

First record of *Opilo germanus* Chevrolat, 1843 (Coleoptera: Cleridae) from Italy with remarks on its distribution in Europe

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Abstract. The checkered beetle *Opilo germanus* Chevrolat, 1843 is reported from Italy for the first time. The species is extremely rare in Europe and its biology is not well known. In the past, single specimens have been collected only at a few localities throughout the continent. The classification of *O. germanus* is complicated, since some authors consider it synonymous to *O. abeillei*, *O. domesticus*, *O. pallidus* or *O. mollis*. Localities where *O. germanus* was collected in Europe are listed and its distribution range is compared to the abovementioned species. The distribution range of *O. germanus* is not identical to neither of the species, suggesting distinct ecological preferences. Further faunistic data may help resolve the complicated taxonomy of the genus *Opilo*.

Key words: biogeography, distribution, Cleridae, Italy, *Opilo germanus*

Izveček. Prvi podatek o pisancu *Opilo germanus* Chevrolat, 1843 (Coleoptera: Cleridae) v Italiji s komentarjem njegove razširjenosti po Evropi – V prispevku poročamo o prvi najdbi hrošča pisanca *Opilo germanus* Chevrolat, 1843 v Italiji. Ta vrsta je zelo redka v Evropi, slabo je poznana tudi njena biologija. Doslej je bilo najdenih le nekaj primerkov z območja celotnega kontinenta. Klasifikacija *O. germanus* je nejasna, nekateri avtorji ga obravnavajo kot sinonim vrstam *O. abeillei*, *O. domesticus*, *O. pallidus* ali *O. mollis*. Podajamo vse lokacije, kjer je vrsta bila najdena, in primerjamo areal razširjenosti s prej omenjenimi vrstami. Razširjenost *O. germanus* se ne prekriva z nobeno od vrst, kar kaže na različne ekološke preference. Nadaljnji favnistični podatki bodo pomagali pri razrešitvi zapletene taksonomije rodu *Opilo*.

Ključne besede: biogeografija, razširjenost, Cleridae, Italija, *Opilo germanus*

Introduction

Opilo germanus is a checkered beetle belonging to the subfamily Clerinae within the family Cleridae. It was first described by M. Chevrolat in 1843, who collected a single specimen in Hamburg in northern Germany (Chevrolat 1843). It has been, however, considered a separate species by the general entomological public only during a brief period in the late 19th and early 20th centuries. Since then, many authors synonymised it with *O. mollis* (Linnaeus, 1758), *O. domesticus* (Sturm, 1837) and *O. pallidus* (Olivier, 1795) (Hubenthal 1916, Korge 1960). Furthermore, Gerstmeier (2013) synonymized *O. germanus* under *O. abeillei* Korge, 1960. This makes tracing the history of this taxa complicated, and a detailed taxonomic study would be

needed to establish whether *O. germanus* is a separate species or just a synonym. Regardless the taxonomic opinion, novel faunistic findings should be interesting, since they may help resolve the complicated classification of the taxa.

Materials and methods

During the summer 2016, selected checkered beetle specimens deposited in the Slovenian Natural History Museum (Prirodoslovni muzej Slovenije) in Ljubljana were examined. The Slovenian Natural History Museum houses some of the largest and oldest insect collections in Slovenia. Since some recent communications on Cleridae have not considered *O. germanus* a separate species, the original description of Chevrolat (1843) was consulted. The specimen was revised using a stereomicroscope.

Results with discussion

During a study of checkered beetles deposited in the Slovenian Natural History Museum, a single specimen labelled as *O. germanus* was found. The specimen was pinned in the collection »Savo-zbirka-Coleoptera 16-003« in box number 16-003. The locality label reads: Triest, S. Luigi; 10. 8. 20; SPRINGER (Fig. 1). This is thus the first record of the species from Italy, although more than 95 years old.

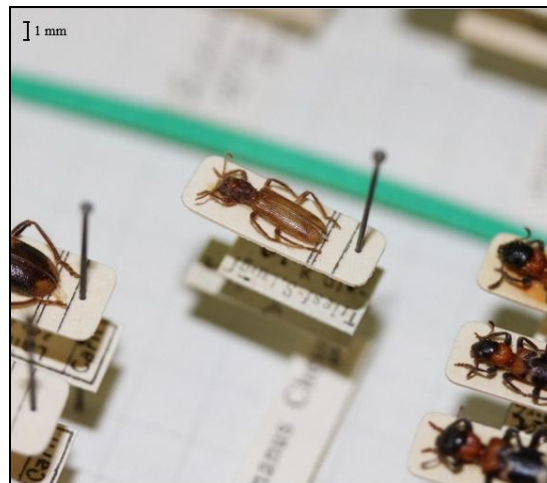


Figure 1. Photograph of *O. germanus* deposited in the Slovenian Natural History Museum (Prirodoslovni muzej Slovenije) in Ljubljana (photo: E. Tihelka). Note the characteristic dark brown markings near the apex of the elytra (Korge 1960).

Slika 1. Fotografija *O. germanus*, ki je shranjen v Prirodoslovnem muzeju Slovenije v Ljubljani (foto: E. Tihelka). Vidne so značilne temne lise na koncu eliter (Korge 1960).

The body of *O. germanus* takes the colour of different shades of brown, specimens are typically about 9.5 mm long. The elytra are coarsely covered by dense rows of uniform and square-like punctures. These rows of punctures run in the same thickness and intensity all the way from the shoulders up to about 2/3 of the elytra length. Except for the 2nd row, the elytral interval is always smaller than the thickness of the elytra stria (Chevrolat 1843, Reitter 1893). However, the micro sculpture of the elytra itself cannot be considered a distinguishing feature, since it is similar for many beetles of the genus *Opilo*. Rather, *O. germanus* is specific for its dark brown markings in about 2/3 of its elytra. Because this feature shows remarkable uniformity in a number of specimens collected in different parts of the Palearctic region, several authors consider it to be a specific distinguishing feature of *O. germanus* (e.g. Kniephof 1913).

It would be interesting to investigate whether or not populations of *O. germanus* survived in Italy until the present day. *O. germanus* is distributed extremely scarcely through Europe and its biology is poorly understood (Reitter 1911, Burakowski et al. 1986), which makes attempts to rediscover it difficult. It was collected on oaks and old buildings in the past (Kniephof 1913, Hubenthal 1916). According to some authors, the beetle lives in the stems of madders (*Rubia* sp.) or brambles (*Rubus* sp.) with many exit holes of Hymenoptera (Hubenthal 1916). It was also recorded to occur together with *O. mollis* (Kniephof 1913), suggesting similar ecological preferences. According to Löbl et al. (2007), *O. germanus* is distributed throughout France, Germany, Poland, Portugal, Algeria and Tunisia, but typically only a few specimens are known from each country. Altogether, only eight records of the species as far as Europe is concerned are known (Tab. 1, Fig. 2). It is interesting to note that all the sites of *O. germanus* are located within a close proximity to the coastline. *O. germanus* was never reported from inland Europe. It can be speculated that the species may not be native to Europe, and that isolated populations were introduced via merchant trade. During the 19th century, Trieste was considered to be the most important port of the Austro-Hungarian Empire (Hubert 2015) and remains to be one of the most important trade hubs in the region. Other localities, where the species was collected, are also close to major ports (Hamburg, Le Havre, Marseille, Gdansk). This is not a new idea, since Winkler (1959) already argued that *O. germanus* may not be native to northern Germany. If *O. germanus* is not native to Europe, where does its original distribution range lie? This question is hard to answer, given that the clerid was never collected outside of Europe, except for Algeria and Tunisia. However, since all of the nearly 70 species of the genus *Opilo* are probably native to the Old World, mainly to the Oriental realm (Kolibáč et al. 2005), it can be expected that the original distribution range of *O. germanus* lies somewhere in this territory.

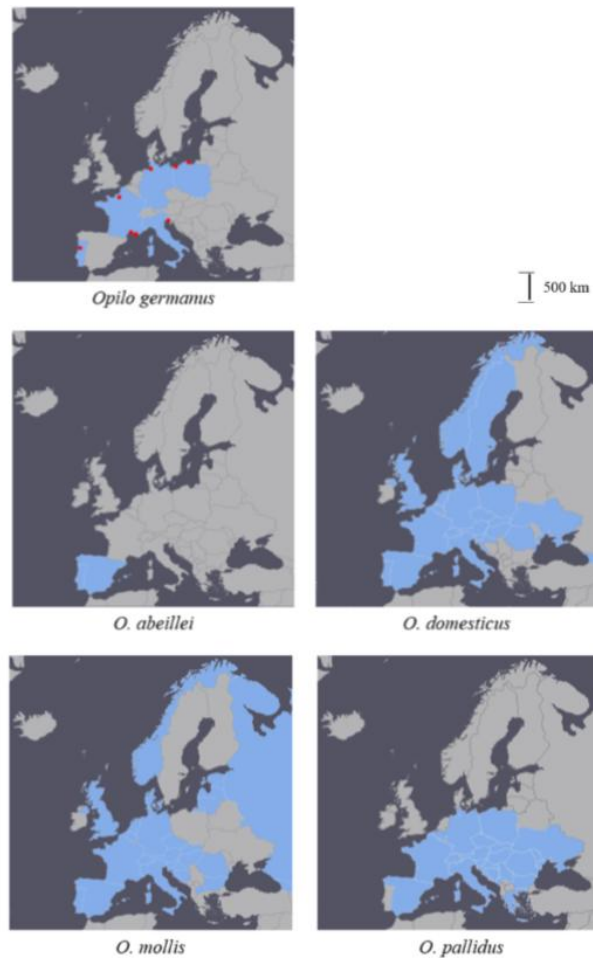


Figure 2. The known distribution range of *O. germanus* compared to the distribution ranges of *O. abeillei*; *O. domesticus*, *O. mollis* and *O. pallidus* (according to Löbl et al. 2007). Localities where *O. germanus* was collected are marked with red dots. For details on point localities see Tab. 1.

Slika 2. Poznana razširjenost *O. germanus* v primerjavi z razširjenostjo vrst *O. abeillei*, *O. domesticus*, *O. mollis* in *O. pallidus* (po Löbl et al. 2007). Z rdečimi pikami so označene lokalitete z *O. germanus*. Za podrobnosti o točkastih lokalitetah glej Tab. 1.

It could be expected that if *O. germanus* had an identical distribution range to some of the species, they probably are synonymous (all distribution ranges are in Fig. 2). While the distribution range of *O. abeillei* is limited to the Iberian Peninsula, *O. domesticus*, *O. mollis* and *O. pallidus* are distributed throughout continental Europe. It is apparent that the distribution range of *O. germanus* is not identical to neither of the aforementioned species. On the other hand, the distribution ranges of *O. domesticus*, *O. mollis* and *O. pallidus* overlap only partially with *O. germanus*. Distribution ranges suggest that *O. germanus* has distinct ecological preferences to all other mentioned species.

Table 1. Chronological overview of all localities at which *O. germanus* was collected in Europe.
Tabela 1. Kronološki pregled vseh lokalitet *O. germanus* v Evropi.

Locality	Time period	Comments	Reference
Surroundings of Hamburg (Germany)	1840s?	type specimen deposited in the National Museum of Natural History in Paris (according to Hubenthal 1916)	Chevrolat (1843)
Marseille (France)	second half of the 19 th century?		de la Puebla & Bahillo (2000)
Rouen (France)	second half of the 19 th century?		de la Puebla & Bahillo (2000)
Wieliszewo (Poland)	1900s-1910s?	1 spec.	Kniephof (1913)
Trieste (Italy)	10. 8. 1920	1 spec., coll. Slovenian Natural History Museum	
Międzyzdroje (Poland)	9.8.1924	coll. Koch	Korge (1960)
Coimbra (Portugal)	?		Korge (1960)
Provence (France)	?		de Mersaul (1857)

Since many authors do not consider *O. germanus* a separate species, it was very likely overlooked by researchers and it may be distributed much more widely than currently thought. It is recommended that larger private and public collections with a number of *Opilo* specimens are revised according to the description of Chevrolat (1843). This may help elucidate the problematic taxonomy and faunistics of beetles of the genus *Opilo*.

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References

- Burakowski B., Mroczkowski M., Stefańska J. (1986): Katalog Fauny Polski: Chrząszcze – Coleoptera. Dermestoidea, Bostrichoidea, Cleroidea i Lymexyloidea, 1st edition. Państwowe Wydawnictwo Naukowe, Warsaw, 243 pp.
- Chevrolat M. (1843): Description de vingt-quatre nouvelles espèces de Terebrantes, pour faire suite à la monographie des Clairons, de M. le docteur Klug. Ann. Soc. Entomol. Fr. 2: 31-42.

- de la Puebla P.B., Bahillo P. (2000): El género *Opilo* Latreille, 1802 en la Península Ibérica (Coleoptera, Cleridae). Boln. Asoc. Esp. Ent. 24: 213-227.
- de Mersaul S-A. (1857): Catalogues des Coleoptères de France. L'auteur, Paris, 249 pp.
- Gerstmeier R. (2013): *Opilo abeillei*. Fauna Europea version 2.6.2.
http://www.faunaeur.org/full_results.php?id=187266 [accessed 9. 8. 2016]
- Hubenthal W. (1916): Über *Opilo germanus* Chevrolat. Entomol. Bl. 12: 258-260.
- Hubert M. (2015): Do světa s parníky rakouského Lloyd, 1st edition. Mare-Czech, Prague, 145 pp.
- Kniephof J. (1913): Neuheiten der pommerschen Käferfauna. (Col.). Dtsch. Entomol. Z. 1915: 185-190.
- Kolibáč J., Majer K., Švihla V. (2005): Brouci nadčeledi Cleroidea Česka, Slovenska a sousedních oblastí (Beetles of the Superfamily Cleroidea in the Czech and Slovak Republics and Neighbouring Areas). Clarion Production, Praha, 143 pp.
- Korge H. (1960): Faunistische Neuigkeiten aus Deutschland: *Opilo germanus*. Entomol. B. 56: 185-186.
- Löbl I., Rolčík J., Kolibáč J., Gerstmeier R. (2007): Cleridae. In: Löbl I., Smetana A. (Eds.), Catalogue of Palearctic Coleoptera Volume 4: Elateroidea – Derodontoidea – Bostrichoidea – Lymexyloidea – Cleroidea – Cucujoidea, Apollo Books, Stenstrup, 935 pp.
- Reitter E. (1893): Bestimmungs-Tabelle der Coleopteren Familie der Cleriden, des palaearktischen Faunengebietes. Verhandlungen des naturforschenden Vereines in Brünn 32: 37-89.
- Reitter E. (1911): Fauna Germanica, Die Käfer des Deutschen Reiches, Band III, 1st Edition. K. G. Lutz Verlag, Stuttgart, 436 pp.
- Winkler J.R. (1959): Středoevropské druhy pestrokrovečníků a poznámky o jejich výskytu ve středních Čechách. Boh. Centr. 1: 413-511.