ortnek, Velike Poljane**, 14°41′, 45°48′, VL77, 700 m, ldAGs, cAGs, 4.5.1936; **Predole**, 14°41′, 45°55′, VL78, 400 m, ldJSd, cJSd, 4.1918; **Pugled, Stari Log**, 14°57′, 45°42′, VL96, 620 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 5.1979; **Rog, Kočevski Rog, žaga**, 15°00′, 45°41′, WL05, 840 m, *Picea abies*, neobeljen gradbeni les, ldJŠl, lit.JŠl1953, 5.1948; **Stara Cerkev, Kočevje**, 14°51′, 45°40′, VL85, 480 m, ldSBr, cSBr, 28.7.1948; **Škofljica, skladišče lesa,** 14°34′17″, 45°59′04″, VL69, 293 m, phLino, lGBa dSBr, cSBr, 18.6.1993; **Temenica, Šentvid pri Stični**, 14°53′, 45°58′, VL99, 320m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1979; **Uzmani, Rob**, 14°33′, 45°51′, VL67, 690 m, ldSBr, cSBr, 14.6.1987; **Velika Slevica, Velike Lašče**, 14°37′12″, 45°49′06″, VL77, 606 m, tThe, phPher phChal, lTSt dRPa, lit. RPa2014c, 11.7.1994, 21.7.1994; **Veliko Trebeljevo 1**, 14°44′31″, 46°00′43″, VL89, 554 m, *Fagus sylvatica*, drva, ldMJu, cBFG, 17.6.2023, 26.6.1999; **Zdenska Vas, Dobrepolje**, 14°42′, 45°51′, VL77, 430 m, *Pinus sylvestris*, ldJTi, lit.JTi1983, 7.1978; **Željne, Kočevje**, 14°53′, 45°39′, VL95, 470 m, phPher, lSDe dSBr, cSBr, 18.5.1992.

ŠTAJERSKO: Boč, Poljčane, 15°36′, 46°17′, WM42, ~800 m, ldSBr, cSBr, 25.4.1953; **Golte, Mozirska koča**, 14°54′, 46°22′, VM93, 1300 m, *Picea abies*, ldJTi, lit.JTi1983, 8.1980; **Gore, Rimske Toplice**, 15°09′, 46°07′, WM01, 720 m, *Picea abies*, ldJTi, lit.JTi1983, 9.1978; **Hlevše, Mala Mislinja**, 15°13′, 46°28′, WM14, 1100 m, *Picea abies*, ldSHo, lit.SHo1982, 27.1.1982; **Igla, Solčava, Savinjska dolina**, 14°44′, 46°23′, VM73, 660 m, *Picea abies*, hlod rs, odJTi, lit.JTi1983, 6.1973; **Josipdol, Lavtar, Pohorje**, 15°18′58″, 46°30′19″, WM24, 1230 m, *Picea abies*, ldJPo, lit.JPo2016, 7.2011; **Josipdol, Pohorje**, 15°17′, 46°31′, WM25, 880 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1977; **Konjiška gora, Slovenske Konjice**, 15°23′, 46°20′, WM23, 830 m, *Abies alba*, ldJTi, lit.JTi1983, 8.1974; Konjiška gora, Slovenske Konjice, 15°23′, 46°20′, WM23, 830 m, *Picea abies*, ldJTi, lit. JTi1983, 8.1974; **Kope, Pohorje, Pahernikova posest**, 15°12′05″, 46°30′41″, WM15, 1350 m, tPfall, phAlfa phEtan, lTAd dTHa, lit.THa2022a, 31.7.2020; **Ljubno ob Savinji**, 14°50′, 46°21′, VM83, 570 m, *Picea abies*, ldJTi, lit.JTi1983, 6.1979; **Mislinja**, 15°12′, 46°27′, WM14, 540 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1979; **Pesek, Koča na Pesku, Pohorje**, 15°20′43″, 46°28′00″, WM24, 1382 m, tRöc, phLino, ldRPa, lit.RPa2014c, 20.5.2009; **Pesnik, Ribnica na Pohorju**, 15°15′, 46°31′, WM15, 1100 m, ldVKo, cBFG, 19.5.1929; **Raduha, Savinjske Alpe**, 14°45′, 46°24′, VM83, 1230 m, *Picea abies*, ldJTi, lit.JTi1983, 7.1974; **Rudnica, Podčetrtek**, 15°34′, 46°10′, WM41, ~500 m, *Picea abies*, hlod, ldMCi, lMCi1986, 1985; ibidem, tCev, phLino, ldMCi, lMCi1986, 1985; **Slovenske Konjice**, 15°23′, 46°20′, WM23, 820 m, *Picea abies*, hlod, odDgu, lit.DJg967, 1966; **Sveti Areh, Pohorje**, 15°31′, 46°30′, WM34, 1250 m, ldJPe vSBr, cJPe, pred 1951; **Tolsti Vrh pri Mislinji**, 15°14′, 46°26′, WM14, 1100 m, *Picea abies*, ldSHo, lit.SHo1982, 27.1.1982.

KOROŠKO: **Koprivna, Karavanke**, 14°44′, 46°27′, WM74, 900 m, ldSBr, cSBr, 19.5.1993; **Peca, Jakobe, skladišče lesa**, 14°47′59″, 46°28′42″, VM85, 1380 m, tThe, Kont, ldRPa, lit.RPa1994a, 22.6.1994; ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995; ibidem, phCemp, ldRPa, lit.RPa1994a, 5.7.1994; ibidem, lit.RPa1995a, 21.6.1995, 4.7.1995, 17.7.1995, 30.7.1995; **Peca, Mirjance, pod žičnico**, 14°48′07″, 46°29′29″, VM85, 1214 m, tThe, Kont, ldRPa vSBr, lit.RPa1994a, 9.6.1994;

ibidem, ldRPa, lit.RPa1994a, 5.7.1994; ibidem, lit.RPa1995a, 21.6.1995; ibidem, phCemp, ldRPa, lit.RPa1995a, 17.7.1995; **Peca, Riška gora, Segel Jože**, 14°48′12″, 46°30′17″, VM85, 1308 m, tThe, Kont, ldRPa, lit.RPa1994a, 18.7.1994, 1994a, 31.7.1994; ibidem, lit.RPa1995a, 8.6.1995, 21.6.1995, 17.7.1995; ibidem, phCemp, ldRPa, lit.RPa1995a, 8.6.1995, 4.7.1995; **Peca, Žačnov hlev**, 14°48′07″, 46°28′53″, VM85, 1317 m, tThe, Kont, ldRPa, lit.RPa1995a, 21.6.1995; **Uršlja Gora**, 14°57′, 46°29′, VM94, 1180 m, *Picea abies*, ldJTi, lit.JTi1983, 5.1979.
PREKMURJE: **Bukovnica, Dobrovnik**, 16°20′, 46°41′, XM07, 220 m, *Picea abies*, ldJTi, lit. JTi1983, 5.1982; ibidem, *Pinus sylvestris*, ldJTi, lit.JTi1983, 5.1982.

39.04. *Trypodendron signatum* (Fabricius, 1792) HRASTOV LESTVIČAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: GRÜNE 1979: *Trypodendron signatum* (Fabricius, 1787); FREUDE, HARDE, LOHSE 1981: *Trypodendron signatus* Fabricius; TITOVŠEK 1988: *Xyloterus signatus* (Fabricius); PFEFFER & KNÍŽEK 1993: *Xyloterus signatus* (Fabricius, 1787); PFEFFER 1995: *X. signatus* (Fabricius, 1787).

E: AB AU BE BU BY CR CT CZ DE EN FI FR GB GE GR HU IT LA LT MC NR NT PL SK SL SP ST SV SZ UK YU »Caucasus« **A:** ES FE GAN HEI IN JA MG NC SC SCH TR WS YUN

Vrsta je prisotna v Evropi in Aziji. V Sloveniji je pogosta, zabeležena so najdišča v vseh slovenskih pokrajinah (slika 190). Je polifag na listavcih. Gostitelji so: *Quercus petraea*, *Q. robur*, *Q. cerris*, *Fraxinus excelsior*, *F. ornus*, *Fagus sylvatica*, *Acer platanoides*, *Acer pseudoplatanus*, *Alnus glutinosa*, *Carpinus betulus*, *Betula verrucosa*, *B. pubescens*, *Populus* sp., *Tilia parvifolia*, *Corylus avellana*, *Robinia pseudoacacia*, *Sorbus aucuparia*, *S. torminalis* in *Ulmus* spp.. V Sloveniji je vrsta pogosta na *Quercus robur* in *Q. petraea*, redkejša na *Fagus sylvatica*, po ena najdba pa je zabeležena tudi na *Alnus glutinosa* in *Ostrya carpinifolia*. Ksilomicetofagni monogamni podlubnik običajno razvije eno generacijo na leto, roji marca in aprila. Dolžina adulta je 3,5–4,0 mm. Pokrovki pokrivajo rumene in črne vzdolžne proge, vzdolžna punktacija je groba. Na tipalki je kij na notranji strani skoraj pravokotno oglat. Naseljuje le svež les, običajno deblovino, sečne ostanke in stoječa oslabljena drevesa. Rovni sistem je lestvičast, podoben kot pri bukovem lestvičarju (*T. domesticum).* Dolžina adulta je 3,5–4,0 mm. (slika 189). Vrsta je izrazito sekundarna, ki lahko povzroča tehnično škodo na listavcih. V hrastovini je škoda omejena, ker je rovni

The species is found in Europe and Asia. It is common in Slovenia, with records from all Slovene regions (Figure 190). *X. signatus* is a polyphagous species on deciduous trees. Hosts include *Quercus petraea*, *Q. robur*, *Q. cerris*, *Fraxinus excelsior*, *F. ornus*, *Fagus sylvatica*, *Acer platanoides*, *Acer pseudoplatanus*, *Alnus glutinosa*, *Carpinus betulus*, *Betula verrucosa*, *B. pubescens*, *Populus* sp., *Tilia parvifolia*, *Corylus avellana*, *Robinia pseudoacacia*, *Sorbus aucuparia*, *S. torminalis* and *Ulmus* spp.. In Slovenia, the species is common on *Quercus robur* and *Q. petraea*, rarer on *Fagus sylvatica*, with one record each on *Alnus glutinosa* and *Ostrya carpinifolia*. This xylomycetophagous monogamous vark beetle usually develops one generation per year, swarming in March and April. The elytra are covered in yellow and black longitudinal stripes, longitudinal punctation is coarse. On the antenna, the scape is almost rectangular on the inside. Inhabits only fresh wood, normal logs, logging debris and standing weakened trees. The tunnel is ladder-shaped, similar to that of *T. domesticum*. The length (adultus) is 3.5-4.0 mm. The elytra are covered in yellow and black longitudinal stripes, the longitudinal punctation is coarse. On the antenna, the scape is almost perpendicularly angular

sistem v zunanjih plasteh beljave. Feromon: 3-Hydroxy-3-mathylbutan-2-on (Francke s sod. 1974).

on the inner side (Figure 189). The species is highly secondary, causing technical damage to deciduous trees. In oak the damage is limited because the tunnel system is located in the outer layers of sapwood. Pheromone: 3-Hydroxy-3-mathylbutan-2-one (Francke et al. 1974).

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951.

ISTRA: **Koper, Luka Koper 2**, 13°45′02″, 45°33′10″, VL04, 2 m, tWit, phGaPP, ldRPa, lit. RPa2014b, 31.7.2014.

PRIMORSKO: **Klavže, Kneža**, 13°48′07″, 46°09′39″, VM01, 213 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 27.5.2018, 10.6.2018, 30.6.2018; **Loje, Kneža**, 13°50′06″, 46°10′44″, VM11, 409 m, tWit, phEtan, lBRe dTHa, lit.THa2019b, 8.4.2018; **Trnovski gozd**, (14°52′), (45°57′), (VL38), ~1100 m, *Fagus sylvatica*, deblo, ldJTi, lit.JTi1994, 1986.

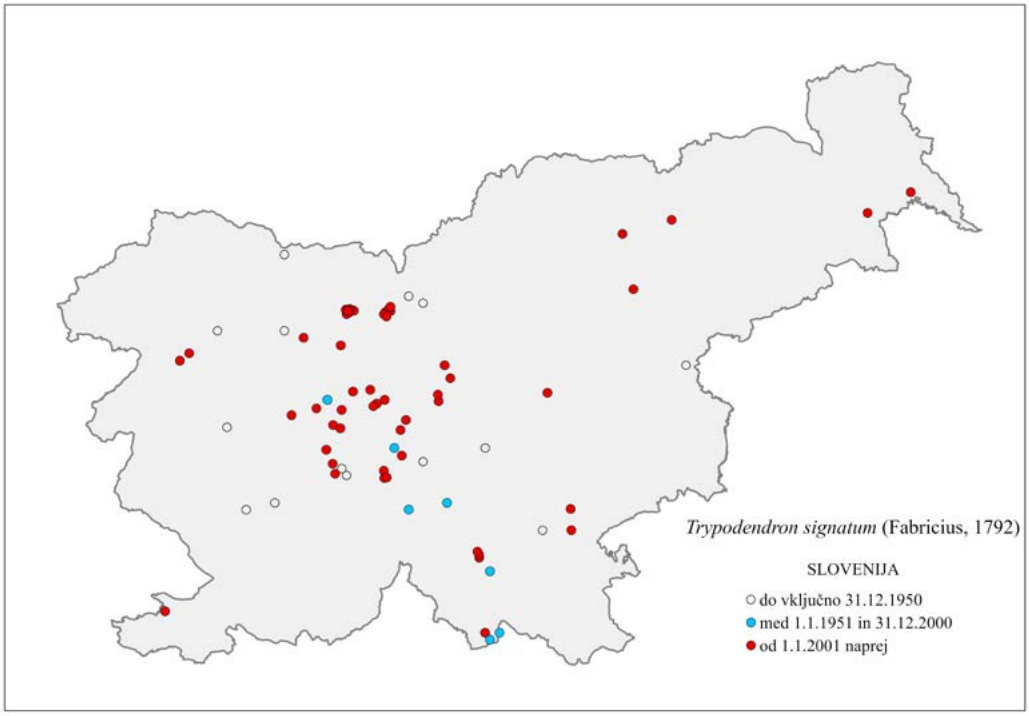
GORENJSKO: **Ambrož pod Krvavcem 1**, 14°31′07″, 46°16′41″, VM62, 1017 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 24.6.2022; **Ambrož pod Krvavcem 3**, 14°32′09″, 46°16′50″, VM62, 1208 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022, 10.6.2022; **Ambrož pod Krvavcem 5**, 14°31′42″, 46°17′03″, VM62, 1402 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Ambrož pod Krvavcem 6**, 14°32′10″, 46°17′26″, VM62, 1478 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022, 27.5.2022; **Stiška Vas, Krvavec 1**, 14°30′48″, 46°16′24″, VM62, 798 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 29.4.2022, 13.5.2022, 24.6.2022; **Stiška Vas, Krvavec 2**, 14°31′20″, 46°16′03″, VM62, 884 m, tEco, phEtan, lNMa dTHa, lit.THa2022b, 13.5.2022; **Blegoš, Škofjeloško hribovje**, 14°14′, 46°13′, VM31, *, lHEg, cJSs, pred 1951; **Brdo pri Kranju 1/11**, 14°23′02″, 46°16′25″, VM52, 422 m, *Quercus robur*, deblo 30 cm, ldRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/13**, 14°23′36″, 46°16′39″, VM52, 433 m, *Quercus robur*, deblo 25 cm rs, odRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/29**, 14°24′29″, 46°16′55″, VM52, 447 m, *Quercus robur*, deblo 30 cm, ldRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/55**, 14°23′42″, 46°17′07″, VM52, 444 m, *Quercus robur*, deblo 30 cm rs, odRPa, lit.RPa2003, 20.9.2003; **Brdo pri Kranju 1/68**, 14°22′49″, 46°17′02″, VM52, 445 m, *Quercus robur*, deblo 40 cm, ldRPa, lit.RPa2003, 27.9.2003; **Brdo pri Kranju 1/77**, 14°23′15″, 46°17′04″, VM52, 450 m, *Quercus robur*, deblo 25 cm, ldRPa, lit.RPa2003, 18.10.2003; **Brdo pri Kranju 1/79**, 14°23′14″, 46°16′52″, VM52, 431 m, *Quercus*

Slika 189: hrastov lestvičar *Trypodendron signatum*, dorzalo, lateralno (Foto: Maja Jurc)

Figure 189: *Trypodendron signatum*, dorsal, lateral (Photo: Maja Jurc)

robur, deblo 35 cm, ldRPa, lit.RPa2003, 18.10.2003; **Črna prst, Bohinjska Bistrica,** 13°56′, 46°14′, VM12, *, ldJSd, cJSd, 10.6.1928; **Kamniška Bistrica**, 14°36′, 46°19′, VM62, ~600 m, ldSBr, cSBr, 21.5.1950; ibidem, 820 m, *Ostrya carpinifolia*, ldJTi, lit.JTi1983, 1967; **Katarija, Moravče**, 14°44′41″, 46°07′07″, VM80, 529 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017, 7.4.2017; **Moravče, Sveti Mohor**, 14°43′31″, 46°08′59″, VM71, 499 m, tWit, phEtan, lDBo dTHa, lit. THa2018, 24.3.2017; **Sorško polje, Lumar Trade 3**, 14°21′47″, 46°11′53″, VM51, 374 m, *Quercus robur*, hlod 25 cm, ldRPa, lit.RPa2020c, 9.6.2006; **Stol, Karavanke**, 14°10′, 46°25′, VM34, *, ldJSd, cJSd, 16.8.1919; **Velika planina, Kamniške Alpe**, 14°39′, 46°18′, VM72, ~1600 m, ldJSd, cJSd, 19.6.1930; **Železniki**, 14°10′, 46°14′, VM32, 450 m, ldJSd, cJSd, 9.7.1932, 2.7.1938.

NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 19.5.2017; **Brezje pri Dobrovi 1**, 14°21′58″, 46°02′32″, VL59, 344 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017; **Bukovje, Postojna**, 14°08′, 45°49′, VL37, 590 m, *Fagus sylvatica*, deblo, ldJTi, lit.JTi1994, 1986; **Idrijsko hribovje**, (13°58′), (46°00′), VL19, ~800 m, *Fagus sylvatica*, deblo, ldJTi, lit.JTi1994, 1986; **Lesno Brdo, Horjul**, 14°20′11″, 46°00′20″, VL49, 329 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017; **Nanos**, (14°02′), (45°48′), VL27, ~1000 m, *Fagus sylvatica*, deblo, ldJTi, lit.JTi1994, 1986; **Pekel, Borovnica**, 14°23′, 45°53′, VL58, ~400 m, ldAGs, cAGs, 3.5.1931; **Pokojišče, Borovnica**, 14°22′, 45°54′, VL58, 730 m, ldAGs, cAGs, 23.9.1925; **Pokojišče, Borovnica 1**, 14°20′35″, 45°53′14″, VL48, 713 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017, 16.6.2017; **Polhov Gradec**, 14°19′, 46°04′, VM40, 480 m, *Quercus* sp., deblo, ldMJu vSBr, cBFG, 20.8.1999; **Samotorica, Horjul**,



Slika 190: HRASTOV LESTVIČAR *Trypodendron signatum*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 190: *Trypodendron signatum*, distribution map according to historical and recent data

14°16′42″, 46°02′45″, VL49, 502 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017, 30.6.2017, 11.8.2017; **Šentjošt nad Horjulom**, 14°11′29″, 46°01′45″, VL39, 801 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017; **Zavrh pri Borovnici 1**, 14°20′06″, 45°54′42″, VL48, 749 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.7.2017, 19.5.2017, 2.6.2017.

LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cJSd, 1.4.1928; ibidem, deblo, ldMJu vSBr, cBFG, 20.8.2011; **Ljubljana, Šentvid 1**, 14°27′57″, 46°05′26″, VM50, 357 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 19.5.2017; **Podmolnik**, 14°35′24″, 46°01′03″, VL69, 328 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 21.4.2017, 16.6.2017; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, deblo, ldMJu, cBFG, 15.9.2000; ibidem, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017; **Rožnik, Ljubljana 2**, 14°28′35″, 46°03′03″, VL59, 319 m, *Quercus robur*, deblo 30 cm rs, odRPa, lit.RPa2020c, 9.10.2009; **Toško Čelo 1**, 14°24′20″, 46°05′12″, VM50, 574 m, tWit, phEtan, ldTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 2.6.2017, 16.6.2017, 30.6.2017, 14.7.2017.

DOLENJSKO: **Dobrepolje**, 14°44′, 45°49′, VL77, 500 m, *Quercus petraea*, ldJTi, lit.JTi1983, 8.1981; **Dolenjske Toplice**, 15°04′, 45°45′, WL06, 180 m, ldJSd, cJSd, 26.4.1919; **Draga, Ig**, 14°33′, 45°57′, VL68, 300 m, ldSBr, cSBr, 8.8.1976, 12.6.1977, 13.6.1977, 16.6.1977, 19.6.1977, 1.6.1978, 4.4.1981, 16.4.1981; **Fara ob Kolpi, Kostel**, 14°53′, 45°29′, VL93, 230 m, ldSBr, cSBr, 28.5.1986; **Janče, Jevnica**, 14°42′14″, 46°03′48″, VM70, 589 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017, 7.4.2017; **Karlovica, Velike Lašče**, 14°36′, 45°48′, VL67, 540 m, tThe, phPher, lČVi dSBr, cSBr, 19.5.1992; **Kočevje, Koblarji 1**, 14°50′44″, 45°41′00″, VL85, 471 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 15.5.2020, 29.5.2020; **Kočevje, Koblarji 2**, 14°50′42″, 45°41′26″, VL85, 470 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 22.5.2020; **Kočevje, Koblarji 3**, 14°50′23″, 45°41′54″, VL86, 472 m, tPfall, phEtan veCo, ldSBu, lit.SBu2020, 24.4.2020; **Kremenica, Ig**, 14°33′, 45°57′, VL68, 310 m, ldSBr, cSBr, 16.4.1981; **Kum**, 15°05′, 46°05′, WM00, *, ldAGs, cAGs, pred 1951; **Laze pri Dolskem**, 14°42′07″, 46°04′45″, VM70, 452 m, tWit, phEtan, lDBo dTHa, lit. THa2018, 10.3.2017, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 14.7.2017; **Mavrc, Kostel**, 14°54′45″, 45°30′15″, VL93, 250 m, ldSBr, cSBr, 28.5.1986; **Mokrec 1**, 14°30′49″, 45°53′41″, VL68, 860 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 2.6.2017; **Mokrec 2**, 14°30′53″, 45°52′39″, VL68, 900 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 5.5.2017, 19.5.2017, 2.6.2017, 16.6.2017, 30.6.2017; **Mokrec 3**, 14°31′24″, 45°52′42″, VL68, 941 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 2.6.2017, 16.6.2017, 14.7.2017, 28.7.2017; **Novo Mesto, Kandija, gradič Novi dvor**, 15°09′53″, 45°48′07″, WL17, 165 m, *Quercus robur*, deblo 120 cm, ldMJu, lit.DJu2005, 10.5.2005; **Smrjene, Ig**, 14°34′32″, 45°55′53″, VL68, 420 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 10.3.2017, 24.3.2017; **Stranska Vas**, 15°10′, 45°45′, WL16, 180 m, *Quercus petraea*, ldJTi, lit.JTi1983, 7.1977; **Stružnica, Banjaloka**, 14°52′, 45°30′, VL83, 750 m, ldSBr, cSBr, 24.5.2001; **Škofljica**, 14°34′16″, 45°59′36″, VL69, 319 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 24.3.2017, 7.4.2017, 21.4.2017, 19.5.2017, 2.6.2017: **Tabor, Grosuplje**, 14°39′, 45°55′, VL78, 460 m, ldAGs, cAGs, 23.9.1924; **Željne, Kočevje**, 14°53′, 45°39′, VL95, 470 m, tThe, phPher, lSDe dSBr, cSBr, 18.5.1992.

ŠTAJERSKO: Konjiška gora, Slovenske Konjice, 15°23′, 46°20′, WM23, 870 m, ldJPe vSBr, cJPe, pred 1951; **Ljutomer**, 16°12′, 46°31′, WM95, 190 m, *Quercus robur*, hlod, ldJTi, lit.JTi1983, 1966; **Pesek, Koča na Pesku, Pohorje**, 15°20′43″, 46°28′00″, WM24, 1382 m, tRöc, phLino, ldRPa, lit. RPa2014c, 20.5.2009; **Podčetrtek, Graben**, 15°34′, 46°09′, WM41, *, ldEJa vSBr, cEJa, 16.6.1930, 3.7.1930; **Sveti Areh, Pohorje**, 15°31′, 46°30′, WM34, 1250 m, ldJPe vSBr, cJPe, pred 1951.

PREKMURJE: **Velika Polana**, 16°21′, 46°34′, XM05, 180 m, *Alnus glutinosa,* ldJTi, lit.JTi1983, 7.1980.

Curculionidae Latreille, 1802

Platypodinae Shuckard, 1840 **STRŽENARJI**

01.00 *Platypus* Herbst, 1794 STRŽENAR

01.01 *Platypus cylindrus* Fabricius, 1792 HRASTOV STRŽENAR

Starejši katalogi in ključi - navedbe imena / Older catalogs and keys - citations of name: SIEGEL 1866: *Platybus cylindricus* Fab.; FREUDE, HARDE, LOHSE 1981: *Platypus cylindrus* Fabricius; PFEFFER 1995: *Platypus cylindrus* (Fabricius, 1792).

E: AU BE BU BY CR CZ DE FR GB GE GR HU IT LA MC NL NR PL PT RO SK SL SP ST »Caucasus« SV SZ UK YU **N:** AG EG LB MO TU **A:** IN TR

Vrsta je razširjena v Evropi, severni Afriki (Alžirija, Egipt, Libija, Maroko, Tunizija) in Aziji (Iran, Turčija). Najdišča so zabeležena skoraj v vseh slovenskih pokrajinah (slika 192). Gostitelji so: *Quercus robur*, *Q. petraea*, *Q. cerris* in *Quercus* spp., redkeje *Fagus sylvatica*, *Fagus* spp., *Pyrus communis*, *Sorbus aucuparia*, *Alnus glutinosa*, *Fraxinus excelsior*, *Castanea sativa*, *Prunus avium*, *Tilia* spp., *Ulmus* spp. in *Juglans* spp.. V Sloveniji je bila vrsta najdena na *Quercus petraea*, *Q. robur*, enkrat tudi na *Q. cerris*. Hrastov strženar ima enoletno generacijo. Gradi viličaste rovne sisteme, ki so zgrajeni iz radialnega vhodnega rova (dolžine do 18 cm), ki se razveja v bočne hodnike, ki so dolgi tudi do 30 cm, njihov premer pa znaša 1,8–2,2 mm. Celoten rovni sistem je v eni ravnini. Samice vnašajo v rove specifične vrste ektosimbiontskih gliv, ki živijo v simbiozi z ličinkami. Ličinke se hranijo z razkrojenim lesom. Dolžina adulta je 5,0–5,5 mm. Telo je podolgovato, cilindrično, rdeče-rjave barve. Glava je širša od vratnega ščita, oči so poudarjene, okrogle. Spolni dimorfizem je izrazit, samčkom na koncu polkrožnega koničnika iz medprostorov na levem in desnem obronku izrašča po en večji, plavutast zobček. Pri samičkah zobčka manjkata (slika 191). Ličinka dolžine 6,0–7,0 mm se ločijo od ličink podlubnikov po poudarjenem segmentu pronotuma. Vrsta

The species is distributed in Europe, North Africa (Algeria, Egypt, Libya, Morocco, Tunisia) and Asia (Iran, Turkey). Records exist almost from all Slovene regions (Figure 192). Hosts include *Quercus robur*, *Q. petraea*, *Q. cerris* and *Quercus* spp., less frequently *Fagus sylvatica*, *Fagus* spp., *Pyrus communis*, *Sorbus aucuparia*, *Alnus glutinosa*, *Fraxinus excelsior*, *Castanea sativa*, *Prunus avium*, *Tilia* spp., *Ulmus* spp. and *Juglans* spp.. In Slovenia, the species has been recorded on *Quercus petraea*, *Q. robur*, and once also on *Q. cerris*. *P. cylindrus* has an annual generation. It builds fork-shaped tunnel systems consisting of a radial entrance tunnel (up to 18 cm long) branching into lateral galleries up to 30 cm long and 1.8-2.2 mm in diameter. The entire tunnel system planar. The females introduce specific species of endosymbiont fungi into the tunnels, which live in symbiosis with the larvae. The larvae feed on decomposed wood. The imago is 5.0-5.5 mm long. The body is elongated, cylindrical, red-brown in colour. The head is broader than the neck shield, the eyes are accentuated, round. Sexual dimorphism: males have one large, fin-shaped denticle emerging from the interspaces on the left and right flanks at the end of the semicircular elytra apex. In females the two denticles are missing (Figure 191). The 6.0-7.0 mm long larva is distinguished from those of the other bark beetle larvae by the prominent segment of the pronotum. The species

je izrazito terciarna, imagi se zavrtavajo v posekano drevje. Z gradnjo rovnih sistemov zmanjšujejo tehnično vrednost lesa.

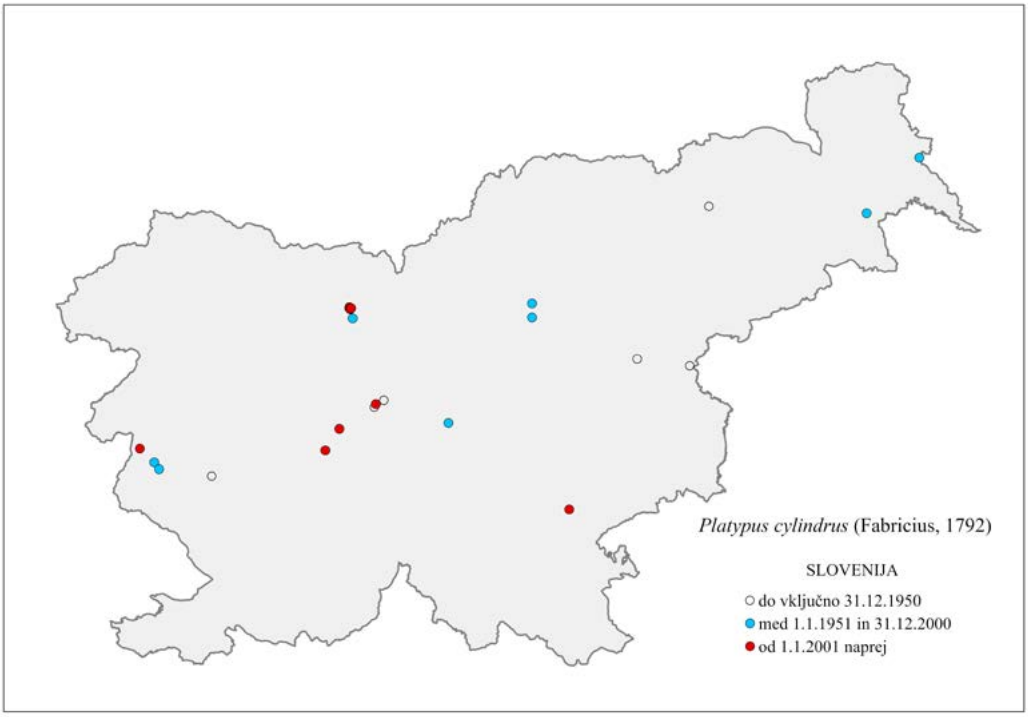
is distinctly tertiary, with imagoes burrowing into felled trees. They reduce the technical value of the wood by building tunnel systems.

Najdišča v Sloveniji / Localities in Slovenia

SLOVENIJA: cBFG, pred 1951; ldAGs, cAGs, 22.8.1951; lHEg, cJSs, pred 1951; *Quercus* spp., ldMSi, litMSi1866, pred 1951.
PRIMORSKO: **Ajdovščina**, 13°55′, 45°53′, VL18, ~106 m, ldABi vSBr, cABi, pred 1951; **Kurnik, Vogrsko**, 13°43′, 45°55′, VL08, 60 m, ldSBr, cSBr, 19.6.1986; ibidem, lRJe dSBr, cSBr, 16.4.1987; **Nova Gorica, Panovec**, 13°40′, 45°57′, UL98, ~100 m, lBZa dSBr, cSBr, 23.4.2001; **Replje, Vogrsko**, 13°44′, 45°54′, VL08, 100 m, lRJe dSBr, cSBr, 16.4.1987.
GORENJSKO: **Brdo pri Kranju 1/57**, 14°23′48″, 46°17′26″, VM52, 467 m, *Quercus petraea*, panj 50 cm, ldRPa, lit.RPa2003, 27.9.2003; **Brdo pri Kranju 2/5**, 14°23′45″, 46°17′22″, VM52, 469 m, *Quercus petraea*, deblo, ldRPa, lit.RPa2004, 30.7.2004; **Brdo pri Kranju, GIS 2**, 14°24′00″, 46°17′12″, VM52, 469 m, tWit, phGaP2, ldRPa, lit.RPa2016a, 20.7.2016; **Brdo pri Kranju, GIS 4**, 14°23′56″, 46°17′13″, VM52, 465 m, tEkl, phAlKi, ldSRu vSBr, lit.SRu2007, 22.5.2005; **Brdo pri Kranju, GIS 6**, 14°24′09″, 46°17′19″, VM52, 477 m, tEkl, phAlKi, ldSRu vSBr, lit.SRu2007, 22.5.2005, 12.6.2005, 17.7.2005, 9.8.2005, 31.8.2005; **Milje 2**, 14°24′30″, 46°15′52″, VM52, 428 m, tThe, phPher phChal, ldRPa, lit.RPa1991a, 15.9.1989.

Slika 191: HRASTOV STRŽENAR *Platypus cylindrus* (♀ 2x – dorzalo, lateralno, ♂ 2x – dorzalno, lateralno) (Foto: Maja Jurc)

Figure 191: HRASTOV STRŽENAR *Platypus cylindrus* (♀ 2x – dorsal, lateral, ♂ 2x – dorsal, lateral) (Photo: Maja Jurc)



Slika 192: HRASTOV STRŽENAR *Platypus cylindrus*, karta razširjenosti glede na zbrane zgodovinske in recentne podatke

Figure 192: *Platypus cylindrus*, distribution map according to historical and recent data

NOTRANJSKO: **Bevke, šotno barje Mali plac**, 14°21′42″, 45°59′52″, VL59, 303 m, tWit, phEtan, ldTHa, lit.THa2018, 16.6.2017, 25.8.2017; **Verd, nad kamnolomom**, 14°18′45″, 45°56′44″, VL48, 496 m, tWit, phEtan, ldTHa, lit.THa2018, 16.6.2017.
LJUBLJANA Z OKOLICO: **Ljubljana**, (14°31′), (46°04′), (VM60), (295 m), ldJSd, cJSd, 28.6.1899; **Ljubljana, Tivoli**, 14°29′, 46°03′, VL69, 303 m, ldAGs, cAGs, 15.4.1948; **Rožnik, Ljubljana 1**, 14°29′20″, 46°03′27″, VM60, 335 m, tWit, phEtan, lDBo dTHa, lit.THa2018, 16.6.2017, 14.7.2017.
DOLENJSKO: **Novo Mesto, Kandija, pri lekarni**, 15°09′46″, 45°48′08″, WL17, 170 m, *Quercus robur*, deblo, ldMJu, lit.DJu2005, 10.5.2005; **Veliko Trebeljevo 1**, 14°44′31″, 46°00′43″, VL89, 554 m, *Quercus cerris*, deblo, ldMJu, cBFG, 15.2.2023; ibidem, *Quercus robur*, deblo, ldMJu, cBFG, 4.8.2000.
ŠTAJERSKO: Braslovško jezero, Braslovče, 15°02′, 46°18′, WM02, 320 m, ldSBr, cSBr, 27.6.1989; **Kalobje, Kostrivnica**, 15°24′, 46°10′, WM31, 620 m, ldVKo vSBr, cSBr, 15.3.1930; **Ljutomer**, 16°12′, 46°31′, WM95, 190 m, *Quercus* sp., deska, ldJTi, lit.JTi1973, 1971; **Maribor**, (15°39′), (46°32′), (WM55), ~270 m, ldJPe vSBr, cJPe, pred 1951; **Podčetrtek, Palčjak**, 15°35′, 46°09′, WM41, *, ldEJa vSBr, cEJa, 28.9.1929, 16.7.1930; **Žovneško jezero, Braslovče**, 15°02′, 46°16′, WM02, 300 m, ldSBr, cSBr, 27.6.1989.
PREKMURJE: **Žitkovci pri Dobrovniku**, 16°23′, 46°39′, XM06, 168 m, *Quercus robur*, hlod, ldJTi, lit.JTi1973, 1970.

4.2. Analiza rezultatov

4.2.1. Število vpisov podlubnikov in strženarja in rang

V tabeli 3 prikatujemo število vrst in vpisov po poddružinah. Vsak vpis se nanaša na eno vrstico prvotne tabele s podatki in vsebuje vrsto, lokacijo, čas in način nabiranja osebka (tabela 3).

4.2. Analysis of the results

4.2.1. Number of entries of bark beetles and pinhole borers and ranks

Table 3 shows the number of species and entries by subfamily. Each entry refers to one line of the original data table and contains the species, location, time and method of collection of the specimen (Table 3).

Tabela 3: Število vpisov podlubnikov in strženarja in rang (razvrščeno po številu vpisov in sistematiki)

Table 3: Number of entries of bark beetles and pinhole borers and ranks (sorted by rnumber of entries and systematics)

VRSTA / *SPECIES*			Število vpisov *Number of entries*	Rang / *Range*
Pityogenes	***chalcographus***	(Linnaeus, 1760)	2.286	1
Ips	***typographus***	(Linnaeus, 1758)	2.138	2
Xyleborinus	***saxesenii***	(Ratzeburg, 1837)	690	3
Xylosandrus	***germanus***	(Blandford, 1894)	457	4
Anisandrus	***dispar***	(Fabricius, 1792)	443	5
Dryocoetes	***autographus***	(Ratzeburg, 1837)	405	6
Pityokteines	***spinidens***	(Reitter, 1895)	341	7
Hylurgops	***palliatus***	(Gyllenhal, 1813)	262	8
Tomicus	***piniperda***	(Linnaeus, 1758)	205	9
Trypodendron	***lineatum***	(Olivier, 1795)	201	10
Pityophthorus	***pityographus***	(Ratzeburg, 1837)	196	11
Hylastes	***cunicularius***	Erichson, 1836	189	12
Ips	***cembrae***	(Heer, 1836)	179	13
Trypodendron	***signatum***	(Fabricius, 1792)	162	14
Tomicus	***minor***	(Hartig, 1834)	149	15
Hylastes	***angustatus***	(Herbst, 1794)	145	16
Xyleborus	***monographus***	(Fabricius, 1792)	138	17
Cryphalus	***piceae***	(Ratzeburg, 1837)	131	18
Pityokteines	***vorontzowi***	(Jakobson, 1896)	129	19
Gnathotrichus	***materiarius***	(Fitch, 1858)	128	20
Hylesinus	***varius***	(Fabricius, 1775)	127	21
Pityokteines	***curvidens***	(Germar, 1824)	121	22
Crypturgus	***cinereus***	(Herbst, 1794)	111	23
Trypodendron	***domesticum***	(Linnaeus, 1758)	110	24
Orthotomicus	***laricis***	(Fabricius, 1792)	102	25
Hylastes	***ater***	(Paykull, 1800)	97	26
Polygraphus	***poligraphus***	(Linnaeus, 1758)	88	27-28
Ips	***acuminatus***	(Gyllenhal, 1827)	88	27-28
Xyleborus	***dryographus***	(Ratzeburg, 1837)	86	29
Pityogenes	***bistridentatus***	(Eichhoff, 1878)	82	30-31

VRSTA / *SPECIES*			Število vpisov *Number of entries*	Rang / *Range*
Xylocleptes	***bispinus***	(Duftschmid, 1825)	82	30-31
Hylastes	***attenuatus***	Erichson, 1836	80	32
Hylastinus	***fankhauseri***	Reitter, 1895	78	33
Crypturgus	***pusillus***	(Gyllenhal, 1813)	70	34
Ips	***sexdentatus***	(Boerner, 1766)	65	35
Hylurgus	***ligniperda***	(Fabricius, 1787)	60	36
Hylurgus	***micklitzi***	Wachtl, 1881	57	37
Dryocoetes	***villosus***	(Fabricius, 1792)	53	38
Scolytus	***intricatus***	(Ratzeburg, 1837)	50	39
Orthotomicus	***erosus***	(Wollaston, 1857)	43	40
Phloeotribus	***spinulosus***	(Rey, 1883)	38	41-42
Crypturgus	***hispidulus***	Thomson, 1870	38	41-42
Taphrorychus	***bicolor***	(Herbst, 1794)	37	43-44
Platypus	***cylindrus***	(Fabricius, 1792)	37	43-44
Pityogenes	***quadridens***	(Hartig, 1834)	34	45
Ips	***amitinus***	(Eichhoff, 1872)	32	46
Cryphalus	***asperatus***	(Gyllenhal, 1813)	31	47
Crypturgus	***numidicus***	Ferrari, 1867	30	48
Xylechinus	***pilosus***	(Ratzeburg, 1837)	27	49
Hylesinus	***toranio***	(D´Anthoine, 1788)	26	50
Hylastes	***opacus***	Erichson, 1836	25	51-52
Ambrosiodmus	***rubricollis***	(Eichhoff, 1876)	25	51-52
Ernoporicus	***fagi***	(Fabricius, 1798)	24	53
Scolytus	***rugulosus***	(Müller, 1818)	23	54
Scolytus	***mali***	(Bechstein, 1805)	22	55
Hylastes	***linearis***	Erichson, 1836	20	56-58
Hylurgops	***glabratus***	(Zetterstedt, 1828)	20	56-58
Orthotomicus	***suturalis***	(Gyllenhal, 1827)	20	56-58
Hypoborus	***ficus***	Erichson, 1836	19	59-60
Xyleborus	***eurigraphus***	(Ratzeburg, 1837)	19	59-60
Pityophthorus	***carniolicus***	Wichmann, 1910	18	61
Carphoborus	***pini***	Eichhoff, 1881	17	62
Ips	***duplicatus***	(Sahlberg, 1836)	16	63
Pityophthorus	***glabratus***	Eichhoff, 1878	15	64
Scolytus	***scolytus***	(Fabricius, 1775)	14	65
Phloeosinus	***aubei***	(Perris, 1855)	13	66-68
Pityogenes	***bidentatus***	(Herbst, 1784)	13	66-68
Scolytus	***laevis***	Chapuis, 1869	13	66-68
Phloeosinus	***thujae***	(Perris, 1855)	11	69-70
Cryphalus	***saltuarius***	Weise, 1891	11	69-70
Tomicus	***destruens***	(Wollaston, 1865)	10	71-72
Ernoporus	***tiliae***	(Panzer, 1793)	10	71-72
Hylesinus	***crenatus***	(Fabricius, 1787)	9	73-75
Dendroctonus	***micans***	(Kugelann, 1794)	9	73-75

VRSTA / *SPECIES*			Število vpisov *Number of entries*	Rang / *Range*
Scolytus	***multistriatus***	(Marsham, 1802)	9	73-75
Pityogenes	***conjunctus***	Reitter, 1887	8	76-77
Pityogenes	***trepanatus***	(Nördlinger, 1848)	8	76-77
Taphrorychus	***villifrons***	(Dufour, 1843)	7	78
Cryphalus	***intermedius***	Ferrari, 1867	6	79-80
Orthotomicus	***longicollis***	(Gyllenhal, 1827)	6	79-80
Pityophthorus	***lichtensteinii***	(Ratzeburg, 1837)	5	81-83
Pityophthorus	***micrographus***	(Linnaeus, 1758)	5	81-83
Dryocoetes	***alni***	(Georg, 1856)	5	81-83
Pteleobius	***vittatus***	(Fabricius, 1792)	4	84-87
Crypturgus	***cribrellus***	Reitter, 1895	4	84-87
Dryocoetes	***hectographus***	Reitter, 1913	4	84-87
Orthotomicus	***proximus***	(Eichhoff, 1868)	4	84-87
Kissophagus	***vicinus***	(Comolli, 1837)	3	88-96
Liparthrum	***genistae***	(Aubé, 1862)	3	88-96
Carphoborus	***minimus***	(Fabricius, 1798)	3	88-96
Pityogenes	***calcaratus***	(Eichhoff, 1878)	3	88-96
Scolytus	***carpini***	(Ratzeburg, 1837)	3	88-96
Scolytus	***pygmaeus***	(Fabricius, 1787)	3	88-96
Xyleborus	***cryptographus***	(Ratzeburg, 1837)	3	88-96
Xyleborus	***pfeili***	(Ratzeburg, 1837)	3	88-96
Xylosandrus	***crassiusculus***	(Motschulsky, 1866)	3	88-96
Hylastes	***brunneus***	(Erichson, 1836)	2	97-107
Hylastinus	***obscurus***	(Marsham, 1802)	2	97-107
Hylesinus	***wachtli orni***	Fuchs, 1906	2	97-107
Pteleobius	***kraatzii***	(Eichhoff, 1864)	2	97-107
Liparthrum	***mori***	(Aubé, 1862)	2	97-107
Phloeotribus	***cristatus***	(Fauvel, 1889)	2	97-107
Phloeotribus	***scarabaeoides***	(Bernard, 1788)	2	97-107
Pityophthorus	***balcanicus***	Pfeffer, 1940	2	97-107
Lymantor	***coryli***	(Perris, 1855)	2	97-107
Ambrosiophilus	***atratus***	(Eichhoff, 1876)	2	97-107
Xyleborinus	***attenuatus***	(Blandford, 1894)	2	97-107
Phloeotribus	***rhododactylus***	(Marsham, 1802)	1	108-118
Carphoborus	***perrisi***	(Chapuis, 1869)	1	108-118
Polygraphus	***subopacus***	Thomson, 1871	1	108-118
Pityophthorus	***pubescens***	(Marsham, 1802)	1	108-118
Ernoporicus	***caucasicus***	(Lindemann, 1876)	1	108-118
Hypothenemus	***eruditus***	(Westwood, 1834)	1	108-118
Crypturgus	***cylindricollis***	Eggers, 1940	1	108-118
Crypturgus	***mediterraneus***	Eichhoff, 1869	1	108-118
Taphrorychus	***siculus***	Eggers, 1908	1	108-118
Scolytus	***ratzerburgi***	Janson, 1856	1	108-118
Trypodendron	***leave***	Eggers, 1939	1	108-118

Tabela 4 prikazuje število vrst in vpisov po poddružinah (tabela 4)

Table 4 shows the number of species and entries by subfamily (Table 4)

Tabela 4: Število vrst in vpisov po poddružinah

Table 4: Number of species and entries by subfamily

Poddružina / *Subfamily*	Število vrst / *Number of species*	Število vpisov / *umber of entries*
Scolytinae	117	11.452
Platypodinae	1	37
SKUPAJ / *TOTAL*	118	11.489

Dve vrsti podlubnikov (1,7% od vseh v Sloveniji zabeleženih vrst) sta zabeleženi z več kot 2000 vpisi. Vrsti osmerozobi lubadar (*Ips typographus*) in šesterozobi zvezdar (*Pityogenes chalcographus*) sta skupaj zabeleženi 4424-krat, kar pomeni 38,5% vseh vpisov. Obe omenjeni vrsti močno izstopata po številu vpisov, kar je na njuno splošno razširjenost in velik gospodarski pomen pričakovan rezultat.

Pri 8 vrstah (6,8% od vseh v Sloveniji zabeleženih vrst) je vpisov 201-1000. Pri vseh vrstah, ki so zastopane z 200 ali več vpisi, je bil večji del osebkov pridobljen z ulovom v pasti. Med prvimi petimi najpogosteje zabeleženimi vrstami v Sloveniji so tri vrste ksilomicetofagne: mali lesarček (*Xyleborinus saxesenii*), črni ambrozijevec (*Xylosandrus germanus*), tujerodna vrsta) in vrtni različnež (*Anisandrus dispar*).

Pri 15 vrstah (12,7% od vseh v Sloveniji zabeleženih vrst) je podanih 101-200 vpisov.. V to skupino sodijo pogoste vrste, ki so praviloma prisotne po večjem delu Slovenije.

Pri 13 vrstah (11,0% od vseh v Sloveniji zabeleženih vrst) je podanih 51-100 vpisov. V tej skupini so večinoma zastopane razmeroma pogoste vrste, katerih najdišča so omejena na nekaj slovenskih pokrajin in/ali vrste, ki so monofagne ali imajo malo gostiteljev.

Pri 32 vrstah (27,1% od vseh v Sloveniji zabeleženih vrst) je podanih11-50 vpisov. To so srednje pogoste vrste, mednje sodi tudi nekaj vrst, ki so bile v Sloveniji prvič najdene po letu 2000 in njihova dejanska razširjenost po Sloveniji še ni povsem znana.

Two species (1.7% of all species recorded in Slovenia) have more than 2000 entries. The species *Ips typographus* and *Pityogenes chalcographus* have been recorded 4424 times, accounting for 38.5% of all records. Both of these species stand out strongly in terms of the number of records, which is an expected result given their wide distribution and economic importance.

For 8 species (6.8% of all species recorded in Slovenia) there are 201-1000 records. For all species represented by 200 or more records, the majority of specimens were obtained by trapping. Among the top five most frequently recorded species in Slovenia are three species of Xylomycetophagous: *Xyleborinus saxesenii*, *Xylosandrus germanus* (non-native species), and *Anisandrus dispar.*

For 15 species (12.7% of all species recorded in Slovenia) there are 101-200 records. This group includes common species that are generally found throughout most of Slovenia.

For 13 species (11.0% of all species recorded in Slovenia) there are 51-100 records. This group is mostly composed of relatively common species whose sites are restricted to a few Slovenian provinces and/or species that are monophagous or have few hosts.

For 32 species (27.1% of all species recorded in Slovenia), the number of records is 11-50. These are species of medium frequency, including some species that were found in Slovenia for the first time after 2000 and their actual distribution in Slovenia is not yet fully known.

Pri 37 vrstah (31,4% od vseh v Sloveniji zabeleženih vrst) je podanih le 2-10 vpisov. V tej skupini prevladujejo v Sloveniji redke in/ali slabše raziskane vrste, njihovi gostitelji so pogosto gospodarsko manj pomembne vrste.

Pri 11 vrstah (9,3% od vseh v Sloveniji zabeleženih vrst) je bil zabeležen samo en vpis. V to skupino sodijo zlasti enkratne omembe iz starejše literature in vrste, ujete v pasteh v Luki Koper.

Z 10 ali manj vpisi je zastopanih 48 vrst oz. 40,6% od vseh v Sloveniji zabeleženih vrst.

Edina zabeležena vrsta strženarja, hrastov strženar (*Platypus cylindrus*), je zastopana je s 37 vpisi oz. 0,3% vseh vpisov.

4.2.2. Podlubniki in strženarji: prisotnost po pokrajinah

Prisotnost ali odsotnost posamezne vrste je bila določena na podlagi zbranih podatkov. Posebej je označena prisotnost v primerih, ko podatki niso bili popolni oziroma je manjkalo leto najdbe ali njena lokacija. Če je manjkala tudi navedba pokrajine, je ta vpis uvrščen pod »Slovenija«. Podlubniki in strženarji: prisotnost po pokrajinah (razvrščeno po sistematiki) (tabela 5)

For 37 species (31.4% of all species recorded in Slovenia) there are 2-10 records. This group is dominated by species that are rare and/or poorly studied in Slovenia, and their hosts are often economically less important species.

Only one record was obtained for 11 species (9,3% of all species recorded in Slovenia). This group includes mainly single records from older literature and species caught in traps at the Port of Koper.

For 48 species or 40.6% of all species recorded in Slovenia there are 10 records or fewer.

The only recorded pinhole borer species, *Platypus cylindrus*, is represented by 37 entries or 0.3% of all entries.

4.2.2. Bark beetles and pinehole borers: presence by regions

The presence or absence of each species was determined based on data in the central part of Scopolia. The presence is specially marked in cases where the data was not complete or the year of the find or its location was missing. If the region was also missing, this entry is classified under "Slovenia". Bark beetles and pinehole borers: presence by regions (sorted by systematics) (Table 5).

Tabela 5: Podlubniki in strženarji: prisotnost po pokrajinah (razvrščeno po sistematiki)

Table 5: Bark beetles and pinehole borers: presence by regions (sorted by systematics).

Vrsta / Species			Slovenija1	Istra	Primorsko	Gorenjsko	Notranjsko	Ljubljana z okolico	Dolenjsko	Bela krajina	Štajersko	Koroško	Prekmurje
Hylastes	***angustatus***	(Herbst, 1794)	○	●	●	●	●	●	●	●	●		●
Hylastes	***ater***	(Paykull, 1800)	○	●	●	●	●	●	●		●		●
Hylastes	***attenuatus***	Erichson, 1836		●		●		●					●
Hylastes	***brunneus***	(Erichson, 1836)				●		○					
Hylastes	***cunicularius***	Erichson, 1836	○	●	●	●	●	●	●		●	●	
Hylastes	***linearis***	Erichson, 1836		●		●		●	●		○		
Hylastes	***opacus***	Erichson, 1836	○	●		●	●	●	●			●	
Hylurgops	***glabratus***	(Zetterstedt, 1828)				●	●	●			●	●	
Hylurgops	***palliatus***	(Gyllenhal, 1813)	○	●	●	●	●	●	●	●	●	●	●
Hylastinus	***fankhauseri***	Reitter, 1895	○		●	●	●	●	●	●			
Hylastinus	***obscurus***	(Marsham, 1802)	○			●							

Vrsta / Species			Slovenija1	Istra	Primorsko	Gorenjsko	Notranjsko	Ljubljana z okolico	Dolenjsko	Bela krajina	Štajersko	Koroško	Prekmurje
Hylesinus	***crenatus***	(Fabricius, 1787)			●	●			●		●		
Hylesinus	***toranio***	(D´Anthoine, 1788)	○	●	●	●	●	●	●		●		
Hylesinus	***varius***	(Fabricius, 1775)	○	●	●	●	●	●	●		●	●	●
Hylesinus	***wachtli orni***	Fuchs, 1906	○					●					
Kissophagus	***vicinus***	(Comolli, 1837)	○		●								
Pteleobius	***kraatzii***	(Eichhoff, 1864)			○								
Pteleobius	***vittatus***	(Fabricius, 1792)	○	●					●				
Dendroctonus	***micans***	(Kugelann, 1794)	○			●		●			●		
Hylurgus	***ligniperda***	(Fabricius, 1787)	○	●			●	●			○		
Hylurgus	***micklitzi***	Wachtl, 1881		●		●							
Tomicus	***destruens***	(Wollaston, 1865)		●									
Tomicus	***minor***	(Hartig, 1834)	○	●	●	●	●	●	●	●	●	●	○
Tomicus	***piniperda***	(Linnaeus, 1758)	○	●	●	●	●	●	●	●	●	●	●
Xylechinus	***pilosus***	(Ratzeburg, 1837)	○		○	●						●	
Hypoborus	***ficus***	Erichson, 1836	○	●	●								
Liparthrum	***genistae***	(Aubé, 1862)		●									
Liparthrum	***mori***	(Aubé, 1862)		●									
Phloeosinus	***aubei***	(Perris, 1855)		●		●	●		●	●			●
Phloeosinus	***thujae***	(Perris, 1855)		●		●		●	●				
Phloeotribus	***cristatus***	(Fauvel, 1889)		●									
Phloeotribus	***rhododactylus***	(Marsham, 1802)									○		
Phloeotribus	***scarabaeoides***	(Bernard, 1788)		●	●								
Phloeotribus	***spinulosus***	(Rey, 1883)				●	●		●		●	●	
Carphoborus	***minimus***	(Fabricius, 1798)	○	●									
Carphoborus	***perrisi***	(Chapuis, 1869)		●									
Carphoborus	***pini***	Eichhoff, 1881	○	●	●								
Polygraphus	***poligraphus***	(Linnaeus, 1758)	○		●	●	●	●	●		●	●	
Polygraphus	***subopacus***	Thomson, 1871	○										
Gnathotrichus	***materiarius***	(Fitch, 1858)		●		●	●	●	●		●		
Pityophthorus	***balcanicus***	Pfeffer, 1940			●		●						
Pityophthorus	***carniolicus***	Wichmann, 1910		●	●	●	●						
Pityophthorus	***glabratus***	Eichhoff, 1878				●							
Pityophthorus	***lichtensteinii***	(Ratzeburg, 1837)				●	●		●				●
Pityophthorus	***micrographus***	(Linnaeus, 1758)	○			●			●				
Pityophthorus	***pityographus***	(Ratzeburg, 1837)	○		●	●	●		●		●	●	
Pityophthorus	***pubescens***	(Marsham, 1802)									○		
Cryphalus	***asperatus***	(Gyllenhal, 1813)	○		●	●			●		●	●	●
Cryphalus	***intermedius***	Ferrari, 1867	○			●						●	
Cryphalus	***piceae***	(Ratzeburg, 1837)	○		●	●	●	●	●		●	●	
Cryphalus	***saltuarius***	Weise, 1891			●	●	●					●	
Ernoporicus	***caucasicus***	(Lindemann, 1876)							●				
Ernoporicus	***fagi***	(Fabricius, 1798)	○			●		●	●				
Ernoporus	***tiliae***	(Panzer, 1793)	○			●		●			●		
Hypothenemus	***eruditus***	(Westwood, 1834)						●					

Vrsta / Species			Slovenija1	Istra	Primorsko	Gorenjsko	Notranjsko	Ljubljana z okolico	Dolenjsko	Bela krajina	Štajersko	Koroško	Prekmurje
Crypturgus	***cinereus***	(Herbst, 1794)	○			●	●	○	●		●	●	
Crypturgus	***cribrellus***	Reitter, 1895						○		○			
Crypturgus	***cylindricollis***	Eggers, 1940		●									
Crypturgus	***hispidulus***	Thomson, 1870		●		●	●	●	●		●	●	
Crypturgus	***mediterraneus***	Eichhoff, 1869		●									
Crypturgus	***numidicus***	Ferrari, 1867		●	●								
Crypturgus	***pusillus***	(Gyllenhal, 1813)	○	●	●	●	●	●	●	●	●	●	
Dryocoetes	***alni***	(Georg, 1856)			●				●		○	●	
Dryocoetes	***autographus***	(Ratzeburg, 1837)	○		●	●	●	●	●	●	●	●	●
Dryocoetes	***hectographus***	Reitter, 1913				●			●				
Dryocoetes	***villosus***	(Fabricius, 1792)	○		●	●	●	●	●		●		
Lymantor	***coryli***	(Perris, 1855)				●							
Taphrorychus	***bicolor***	(Herbst, 1794)	○	●	●	●	●	○	●		●		
Taphrorychus	***siculus***	Eggers, 1908		●									
Taphrorychus	***villifrons***	(Dufour, 1843)			●	●			●		●		
Xylocleptes	***bispinus***	(Duftschmid, 1825)	○	●	●	●	●	●	●	●	●	●	
Ips	***acuminatus***	(Gyllenhal, 1827)	○	●	●	●	●	●	●		●	●	●
Ips	***amitinus***	(Eichhoff, 1872)				●					●	●	
Ips	***cembrae***	(Heer, 1836)	○		●	●	●				●	●	
Ips	***duplicatus***	(Sahlberg, 1836)				●							
Ips	***sexdentatus***	(Boerner, 1766)	○	●	●	●	●	●	●	●	●	●	
Ips	***typographus***	(Linnaeus, 1758)	○	●	●	●	●	●	●	●	●	●	●
Orthotomicus	***erosus***	(Wollaston, 1857)	○	●	●	●	●	●	●				
Orthotomicus	***laricis***	(Fabricius, 1792)	○	●	●	●	●	●	●	●	●	●	●
Orthotomicus	***longicollis***	(Gyllenhal, 1827)				●							
Orthotomicus	***proximus***	(Eichhoff, 1868)		●		●						●	
Orthotomicus	***suturalis***	(Gyllenhal, 1827)	○		●	●		●	●		●		
Pityogenes	***bidentatus***	(Herbst, 1784)	○			●		●	●	●	●	●	
Pityogenes	***bistridentatus***	(Eichhoff, 1878)	○	●	●	●	●		●		●		
Pityogenes	***calcaratus***	(Eichhoff, 1878)		●									
Pityogenes	***chalcographus***	(Linnaeus, 1760)	○	●	●	●	●	●	●	●	●	●	●
Pityogenes	***conjunctus***	Reitter, 1887	○			●							
Pityogenes	***quadridens***	(Hartig, 1834)	○			●	●	●	●		●	●	
Pityogenes	***trepanatus***	(Nördlinger, 1848)			●	●	●						
Pityokteines	***curvidens***	(Germar, 1824)	○	●	●	●	●	●	●		●		
Pityokteines	***spinidens***	(Reitter, 1895)	○	●	●	●	●	●	●		●	●	
Pityokteines	***vorontzowi***	(Jakobson, 1896)	○	●	●	●	●	●	●		●		
Scolytus	***carpini***	(Ratzeburg, 1837)				●					●		
Scolytus	***intricatus***	(Ratzeburg, 1837)	○		●	●	●	●	●		●		●
Scolytus	***laevis***	Chapuis, 1869			●		●	●	●		●		
Scolytus	***mali***	(Bechstein, 1805)	○			●	●	●	●		●		
Scolytus	***multistriatus***	(Marsham, 1802)	○	●	○	●	●	●			●		
Scolytus	***pygmaeus***	(Fabricius, 1787)					●	●					
Scolytus	***ratzerburgi***	Janson, 1856											●

Vrsta / Species			Slovenija1	Istra	Primorsko	Gorenjsko	Notranjsko	Ljubljana z okolico	Dolenjsko	Bela krajina	Štajersko	Koroško	Prekmurje
Scolytus	***rugulosus***	(Müller, 1818)	○		●	●	●	●	●		●		
Scolytus	***scolytus***	(Fabricius, 1775)	○		○	●	●	●			●		
Ambrosiodmus	***rubricollis***	(Eichhoff, 1876)		●	●								
Ambrosiophilus	***atratus***	(Eichhoff, 1876)			●								
Anisandrus	***dispar***	(Fabricius, 1792)	○	●	●	●	●	●	●	●	●		●
Xyleborinus	***attenuatus***	(Blandford, 1894)			●			●					
Xyleborinus	***saxesenii***	(Ratzeburg, 1837)		●	●	●	●	●	●		●		
Xyleborus	***cryptographus***	(Ratzeburg, 1837)	○					●			●		
Xyleborus	***dryographus***	(Ratzeburg, 1837)	○		●	●	●	●	●	●	○		
Xyleborus	***eurigraphus***	(Ratzeburg, 1837)		●									
Xyleborus	***monographus***	(Fabricius, 1792)	○	●	●	●	●	●	●		●		
Xyleborus	***pfeili***	(Ratzeburg, 1837)				●							●
Xylosandrus	***crassiusculus***	(Motschulsky, 1866)			●								
Xylosandrus	***germanus***	(Blandford, 1894)		●	●	●	●	●	●		●		
Trypodendron	***domesticum***	(Linnaeus, 1758)	○		●	●	●	●	●		●		
Trypodendron	***leave***	Eggers, 1939		●									
Trypodendron	***lineatum***	(Olivier, 1795)	○	●	●	●	●	●	●		●	●	●
Trypodendron	***signatum***	(Fabricius, 1792)	○	●	●	●	●	●	●		●		●
Platypus	***cylindrus***[2]	(Fabricius, 1792)	○		●	●	●	●	●		●		●

1 Slovenija: navedbe iz literature ali starejših zbirk, za katere podrobnejše najdišče ni navedeno
2 Vključen je tudi hrastov strženar *P. cylindrus*
● vpis z lokacijo in datumom (oz. vsaj z letom) najdbe
○ nepopolni vpis, brez lokacije ali brez datuma

1 Slovenia: references from literature or older collections, for which the detailed location is not indicated
2 The oak pinhole borer P. cylindrus is also included
● entry with location and date (or at least year) of the find
○ uncomplete entry, without location or date

Le za šest vrst podlubnikov (*Hylurgops palliatus, Tomicus minor, Tomicus piniperda, Ips typographus, Orthotomicus laricis* in *Pityogenes chalcographus*) so znana najdišča v vseh desetih slovenskih pokrajinah. Pri veliko vrstah, ki so prisotne v večjem delu Slovenije, manjkajo najdišča v Beli krajini, na Koroškem in v Prekmurju. To nakazuje na slabšo raziskanost podlubnikov v območjih, ki so najbolj oddaljena od središča Slovenije.

Only six species of bark beetles (*Hylurgops palliatus, Tomicus minor, Tomicus piniperda, Ips typographus, Orthotomicus laricis* and *Pityogenes chalcographus*) are known to have locations in all ten Slovenian regions. For many species that are present in other Slovenian regions, sites in Bela Krajina, Carinthia and Prekmurje are missing. This indicates a poorer research of bark beetles in the areas furthest from the center of Slovenia.

4.2.3. Podlubniki in strženarji: število vrst in število vpisov po pokrajinah

Število vpisov je izračunano na podlagi podatkov v osrednjem delu Scopolie. Pri starejših navedbah v literaturi in v muzejskih zbirkah podatki o lokaciji velikokrat manjkajo. Tovrstni vpisi so uvrščeni pod »Slovenija«. Število vrst in število vpisov po pokrajinah (tabela 6).

4.2.3. Bark beetles and pinhole borers: number of speciess and number of entries by regions

The number of entries is calculated based on data in the central part of Scopolia. In older references in the literature and in museum collections, information about the location is often missing. Entries of this type are classified under "Slovenia". Number of speciess and number of entries by regions (Table 6).

Tabela 6: Število vrst in število vpisov po pokrajinah

Table 6: Number of speciess and number of entries by regions

Pokrajina / *Region*	Število vrst / *Number of species*	Število vpisov / *Number of entries*
Slovenija*	63	97
Istra	57	517
Primorsko	62	755
Gorenjsko	81	5.414
Notranjsko	58	975
Ljubljana z okolico	62	756
Dolenjsko	61	1.346
Bela krajina	17	28
Štajersko	62	762
Koroško	33	742
Prekmurje	22	46

*Podrobnejša lokacija ni znana

*Location not known

V Ljubljani in okolici je bilo veliko vrst podlubnikov popisanih že pred 2. svetovno vojno (avtorji Gspan, Stussiner, Staudacher…). Najdišča v okolici Ljubljane po letu 2000 so v veliki meri povezana s terenskim delom za diplomske naloge na Oddelku za gozdarstvo in obnovljive gozdne vire BF. Veliko število vpisov na Dolenjskem je zlasti posledica delovanja entomologov, ki so tam prebivali (Titovšek, Brelih...). Enako velja za Gorenjsko, ki je tako po številu najdenih vrst, še bolj pa po številu vnosov najbolj raziskano območje v Sloveniji (Pavlin). Samo na protokolarnem objektu Brdo pri Kranju je bilo do sedaj evidentiranih 57 vrst podlubnikov, od tega na poskusni ploskvi GIS s površino 1 ha kar 51. Bela krajina, Koroška in Prekmurje so

In Ljubljana and its surroundings many species of bark beetle were recorded prior to World War II (by Gspan, Stussiner, Staudacher, etc.). After 2000 sites around Ljubljana are largely associated with field work done for bachelor's theses at the Department of Forestry and Renewable Forest Resources. The large number of entries from Dolenjska region is due to the work of entomologists who lived there (Titovšek, Brelih, etc.). The same applies to Gorenjska, which is the best researched region of Slovenia both in terms of the number of species and even more so by the number of entries (Pavlin). A total of 57 species of bark beetle have been recorded at the Brdo protocolar estate alone, of which 51 on the GIS sample plot (with 1 ha surface). Bela Krajina, Koroška and Prekmurje are the most poorly ex-

najslabše raziskane pokrajine, kar je zlasti razvidno v nizkem številu evidentiranih vrst. V primeru Koroške je število vpisov (742) razmeroma visoko, vendar jih večina izvira iz popisovanja entomofavne v pasteh, ki je bilo omejeno na Peco (Pavlin 1994a, 1995a).

4.2.4. Število vpisov po avtorjih in obdobje njihove aktivnosti

V preglednici so navedeni avtorji, ki so v prispevku prispevali največ vpisov. Navedena so imena, priimki, okrajšave imen, in število vpisov, ki so jih avtorji prispevali kot legatorji (Leg.) ali opazovalci (Obs.). Navedeno je tudi število njihovih determinacij (Det.) in obdobje njihove aktivnosti. Obdobje aktivnosti je določeno na podlagi zbranih podatkov in se nanaša samo na zbiranje obravnavanih skupin. Število vpisov po avtorjih in obdobje njihove aktivnosti (tabela 7).

plored regions, as evident particularly from the low number of recorded species. For Koroška region the number of entries (742) is fairly high, but the majority are the result of the inventorying of entomofauna in traps, which was resricted to Mount Peca (Pavlin 1994a, 1995a).

4.2.4. Number of entries by authors and period of activity

The table lists the authors with the largest contribution of the entries. Names, surnames, abbreviations of names, the number of entries of authors as legators (Leg.) or observers (Obs.), the number of entries of authors as determiners (Det.) and the period of their activity are listed. The period of activity is determined on the basis of the collected data and refers only to the collection of bark beetles and pinhole borers. *Number of entries by authors and period of their activity* (Table 7).

Tabela 7: Število vpisov po avtorjih in obdobje njihove aktivnosti

Table 7: Number of entries by authors and period of their activity

Avtor / *Author*	Okrajšava imena avtorja / *Abbreviation of author's name*	Število vpisov: Leg. ali Obs. / *Number of entries: Leg. or Obs.*	Število vpisov: Det. / *Number of entries: Det.*	Obdobje aktivnosti / *Periode of activity*
Roman Pavlin	RPa	5.033	5.207	1989-2023
Janez Titovšek	JTi	1.007	1.043	1963-1988
Tine Hauptman	THa	627	1.641	2017-2022
Danijel Borkovič	DBo	556	21	2017-2018
Savo Brelih	SBr	252	555	1946-2004
Blaž Rekanje	BRe	232	0	2018
Marko Jene	MJe	228	228	2004-2005
Irena Krašna	IKr	215	215	1994-1995
Nejc Marovt	NMa	212	0	2022
Luka Pajek	LPa	171	171	2017
Franci Jagodic	FJa	167	144	1995
Gorazd Babuder	GBa	122	2	1991-1993
Andrej Ribič	ARi	121	121	2005
Maja Jurc / Maja Škulj	MJu / MŠk	112	112	1985-2022
Jerneja Ropret	JRo	104	104	2006
Alfonz Gspan	AGs	103	107	1909-1948
Svit Brudar	SBu	103	103	2020

Preglednica vsebuje le avtorje, ki so kot legatorji / opazovalci ali determinatorji v gradivo prispevali več kot 100 vpisov. Pri avtorjih, ki so večinsko navedeni kot legatorji, so determinacijo gradiva opravili drugi avtorji, zlasti Tine Hauptman in Savo Brelih. Pri avtorjih, katerih aktivnost je bila omejena na eno ali dve leti, gre praviloma za pripravo diplomskih ali magistrskih del.

4.2.5. Pregled prvih omemb posameznih vrst podlubnikov z ozemlja Slovenije v literaturi, zbirkah in novih najdbah

Podatki o prvih omembah so navedeni na podlagi zbranega gradiva. Upoštevani so najstarejši datumi (podani krepko), ne glede na to, ali je bil podatek pridobljen iz literature, zbirke ali z neposrednim popisovanjem na terenu. Za vsako vrsto je poleg latinskega imena navedena še lokacija najdbe ter podatki o avtorjih. S krepkim tiskom so izpisana latinska imena vrst, za katere so na voljo vsi omenjeni podatki. Datum je v teh primerih določen vsaj na leto natančno. Pod prvim podatkom so pri nekaterih vrstah v oklepaju vpisani tudi podatki o najstarejši znani omembi vrste v Sloveniji, pri kateri pa manjkajo prostorski ali / in časovni podatki. Pri posameznih vpisih je čas nabiranja samo približno razviden iz podatka o citirani literaturi ali pa na podlagi obdobij aktivnosti posameznih avtorjev. Vrste, za katere nimamo zbranih vseh omenjenih podatkov, so na spisku izpisane v normalni pisavi.

The table only contains authors who are represented in the material as legators / observers or determiners with more than 100 entries. In the case of the authors, who are mostly listed as legators, the determination of the material was carried out by other authors, especially Tine Hauptman and Savo Brelih. In the case of authors whose activity was limited to one or two years, it is usually the preparation of diploma or master's theses.

4.2.5. An overview of the first mentions of individual species of bark beetles from the territory of Slovenia in the literature, collections and new finds

The information on the first mentions is based on material collected in the central part of Scopolia. The oldest dates are taken into account, regardless of whether the information was obtained from the literature, a collection or by direct collection in the field. For each species, in addition to the Latin name, the location of collection, information about the authors and (in bold) the date of collection are indicated. The Latin names of the marked species for which all the mentioned data are available are printed in bold. In this cases at least the year of the collection has to be available. For some species, the earliest known record of the species in Slovenia is also given in parentheses under the first entry. For these species the location or / and dates are missing, the date of collection can only be approximated based on the literature cited or from the periods of activity of the individual authors. Species for which we do not have all the above data are listed in normal font.

Hylastes angustatus (Herbst, 1794), Tolmin, cAGs, **15.4.1858**
Hylastes ater (Paykull, 1800), Radovljica, dAGs, cAGs, **30.4.1875**
Hylastes attenuatus Erichson, 1836, Ljubljana, Večna pot, ldAGs, cAGs, **17.5.1917**
Hylastes brunneus (Erichson, 1836), Brdo pri Kranju, GIS 1, ldRPa, lit.RPa2010a, **20.7.2010**
(Vikrče, ldAGs, cAGs, brez datuma)
Hylastes cunicularius Erichson, 1836, Rašica, ldAGs, cAGs, **19.3.1911**
Hylastes linearis Erichson, 1836, Golovec, Ljubljana, ldAGs, cAGs, **7.6.1912**
Hylastes opacus Erichson, 1836, Ljubljana, lJSs, cJSd, **17.5.1918**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)

Hylurgops glabratus (Zetterstedt, 1828), Ljubljana, ldAGs, cAGs, **3.1911**
Hylurgops palliatus (Gyllenhal, 1813), Ljubljana, lJSs, cJSd, **1.5.1916**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Hylastinus fankhauseri Reitter, 1895, Kamniška Bistrica, ldJTi, lit.JTi1983, **9.1969**
Hylastinus obscurus (Marsham, 1802) Šenčur, v Križancah, lRPa dSBr, lit.RPa1991a, **14.4.1989**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Hylesinus crenatus (Fabricius, 1787), Vrata, Julijske Alpe, lJSs, cJSd, **28.6.1914**
(Maribor, ldJPe vSBr, cJPe, brez datuma)
Hylesinus toranio (D´Anthoine, 1788), Ljubljana, lJSs, cJSd, **5.7.1938**
Hylesinus varius (Fabricius, 1775), Ljubljana, lJSs, cJSd, **25.6.1917**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Hylesinus wachtli orni Fuchs, 1906, Ljubljana, Večna pot 83, ldRPa, lit.RPa2021a, **17.02.2021**
(Slovenija, ldRSi, cŠFS, brez datuma)
Kissophagus vicinus (Comolli, 1837), Kodreti, Štanjel, lAPi dSBr, cSBr, **2.5.2005**
(Ajdovščina, ldABi vSBr, cABi, brez datuma)
Pteleobius kraatzii (Eichhoff, 1864), Ajdovščina, ldABi vSBr, cABi, brez datuma
Pteleobius vittatus (Fabricius, 1792), Škrilje, Ig, ldSBr, cSBr, **2.5.1980**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Dendroctonus micans (Kugelann, 1794), Ljubljana, dAGs, cAGs, **3.02.1883**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Hylurgus ligniperda (Fabricius, 1787), Ljubljana, lJSs, cJSd, **1.5.1916**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Hylurgus micklitzi Wachtl, 1881, Dekani, ldRPa, lit.RPa2014c, **21.6.2010**
Tomicus destruens (Wollaston, 1865), Ankaran, pri vojašnici, odRPa, lit.RPa2014c, **24.10.2004**
Tomicus minor (Hartig, 1834), Pesnik, Ribnica na Pohorju, ldVKo vZKa, cŠFS, **19.5.1929**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Tomicus piniperda (Linnaeus, 1758), Ljubljana, lJSs, cJSd, **1.5.1916**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Xylechinus pilosus (Ratzeburg, 1837), Šenčur, lRPa dSBr, cSBr, **14.4.1989**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Hypoborus ficus Erichson, 1836, Rižana, ldJTi, cŠFS, **7.8.1972**
(Ajdovščina, ldABi, cABi, brez datuma)
Liparthrum genistae (Aubé, 1862), Rižana, ldJTi, lit.JTi1983, **7.8.1972**
Liparthrum mori (Aubé, 1862), Portorož, ldJTi, lit.JTi1983, **7.8.1972**
Phloeosinus aubei (Perris, 1855), Senadole, pogorišče, ldRPa, lit.RPa2014c, **18.8.2001**
Phloeosinus thujae (Perris, 1855), Portorož, ldJTi, cŠFS, **7.8.1972**
(Bohinj, Julijske Alpe, ldPPe, lit.GFu1905, brez datuma)
Phloeotribus cristatus (Fauvel, 1889), Rižana, ldJTi, lit.JTi1983, **8.1972**
Phloeotribus rhododactylus (Marsham, 1802), Lenart v Slovenskih goricah, ldKBr, lit. KBr1871, brez datuma
Phloeotribus scarabaeoides (Bernard, 1788), Lucija, Portorož, ldJTi, cSBr, **1.1979**
Phloeotribus spinulosus (Rey, 1883), Velika Padežnica, Snežnik, ldRSi, lit.RSi1916, **9.6.1913**
Carphoborus minimus (Fabricius, 1798), Kastelec, ldRPa, lit.RPa2014c, **16.5.2009**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Carphoborus perrisi (Chapuis, 1869)
Carphoborus pini Eichhoff, 1881, Koper, Ukmarjev trg, park, ldRPa, lit.RPa2014c, **24.10.2004**
(Slovenija, ldJTi?, cŠFS, brez datuma)

Polygraphus poligraphus (Linnaeus, 1758), Radovljica, ldJTi, lit.JTi1983, **2.1972** (Slovenija, ldMSi, lit.MSi1866, brez datuma)
Polygraphus subopacus Thomson, 1971, Slovenija, ldJTi, lit.JTi1988, brez datuma
Gnathotrichus materiarius (Fitch, 1858), Brdo pri Kranju 1/1, ldRPa, lit.RPa2003, **8.8.2003**
Pityophthorus balcanicus Pfeffer, 1940, Senadole, Senožeče, ldJTi, lit.JTi1983, **7.1977**
Pityophthorus carniolicus Wichmann, 1910, Sovič, Postojna, ldAGs, cAGs, **15.6.1909**
Pityophthorus glabratus Eichhoff, 1878, Brdo pri Kranju, GIS 2, ldRPa, lit.RPa2012, **25.7.2012**
Pityophthorus lichtensteinii (Ratzeburg, 1837), Rimš, Leskovec pri Krškem, ldJTi, lit. JTi1983, **6.1971**
Pityophthorus micrographus (Linnaeus, 1758), Kočevski Rog, ldAGs, cAGs, **16.7.1948** (Slovenija, cBFG, brez datuma)
Pityophthorus pityographus (Ratzeburg, 1837), Ljubljana, ldAGs, cAGs, **7.9.1911**
Pityophthorus pubescens (Marsham, 1802), Pohorje, ldKBr cKBr, lit.KBr1871, brez datuma
Cryphalu asperatus (Gyllenhal, 1813), Kalobje, Kostrivnica, ldVKo vZKa, cŠFS, **17.4.1928** (Slovenija, ldMSi, lit.MSi1866, brez datuma)
Cryphalus intermedius, Ferrari, 1867, Uršlja gora, ldJTi, lit.JTi1983, **5.1979**
Cryphalus piceae (Ratzeburg, 1837), Pokojišče, Borovnica, lJSd, cJSd, **22.5.1932**
Cryphalus saltuarius Weise, 1891, Goričane, skladišče lesa, lGBa dSBr, cSBr, **22.3.1991**
Ernoporicus caucasicus (Lindemann, 1876), Kren, Kočevje, lMKa dBDr, cZRC,**1.7.1994**
Ernoporicus fagi (Fabricius, 1798), Šmarna gora, ldJTi, lit.JTi1983, **5.1973** (Slovenija, cBFG, brez datuma)
Ernoporus tiliae, (Panzer, 1793), Rožnik, Ljubljana, ldSBr, cSBr, **10.4.1954** (Slovenija, ldMSi, lit.MSi1866, brez datuma)
Hypothenemus eruditus (Westwood, 1834), Ljubljana, Večna pot 83, ldRPa, lit.RPa2021a, **17.02.2021**
Crypturgus cinereus (Herbst, 1794), Jevnica, Litija, ldSBr, cSBr, **7.9.1948**
Crypturgus cribrellus Reitter, 1895, Pohorje, ldKBr cKBr, lit.KBr1871, brez datuma
Crypturgus cylindricollis Eggers, 1940, Koper, Luka Koper 3, ldRPa, lit.RPa2016b, **30.6.2016**
Crypturgus hispidulus Thomson, 1870, Ljubljana, ldAGs, cAGs, **5.3.1911**
Crypturgus mediterraneus Eichhoff, 1869, Koper, Luka Koper 2, ldRPa, lit.RPa2014b, **23.5.2014**
Crypturgus numidicus Ferrari, 1867, Gospodova senožet, Trnovski gozd, ldRPa, lit.RPa2014c, **9.8.1996**
Crypturgus pusillus (Gyllenhal, 1813), Ljubljana, ldJSd, cJSd, **5.1916** (Slovenija, ldMSi, lit.MSi1866, brez datuma)
Dryocoetes alni (Georg, 1856), Dolenjske Toplice, ldJSd, cJSd, **10.4.1954** (Maribor, Betnava, ldJPe vSBr, cJPe, brez datuma)
Dryocoetes autographus (Ratzeburg, 1837), Triglav, Julijske Alpe, ldAGs, cAGs, **30.7.1927** (Slovenija, ldMSi, lit.MSi1866, brez datuma)
Dryocoetes hectographus Reitter, 1913, Blanca, Krško, ldVKo vZKa, cŠFS, **6.5.1933**
Dryocoetes villosus (Fabricius, 1792), Rožnik, Ljubljana, ldAGs, cAGs, **15.7.1948** (Slovenija, ldMSi, lit.MSi1866, brez datuma)
Lymantor coryli (Perris, 1855), Zgornje Bitnje 2, ldRPa, lit.RPa2008, **10.9.2008**
Taphrorychus bicolor (Herbst, 1794), Solčava, ldUCe, cBFG, **1.3.1930** (Slovenija, ldMSi, lit.MSi1866, brez datuma)
Taphrorychus siculus Eggers, 1908, Koper, Luka Koper 2, ldRPa, lit.RPa2015b, **2.9.2015**
Taphrorychus villifrons (Dufour, 1843), Kurnik, Vogrsko, lRJe dSBr, cSBr, **18.2.1987**

Xylocleptes bispinus (Duftschmid, 1825), Ljubljana, lHEg, cJSs, **1.3.1905**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Ips acuminatus (Gyllenhal, 1827), Jevnica, Litija, ldSBr, cSBr, **7.9.1948**
Ips amitinus (Eichhoff, 1872), Peca, Jakobe, skladišče lesa, ldRPa, lit.RPa1994a, **9.6.1994**
(Spodnja Orlica, Gregoričeva graba, Pohorje, ldJPe vSBr, cJPe, brez datuma)
Ips cembrae (Heer, 1836), Cerkno, Zapoška, ldSBr, cSBr, **13.7.1949**
Ips sexdentatus (Boerner, 1766), Maribor, ldAGs, cAGs, **8.7.1929**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Ips typographus (Linnaeus, 1758), Ljubljana, ldJSd, cJSd, **1.5.1916**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Orthotomicus erosus (Wollaston, 1857), Ljubljana, ldJSd, cJSd, **8.1927**
Orthotomicus laricis (Fabricius, 1792), Ljubljana, ldJSd, cJSd, **5.1916**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Orthotomicus longicollis (Gyllenhal, 1827), Brdo pri Kranju, GIS 2, ldRPa, lit.RPa2019a, **8.5.2019**
Orthotomicus proximus (Eichhoff, 1868), Črnotiče, Podgorje, ldJTi, lit.JTi1983, **10.1977**
Orthotomicus suturalis (Gyllenhal, 1827), Lancovo, Radovljica, dAGs, cAGs, **1892**
Pityogenes bidentatus (Herbst, 1784), Mala Gora, Kočevje, ldSBr, cSBr, **2.8.1948**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Pityogenes bistridentatus (Eichhoff, 1878), Štorje, Sežana, ldJTi, lit.JTi1983, **4.1973**
(Jezerska Kočna, Kamniške Alpe, lHEg, cJSs, brez datuma)
Pityogenes calcaratus (Eichhoff, 1878), Portorož, ldJTi, lit.JTi1983, **1.1970**
Pityogenes chalcographus (Linnaeus, 1760), Ljubljana, ldJSd, cJSd, **10.6.1928**
Pityogenes conjunctus Reitter, 1887, Šija, Vogel, Julijske Alpe, ldJTi, lit.JTi1983, **8.1980**
Pityogenes quadridens (Hartig, 1834), Ljubljana, Šentvid, ldJTi, lit.JTi1983, **6.1971**
(Kanin, Julijske Alpe, ldJPe vSBr, cJPe, brez datuma)
Pityogenes trepanatus (Nördlinger, 1848), Komen, ldJTi, lit.JTi1983, **1970**
Pityokteines curvidens (Germar, 1824), Čepovan, žaga, ldJŠl, lit.JŠL1948, **7.7.1947**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Pityokteines spinidens (Reitter, 1895), Idrija, okolica, ldFUl, lit.FUl1957, **18.4.1952**
Pityokteines vorontzowi (Jakobson, 1896), Idrija, okolica, ldFUl, lit.FUl1957, **18.4.1952**
Scolytus carpini (Ratzeburg, 1837), Podčetrtek, Graben, ldEJa vSBr, cEJa, **12.6.1930**
Scolytus intricatus (Ratzeburg, 1837), Žitkovci, Dobrovnik, ldJTi, lit.JTi1983, **6.1971**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Scolytus laevis Chapuis, 1869, Ljubljana, ldJSs, cJSd, **5.7.1936**
Scolytus mali (Bechstein, 1805), Ljubljana, ldJSs, cJSd, **12.7.1933**
Scolytus multistriatus (Marsham, 1802), Ljubljana, Črnuče 1, ldJTi, lit.JTi1983, **3.1972**
(Ajdovščina, ldABi vSBr, cABi, brez datuma)
Scolytus pygmaeus (Fabricius, 1787), Ljubljana, Črnuče 1, ldJTi, lit.JTi1983, **3.1972**
Scolytus ratzerburgi Janson, 1856, Bukovniško jezero, Dobrovnik, ldJTi, cSBr, **1985**
Scolytus rugulosus (Müller, 1818), Leskovec v Podborštu, Šentjanž, ldJTi, lit.JTi1983, **1.1965**
(Ajdovščina, ldABi vSBr, cABi, brez datuma; Ljubljana, Dravlje, lJSs, cJSd, brez datuma)
Scolytus scolytus (Fabricius, 1775), Podčetrtek, Graben, ldJPe vSBr, cEJa, **7.6.1930**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Ambrosiodmus rubricollis (Eichhoff, 1876), Most na Soči, lBRe dTHa, lit.THa2019a, **27.5.2018**
Ambrosiophilus atratus (Eichhoff, 1876), Most na Soči, lBRe dTHa, lit.THa2019a, **29.4.2018**

Anisandrus dispar (Fabricius, 1792), Radeče, ldAGs, cAGs, **22.4.1924**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Xyleborinus attenuatus (Blandford, 1894), Ljubljana, Šentvid 1, ldTHa, lit.THa2018, **28.7.2017**
Xyleborinus saxesenii (Ratzeburg, 1837), Pokojišče, Borovnica, ldJSd, cJSd, **18.4.1920**
Xyleborus cryptographus (Ratzeburg, 1837), Kalobje, Kostrivnica, ldVKo vZKa, cŠFS, **9.6.1929**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Xyleborus dryographus (Ratzeburg, 1837), Ljubljana, ldJSd, cJSd, **19.5.1916**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Xyleborus eurigraphus (Ratzeburg, 1837), Koper, Luka Koper 3, ldRPa, lit.RPa2014b, **23.5.2014**
Xyleborus monographus (Fabricius, 1792), Ljubljana, ldJSd, cJSd, **20.6.1916**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Xyleborus pfeili (Ratzeburg, 1837), Velika Polana, ldJTi, lit.JTi1983, **7.1980**
Xylosandrus crassiusculus (Motschulsky, 1866), Podsabotin, Goriška brda, ldAKv, lit. AKv2018, **1.8.2017**
Xylosandrus germanus (Blandford, 1894), Sabotin, Nova Gorica, ldGSe vSBr, cSBr, **26.4.2000**
Trypodendron domesticum (Linnaeus, 1758), Ljubljana, ldJSd, cJSd, **7.5.1919**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Trypodendron leave Eggers, 1939, Koper, Luka Koper 3, ldRPa, lit.RPa2014b, **1.9.2014**
Trypodendron lineatum (Olivier, 1795), Predole, ldJSd, cJSd, **4.1918**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)
Trypodendron signatum (Fabricius, 1792), Dolenjske Toplice, ldJSd, cJSd, **26.4.1919**
Platypus cylindrus (Fabricius, 1792), Ljubljana, ldJSd, cJSd, **28.6.1899**
(Slovenija, ldMSi, lit.MSi1866, brez datuma)

Največ prvih najdb podlubnikov v Sloveniji z ustreznimi opisi lokacij in navedenimi datumi nabiranj so prispevali koleopterologi, ki so bili aktivni v 20. stoletju: Alfonz Gspan (AGs), Josef Stussiner (JSs), Josef Staudacher (JSd) in Janez Titovšek (JTi). V obdobju od 1991 do 2017 je Roman Pavlin (RPa) našel 14 za Slovenijo novih vrst podlubnikov in 7 vrst, za katere smo doslej imeli za Slovenijo navedbe brez lokacij in / ali datumov. Večina za Slovenijo novih vrst je prvič navedena v tej publikaciji. Na seznamu se nahajajo tudi štiri vrste, za katere obstajajo samo podatki iz starejše literature, s pomanjkljivimi podatki o lokaciji in brez datuma: *žukov ličar* (*Phloeotribus rhododactylus*), svetli dvojnookec, (*Polygraphus subopacus*), puhasti vejar (*Pityophthorus pubescens*) in drobni podaljškar (*Crypturgus cribrellus*), *katerih* prisotnost v Sloveniji še ni bila potrjena s kasnejšimi najdbami.

Coleopterologists who were active in the 20th century contributed the most of the first finds of bark beetles in Slovenia with appropriate descriptions of locations and stated collection dates: Alfonz Gspan (AGs), Josef Stussiner (JSs), Josef Staudacher (JSd) and Janez Titovšek (JTi). In the period from 1991 to 2017, Roman Pavlin (RPa) found 14 new species of bark beetles for Slovenia and 7 species for which we had incomplete data (without location and / or date) for Slovenia. The majority of the new species for Slovenia are listed for the first time in this publication. The list also includes four species mentioned in older only, with insufficient location data and no date: *Phloeotribus rhododactylus, Polygraphus subopacus, Pityophthorus pubescens* and *Crypturgus cribrellus*. The presence of these species in Slovenia has not yet been confirmed by later finds.

5. Razprava

5.1. Vrstna pestrost in trendi gostote populacij podlubnikov in strženarjev v Sloveniji

Slovenija leži na stičišču štirih evropskih geografskih makroregij: Jadranskega primorja, Alp, Dinarskega gorstva in Panonske nižine. Ne glede na dejstvo, da meri le 20.273 km^2, kar je nekaj manj kot 0,2 % celotne evropske površine, je pri nas zaradi izredno razgibane orografske, geološke in ekološke raznolikosti izjemno velika tudi biotska raznolikost. To ni le rezultat že omenjene geografske raznolikosti Slovenije, ampak tudi sonaravno gojenih gozdov, ki prekrivajo približno 60 % površine ozemlja. Na podlagi Zakona o gozdovih (1993) se fitofarmacevtska kemična sredstva, razen redkih izjem, v gozdovih niso uporabljala. Posamezni avtorji navajajo različno število vrst iz poddružin podlubnikov in strženarjev za srednjo Evropo in vzhodno palearktično območje. Tako Grüne (1979) v *Handbuch zur Bestimmung der europäischer Borkenkäfer* za Evropo navaja 154 vrst podlubnikov. Lucht (1987) v katalogu *Die Käfer Mitteleuropas* navaja podatek, da je v srednji Evropi 117 vrst podlubnikov in ena vrsta strženarja. Pfeffer (1995) v delu *Zentral- und westpaläarktische Borken-und Kernkäfer* (*Coleoptera: Scolytidae, Platypodidae*) za centralno in zahodno palearktično območje navaja 308 vrst podlubnikov in 3 vrste strženarjev. V nedavno objavljenem seznamu podlubnikov in strženarjev Švice navajajo podatek, da je v Švici prisotnih 112 vrst podlubnikov in ena vrsta strženarja (Sanchez s sod. 2020a). Za favno Slovenije navajamo 117 vrst podlubnikov (Scolytinae) in eno vrsto strženarja (Platypodinae). Leta 1988 je bil objavljen seznam podlubnikov v Sloveniji (Titovšek 1988), ki je obsegal 69 vrst. Dopolnjen seznam favne podlubnikov je rezultat predvsem analize dodatnega ulova v pasteh s

5. Discussion

5.1. Species diversity and trends in the density of populations of bark beetles and pinhole borers in Slovenia

Slovenia lies at the crossroads of four European geographical macro-regions: the Adriatic littoral, the Alps, the Dinaric Mountains and the Pannonian Plain. Despite the fact that it covers only 20 273 km^2, which is just under 0.2% of Europe's total surface area, the country's extremely diverse orography, geology and ecology make it a biodiversity hotspot. This is not only a result of Slovenia's geographical diversity, which has already been mentioned, but also of its sustainably managed forests, which cover about 60% of the country's land area. Under the Forests Act (1993), with few exceptions, chemical plant protection products are not used in forests. Different authors cite different numbers of species from the subfamilies of bark beetles and pinhole borers for Central Europe and the eastern Palaearctic region. For example, Grüne (1979) lists 154 species of bark beetles for Europe in his *Handbuch zur Bestimmung der europäischer Borkenkäfer*. Lucht (1987), in *Die Käfer Mitteleuropas*, gives a figure of 117 species of bark beetle in Central Europe and one species of pinhole borer. Pfeffer (1995), in *Zentral- und westpaläarktische Borken-und Kernkäfer (Coleoptera: Scolytidae, Platypodidae)* lists 308 species of bark beetle and 3 species of pinhole borer for the central and western Palaearctic region. The recently published list of Bark Beetles and Pinhole Borers of Switzerland indicates that 112 species of bark beetle and one species of pinhole borer are present in Switzerland (Sanchez et al. 2020a). For the fauna of Slovenia, 117 species of bark beetle (Scolytinae) and one species of pinhole borer (Platypodinae) are listed. In 1988, a list of bark beetles in Slovenia was published (Titovšek 1988) listing 69 species. The updated list of the bark beetle fauna is mainly the result of the analysis of additional catches in phero-

feromoni/atraktanti pri spremljanju prenašalcev borove ogorčice. Vrste, ki so bile prvič najdene v Sloveniji, večinoma niso rezultat priseljevanja v zadnjih letih, ampak je bil njihov ulov verjetneje rezultat uporabe novih metod vzorčenja z uporabo feromonskih pasti. Enako velja tudi za veliko novih najdišč pri posameznih vrstah, ki so doslej veljale za redke. Nova najdišča v tem primeru niso nujno rezultat povečanja njihovih populacij, ampak verjetneje uporabe že prej omenjenih novih metod nabiranja. V tem delu navajamo 48 dodatnih vrst, med katerimi je 42 domorodnih in 6 tujerodnih vrst: *G. materiarius*, *A. rubricollis, A. atratus, X. crassiusculus, X. germanus, X. attenuatus.* Potrjena je prisotnost ene vrste strženarjev – hrastovega strženarja (*Platypus cylindrus)*. Na podlagi teh podatkov ugotavljamo, da je biodiverziteta podlubnikov v Sloveniji velika.

O trendih gibanja velikosti populacij obravnavanih vrst težko govorimo. Nabiranje vzorcev na terenu je potekalo zlasti v okviru manjših raziskovalnih nalog, diplom in terenskega pouka, z veliko entuziazma avtorjev in pogosto izven uradnega delovnega časa. Sistematični večletni monitoring podlubnikov in strženarjev na celotni površini Slovenije se nikoli ni izvajal, zato je nemogoče napovedati trende razvoja predstavnikov obeh obravnavanih poddružin. Lahko pa ocenimo trende naraščanja in upadanja številčnosti in gostote populacij nekaterih najpogostejših smrekovih podlubnikov na podlagi naših podatkov in podatkov Zavoda za gozdove Slovenije v obliki letnih poročil o sanitarnem poseku. Zaradi višanja temperatur, vse pogostejših ujm in nasadov smreke v nižinah, ki so zunaj njenega naravnega areala in so zato bolj ranljivi, bodo smrekovi podlubniki povečevali vrstno raznolikost in abundanco. Prisotnost vrste *Ips duplicatus* (dvojnozobi lubadar), ki povzroča v Evropi, skupaj z osmerozobim lubadarjem in smrekovim zvezdašem, veliko ekonomsko škodo v nižinskih sestojih navadne smreke, je bila pri nas potrjena leta 2020. Pričakujemo, da se bo nadaljeval trend zmanjševanja ste-

mone / attractant traps when monitoring pinewood nematode vectors. The species that were found for the first time in Slovenia are mostly not the result of their immigration in recent years. Their capture was more likely the result of the use of new sampling methods using pheromone traps. The same applies to many new sites of individual species that were previously considered rare. In this case, the new sites are not necessarily the result of an increase in their populations, but more likely the use of new collection methods. In this work, we list 48 additional species, of which 42 are native and 6 non-native: *G. materiarius*, *A. rubricollis, A. atratus, X. crassiusculus, X. germanus, X. attenuatus.* One species of pinhole borer is confirmed: *Platypus cylindrus*. On the basis of these data, we conclude that the biodiversity of bark beetles in Slovenia is high.

It is difficult to speak of trends in population size of the species being analysed. Collection of samples in the field took place mainly in the context of small research projects, diplomas and field lessons, with great enthusiasm of the authors and often outside of official working hours. Our data collection on bark beetles / pinhole borers was mostly carried out in the field in the framework of small research tasks, diplomas and a lot of enthusiastic work, especially by some co-authors. Our work has mainly used pheromones and other attractants to attract the bark beetles. Systematic monitoring of the entire area of Slovenia for several years has never been carried out, so it is impossible to predict trends in the development of the representatives of the two subfamilies. However, we can estimate the trends of increasing and decreasing abundance and population density of some of the most common spruce bark beetles based on our data and the data of the Slovene Forest Service in the form of annualy sanitary logging reports. Increasing temperatures, more frequent storms and spruce plantations in lowland areas, which are outside its natural range and therefore more vulnerable, will lead to an increase in species diversity and abundance of spruce bark beetles. *Ips duplicatus* (Sahlberg, 1836), a species that

vilčnosti in gostote populacij podlubnikov na brestih zaradi izginjanja gostiteljskih dreves, kar je posledica holandske brestove bolezni, ki jo povzročata glivi *Ophiostoma ulmi* in *O. novo-ulmi*. V prihodnosti lahko pričakujemo podobno upadanje populacij podlubnikov na jesenih, kjer gostiteljska drevesa propadajo zaradi jesenovega ožiga, ki ga povzroča gliva *Hymenoscyphus fraxineus*. Pričakujemo tudi vdor novih tujerodnih, predvsem subtropskih in tropskih vrst zaradi večjega obsega mednarodne trgovine in otoplitve podnebja.

5.2. Podlubniki in strženarji, ki jih lahko pričakujemo v Sloveniji

Glede na število vrst podlubnikov, ki smo jih v Sloveniji prvič našli po letu 2000, lahko v prihodnosti pričakujemo nove najdbe, zlasti z uporabo pasti, opremljenimi z ustreznimi feromoni in ostalimi atraktanti. Pričakujemo lahko najdbe vrst, ki so bile že odkrite v sosednjih državah, v srednji Evropi in v Sredozemlju. Glede na število vrst, ki jih navajajo dela tujih raziskovalcev in so navedena v poglavju 5.1, se v Sloveniji verjetno nahaja okrog 150 različnih vrst podlubnikov.

Tujerodne podlubnike smo pri nas začeli beležiti po letu 2000. To so: *Xylosandrus germanus* (črni ambrozijevec, prvič je bil najden aprila 2000 v bližini Solkana pri Novi Gorici na evropskem pravem kostanju (*Castanea sativa* Mill.), *Gnathotrichus materiarius* (ameriški pegar, prvič je bil najden avgusta 2003 v lovišču protokolarnega objekta Brdo pri Kranju), *Xyleborinus attenuatus* (pikčasti lesarček, prvič ugotovljen julija 2017 v Ljubljani, naslednje leto pa še v Mostu na Soči), *Xylosandrus crassiusculus* (azijski ambrozijevec, najden je bil v Podsabotinu v Goriških brdih avgusta 2017 v pasti

causes significant economic damage in Europe in lowland Norway spruce stands, together with the *Ips typographus* and the *Pityogenes chalcographus*, has been confirmed in Slovenia in 2020. We expect the trend of declining abundance and population densities of bark beetles in elm trees to continue due to the loss of host trees caused by Dutch elm disease (caused by the fungi *Ophiostoma ulmi* and *O. novo-ulmi).* In the future, a similar decline in the populations of bark beetles in ash trees can be expected where host trees are declining due to ash blight caused by the fungus *Hymenoscyphus fraxineus*. We also expect new non-native species, especially subtropical and tropical species, to invade due to increased international trade and a warming climate.

5.2. Bark beetles and pinhole borers which we can expect in Slovenia

Considering the number of species of bark beetles that we found in Slovenia for the first time after 2000, we can expect new finds in the future, especially with the use of traps equipped with appropriate pharomones and other attractants. We can expect to find species that have already been discovered in neighboring countries, in Central Europe and in the Mediterranean. Considering the number of species listed in the works of foreign researchers and listed in chapter 5.1, there are probably around 150 different species of bark beetles in Slovenia.

We started recording non-native bark beetles in Slovenia in 2000. These are *Xylosandrus germanus* (first found in April 2000 in the vicinity of Solkan near Nova Gorica on European chestnut (*Castanea sativa* Mill.), *Gnathotrichus materiarius* (first found in August 2003 in the hunting area of the Brdo pri Kranju estate), *Xyleborinus attenuatus* (first found in July 2017 in Ljubljana, and the following year in Most na Soči), *Xylosandrus crassiusculus* (found in Podsabotin in Goriška Brda in August 2017 in a trap during monitoring of harmful quarantine organisms), *Ambrosiophilus atratus* (found

pri monitoringu škodljivih karantenskih organizmov), *Ambrosiophilus atratus* (*črni ambrozijofil,* najden pri monitoringu vrste *X. germanus* aprila in maja 2018 na lokaciji Most na Soči) ter *Ambrosiodmus rubricollis* (rdečevrati ambrozijar, najden maja 2018 na lokaciji Klavže).

V Sloveniji lahko v bližnji prihodnosti pričakujemo tudi najdbo orehovega vejarja (*Pityophthorus juglandis* Blackman, 1928), ki je vektor patogene glive *Geosmithia morbida* Kolařik (Ascomycota, Hypocreales). Gliva povzroča bolezen tisočerih rakov in odmiranje vrst rodu *Juglans.* Vrsta je že prisotena v severni Italiji. Od strženarjev pričakujemo vrste *Megaplatypus mutatus* (Chapuis, 1865) in *Platypus quercivorus* (Murayama, 1925), ki je vektor patogene glive *Raffaelea quercivora* Kubono & Ito (Grousset s sod. 2020). Lahko pričakujemo tudi najdbo v Evropi avtohtonega jelovega strženarja (*Platypus oxyurus* Dufour, 1843), ki se pojavlja na jelkah (*Abies alba*, *A. nebrodensis*, *A. caphalonica*) in je prisoten v sosednjih državah.

during monitoring of *X. germanus,* April and May 2018, at Most na Soči) and *Ambrosiodmus rubricollis* (found in May 2018 at Klavže).

In Slovenia, the walnut twig beetle *Pityophthorus juglandis* Blackman, 1928, vector of the pathogenic fungus *Geosmithia morbida* Kolařik (Ascomycota, Hypocreales), can be expected in the near future. The fungus causes the thousand cankers disease and dieback of species of the genus *Juglans. P. juglandis is already* present in northern Italy. From the pinhole borers, we expect to find *Megaplatypus mutatus* (Chapuis, 1865) and *Platypus quercivorus* (Murayama, 1925), which is the vector of the pathogenic fungus *Raffaelea quercivora* Kubono & Ito (Grousset et al. 2020). We also expect to find *Platypus oxyurus* Dufour, 1843, a species native to Europe, which occurs on fir trees (*Abies alba*, *A. nebrodensis*, *A. caphalonica*) and is present in neighbouring countries.

6. Zahvale

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Maja Jurc: zamisel in koordinacija projekta, avtorica večine besedila in vseh fotografij podlubnikov; Roman Pavlin: legator in determinator z največ vnosov, avtor besedila v poglavjih 3.1.4, 3.2., 3.4., vrednotenje rezultatov (4.1., 4.2.), avtor tabel 2-7; Savo Brelih: mentor, avtor in editor Osrednje slovenske zbirke hroščev (Coleptera)- cCCS. Sara Pintarič: izdelava kart razširjenosti podlubnikov v Sloveniji; Danijel Borkovič: vnosi, delo na terenu, tehnična pomoč.

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7. Avtorstvo / Authorship

Maja Jurc: idea and coordination of the project, author of the majority of the text and all photos of bark beetles; Roman Pavlin: collector and determiner with the most entries, author of the text in chapter 3.1.4, 3.2., 3.4., evaluation of results (4.1-4.2.), author of tables 2-7; Savo Brelih: initiator of the work, mentor, author and editor of the Central Collection of Beetles of Slovenia; Sara Pintarič: production of distribution maps; Danijel Borkovič: input, field work, technical assistance.

8. Viri, ki se navajajo v podatkih o posamezni vrsti in literatura

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