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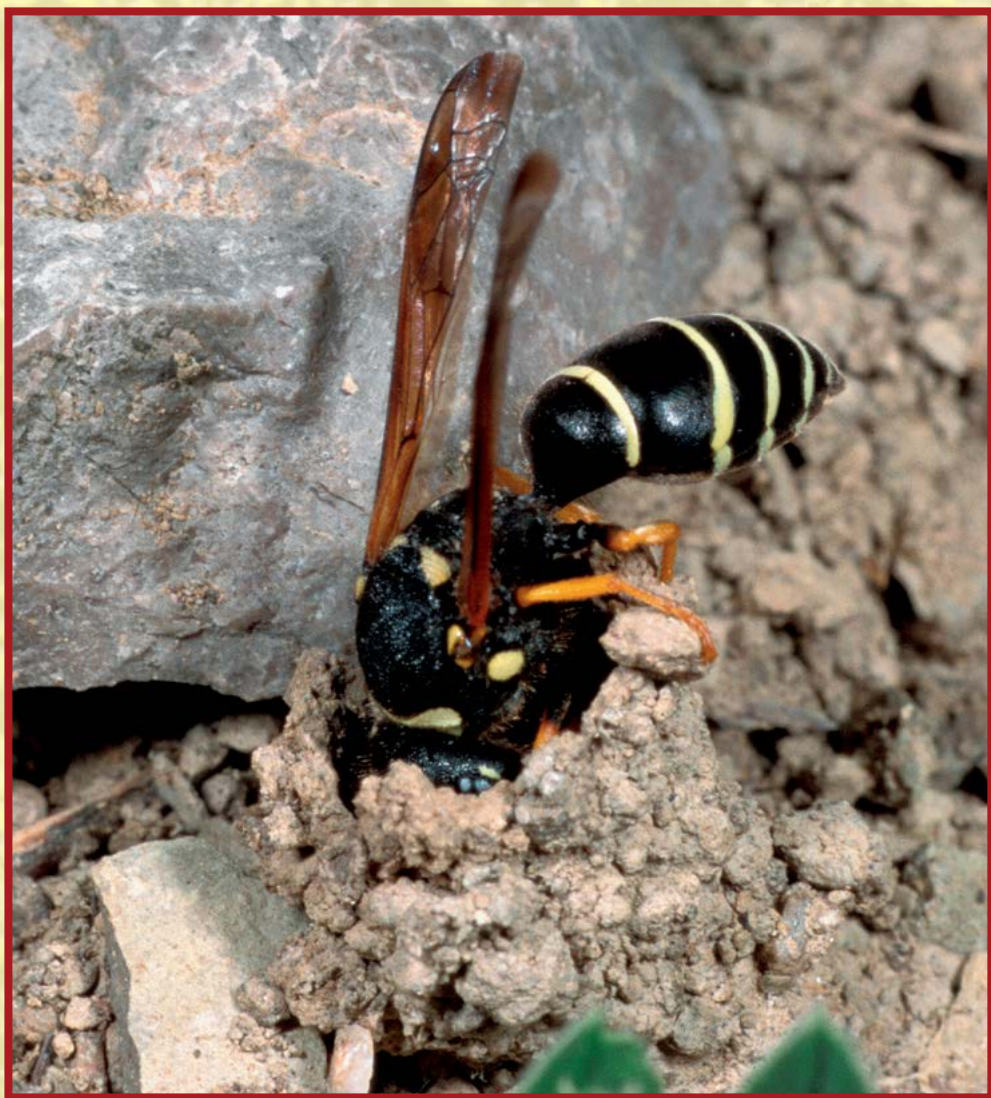
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Ose družine Vespidae v Sloveniji (Hymenoptera: Vespoidea: Vespidae)

Vespid wasps of Slovenia (Hymenoptera: Vespoidea: Vespidae)

Andrej Gogala¹

Izveček

Na podlagi objavljenih podatkov in pregleda primerkov iz zbirk Prirodoslovnega muzeja Slovenije je pripravljen prvi seznam os družine Vespidae v Sloveniji. V seznamu je 72 vrst, ena je umaknjena s seznama. V Sloveniji je bilo do zdaj najdenih 52 vrst iz poddružine Eumeninae, ena iz poddružine Masarinae, 7 iz poddružine Polistinae in 12 iz poddružine Vespinae.

Ključne besede: Hymenoptera, Aculeata, Vespoidea, Vespidae, favna, Slovenija

Abstract

Based on published data and examination of specimens from the collections of the Slovenian Museum of Natural History, the first list of wasps of the Vespidae family in Slovenia has been prepared. The list includes 72 species; one has been removed from it. So far, 52 species from the subfamily Eumeninae, one from the subfamily Masarinae, 7 from the subfamily Polistinae and 12 from the subfamily Vespinae, have been found in Slovenia.

Key words: Hymenoptera, Aculeata, Vespoidea, Vespidae, fauna, Slovenia

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Uvod

Vespidae so kozmopolitska družina os z največjo raznovrstnostjo v tropih. Šteje približno 4000 vrst iz šestih poddružin (GOULET & HUBER, 1993). Štiri poddružine so zastopane tudi v Evropi, vključno s Slovenijo: Eumeninae, Masarinae, Polistinae in Vespinae. V preteklosti so jih pogosto uvrščali v samostojne družine Eumenidae, Masaridae in Vespidae. Odrasli osebkji so večinoma črni ali rjavi z rumenimi ali belimi progami in lisami. Večina vrst je samotarska, tako živijo pripadnice poddružin Eumeninae in Masarinae. Gnezdiijo v rovih v tleh ali v odmrlem lesu, ali pa gradijo samostoječa gnezda iz blata, pritrjena na skale ali rastline. Ličinke v celicah se prehranjujejo z zalogo hrane, ki jim jo vnaprej pripravi mati. Ose lončarke (Eumeninae) jim lovijo gosenice metuljev, hroščev ali rastlinskih os, medene ose (Masarinae) pa jih oskrbijo z mešanico peloda in medicine. Papirjevke (Polistinae) in družbene ose (Vespinae) so družbeno živeče vrste, ki gradijo satovje iz papirja. Nekaj vrst je kleptoparazitskih in živijo pri drugih vrstah istega rodu. Pri naših vrstah poddružine Polistinae je sat le eden in brez ovoja, pri vrstah poddružine Vespinae pa je satov več, obdanih z ovojem. Ličinke se v celicah postopno hranijo z zgrizenimi žuželkami, včasih tudi z mesom poginulih vretenčarjev.

V literaturi ne najdemo veliko podatkov o vrstah družine Vespidae v Sloveniji, če odmislimo omembe najpogostejših družbenih os v dnevnem časopisju ob njihovi vsakoletni namnožitvi v poznem poletju. SCOPOLI v knjigi *Entomologia carniolica* (1763) navaja osem vrst, ki jih uvršča v rod *Vespa*. Tri vrste danes pripadajo poddružini Vespinae. To so sršen (*Vespa crabro* Linnaeus, 1758), navadna osa (*Vespula vulgaris* (Linnaeus, 1758)) in vrsta *Dolichovespula sylvestris*, za katero ima Scopolijevo ime prvenstvo, čeprav gotovo ni razločeval različnih vrst današnjega rodu *Dolichovespula*. Z imenom *Vespa parietum* je opisal dve vrsti iz rodu *Polistes*, ne pa vrste *Ancistrocerus parietum* (Linnaeus, 1758)

Introduction

Vespidae is a cosmopolitan family of wasps with the greatest diversity in the tropics. It contains about 4,000 species in six subfamilies (GOULET & HUBER, 1993). Four subfamilies are also represented in Europe, including Slovenia: Eumeninae, Masarinae, Polistinae and Vespinae. In the past, they were often classified into independent families Eumenidae, Masaridae, and Vespidae. Adults are mostly black or brown with yellow or white lines and spots. Most species are solitary, such are members of the subfamilies Eumeninae and Masarinae. They nest in burrows in the ground or in dead wood, or build free-standing nests of mud attached to rocks or plants. The larvae in the cells feed on a supply of food prepared for them in advance by the mother. Potter wasps (Eumeninae) catch caterpillars or larvae of beetles or sawflies, while pollen wasps (Masarinae) provision them with a mixture of pollen and nectar. Paper wasps (Polistinae) and social wasps (Vespinae) are socially living species that build combs out of paper. Some species are kleptoparasitic and live in the nests of other species of the same genus. In our species of the subfamily Polistinae, the comb is only one and without an envelope, while in the species of the subfamily Vespinae there are several combs surrounded by an envelope. The larvae in the cells are progressively fed on masticated insects, sometimes even on the flesh of dead vertebrates.

We do not find much information in the literature about the species of the family Vespidae in Slovenia, if we disregard the references to the commonest social wasps in the daily news when they multiply every year in late summer. In his book *Entomologia carniolica* (1763), SCOPOLI lists eight species which he classifies in the genus *Vespa*. Today, three species belong to the subfamily Vespinae. These are the hornet (*Vespa crabro* Linnaeus, 1758), the common wasp (*Vespula vulgaris* (Linnaeus, 1758)) and the species *Dolichovespula sylvestris*, for which Scopoli's name takes precedence, although he certainly did not distinguish between the different species of today's genus *Dolichovespula*.

(ROGENHOFER & DALLA TORRE, 1882). Tri vrste danes pripadajo poddružini Eumeninae. *Vespa muraria*, kot jo opisuje Scopoli, je danes *Symmorphus crassicornis* (Panzer, 1798), *Vespa tinniens* je *Hemipterochilus bembeciformis* (Morawitz, 1867), tretja je *Eumenes coarctatus* (Linnaeus, 1758). Identiteta Scopolijeve vrste *Vespa maculata* ni jasna. Večinoma jo navajajo kot sinonim vrste *Vespula germanica* (Fabricius, 1793), a to je vprašljivo. Zakaj bi jo Scopoli navajal na koncu spiska vrst iz rodu *Vespa* in ne ob zelo podobni vrsti *Vespula vulgaris* in ali je sploh razlikoval med tako podobnima vrstama? Scopoli za vsako vrsto navaja velikost in *Vespa maculata* naj bi bila veliko manjša kot *Vespa vulgaris* (2,5 linij za *V. maculata* in 6,5 linij za *V. vulgaris*). ROGENHOFER & DALLA TORRE (1882) sta menila, da bi bila *V. maculata* Scopoli lahko *Nysson trimaculatus* (Rossi, 1790), grebača iz družine Crabronidae.

HARTIG (1932) je vrsto *Symmorphus declivis* opisal po primerkih, ki jih je v Podčetrtku našel E. Jaeger. VOGRIN (1955) je objavil podatke o primerkih iz zbirk muzejev na Hrvaškem, tudi o več primerkih iz Slovenije. GRAEFFE (1911) in SERIANI (1989) sta raziskovala favno okolice Trsta in navajata tudi nekaj podatkov za ozemlje Slovenije. GUSENLEITNER (1993, 2000a) pa za dve vrsti navaja, da živita v Sloveniji, a brez natančnejših podatkov.

Material in metode

Seznam vrst, najdenih na ozemlju Slovenije, je pripravljen na osnovi pregleda dostopne literature in zbirk, shranjenih v Prirodoslovnem muzeju Slovenije (PMSL). Največ os je v zbirki kožekrilcev Evgena Jaegera (1892–1959), zdravnika iz Podčetrтка. Zbiral je predvsem v Podčetrtku in okolici. Natančnejše lokalitete je žal označil le s kraticami, ki niso vedno razpoznavne. Primerkov iz njegovega rodnega dvorca Miljana ni v seznamu, saj je dvorec na Hrvaški strani Sotle. Objavljena pa je fotografija enega od teh primerkov. Evgen Jaeger

Under the name *Vespa parietum*, he described two species of the genus *Polistes*, but not the species *Ancistrocerus parietum* (Linnaeus, 1758) (ROGENHOFER & DALLA TORRE, 1882). Three species today belong to the subfamily Eumeninae. *Vespa muraria*, as described by Scopoli, is today *Symmorphus crassicornis* (Panzer, 1798), *Vespa tinniens* is *Hemipterochilus bembeciformis* (Morawitz, 1867), the third is *Eumenes coarctatus* (Linnaeus, 1758). The identity of Scopoli's species *Vespa maculata* is unclear. It is mostly cited as a synonym for the species *Vespula germanica* (Fabricius, 1793), but this is questionable. Why Scopoli would have listed it at the end of the list of species of the genus *Vespa* and not next to a very similar species *Vespula vulgaris*, and did he at all distinguish between such similar species? Scopoli states the size for each species and *Vespa maculata* is said to be much smaller than *Vespa vulgaris* (2.5 lines for *V. maculata* and 6.5 lines for *V. vulgaris*). ROGENHOFER & DALLA TORRE (1882) suggested that *V. maculata* Scopoli could be *Nysson trimaculatus* (Rossi, 1790), a wasp of the family Crabronidae.

HARTIG (1932) described the species *Symmorphus declivis* from specimens found by E. Jaeger at Podčetrtek. VOGRIN (1955) published data on specimens from museum collections in Croatia, including several specimens from Slovenia. GRAEFFE (1911) and SERIANI (1989) researched the fauna around Trieste and also provided some data for the territory of Slovenia. GUSENLEITNER (1993, 2000a) states that two species are present in Slovenia, but without more precise data.

Materials and methods

The list of species found in the territory of Slovenia has been prepared on the basis of a review of available literature and collections stored in the Slovenian Museum of Natural History (PMSL). The largest collection of wasps is in the Hymenoptera collection of Evgen Jaeger (1892 - 1959), a physician from Podčetrtek. He collected mainly at Podčetrtek

je zbiral predvsem v tridesetih in štiridesetih letih 20. stoletja. V študijski zbirki kožekrilcev Prirodoslovnega muzeja Slovenije pa so predvsem primerki, ki jih je zbral avtor (A. Gogala), največ v devetdesetih letih in nekaj tudi zadnja leta. V seznamu so navedeni tudi razpoznavni fotografirani primerki, ki niso shranjeni v zbirkah. Med njimi je tudi edini osebek vrste *Katamenes arbustorum* s slovenskega ozemlja. Nekaj je tudi podatkov o opazovanih osebkih zlahka razpoznavnih vrst.

Primerki so bili določeni s pomočjo ključev, objavljenih v delih J. GUSENLEITNERJA (1993, 1995a, 1995b, 1996, 1997a, 1997b, 1997c, 1998, 1999a, 1999b, 1999c, 2000a, 2000b), GEREYS (2016), SCHMID-EGGERJA s sod. (2017) ter DVOŘÁKA IN ROBERTSA (2006).

Lokalitetam, navedenim v seznamu, so dodani pripadajoči UTM-kvadranti 10 x 10 km, da bi se izognili zamenjavi lokalitete s podobno imenovanimi kraji drugje. Navedene so le tiste kratice za oznako lokalitet v Jaegrovi zbirki, ki jim lahko določimo pomen. Ta je naveden v oklepajih.

and its surroundings. Unfortunately, he marked more precise localities only with abbreviations that are not always recognizable. Specimens from his native Miljana Mansion are not on the list, as the manor is situated on the Croatian side of the Sotla River, but a photo of one of these specimens has been published. Evgen Jaeger collected mainly in the 1930s and 1940s. The Study Collection of Hymenoptera in the Museum mainly includes specimens collected by the author (A. Gogala), mostly in the 1990s and a few in recent years. The list also includes identifiable photographed specimens that are not stored in collections. Among them is also the only specimen of the species *Katamenes arbustorum* from Slovenian territory. There are also some data on observed individuals of easily recognizable species. Specimens were determined using keys published in the works by J. GUSENLEITNER (1993, 1995a, 1995b, 1996, 1997a, 1997b, 1997c, 1998, 1999a, 1999b, 1999c, 2000a, 2000b), GEREYS (2016), SCHMID-EGGER et al. (2017) and DVOŘÁK & ROBERTS (2006). The corresponding UTM 10 x 10 km squares are added to the sites appearing in the list to avoid confusing the site with similarly named places elsewhere. Only those abbreviations are indicated for the designation of localities in the Jaeger collection for which the meaning is known to us. This is given in parentheses.

Okrajšave / Abbreviations:

leg. = legit / nabral / collected by

vid. = videt / opazoval / observed by

det. = določil / determined by

PMSL = Zbirka Prirodoslovnega muzeja Slovenije v Ljubljani / Collection of the Slovenian Museum of Natural History in Ljubljana

Sv. = Sveti / St.

Seznam vrst / List of species

Eumeninae

Alastor Lepeletier, 1841

Alastor mocsaryi (André, 1884)

Vzhodnomediterranska in srednjeazijska vrsta. Gnezda v steblih trstike vsebujejo 1-9 celic s pregradami in čepom iz kamenčkov, zlepljenih s prstjo ali peskom, ovlaženim z medičino (FATERYGA & PODUNAY, 2019). Celice so oskrbljene z ličinkami hroščev rilčkarjev (Curculionidae).

East Mediterranean and Central Asian species. Nests in reed stems contain 1-9 cells with partitions and plug of gravel cemented with soil or sand moistened with nectar (FATERYGA & PODUNAY, 2019). Cells are provisioned with larvae of Curculionid beetles.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 1.–10. 7. 1933, 1♂, 17. 6. 1935, 1♀, VIR (Virštanj) 19. 6. 1945, 1♀, E. Jaeger leg., PMSL



Slika 1: *Alastor mocsaryi*, samica iz Podčetrтка, ujeta 17. junija 1935.

Figure 1: *Alastor mocsaryi* female from Podčetrtek, collected 17 June 1935.

Allodynerus Blüthgen, 1938

Allodynerus delphinalis (Giraud, 1866)

Palaearktična vrsta. Gnezdi v steblih robide (*Rubus*) (GEREYS, 2016). | Palaearctic species. Nests in *Rubus* stems (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 28. 5. 1932, 1♀, 16. 9. 1932, 1♀1♂, E. Jaeger leg., PMSL
Nanos: Sv. Hieronim, 920 m, VL27, 18. 8. 2018, 1♀ on *Reseda*, A. Gogala leg., PMSL

Allodynerus floricola (Saussure, 1853)

Severnomediteranska in srednjeazijska vrsta. Gnezdi v skalnih vdolbinah, v starih gnezdih čebel zidark (*Chalicodoma*) in v steblih robide (*Rubus*) (GEREYS, 2016). | North Mediterranean and Central Asian species. Nests in rock hollows, in old nests of *Chalicodoma* bees and *Rubus* stems (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Brje pri Komnu, VL07, 13. 5. 1990, 1♂, A. Gogala leg., PMSL



Slika 2: *Allodynerus delphinalis*, samica z Nanosa.

Figure 2: *Allodynerus delphinalis* female from Mt. Nanos.



Slika 3: *Allodynerus floricola*, samec z Brij pri Komnu na Krasu.

Figure 3: *Allodynerus floricola* male from Brje near Komen in the Karst.



Slika 4: *Allodynerus rossii*, samica iz Podčetrka, ujeta 31. avgusta 1933.

Figure 4: *Allodynerus rossii* female from Podčetrtek, collected 31 August 1933.

Allodynerus rossii (Lepeletier, 1841)

Mediterranska in srednjeazijska vrsta. Gnezdi v steblih robide (*Rubus*), rovih v lesu ali skorji (GEREYS, 2016). Gnezdo zapre z blatom in kamenčki. Pleni majhne gosenice.

Mediterranean and Central Asian species. Nests in *Rubus* stems, burrows in wood or bark (GEREYS, 2016). Nest is closed with mud and pebbles. Preys on small caterpillars.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 20. 6. 1933, 2♂, 31. 8. 1933, 1♀, 18. 6. 1936, 1♂, TOP (toplice/spa) 5. 8. 1945, 1♂, E. Jaeger leg., PMSL

Ancistrocerus Wesmael, 1836

Ancistrocerus auctus (Fabricius, 1793)

Severnomediteranska in srednjeazijska vrsta. Pogosto zamenjana z vrsto *A. renimacula* (Lepeletier, 1841).

North Mediterranean and Central Asian species. Often confused with *A. renimacula* (Lepeletier, 1841).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 31. 8. 1933, 1♂, SCHL (schloss/grad) 7. 7. 1934, 1♂, 12. 7. 1934, 1♀, 14. 6. 1937, 1♂, 28. 6. 1938, 1♂, TOP (toplice/spa) 1. 8. 1939, 1♀, 26. 7. 1943, 1♂, 13. 7. 1945, 1♂, E. Jaeger leg., PMSL

Ancistrocerus claripennis Thomson, 1874

Evropska vrsta. Gnezdi v različnih obstoječih votlinicah, pleni ličinke lepencev (Chrysomelidae) in gosenice metuljkov (Microlepidoptera) (GEREYS, 2016 po BLÜTHGEN, 1961).

European species. Nests in various preexisting cavities, preys on larvae of Chrysomelidae and Microlepidoptera caterpillars (GEREYS, 2016 after BLÜTHGEN, 1961).

Objavljeni podatki / Published records:

GRAEFFE, 1911: South Carniola

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 10.–20. 7. 1933, 2♂, 18. 6. 1936, 1♀, 19. 6. 1937, 1♂, 15. 7. 1938, 1♀, TRO (Olimje, Trobevnik) 15. 7. 1939, 1♂, 23. 6. 1943, 1♂, 25. 7. 1943, 1♂, 7. 6. 1945, 1♂, VIR (Virštanj) 19. 6. 1945, 2♂, OL (Olimje) 2. 9. 1945, 1♂, E. Jaeger leg., PMSL

Ancistrocerus gazella (Panzer, 1798)

Zahodnopalearktična vrsta, vnesena v Novo Zelandijo in Severno Ameriko. Bivoltina vrsta, gnezdi v različnih obstoječih votlinicah (GEREYS, 2016 po BLÜTHGEN, 1961).

Western Palaearctic species, introduced into New Zealand and North America. Bivoltine species, nests in various preexisting cavities (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 27. 7. 1934, 1♀, Blüthgen det. 1942, 14. 6. 1937, 1♀, Blüthgen det. 1940, 22. 6. 1937, 1♂, Blüthgen det. 1940, OL (Olimje) 2. 9. 1945, 1♂, E. Jaeger leg., PMSL
Piran, UL84, 12. 9. 1990, 1♀, A. Gogala leg., PMSL

Ancistrocerus longispinosus longispinosus (Saussure, 1855)

Meditranska vrsta.

| Mediterranean species.

Pregledani primerki / Specimens examined:

Škrbina, Sv. Katerina, VL07, 10. 6. 2018, 1♀, A. Gogala leg., PMSL

Ancistrocerus nigricornis (Curtis, 1826)

Palearktična vrsta. Gnezdi v različnih obstoječih votlinicah, pleni gosenice metuljkov (Microlepidoptera) (GEREYS, 2016).

Palaearctic species. Nests in various preexisting cavities, preys on Microlepidoptera caterpillars (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 29. 8. 1932, 1♂, SOT (Sotla) 26. 8. 1933, 1♂, 27. 7. 1934, 1♂, SOT (Sotla) 1. 9. 1934, 1♂, 15. 5. 1935, 1♀, 19. 5. 1937, 1♀, 21. 6. 1937, 1♀, E. Jaeger leg., PMSL
Brje pri Komnu, VL07, 5. 5. 1989, 1♀, photo A. Gogala
Brestovica pri Komnu, UL97, 2. 5. 1990, 1♀, A. Gogala leg., PMSL
Log, Lukovica, VL59, 28. 6. 1990, 1♀, A. Gogala leg., 8. 6. 1991, 1♀, A. Gogala leg., 8. 4. 2020, 1♀, A. Gogala leg., PMSL
Ajševica, Lijak, VL09, 10. 6. 2021, 1♀, J. Kamin leg., PMSL

***Ancistrocerus oviventris oviventris* (Wesmael, 1836)**

Evrosibirska vrsta. Pleni gosenice metuljčkov (Microlepidoptera) ter ličinke rilčkarjev (Curculionidae) in lepencev (Chrysomelidae) (GEREYS, 2016).

Euro-Siberian species. Preys on Microlepidoptera caterpillars and larvae of Curculionidae and Chrysomelidae (GEREYS, 2016).

Objavljeni podatki / Published records:

VOGRIN, 1955: Mojstrana, 10. 8.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 4. 6. 1932, 1♀, 12. 6. 1933, 1♂, E. Jaeger leg., PMSL

Žusem, WM31, 10. 5. 1937, 1♂, Blüthgen det. 1942, E. Jaeger leg., PMSL

Stol, 1600 m, VM34, 28. 7. 1933, 1♂, E. Jaeger leg., PMSL

Brje pri Komnu, VL07, 16. 6. 1991, 1♀, A. Gogala leg., 9. 6. 1991, 1♂, A. Gogala leg., PMSL

Veliki Dol, VL07, 26. 4. 1992, 1♂, A. Gogala leg., PMSL

Slavnik, VL14, 23. 6. 1991, 1♂, A. Gogala leg., PMSL

Košuta: Planina Šija, 1530 – 1800 m, VM44, 20. 8. 1991, 1♀, A. Gogala leg., PMSL

Lokvica, Pečina, UL98, 29. 4. 2018, 1♂ on *Cotinus*, A. Gogala leg., PMSL

Sela na Krasu, Špik, UL97, 24. 4. 2021, 1♂, A. Gogala leg., PMSL

***Ancistrocerus parietinus* (Linnaeus, 1761)**

Evrosibirska vrsta. Gnezdi v različnih obstoječih votlinicah, pleni gosenice metuljčkov (Microlepidoptera) in ličinke lepencev (Chrysomelidae) (GEREYS, 2016 po BLÜTHGEN, 1961).

Euro-Siberian species. Nests in various preexisting cavities, preys on Microlepidoptera caterpillars and larvae of Chrysomelidae (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 18. 6. 1932, 1♀, 20.–30. 6. 1933, 1♀, 18. 6. 1936, 1♂, 11. 6. 1937, 1♀, 14. 6. 1942, 1♀, 7. 6. 1945, 1♀, E. Jaeger leg., PMSL

Sela na Krasu, Špik, UL97, 24. 5. 2020, 1♀, photo A. Gogala, 30. 5. 2020, 1♀, A. Gogala leg., PMSL

Brje pri Komnu, VL07, 26. 6. 2020, 1♀, A. Gogala leg., PMSL

***Ancistrocerus renimacula* (Lepelletier, 1841)**

Zahodnomediterranska vrsta. Pogosto zamenjana z vrsto *A. auctus* Fabricius, 1793.

Western Mediterranean species. Often confused with *A. auctus* Fabricius, 1793.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 15. 7. 1932, 1♀, 18. 6. 1936, 2♂, E. Jaeger leg., PMSL

Brje pri Komnu, VL07, 15. 7. 1990, 1♀, A. Gogala leg., PMSL

Movraž, VL13, 14. 6. 1991, 1♂, A. Gogala leg., PMSL

***Ancistrocerus scoticus scoticus* (Curtis, 1826)**

Evrosibirska vrsta. Gnezdi v različnih obstoječih votlinicah, pleni ličinke lepencev (Chrysomelidae) in gosenice metuljčkov (Microlepidoptera) (GEREYS, 2016).

Euro-Siberian species. Nests in various preexisting cavities, preys on larvae of Chrysomelidae and Microlepidoptera caterpillars (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Tosc, 1800 m, VM13, 6. 8. 1991, 1♀, A. Gogala leg., PMSL

***Ancistrocerus trifasciatus* (O.F. Müller, 1776)**

Evrosibirska vrsta. Pleni gosenice pedicev (Geometridae) in listnih zavrtačev (Gracillariidae) in tudi ličinke lepencev (Chrysomelidae) (GEREYS, 2016).

Euro-Siberian species. Preys on caterpillars of Geometridae and Gracillariidae and also on larvae of Chrysomelidae (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 11. 6. 1933, 1♂, Blüthgen det. 1942, 17. 8. 1934, 1♂, Blüthgen det. 1942, TRO (Olimje, Trobevnik) 20. 7. 1945, 1♀, 18. 8. 1945, 1♀1♂, E. Jaeger leg., PMSL

Umaknjena s seznama / Omitted from the list:

Ancistrocerus parietum (Linnaeus, 1758)

SCOPOLI, 1763: Carniola.

Scopolijska *Vespa parietum* ni pripadnica rodu *Ancistrocerus*. To je očitno iz opisa gnezd, ki so izpostavljena, gola, zaokrožena, s 40–60 celicami. Že ROGENHOFER & DALLA TORRE (1882) sta zaključila, da je Scopoli pod tem imenom opisal vrsti iz rodu *Polistes*.

Scopoli's *Vespa parietum* is not an *Ancistrocerus*. This is evident from the description of nests, which are exposed, naked, orbiculate, with 40–60 cells. ROGENHOFER & DALLA TORRE (1882) have already concluded that *Polistes* species had been described by Scopoli under this name.



Slika 5: *Ancistrocerus parietinus*, samica zbira prst za gradnjo gnezda. Sela na Krasu, 24. maj 2020.

Figure 5: *Ancistrocerus parietinus* female collecting soil for nest construction. Sela na Krasu, 24 May 2020.



Slika 6: *Ancistrocerus nigricornis*, samica prinaša blato v gnezdo v hroščjem rovu v lesu. Brje pri Komnu, 5. maj 1989.

Figure 6: *Ancistrocerus nigricornis* female bringing mud into the nest in beetle wood burrow. Brje pri Komnu, 5 May 1989.



Slika 7: *Ancistrocerus auctus*, samica iz Podčetrтка, ujeta 1. avgusta 1939.

Figure 7: *Ancistrocerus auctus* female from Podčetrtek, collected 1 August 1939.



Slika 8: *Ancistrocerus auctus*, samec iz Podčetrтка, ujet 31. avgusta 1933.

Figure 8: *Ancistrocerus auctus* male from Podčetrtek, collected 31 August 1933.



Slika 9: *Ancistrocerus claripennis*, samica iz Podčetrтка, ujeta 15. julija 1938.

Figure 9: *Ancistrocerus claripennis* female from Podčetrtek, collected 15 July 1938.



Slika 10: *Ancistrocerus gazella*, samica iz Pirana v Istri.

Figure 10: *Ancistrocerus gazella* female from Piran, Istria.



Slika 11: *Ancistrocerus longispinosus*, samica iz Škrbine na Krasu.

Figure 11: *Ancistrocerus longispinosus* female from Škrbina in the Karst.



Slika 12: *Ancistrocerus nigricornis*, samica z Lukovice pri Brezovici, ujeta 8. junija 1991.

Figure 12: *Ancistrocerus nigricornis* female from Lukovica near Brezovica, collected 8 June 1991.



Slika 13: *Ancistrocerus oviventris*, samica s Košute v Karavankah.

Figure 13: *Ancistrocerus oviventris* female from Mt. Košuta in the Karavanke Mts.



Slika 14: *Ancistrocerus parietinus*, samica iz Podčetrтка, ujeta 20. -30. junija 1933.

Figure 14: *Ancistrocerus parietinus* female from Podčetrtek, collected 20 -30 June 1933.



Slika 15: *Ancistrocerus parietinus*, obraz samice iz Sel na Krasu.

Figure 15: Face of the *Ancistrocerus parietinus* female from Sela na Krasu.



Slika 16: *Ancistrocerus renimacula*, samec iz Movraža v Istri.

Figure 16: *Ancistrocerus renimacula* male from Movraž, Istria.



Slika 17: *Ancistrocerus scoticus*, samica s Tosca v Julijskih Alpah.

Figure 17: *Ancistrocerus scoticus* female from Mt. Tosc in the Julian Alps.



Slika 18: *Ancistrocerus trifasciatus*, samica iz Podčetrтка, ujeta 18. avgusta 1945.

Figure 18: *Ancistrocerus trifasciatus* female from Podčetrtek, collected 18 August 1945.

Antepipona Saussure, 1855***Antepipona deflenda*** (Saunders, 1853)

Mediterranska in srednjeazijska vrsta. Gnezdi v steblih robide (*Rubus*) ali gradi majhna gnezda iz blata na kamnih ali deblih (GEREYS, 2016).

Mediterranean and Central Asian species. Nests in *Rubus* stems or constructs small mud nests on stones or trunks (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Brje pri Komnu, VL07, 18. 8. 1991, 1♀, A. Gogala leg., PMSL
 Hrastovlje, VL14, 13. 6. 1992, 1♂, A. Gogala leg., PMSL
 Rakitovec, Kavčič, 760 m, VL23, 7. 7. 2018, 1♀, A. Gogala leg., PMSL

Delta Saussure, 1855***Delta unguiculatum unguiculatum*** (Villers, 1789)

Mediterranska in srednjeazijska vrsta. Gradi gnezda iz blata in peska z več celicami. Pleni gosenice, še posebno pedicev (Geometridae) (GEREYS, 2016).

Mediterranean and Central Asian species. Constructs nests of mud and sand with several cells. Preys on caterpillars, especially of Geometridae (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Brje pri Komnu, VL07, 9. 7. 1989, 1♀, photo A. Gogala, 2. 9. 2018, 1♀, A. Gogala leg., PMSL
 Strunjan, Rt Ronek, UL94, 21. 7. 1999, 1♀, A. Gogala vid.
 Brje pri Komnu, Karavla, UL97, 2. 9. 2018, 1♀, A. Gogala vid.
 Sela na Krasu, UL97, 16. 9. 2018, 1♀, A. Gogala vid.
 Dobravlje, VL18, 5. 9. 2014, 1♀, photo Peter Valič
 Pomjan, Župančiči, VL03, 23. 9. 2015, 1♀, photo Miroslav Kastelic
 Tinjan, Kaluža, VL04, 26. 7. 2017, 1♀, photo Miroslav Kastelic

Discoelius Latreille, 1809***Discoelius dufourii*** Lepeletier, 1841

Evrosibirska vrsta. Pleni listne zavijače (Tortricidae) (GEREYS, 2016).

Euro-Siberian species. Preys on Tortricidae (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 3. 9. 1935, 1♀, *Discoelius priesneri* Mader, Blüthgen det. 1942, E. Jaeger leg., PMSL



Slika 19: *Antepipona deflenda*, samec iz Hrastovelj v Istri.

Figure 19: *Antepipona deflenda* male from Hrastovlje, Istria.



Slika 20: *Delta unguiculatum*, samica zbira pesek za gradnjo gnezda. Brje pri Komnu, 9. julij 1989.

Figure 20: *Delta unguiculatum* female collecting sand for nest construction. Brje pri Komnu, 9 July 1989.



Slika 21: *Discoelius dufourii*, samica iz Podčetrka, ujeta 3. septembra 1935.

Figure 21: *Discoelius dufourii* female from Podčetrtek, collected 3 September 1935.



Slika 22: *Discoelius zonalis*, samica iz Miljane (Hrvaška), 19. avgusta 1925 jo je ujel E. Jaeger.

Figure 22: *Discoelius zonalis* female from Miljana (Croatia), 19 August 1925, collected by E. Jaeger.

***Discoelius zonalis* (Panzer, 1801)**

Evrosibirska vrsta. Gnezdi v rovih hroščev v lesu, steblih robide (*Rubus*) in drugih votlinicah (GEREYS, 2016). Pregrade med celicami gradi s koščki listov. Pleni gosenice metuljkov (Microlepidoptera).

Euro-Siberian species. Nests in beetle wood burrows, *Rubus* stems and other cavities (GEREYS, 2016). Cell partitions are built from pieces of leaves. Preys on Microlepidoptera caterpillars.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 18. 8. 1945, 1♂, OL (Olimje) 2. 9. 1945, 1♂, E. Jaeger leg., PMSL



Slika 23: *Discoelius zonalis*, samec iz Podčetrтка, ujet 18. avgusta 1945.

Figure 23: *Discoelius zonalis* male from Podčetrtek, collected 18 August 1945.

Eumenes Latreille, 1802*Eumenes coarctatus* (Linnaeus, 1758)*Eumenes coarctatus lunulatus* Fabricius, 1804

Palearktična vrsta. Gradi gnezda iz blata v obliki majhnih vrčastih celic in jih napolni z gosenicami pedicev (Geometridae) (GEREYS, 2016). Preverjene slovenske primerke bi po GUSENLEITNERJU (1999b) uvrstili v podvrsto *E. c. lunulatus*, ki pa je sinonim *E. c. coarctatus* po GEREYSU (2016).

Palearctic species. Constructs small jug-like nest cells from mud and fills them with caterpillars of Geometridae (GEREYS, 2016). The checked Slovenian specimens would be ranked as the subspecies *E. c. lunulatus* according to GUSENLEITNER (1999b), a synonym of *E. c. coarctatus* according to GEREYS (2016).

Objavljeni podatki / Published records:

SCOPOLI, 1763: Circa Labacum (around Ljubljana)

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 7. 7. 1945, 1♀, E. Jaeger leg., PMSL

Sela na Krasu, Špik, UL97, 11. 5. 2019, 1♀, A. Gogala leg., PMSL

Eumenes coronatus coronatus (Panzer, 1799)

Evrosibirska vrsta.

| Euro-Siberian species.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 28. 8. 1937, 1♀, 29. 8. 1942, 1♂, 30. 8. 1942, 1♂, 15. 7. 1943, 1♀, 5. 6. 1945, 1♂, TOP (toplice/spa) 11. 8. 1945, 1♀, 18. 8. 1945, 1♂, TOP (toplice/spa) 27. 8. 1945, 1♀, E. Jaeger leg., PMSL

Podpeč, VL14, 14. 6. 1991, 1♀, A. Gogala leg., PMSL

Lukovec, Poljska gora, VL07, 19. 5. 2018, 1♀, A. Gogala leg., PMSL

Brje pri Komnu, Karavla, UL97, 15. 7. 2018, 1♀, A. Gogala leg., PMSL

Pokojišče, Zavrh, VL48, 22. 8. 2018, 1♂, A. Gogala leg., PMSL

Eumenes papillarius papillarius (Christ, 1791)

Evropska in srednjeazijska vrsta. Pleni gosence pedicev (Geometridae) (GEREYS, 2016 po BLÜTHGEN, 1961).

European and Central Asian species. Preys on caterpillars of Geometridae (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 14. 6. 1942, 1♂, 8. 9. 1943, 1♂, 11. 6. 1945, 1♀, 15. 8. 1945, 1♀, E. Jaeger leg., PMSL
Log, Lukovica, VL59, 15. 8. 1991, 1♀, A. Gogala leg., PMSL



Slika 24: *Eumenes coarctatus*, samica iz Sel na Krasu.

Figure 24: *Eumenes coarctatus* female from Sela na Krasu.



Slika 25: *Eumenes coarctatus*, obraz samice iz Sel.

Figure 25: Face of *Eumenes coarctatus* female from Sela.



Slika 26: *Eumenes coronatus*, samica z Brij pri Komnu na Krasu.

Figure 26: *Eumenes coronatus* female from Brje pri Komnu in the Karst.



Slika 27: *Eumenes papillarius*, samica z Lukovice pri Brezovici.

Figure 27: *Eumenes papillarius* female from Lukovica near Brezovica.

***Eumenes pedunculatus pedunculatus* (Panzer, 1799)**

Evrosibirska vrsta. Pleni gosenice pedicev (Geometridae) (GEREYS, 2016 po BLÜTHGEN, 1961). | Euro-Siberian species. Preys on caterpillars of Geometridae (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 21. 6. 1939, 1♀, 6. 7. 1939, 1♂, 13. 7. 1939, 1♀, 8. 9. 1943, 1♀, 7. 7. 1945, 1♀, TRO (Olimje, Trobevnik) 20. 7. 1945, 1♂, TOP (toplice/spa) 5. 8. 1945, 1♂, OL (Olimje) 2. 9. 1945, 1♂, E. Jaeger leg., PMSL

Brje pri Komnu, VL07, 30. 7. 1989, 1♀, A. Gogala leg., 19. 8. 1990, 1♀, A. Gogala leg., PMSL
Log, Lukovica, VL59, 10. 8. 1990, 1♂, A. Gogala leg., PMSL

***Eumenes pomiformis* (Fabricius, 1781)**

Meditranska in srednjeazijska vrsta. | Mediterranean and Central Asian species.

Objavljeni podatki / Published records:

VOGRIN, 1955: Mojstrana, 10. 8.

Pregledani primerki / Specimens examined:

Brje pri Komnu, VL07, 18. 8. 1991, 1♂, A. Gogala leg., PMSL
Brestovica, Klariči, UL97, 20. 9. 2020, 1♂, A. Gogala leg., PMSL

***Euodynerus* Dalla Torre, 1904**

***Euodynerus curictensis* Blüthgen, 1940**

Meditranska in srednjeazijska vrsta. | Mediterranean and Central Asian species.

Pregledani primerki / Specimens examined:

Brje pri Komnu, VL07, 30. 7. 1989, 1♀, A. Gogala leg., PMSL

***Euodynerus dantici* (Rossi, 1790)**

Palearktična vrsta. Verjetno pleni gosenice listnih zavijačev (Tortricidae) (GEREYS, 2016 po BLÜTHGEN, 1961). | Palearctic species. Preys probably on Tortricidae caterpillars (GEREYS, 2016 after BLÜTHGEN, 1961).

Objavljeni podatki / Published records:

VOGRIN, 1955: Gorica, 7., coll. Hensch



Slika 28: *Eumenes pedunculatus*, samica z Brij pri Komnu, ujeta 19. avgusta 1990.

Figure 28: *Eumenes pedunculatus* female from Brje pri Komnu, collected 19 August 1990.



Slika 29: *Eumenes pomiformis*, samec z Brij pri Komnu.

Figure 29: *Eumenes pomiformis* male from Brje pri Komnu.



Slika 30: *Euodynerus curictensis*, samica z Brij pri Komnu.

Figure 30: *Euodynerus curictensis* female from Brje pri Komnu.



Slika 31: *Euodynerus notatus*, samica iz Podčetrтка, ujeta 13. junija 1936.

Figure 31: *Euodynerus notatus* female from Podčetrtek, collected 13 June 1936.

***Euodynerus notatus* (Jurine, 1807)**

Evrosibirska in azijska vrsta. Gnezdi v rovih v lesu, starih gnezdih kožekrilcev in luknjah v zidovih (GEREYS, 2016 po BLÜTHGEN, 1961). Pleni gosenice listnih zavijačev (Tortricidae) in sovk (Noctuidae).

Euro-Siberian and Asian species. Nests in wood burrows, old nests of Hymenoptera and wall cavities (GEREYS, 2016 after BLÜTHGEN, 1961). Preys on caterpillars of Microlepidoptera (Tortricidae) and Noctuidae.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 13. 6. 1936, 1♀, 18. 6. 1936, 1♀1♂, 12. 6. 1937, 1♂, Blüthgen det. 1942, 22. 6. 1938, 1♂, 28. 6. 1938, 3♀, 1 Blüthgen det. 1940, E. Jaeger leg., PMSL

***Euodynerus quadrifasciatus* (Fabricius, 1793)**

Palearktična vrsta. Gnezdi v različnih votlinicah v lesu in prsti, steblih robide (*Rubus*) in gnezdih drugih kožekrilcev. Pleni gosenice listnih zavijačev (Tortricidae) in ličinke lepencev (Chrysomelidae) (GEREYS, 2016 po BLÜTHGEN, 1961).

Palaeartic species. Nests in various cavities in wood and in soil, *Rubus* stems and nests of other Hymenoptera. Preys on caterpillars of Tortricidae and larvae of Chrysomelidae (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 27. 6. 1936, 1♀, Blüthgen det. 1940, 21. 6. 1937, 1♂, Blüthgen det. 1940, OL (Olimje) 26. 6. 1945, 1♂, E. Jaeger leg., PMSL

Gymnomerus* Blüthgen, 1938**Gymnomerus laevipes laevipes* (Shuckard, 1837)**

Palearktična vrsta. Gnezdi v steblih robide (*Rubus*). Pleni ličinke rilčkarjev (Curculionidae) (GEREYS, 2016 po BLÜTHGEN, 1961).

Palaeartic species. Nests in *Rubus* stems. Preys on larvae of Curculionidae (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 6. 6. 1931, 1♂, 25. 6. 1932, 1♀, 10. 5. 1934, 1♀, 22. 5. 1934, 1♀, SCHL (schloss/grad) 23. 5. 1934, 1♂, 22. 6. 1934, 1♀, 12. 7. 1934, 1♀, 12. 5. 1935, 1♂, 13. 6. 1936, 1♂, 11. 6. 1937, 1♂, 22. 6. 1937, 1♀, 30. 8. 1942, 1♀, 22. 6. 1943, 1♀, E. Jaeger leg., PMSL



Slika 32: *Euodynerus quadrifasciatus*, samica iz Podčetrčka, ujeta 27. junija 1936.

Figure 32: *Euodynerus quadrifasciatus* female from Podčetrtek, collected 27 June 1936.



Slika 33: *Gymnomerus laevipes*, samica iz Podčetrčka, ujeta 10. maja 1934.

Figure 33: *Gymnomerus laevipes* female from Podčetrtek, collected 10 May 1934.

Hemipterochilus Fertton, 1909***Hemipterochilus bembeciformis*** (Morawitz, 1867)*Hemipterochilus bembeciformis terricola* (Mocsáry, 1883)*Vespa tinniens* Scopoli, 1763

Južnoevropska vrsta. Vrta rove v tla in pleni gosenice travniških vešč (Crambidae) (GEREYS, 2016 po BLÜTHGEN, 1961).

South European species. Burrows in ground and preys on caterpillars of Crambidae (GEREYS, 2016 after BLÜTHGEN, 1961).

Objavljeni podatki / Published records:

SCOPOLI, 1763: Carniola: in sylvis (in forests)

Jucancistrocerus Blüthgen, 1938***Jucancistrocerus jucundus*** (Mocsáry, 1883)

Vzhodnomediterranska vrsta, ki jo najdemo v bližini ilovnatih rečnih bregov (BLÜTHGEN, 1961). Ozko sorodna vrsta *Jucancistrocerus caspicus* Giordani Soika, 1970 vrta gnezdilne rove v navpične stene ilovnatih tal (FATERYGA & AMOLIN, 2013). Na vhodu zgradi ukrivljen dimnik. Celice oskrbi z ličinkami hroščev rilčkarjev (Curculionidae).

East Mediterranean species, found near clay river banks (BLÜTHGEN, 1961). Closely related *Jucancistrocerus caspicus* Giordani Soika, 1970 burrows nests in vertical cliffs of clay ground (FATERYGA & AMOLIN, 2013). A curved chimney is constructed at the entrance. Cells are provided with larvae of weevil beetles (Curculionidae).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 2. 8. 1932, 1♂, 9. 8. 1935, 1♀, E. Jaeger leg., PMSL

Katamenes Maede-Waldo, 1910***Katamenes arbustorum*** (Panzer, 1799)

Mediterranska vrsta. Gradi gnezda iz blata in peska z več celicami na skalah (GEREYS, 2016). Pleni gosenice metuljev (Lepidoptera).

Mediterranean species. Constructs nests of mud and sand with several cells on rocks (GEREYS, 2016). Preys on Lepidoptera caterpillars.

Pregledani primerki / Specimens examined:

Brje pri Komnu, VL07, 17. 6. 1989, 1♀, photo A. Gogala



Slika 34: *Jucancistrocerus jucundus*, samec iz Podčetrška, ujet 2. avgusta 1932.

Figure 34: *Jucancistrocerus jucundus* male from Podčetrtek, collected 2 August 1932.



Slika 35: *Katamenes arbustorum*, samica zbira pesek za gradnjo gnezda. Brje pri Komnu, 17. junija 1989.

Figure 35: *Katamenes arbustorum* female collecting sand for nest construction. Brje pri Komnu, 17 June 1989.

Leptochilus Saussure, 1853***Leptochilus limbiferus limbiferus*** (Morawitz, 1867)

Balkansko apeninska podvrsta vzhodnomediterranske vrste. Zahodnomediterranska vrsta iz istega podrodu (*Euleptochilus* Blüthgen, 1943), *Leptochilus duplicatus* (Klug, 1835), gnezdi v praznih polžjih hišicah (GEREYS, 2016).

Balkan–Apennine subspecies of an East Mediterranean species. West Mediterranean species of the same subgenus (*Euleptochilus* Blüthgen, 1943), *Leptochilus duplicatus* (Klug, 1835), nests in empty snail shells (GEREYS, 2016).

Objavljeni podatki / Published records:

GUSENLEITNER, 1993: Slovenia

Pregledani primerki / Specimens examined:

Ops, VL14, 8. 7. 1990, 1♀, A. Gogala leg., PMSL

Microdynerus Thomson, 1874***Microdynerus exilis*** (Herrich-Schaeffer, 1839)

Evropska vrsta. Gnezdi v steblih robide (*Rubus*) in rovih v lesu (GEREYS, 2016 po BLÜTHGEN, 1961). Verjetno pleni ličinke rilčkarjev (Curculionidae).

European species. Nests in *Rubus* stems and wood burrows (GEREYS, 2016 after BLÜTHGEN, 1961). Preys probably on larvae of Curculionidae.

Pregledani primerki / Specimens examined:

Podčetrtak, WM41, 11. 6. 1937, 1♀, E. Jaeger leg., PMSL

Microdynerus nugdunensis (Saussure, 1855)

Severnomediteranska vrsta. Gnezdi v steblih robide (*Rubus*) in drugih votlinah (GEREYS, 2016). Pleni ličinke rilčkarjev (Curculionidae).

North Mediterranean species. Nests in *Rubus* stems and other cavities (GEREYS, 2016). Preys on larvae of Curculionidae.

Pregledani primerki / Specimens examined:

Podčetrtak, WM41, 16. 9. 1933, 1♀, SCHL (schloss/grad) 7. 7. 1934, 1♂, 18. 6. 1936, 2♀, 11. 6. 1937, 1♀, 22. 6. 1937, 1♂, 27. 7. 1939, 1♂, Blüthgen det. 1942, E. Jaeger leg., PMSL



Slika 36: *Leptochilus limbiferus*, samica iz Ospa v Istri.

Figure 36: *Leptochilus limbiferus* female from Osp, Istria.



Slika 37: *Microdynerus exilis*, samica iz Podčetrtek.

Figure 37: *Microdynerus exilis* female from Podčetrtek.

***Microdynerus parvulus* (Herrich-Schaeffer, 1838)**

Evropska in srednjeazijska vrsta. Gnezdi v steblih robide (*Rubus*) in pleni majhne ličinke rilčkarjev (Curculionidae) (GEREYS, 2016).

European and Central Asian species. Nests in *Rubus* stems and preys on small larvae of Curculionidae (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 27. 6. 1931, 1♂, 14. 6. 1932, 1♂, 12. 7. 1933, 1♀, 10.–20. 7. 1933, 2♀, 11. 6. 1937, 1♀1♂, E. Jaeger leg., PMSL

***Microdynerus timidus* (Saussure, 1856)**

Zahodnomediteranska vrsta. Gnezdi v različnih votlinicah. Pleni majhne ličinke rilčkarjev (Curculionidae) (GEREYS, 2016).

West Mediterranean species. Nests in various cavities. Preys on small larvae of Curculionidae (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 2. 7. 1934, 1♂, SCHL (schloss/grad) 7. 7. 1934, 1♀, E. Jaeger leg., PMSL



Slika 38: *Microdynerus nugdunensis*, samica iz Podčetrтка, ujeta 18. junija 1936.

Figure 38: *Microdynerus nugdunensis* female from Podčetrtek, collected 18 June 1936.



Slika 39: *Microdynerus parvulus*, samica iz Podčetrčka, ujeta 11. junija 1937.

Figure 39: *Microdynerus parvulus* female from Podčetrtek, collected 11 June 1937.



Slika 40: *Microdynerus timidus*, samica iz Podčetrčka, ujeta 7. julija 1934.

Figure 40: *Microdynerus timidus* female from Podčetrtek, collected 7 July 1934.

Odynerus Latreille, 1802***Odynerus melanocephalus*** (Gmelin, 1790)

Evropska in srednjeazijska vrsta. Gnezdilni rov skoplje v tla in zgradi dimnik na vhodu. Pleni ličinke rilčkarjev (Curculionidae) in cigararjev (Rhynchitidae) (GEREYS, 2016).

European and Central Asian species. Nest burrow is dug into the ground, a chimney is built at the entrance. Preys on the larvae of Curculionidae and Rhynchitidae (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 28. 5. 1932, 1♂, 5. 6. 1932, 1♂, E. Jaeger leg., PMSL

Odynerus poecilus Saussure, 1856

Severnomediteranska vrsta. Gnezdilni rov skoplje v tla in zgradi dimnik na vhodu. Pleni ličinke rilčkarjev (Curculionidae) (GEREYS, 2016 po BLÜTHGEN, 1961).

North Mediterranean species. Nest burrow is dug into the ground, a chimney is built at the entrance. Preys on the larvae of Curculionidae (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 11. 6. 1932, 1♂, Schulthess det., 7. 6. 1933, 1♀, 28. 4. 1934, 1♀, 13. 6. 1936, 1♂, E. Jaeger leg., PMSL
 Gorjansko, UL97, 17. 5. 1992, 1♂, A. Gogala leg., PMSL
 Rakitovec, Kavčič, VL23, 19. 5. 2007, 1♀, photo A. Gogala

Odynerus reniformis (Gmelin, 1790)

Evrosibirska, severnomediterranska in srednjeazijska vrsta. Gnezdilni rov skoplje v tla in zgradi dimnik na vhodu. Pleni ličinke rilčkarjev (Curculionidae) (GEREYS, 2016 po BLÜTHGEN, 1961).

Euro-Siberian, North Mediterranean and Central Asian species. Nest burrow is dug into the ground, a chimney is built at the entrance. Preys on the larvae of Curculionidae (GEREYS, 2016 after BLÜTHGEN, 1961).

Objavljeni podatki / Published records:

GRAEFFE, 1911: Tolmin



Slika 41: *Odynerus poecilus*, samica vstopa v gnezdo skozi dimnik. Kavčič, 19. maja 2007.

Figure 41: *Odynerus poecilus* female entering her nest through the chimney. Mt. Kavčič, 19 May 2007.



Slika 42: *Odynerus melanocephalus*, samec iz Podčetrtek, ujet 5. junija 1932.

Figure 42: *Odynerus melanocephalus* male from Podčetrtek, collected 5 June 1932.



Slika 43: *Odynerus poecilus*, samec iz Gorjanskega na Krasu.

Figure 43: *Odynerus poecilus* male from Gorjansko, Kras.



Slika 44: *Odynerus spinipes*, samica z Lukovice pri Brezovici.

Figure 44: *Odynerus spinipes* female from Lukovica near Brezovica.

***Odynerus spinipes* (Linnaeus, 1758)**

Evrosibirska in azijska vrsta. Gnezdilni rov skoplje v tla in zgradi dimnik na vhodu. Pleni ličinke rilčkarjev (Curculionidae) in lepencev (Chrysomelidae) (GEREYS, 2016 po BLÜTHGEN, 1961).

Euro-Siberian and Asian species. Nest burrow is dug into the ground, a chimney is built at the entrance. Preys on the larvae of Curculionidae and Chrysomelidae (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 1. 6. 1932, 1♂, 1. 7. 1932, 1♀, 12. 6. 1933, 1♂, 10. 5. 1934, 1♀, OL (Olimje) 12. 5. 1934, 1♂, E. Jaeger leg., PMSL
Stol, 1600 m, VM34, 28. 7. 1933, 1♀, E. Jaeger leg., PMSL
Log, Lukovica, VL59, 13. 5. 1991, 1♂, A. Gogala leg., 14. 5. 1991, 1♀, A. Gogala leg., PMSL

***Paragymnomerus* Blüthgen, 1938**

***Paragymnomerus spiricornis spiricornis* (Spinola, 1808)**

Severnomediteranska in srednjeazijska vrsta. Gnezdilni rov skoplje v tla in zgradi dimnik na vhodu. Pleni ličinke os zapredkaric (Pamphiliidae, Hymenoptera) (GEREYS, 2016 po BLÜTHGEN, 1961).

North Mediterranean and Central Asian species. Nest burrow is dug into the ground, a chimney is built at the entrance. Preys on the larvae of Pamphiliidae (Hymenoptera) (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Stol, 1600 m, VM34, 28. 7. 1933, 1♂, E. Jaeger leg., PMSL
Podčetrtek, WM41, 15. 7. 1944, 1♀, E. Jaeger leg., PMSL

***Stenodynerus* Saussure, 1863**

***Stenodynerus bluethgeni* Van der Vecht, 1971**

Evropska in srednjeazijska vrsta.

| European and Central Asian species.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 10. 6. 1932, 1♂, 15. 6. 1932, 1♀, 9. 7. 1932, 1♂, 22. 5. 1934, 1♀, 13. 6. 1936, 1♂, 23. 6. 1943, 1♀, TOP (toplice/spa) 27. 8. 1945, 1♂, E. Jaeger leg., PMSL
Brje pri Komnu, VL07, 5. 8. 1990, 1♀, A. Gogala leg., PMSL



Slika 45: *Paragymnomerus spiricornis*, samec s Stola v Karavankah.

Figure 45: *Paragymnomerus spiricornis* male from Mt. Stol in the Karavanke Mts.



Slika 46: *Paragymnomerus spiricornis*, obraz samca.

Figure 46: Face of *Paragymnomerus spiricornis* male.

***Stenodynerus orenburgensis* (André, 1884)**

Lionotus orbitalis Thomson, 1874

Evropska in srednjeazijska vrsta. Gnezdi v suhih steblih koprive (*Urtica*) (GEREYS, 2016 po BLÜTHGEN, 1961). | European and Central Asian species. Nests in dry nettle stems (*Urtica*) (GEREYS, 2016 after BLÜTHGEN, 1961).

Objavljeni podatki / Published records:

VOGRIN, 1955: Gorica, 7., coll. Hensch

***Stenodynerus punctifrons* (Thomson, 1874)**

Severnomediteranska in srednjeazijska vrsta. | North Mediterranean and Central Asian species.

Objavljeni podatki / Published records:

VOGRIN, 1955: Gorica, coll. Hensch

GUSENLEITNER, 2000a: Slovenia

***Stenodynerus steckianus* (Schulthess, 1897)**

Evropska in srednjeazijska vrsta. Gnezdi v suhih semenskih glavicah slizka (*Melandrium*) (GEREYS, 2016). | European and Central Asian species. Nests in dry seminal capsules of *Melandrium* (GEREYS, 2016).

Pregledani primerki / Specimens examined:

Trstelj, UL97, 19. 8. 1990, 1♂, A. Gogala leg., PMSL

***Stenodynerus xanthomelas* (Herrich-Schaeffer, 1839)**

Evropska in srednjeazijska vrsta. Gnezdi v suhih steblih robide (*Rubus*) in v šiškah (GEREYS, 2016 po BLÜTHGEN, 1961). | European and Central Asian species. Nests in dry *Rubus* stems and in galls (GEREYS, 2016 after BLÜTHGEN, 1961).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 21. 6. 1937, 1♀, 24. 6. 1937, 1♂, 5. 7. 1938, 1♀1♂, TOP (toplice/spa) 1. 8. 1939, 1♂, 30. 8. 1942, 1♂, 18. 6. 1945, 1♀, OL (Olimje) 26. 6. 1945, 1♀, 18. 8. 1945, 1♀, E. Jaeger leg., PMSL



Slika 47: *Stenodynerus bluethgeni*, samica z Brij pri Komnu na Krasu.

Figure 47: *Stenodynerus bluethgeni* female from Brje pri Komnu, Kras.



Slika 48: *Stenodynerus steckianus*, samec s Trstelja na Krasu.

Figure 48: *Stenodynerus steckianus* male from Mt. Trstelj, Kras.



Slika 49: *Stenodynerus xanthomelas*, samica iz Podčetrтка, ujeta 5. julija 1938.

Figure 49: *Stenodynerus xanthomelas* female from Podčetrtek, collected 5 July 1938.



Slika 50: *Symmorphus bifasciatus*, samica z Lukovice pri Brezovici.

Figure 50: *Symmorphus bifasciatus* female from Lukovica pri Brezovici.

Symmorphus Wesmael, 1836***Symmorphus bifasciatus*** (Linnaeus, 1761)

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| Palearktična vrsta. Gnezdi v različnih votlinicah. Pleni ličinke lepencev (Chrysomelidae) (GEREYS, 2016). | Palaearctic species. Nests in various cavities. Preys on the larvae of Chrysomelidae (GEREYS, 2016). |
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Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 28. 6. 1933, 1♂, OL (Olimje) 15. 6. 1942, 1♀1♂, 30. 8. 1942, 1♀, 23. 6. 1943, 1♀, TOP (toplice/spa) 5. 8. 1945, 1♂, TOP (toplice/spa) 17. 8. 1945, 1♀1♂, E. Jaeger leg., PMSL
 Log, Lukovica, VL59, 23. 5. 1990, 1♀, A. Gogala leg., PMSL

Symmorphus crassicornis (Panzer, 1798)

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| Evrosibirska, severnomeditranska in srednjeazijska vrsta. Gnezdi v različnih votlinicah. Pleni ličinke lepencev (Chrysomelidae) in rilčkarjev (Curculionidae) (GEREYS, 2016). | Euro-Siberian, North Mediterranean and Central Asian species. Nests in various cavities. Preys on the larvae of Chrysomelidae and Curculionidae (GEREYS, 2016). |
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Objavljeni podatki / Published records:

SCOPOLI, 1763: Carniola – as *Vespa muraria*, according to ROGENHOFER & DALLA TORRE (1882).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 12. 6. 1935, 1♀, 18. 6. 1936, 1♂, 22. 6. 1936, 1♀2♂, 14. 6. 1942, 1♀, 29. 8. 1942, 1♀, E. Jaeger leg., PMSL

Symmorphus debilitatus (Saussure, 1855)

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| Evropska vrsta. Gnezdi v različnih votlinicah. Pleni gosenice metuljkov (Microlepidoptera) (GEREYS, 2016 po BLÜTHGEN, 1961). | European species. Nests in various cavities. Preys on the caterpillars of Microlepidoptera (GEREYS, 2016 after BLÜTHGEN, 1961). |
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Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 20.–30. 6. 1933, 1♀, 12. 6. 1937, 2♀4♂, 14. 6. 1937, 1♀, E. Jaeger leg., PMSL
 Brežice, 10. 5. 1933, 1♀, E. Jaeger leg., PMSL
 Log, Lukovica, VL59, 25. 6. 1990, 1♀, A. Gogala leg., 17. 7. 1990, 1♀, A. Gogala leg., PMSL



Slika 51: *Symmorphus crassicornis*, samica iz Podčetrška, ujeta 14. junija 1942.

Figure 51: *Symmorphus crassicornis* female from Podčetrtek, collected 14 June 1942.



Slika 52: *Symmorphus debilitatus*, samica z Lukovice pri Brezovici, ujeta 17. julija 1990.

Figure 52: *Symmorphus debilitatus* female from Lukovica pri Brezovici, collected 17 July 1990.

***Symmorphus declivis* Harttig, 1932**

Vzhodnomediterranska vrsta.

| East Mediterranean species.

Objavljeni podatki / Published records:

HARTTIG, 1932: Podčetrtek (Windisch Landsberg), 3♀6♂, E. Jaeger leg. (6. 4. 1926, 1♀, Virštanj 13. 5. 1931, 1♀, 30. 8. 1925, 1♀, 11. 8. 1931, 4♂, 19. 8. 1925, 2♂)

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 11. 8. 1931, 1♂, 18. 8. 1932, 1♂, 18. 4. 1934, 1♀, OL (Olimje) 12. 5. 1934, 1♀, 26. 3. 1938, 1♀, 16. 5. 1943, 1♀, OL (Olimje) 15. 7. 1945, 1♂, 29. 7. 1945, 1♂, E. Jaeger leg., PMSL

Symmorphus gracilis* (Brullé, 1832)**Symmorphus elegans* (Wesmael, 1833)**

Evrosibirska, severnomediterranska in srednjeazijska vrsta. Gnezdi v različnih votlinicah. Pleni ličinke lepencev (Chrysomelidae) in rilčkarjev (Curculionidae) (GEREYS, 2016).

Euro-Siberian, North Mediterranean and Central Asian species. Nests in various cavities. Preys on the larvae of Chrysomelidae and Curculionidae (GEREYS, 2016).

Objavljeni podatki / Published records:

VOGRIN, 1955: Podpeca

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 20. 6. 1933, 1♂, 1.–10. 7. 1933, 1♀1♂, 10.–20. 7. 1933, 1♂, TRO (Olimje, Trobevnik) 20. 7. 1945, 1♀, E. Jaeger leg., PMSL
Stol, 1600 m, VM34, 28. 7. 1933, 1♂, E. Jaeger leg., PMSL

***Symmorphus murarius* (Linnaeus, 1758)**

Palearktična vrsta. Gnezdi v različnih votlinicah. Pleni ličinke lepencev (Chrysomelidae) (GEREYS, 2016).

Palaeartic species. Nests in various cavities. Preys on the larvae of Chrysomelidae (GEREYS, 2016).

Objavljeni podatki / Published records:

SCOPOLI, 1763: Carniola, but this record refers to *S. crassicornis* according to ROGENHOFER & DALLA TORRE (1882).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 18. 6. 1932, 1♀, 11. 6. 1933, 1♂, 20. 6. 1933, 2♂, 20.–30. 6. 1933, 1♂, 18. 5. 1934, 1♀, 17. 6. 1936, 1♀, 22. 6. 1936, 1♀, E. Jaeger leg., PMSL



Slika 53: *Symmorphus declivis*, samica iz Olimja pri Podčetrtku, ujeta 12. maja 1934.

Figure 53: *Symmorphus declivis* female from Olimje near Podčetrtek, collected 12 May 1934.



Slika 54: *Symmorphus gracilis*, samica iz Podčetrтка, ujeta 1.-10. julija 1933.

Figure 54: *Symmorphus gracilis* female from Podčetrtek, collected 1 -10 July 1933.



Slika 55: *Symmorphus murarius*, samica iz Podčetrтка, ujeta 18. junija 1932.

Figure 55: *Symmorphus murarius* female from Podčetrtek, collected 18 June 1932.



Slika 56: *Celonites abbreviatus*, samica z Brij pri Komnu na Krasu.

Figure 56: *Celonites abbreviatus* female from Brje pri Komnu, Kras.

Masarinae

Celonites Latreille, 1802

Celonites abbreviatus (Villers, 1789)

Mediterranska vrsta. Gradi cevaste zarodne celice iz koščkov prsti, pritrjene na kamne. Po odlaganju jajčeca jih oskrbi s pelodom in medičino. Zaprte celice prekrije z dodatno plastjo prsti (BELLMANN, 1984). Pelod zbira z dlakami na čelu v cvetovih ustnatic in ga prenaša v golši.

Mediterranean species. Builds tubular brood-cells from soil particles, attached to stones. After oviposition they are provided with pollen and nectar. Closed cells are covered with additional soil layer (BELLMANN, 1984). Pollen is collected with hairs on the forehead from the flowers of Lamiaceae and transported in the crop.

Pregledani primerki / Specimens examined:

Brje pri Komnu, VL07, 22. 7. 1991, 1♀, A. Gogala leg., PMSL

Brestovica pri Komnu, UL97, 20. 5. 2018, 1♂, A. Gogala leg., PMSL

Polistinae

Polistes Latreille, 1802

Polistes associus Kohl, 1898

Severnomediteranska vrsta. Družbena vrsta, gradi odprta gnezda iz papirja, pritrjena na rastline.

North Mediterranean species. Social species, building open paper nests attached to plants.

Objavljeni podatki / Published records:

VOGRIN, 1955: Podčetrtek, 8. 9., 2. 10.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 3. 9. 1931, 1♀, 20. 8. 1932, 1♂, 22. 8. 1932, 1♀, 7. 9. 1932 on *Calluna*, 2♂, 8. 9. 1932, 1♀1♂, SOT (Sotla) 14. 8. 1933, 1♀, 31. 8. 1933, 1♂, SOT (Sotla) 13. 9. 1933, 1♂, 3. 9. 1935, 1♂, 15. 8. 1945, 1♀, OL (Olimje) 2. 9. 1945, 1♂, SOT (Sotla) 27. 8. 1955, 1♂, E. Jaeger leg., PMSL

Brje pri Komnu, VL07, 3. 6. 2018, 1♀, A. Gogala leg., 14. 10. 2018, 1♂, A. Gogala leg., PMSL

Polistes biglumis* (Linnaeus, 1758)**Polistes dubia* Kohl, 1898**

Evropska in srednjeazijska vrsta. Družbena vrsta, gradi odprta gnezda iz papirja, pritrjena na rastline.

European and Central Asian species. Social species, building open paper nests attached to plants.

Objavljeni podatki / Published records:

SCOPOLI, 1763: Carniola – as *Vespa parietum* var. 2 and 3 (ROGENHOFER & DALLA TORRE, 1882).
VOGRIN, 1955: Grintavec, 9., coll. Igalffy; Podčetrtek, 13./27. 8., 9./17. 9., 1. 10.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 1. 10. 1931, 1♂, 2. 10. 1931, 1♂, 8. 8. 1932, 1♀, TRO (Olimje, Trobevnik) 6. 9. 1932, 1♀, 19. 8. 1933, 1♂, SOT (Sotla) 13. 9. 1933, 1♂, SCHL (schloss/grad) 7. 7. 1934, 1♀, 5. 9. 1934, 1♂, 30. 8. 1942, 1♀, 19. 8. 1955, 1♀, E. Jaeger leg., PMSL
Logarska dolina (Logartal), VM74, 24. 7. 1933, 1♀, 12. 8. 1933, 3♀, E. Jaeger leg., PMSL
Ljubljana (Lai bach), VM60, 25. 8. 1942, 1♀, 7. 6. 1943, 1♀, Staudacher leg., PMSL
Trenta: Mala hidroelektrarna Krajcarca, VM03, 26. 5. 2018, 1♀, A. Gogala leg., PMSL
Nanos: Sv. Hieronim, 920 m, VL27, 18. 8. 2018, 1♀ on *Reseda*, A. Gogala leg., PMSL
Velika Milanja, 1020 m, VL44, 29. 8. 2018, 1♂, 1090 m, 29. 8. 2018, 1♂, A. Gogala leg., PMSL

***Polistes dominula* (Christ, 1791)**

Zahodnopalearktična vrsta. Družbena vrsta, gradi odprta gnezda iz papirja, pritrjena na rastline.

West Palaearctic species. Social species, building open paper nests attached to plants.

Objavljeni podatki / Published records:

SCOPOLI, 1763: Carniola – as *Vespa parietum* var. 1 (ROGENHOFER & DALLA TORRE, 1882, as *Polistes gallica*).
SERIANI, 1989: Tomaj, 7. 9. 1986, 2♂

Pregledani primerki / Specimens examined:

Log, Lukovica, VL59, 10. 9. 1989, 1♂, 21. 5. 1996, 1♀, A. Gogala leg., PMSL
Hrastovlje, VL14, 14. 4. 2018, 1♀, A. Gogala leg., PMSL
Štanjel, Lukovec, VL07, 28. 4. 2018, 1♀, A. Gogala leg., PMSL
Trenta: Mala hidroelektrarna Krajcarca, VM03, 26. 5. 2018, 1♀, A. Gogala leg., PMSL
Brje pri Komnu, VL07, 15. 9. 2018, 1♂, A. Gogala leg., PMSL
Lož, Dane, Škrilje, VL56, 18. 5. 2019, 1♀, A. Gogala leg., PMSL
Cerkniško jez.: Dolenja vas, VL47, 7. 8. 2020, 1♀, A. Gogala leg., PMSL

***Polistes foederatus* Kohl, 1898**

Vzhodnomediterranska vrsta. Družbena vrsta, gradi odprta gnezda iz papirja, pritrjena na rastline. | East Mediterranean species. Social species, building open paper nests attached to plants.

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 5. 9. 1934, 3♂, E. Jaeger leg., PMSL
Sela na Krasu, Špik, UL97, 13. 6. 2020, 1♀, A. Gogala leg., PMSL

***Polistes gallicus* (Linnaeus, 1767)**

Zahodnomediterranska vrsta. Družbena vrsta, gradi odprta gnezda iz papirja, pritrjena na rastline. | West Mediterranean species. Social species, building open paper nests attached to plants.

Pregledani primerki / Specimens examined:

Petrovče, Levec, WM12, 10. 7. 2020, a nest with 3 females and a male, photo D. Janević, 11.-14. 7. 2020, a nest with 5 females, photo D. Janević, 13. 7. 2020, 1♀, D. Janević leg., PMSL

***Polistes nimpha* (Christ, 1791)**

***Polistes opinabilis* Kohl, 1898**

Palearktična vrsta. Družbena vrsta, gradi odprta gnezda iz papirja, pritrjena na rastline. | Palearctic species. Social species, building open paper nests attached to plants.

Objavljeni podatki / Published records:

VOGRIN, 1955: Podčetrtek, 1. - 16. 8., 10.; Grintavec, 8., 9.
SERIANI, 1989: Tomaj, 7. 9. 1986, 2♀

Pregledani primerki / Specimens examined:

Log, Lukovica, VL59, 4. 5. 1989, 1♀, photo A. Gogala, 10. 9. 1989, 1♀, 13. 5. 1996, 1♀, A. Gogala leg., PMSL
Ig, Škriplje, Stražar, VL68, 31. 5. 2018, 1♀, A. Gogala leg., PMSL
Bloke: Volčje, VL67, 31. 7. 2018, 2♀, A. Gogala leg., PMSL
Petrovče, Levec, WM12, 13. 7. 2020, 1♀, D. Janević leg., PMSL
Cerkniško jez.: Dolenja vas, VL47, 7. 8. 2020, 1♀, A. Gogala leg., PMSL

***Polistes semenowi* Morawitz, 1889**

***Polistes sulcifer* Zimmermann, 1930**

Evropska in srednjeazijska vrsta. Družbeni zajedavec vrste *Polistes dominula* (SCHMID-EGGER et al., 2017).

European and Central Asian species. Social parasite of *Polistes dominula* (SCHMID-EGGER et al., 2017).

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, TRO (Olimje, Trobevnik) 27. 8. 1932, 1♂, 29. 8. 1932, 1♂, TRO (Olimje, Trobevnik) 6. 9. 1932, 1♀, 7. 9. 1932 on *Calluna*, 1♂, 16. 9. 1932, 1♀, 19. 9. 1932, 1♂, E. Jaeger leg., PMSL

Snežnik, 1560 m, VL54, 19. 7. 2018, 1♂, A. Gogala leg., PMSL



Slika 57: *Polistes nimpha*, matica na gnezdu. Lukovica pri Brezovici, 4. maj 1989.

Figure 57: *Polistes nimpha* queen on her nest. Lukovica pri Brezovici, 4 May 1989.



Slika 58: *Polistes biglumis*, gnezdo z delavkami, 24. julij 1992.

Figure 58: *Polistes biglumis* nest with workers, 24 July 1992.



Slika 59: *Polistes associus*, obraz samca iz Brij pri Komnu na Krasu.

Figure 59: Face of *Polistes associus* male from Brje pri Komnu, Kras.



Slika 60: *Polistes biglumis*, obraz samice z Nanosa.

Figure 60: Face of *Polistes biglumis* female from Mt. Nanos.



Slika 61: *Polistes dominula*, obraz samice iz Lukovca na Krasu.

Figure 61: Face of *Polistes dominula* female from Lukovec, Kras.



Slika 62: *Polistes foederatus*, obraz samice iz Sel na Krasu.

Figure 62: Face of *Polistes foederatus* female from Sela na Krasu.



Slika 63: *Polistes foederatus*, obraz samca iz Podčetrtek.

Figure 63: Face of *Polistes foederatus* male from Podčetrtek.



Slika 64: *Polistes gallicus*, obraz samice iz Levca pri Celju.

Figure 64: Face of *Polistes gallicus* female from Levec near Celje.



Slika 65: *Polistes nimpha*, obraz samice s Stražarja nad Igom.

Figure 65: Face of *Polistes nimpha* female from Mt. Stražar near Ig.



Slika 66: *Polistes semenowi*, obraz samice iz Olimja pri Podčetrtku, ujete 6. septembra 1932.

Figure 66: Face of *Polistes semenowi* female from Olimje near Podčetrtek, collected 6 September 1932.



Slika 67: *Polistes semenowi*, obraz samca s Snežnika.

Figure 67: Face of *Polistes semenowi* male from Mt. Snežnik.

Vespinae

Vespa Linnaeus, 1758

Vespa crabro Linnaeus, 1758

Palaearktična vrsta. Ovito gnezdo iz papirja zgradi v pokritih prostorih, kot so drevesna dupla ali zakriti prostori znotraj zgradb (MATSUURA & YAMANE, 1984).

Palaearctic species. Enveloped paper nest is built in covered spaces like tree hollows or covered spaces inside houses (MATSUURA & YAMANE, 1984).

Objavljeni podatki / Published records:

SCOPOLI, 1763: Carniola

SERIANI, 1989: Lipica, 5. 9. 1978, 1♂

Pregledani primerki / Specimens examined:

Log, Lukovica, VL59, 22. 6. 1990, 1♀, 26. 9. 2001, 2♀, A. Gogala leg., PMSL

Divača, Škocjan, VL25, 30. 9. 2017, photo A. Gogala

Bevke, VL59, 14. 9. 2018, 1♂, A. Gogala leg., PMSL

Rudno, Sleme, VM32, 29. 11. 2001, 1♀, photo Tomi Trilar

Vespa orientalis Linnaeus, 1771

Vzhodnomediterranska, JZ azijska in SV afriška vrsta. Ovito papirnato gnezdo zgradi v podzemnih votlinah ali v vdolbinah nad tlemi (ARCHER, 1998). Leta 2018 so dejavno gnezdo orientalskega sršena našli v zidu blizu pristanišča v Trstu na obmejnem ozemlju Italije. Vrsta je bila leta 2019 v mestu že zelo razširjena (BRESSI et al., 2019). Verjetno so jo nenamerno zanesli v pristanišče z ladijskim transportom in vrstase je prilagodila mestnemu okolju, ki je olajšalo njeno preživetje veliko severneje od njenega naravnega območja razširjenosti. Odkritje prek meje v Sloveniji je bilo pričakovano. En osebek je čebelar našel pri svojih panjih (PISLAK OCEPEK et al., 2019). Prek Nacionalnega veterinarskega inštituta in Nacionalnega inštituta za biologijo je našel pot v muzej, kjer je shranjen v zbirki kožekrilcev.

East Mediterranean, SW Asian and NE African species. Enveloped paper nest is built in underground cavities or in hollows above ground (ARCHER, 1998). In 2018, an active nest of *Vespa orientalis* was found in a wall near the port of Trieste in the neighbouring territory of Italy. The species was already widespread in the city in 2019 (BRESSI et al., 2019). It was probably introduced accidentally to the port by naval transport and the species adapted to the urbanized landscape which facilitated its survival far to the north of its natural range. Its discovery across the border in Slovenia was expected. A specimen was found by a beekeeper at his beehives (PISLAK OCEPEK et al., 2019). Through the National Veterinary Institute and the National Institute of Biology, it has arrived to the Museum to be kept in the Hymenoptera collection.

Pregledani primerki / Specimens examined:

Ankaran, VL04, 13. 9. 2019, 1♀, Dragan Stupar leg., PMSL



Slika 68: Tri delavke pred vhom v gnezdo sršenov (*Vespa crabro*) v ožganem drevesu. Škocjan, Kras, 30. september 2017.

Figure 68: Three workers at the entrance to the *Vespa crabro* nest in a burned tree. Škocjan, Kras, 30 September 2017.



Slika 69: *Vespa orientalis*, samica iz Ankarana.

Figure 69: *Vespa orientalis* female from Ankaran.

Vespula Thompson, 1869*Vespula austriaca* (Panzer, 1799)

| | |
|---|---|
| Evrosibirska in azijska vrsta. Družbeni zajedavec vrste <i>Vespula rufa</i> (DVOŘÁK & ROBERTS, 2006). | Euro-Siberian and Asian species. Social parasite of <i>Vespula rufa</i> (DVOŘÁK & ROBERTS, 2006). |
|---|---|

Pregledani primerki / Specimens examined:

Okrešelj, VM63, 25. 7. 1933, 1♀, E. Jaeger leg., PMSL

Logarska dolina (Logartal), VM74, 24. 7. 1933, 1♀, E. Jaeger leg., PMSL

Vespula germanica (Fabricius, 1793)

| | |
|---|---|
| Palearktična vrsta. Ovito gnezdo iz papirja zgradi v podzemnih votlinah ali umetnih zgradbah (podstrešja), redko nad tlemi (WIKIPEDIA). | Palaeartic species. Enveloped paper nest is built in underground cavities or artificial structures (attics), rarely above ground (WIKIPEDIA). |
|---|---|

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 8. 5. 1928, 1♀, 20.–30. 6. 1933, 1♀, 23. 8. 1933, 1♀, 15. 9. 1934, 1♂, 23. 8. 1935, 1♀, 27. 5. 1937, 1♀, E. Jaeger leg., PMSL

Celje, WM22, 1. 8. 1933, 1♀, E. Jaeger leg., PMSL

Ljubljana (Laibach), VM60, 25. 5. 1942, 1♀, 20. 5. 1943, 1♀, Staudacher leg., PMSL

Ig, Kremenica, VL68, 12. 10. 1975, 1♀, S. Brelih leg., PMSL

Log, Lukovica, VL59, 26. 7. 2018, 1♀, A. Gogala leg., 8. 6. 2019, 1♀, A. Gogala leg., 9. 4. 2020, 1♀, A. Gogala leg., PMSL

Bloke: Volčje, VL67, 31. 7. 2020, 1♀, A. Gogala leg., PMSL

Hotedršica, Žejna dolina, VL38, 22. 8. 2020, 1♀, A. Gogala leg., PMSL

Vespula rufa (Linnaeus, 1758)

| | |
|--|--|
| Evrosibirska in azijska vrsta. Ovito gnezdo iz papirja zgradi v podzemnih votlinah blizu površja ali v vdolbinah nad tlemi (ARCHER, 1997). | Euro-Siberian and Asian species. Enveloped paper nest is built in underground cavities close to the surface or in hollows above ground (ARCHER, 1997). |
|--|--|

Objavljeni podatki / Published records:

VOGRIN, 1955: Bohinj, 8.; Radovna, 5. 8.

Pregledani primerki / Specimens examined:

Stol, 1600 m, VM34, 28. 7. 1933, 1♀, E. Jaeger leg., PMSL

Podčetrtek, WM41, 17. 8. 1928, 1♂, 12. 8. 1932, 1♀, 1.–10. 8. 1933, 2♀, 23. 8. 1933, 1♀1♂, SOT (Sotla) 13. 9. 1933, 1♂, 27. 7. 1934, 1♀, 3. 6. 1937, 1♀, 27. 7. 1939, 1♂, 29. 8. 1942, 1♂, E. Jaeger leg., PMSL
Ljubljana (Laibach), VM60, 10. 8. 1942, 1♂, 24. 4. 1943, 2♀, Staudacher leg., PMSL
Log, Lukovica, VL59, 10. 8. 1990, 1♀, A. Gogala leg., PMSL
Ig, Škriplje, Stražar, 720 m, VL68, 8. 5. 2020, 1♀, A. Gogala leg., PMSL
Hotedršica, Žejna dolina, VL38, 22. 8. 2020, 1♂, A. Gogala leg., PMSL

***Vespula vulgaris* (Linnaeus, 1758)**

Holarктиčna vrsta. Ovito gnezdo iz papirja zgradi v podzemnih votlinah ali drevesnih duplih (MATSUURA & YAMANE, 1984). | Holarctic species. Enveloped paper nest is built in underground cavities or tree hollows (MATSUURA & YAMANE, 1984).

Objavljeni podatki / Published records:

SCOPOLI, 1763: Carniola

Pregledani primerki / Specimens examined:

Podčetrtek, WM41, 25. 4. 1928, 1♀, 7. 5. 1934, 1♀, 24. 5. 1937, 1♀, E. Jaeger leg., PMSL
Olimlje, WM41, 15. 6. 1942, 1♀, E. Jaeger leg., PMSL
Okrešelj, VM63, 25. 7. 1933, 1♀, E. Jaeger leg., PMSL
Celje, WM22, 1. 8. 1933, 2♀, E. Jaeger leg., PMSL
Ljubljana (Laibach), VM60, 20. 9. 1942, 1♀, 7. 6. 1943, 1♀, Staudacher leg., PMSL
Ljubljana, VM60, 3. 6. 1956, 1♀, A. Gspan leg., PMSL
Brje pri Komnu, VL07, 30. 7. 1989, 2♀, A. Gogala leg., 21. 4. 2018, 1♀, A. Gogala leg., PMSL
Log, Lukovica, VL59, 21. 5. 1996, 1♀, A. Gogala leg., PMSL
Planina, Planinsko polje, VL47, 8. 8. 2018, 1♀, A. Gogala leg., PMSL
Velika Milanja, 1020 m, VL44, 29. 8. 2018, 1♀, A. Gogala leg., PMSL

***Dolichovespula* Rohwer, 1916**

***Dolichovespula adulterina* (Buysson, 1904)**

Holarктиčna vrsta. Družbeni zajedavec vrst *Dolichovespula saxonica* in *D. norwegica* | Holarctic species. Social parasite of *Dolichovespula saxonica* and *D. norwegica* (DVOŘÁK & ROBERTS, 2006). | (DVOŘÁK & ROBERTS, 2006).

Pregledani primerki / Specimens examined:

Snežnik, 1560 m, VL54, 19. 7. 2018, 1♂, A. Gogala leg., PMSL



Slika 70: *Vespula austriaca*, samica iz Logarske doline.

Figure 70: *Vespula austriaca* female from Logarska dolina.



Slika 71: *Vespula austriaca*, obraz samice.

Figure 71: Face of *Vespula austriaca* female.



Slika 72: *Vespula germanica*, samica z Lukovice pri Brezovici, ujeta 8. junija 2019.

Figure 72: *Vespula germanica* female from Lukovica pri Brezovici, collected 8 June 2019.



Slika 73: *Vespula rufa*, samica s Stola v Karavankah.

Figure 73: *Vespula rufa* female from Mt. Stol, Karavanke Mts.



Slika 74: *Vespula rufa*, obraz samice.

Figure 74: Face of *Vespula rufa* female.



Slika 75: *Vespula vulgaris*, samica z Brij pri Komnu na Krasu, ujeta 21. aprila 2018.

Figure 75: *Vespula vulgaris* female from Brje pri Komnu, Kras, collected 21 April 2018.

***Dolichovespula media* (Retzius, 1783)**

Evropska in azijska vrsta. Ovito gnezdo iz papirja zgradi na odprtem (na drevesnih vejah, pod napušči) (MATSUURA & YAMANE, 1984).

European and Asian species. Enveloped paper nest is built in the open (on tree twigs, under eaves) (MATSUURA & YAMANE, 1984).

Objavljeni podatki / Published records:

VOGRIN, 1955: Podpeca, 23. 7.

Pregledani primerki / Specimens examined:

Log, Lukovica, VL59, 8. 9. 1990, 1♀, A. Gogala leg., PMSL
Zgornje Poljčane, WM42, 10. 5. 2012, 1♀, photo Simon Kovačič
Žalec, Vrbje, WM12, 10. 8. 2019, 1♀, photo Dejan Janevič

***Dolichovespula norwegica* (Fabricius, 1781)**

Boreoalpinska holarktična vrsta. Ovito gnezdo iz papirja zgradi na odprtem (na drevesnih vejah, grmovju, napuščih in stenah hiš) ali v votlinah v tleh (ARCHER, 2006).

Boreoalpine holarctic species. Enveloped paper nest is built in the open (on tree branches, bushes, eaves and walls of houses) or in cavities in the ground (ARCHER, 2006).

Objavljeni podatki / Published records:

VOGRIN, 1955: Podpeca, 28. 7.; Mežica, 18. 7.; Grintavec, 9., coll. Igalfy

Pregledani primerki / Specimens examined:

Trenta: Alpinetum Juliana, VM04, 26. 5. 2018, 1♀, A. Gogala leg., PMSL

***Dolichovespula omissa* (Bischoff, 1931)**

Evropska vrsta. Družbeni zajedavec vrste *Dolichovespula sylvestris* (DVOŘÁK & ROBERTS, 2006).

European species. Social parasite of *Dolichovespula sylvestris* (DVOŘÁK & ROBERTS, 2006).

Pregledani primerki / Specimens examined:

Snežnik, 1560 m, VL54, 19. 7. 2018, 2♂, A. Gogala leg., PMSL

***Dolichovespula saxonica* (Fabricius, 1793)**

Evropska in azijska vrsta. Ovito gnezdo iz papirja zgradi na odprtem (na drevesnih vejah, pod napušči) ali v zaprtih prostorih (dupla v podrtih drevesih, med zidovi) (MATSUURA & YAMANE, 1984).

European and Asian species. Enveloped paper nest is built in the open (on tree twigs, under eaves) or in closed spaces (hollows in fallen trees, between walls) (MATSUURA & YAMANE, 1984).

Pregledani primerki / Specimens examined:

Ig, Draga, VL68, 5. 9. 2019, 1♂, A.Gogala leg., PMSL

Rakov Škocjan, VL47, 25. 8. 2020, 1♂, A. Gogala leg., PMSL

***Dolichovespula sylvestris* (Scopoli, 1763)**

Palaearktična vrsta. Ovito gnezdo iz papirja zgradi v plitvih luknjah v tleh, pod previsnimi bregovi, redkeje v drevesih in grmovju (ARCHER, 2006).

Palaearctic species. Enveloped paper nest is built in shallow holes in the ground, under overhanging banks, more rarely in trees and shrubs (ARCHER, 2006).

Objavljeni podatki / Published records:

SCOPOLI, 1763: Carniola: in sylvis (in forests)

GRAEFFE, 1911: Südlichen Krain (southern Carniola)

VOGRIN, 1955: Kranj; Mežica, 10. 7.

Pregledani primerki / Specimens examined:

Nanos: Sv. Hieronim, 1080 m, VL27, 18. 8. 2018, 1♂, A. Gogala leg., PMSL



Slika 76: Gnezdo vrste *Dolichovespula media* na Lukovici pri Brezovici. Foto Matija Gogala, 1990.

Figure 76: Nest of *Dolichovespula media* at Lukovica pri Brezovici. Photo Matija Gogala, 1990.



Slika 77: *Dolichovespula adulterina*, obraz samca s Snežnika.

Figure 77: Face of *Dolichovespula adulterina* male from Mt. Snežnik.



Slika 78: *Dolichovespula adulterina*, genitalije samca.

Figure 78: Genitalia of *Dolichovespula adulterina* male.



Slika 79: *Dolichovespula media*, obraz samice z Lukovice pri Brezovici.

Figure 79: Face of *Dolichovespula media* female from Lukovica pri Brezovici.



Slika 80: *Dolichovespula norwegica*, samica iz doline Trente.

Figure 80: *Dolichovespula norwegica* female from the Trenta valley.



Slika 81: *Dolichovespula omissa*, obraz samca s Snežnika.

Figure 81: Face of *Dolichovespula omissa* male from Mt. Snežnik.



Slika 82: *Dolichovespula omissa*, genitalije samca.

Figure 82: Genitalia of *Dolichovespula omissa* male.



Slika 83: *Dolichovespula saxonica*, obraz samca iz Drage pri Igu.

Figure 83: Face of *Dolichovespula saxonica* male from Draga near Ig.



Slika 84: *Dolichovespula saxonica*, genitalije samca.

Figure 84: Genitalia of *Dolichovespula saxonica* male.



Slika 85: *Dolichovespula sylvestris*, obraz samca z Nanosa.

Figure 85: Face of *Dolichovespula sylvestris* male from Mt. Nanos.



Slika 86: *Dolichovespula sylvestris*, genitalije samca.

Figure 86: Genitalia of *Dolichovespula sylvestris* male.

Zaključki

Na ozemlju Slovenije je bilo najdenih 72 vrst os iz družine Vespidae. Od teh je 52 vrst lončark (Eumeninae), ena vrsta medene ose (Masarinae), sedem vrst papirjevč (Polistinae) in 12 vrst družbenih os (Vespinae). Rod z največ vrstami so zidarke (*Ancistrocerus*), ki so zastopane z 10 vrstami. Sledijo jim papirjevke ali male ose (*Polistes*) s 7 vrstami. Pred letom 1960 je bilo najdenih 57 vrst, po tem letu pa 44 vrst. To kaže na upadanje raznovrstnosti os, predvsem samotarskih, kar še posebno opažamo v zadnjih letih. Glavni vzrok bi lahko bil manjša razpoložljivost ustreznih gnezdišč, predvsem odmrlega lesa v naravi, pa tudi zmanjšane populacije žuželk, ki jih lovijo za prehrano zaroda, predvsem različnih gosenic metuljev, ličink hroščev in rastlinskih os. Te populacije upadajo verjetno zaradi uporabe pesticidov in vedno večje svetlobne onesnaženosti ponoči, saj predvsem nočne metulje privabljajo luči in jim preprečijo uspešno razmnoževanje.

V sosednji Avstriji je znanih 97 vrst os družine Vespidae (GUSENLEITNER, 2008) in v Italiji 143 vrst (STOCH, 2003). Kljub razliki v velikosti ozemlja je 72 vrst iz Slovenije kazalec, da je slovenska favna slabo raziskana. To je ob le dveh raziskovalcih z večjim številom zbranih podatkov razumljivo. Morda bo ta pregled spodbuda za prihodnje raziskave.

Conclusions

72 species of wasps from the Vespidae family have been found in the territory of Slovenia. Of these, 52 are potter wasp species (Eumeninae), 1 species of pollen wasp (Masarinae), 7 species of paper wasps (Polistinae) and 12 species of social wasps (Vespinae). The genus with the largest number of species is *Ancistrocerus*, which is represented by 10 species. It is followed by paper wasps (*Polistes*) with 7 species. Before 1960, 57 species had been found, and 44 species thereupon. This indicates a decline in the diversity of wasps, especially solitary ones, which have been particularly noticeable in recent years. The main reason could be the reduced availability of suitable nesting sites, especially dead wood in the wild, as well as the reduced populations of insects that are preyed upon to feed the brood, especially various caterpillars, beetle and sawfly larvae. These populations are declining probably due to the use of pesticides and increasing light pollution at night, as nocturnal moths in particular are attracted to lights, preventing them from reproducing successfully.

In neighbouring Austria, 97 species of wasps of the Vespidae family are known (GUSENLEITNER, 2008) and 143 species in Italy (STOCH, 2003). Despite the difference in the size of the territory, 72 species from Slovenia are an indicator that the Slovenian fauna is poorly researched. This is understandable with only two researchers with a larger amount of data collected. Perhaps this review will be an incentive for future research.

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