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# On the Staphylinidae of the Greek island Karpathos (Insecta: Coleoptera)

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A b s t r a c t: A study of 931 specimens of Staphylinidae collected in the Greek island Karpathos in December 2015 and January 2016 yielded 59 species, among them eight undescribed island-endemic species and three first records from Greece. A checklist including also previously recorded species is provided. The currently known fauna of Karpathos is composed of 69 species of Staphylinidae and shows stronger affinities to the fauna of Turkey and the Aegean islands off the Turkish coast than to Crete and mainland Greece (including the Pelopónnisos). Ten species (14.5 %) are island endemics, three of which (two of the Pselaphinae and one of the Scydmaeninae) are undescribed. Two myrmecophilous species that were previously considered island endemics of Crete and Rhodos, respectively, are present also in Karpathos. Oxypoda (Atlantoxypoda) bicornuta ASSING nov.sp. of the Aleocharinae, Medon carpathius ASSING nov.sp. of the M. petrochilosi subgroup (Paederinae), as well as Cephennium (Phennecium) kerpense MEYBOHM nov.sp., Euconnus (Tetramelus) kerpensis MEYBOHM nov.sp., and Stenichnus (Stenichnus) kerpensis MEYBOHM nov.sp. of the Scydmaeninae are described and illustrated. In an appendix, Oxypoda (Atlantoxypoda) bistirpata ASSING nov.sp. (southern Anatolia), a close relative of O. bicornuta, is described and illustrated.

K e y w o r d s : Coleoptera, Staphylinidae, Palaearctic region, East Mediterranean, Greece, Karpathos, Turkey, taxonomy, new species, diversity, zoogeography, endemism, myrmecophily, new records, checklist.

#### Introduction

The second largest of the Greek Dodecanese Islands with an area of approximately 300 km² (Saria, an island to the north, excluded), Karpathos proper is situated in the southeastern Aegean Sea. It is the largest island of the Karpathos archipelago, which, aside from Karpathos proper, includes Saria (ca. 20 km²), Kasos (ca. 70 km²), and the small islets Armathia (ca. 2.5 km²) and Astakida (ca. 1 km²), plus some even smaller islets. Today Karpathos is an isolated island separated from the nearest larger Mediterranean islands Rhodos and Crete by approximately 47 km and more than 70 km, respectively. The highest elevation is Kali Limni (also Oros Lastos) at 1215 m. The predominant vegetation at intermediate and higher altitudes is phrygana. Large parts of the island used to be covered with pine forest. However, considerable areas of this forest have fallen victim to several devastating forest fires in the recent past. Nevertheless, extensive pine forests have remained intact in several places. Karpathos has no lakes, but numerous streams; however, all of them are temporary and fall dry after long periods of drought. According to BAEHR (1985), there are also some lagunes and other brackish habitats.

Originally part of the south of a continuous landmass (known as Ägäis) 23 to 12 million years ago, Karpathos became separated during the following transgression period, which lasted approximately seven million years. In the Messinian (approximately 5 million years ago) there was a land bridge connecting the island to Rhodos and the Turkish mainland, from which Karpathos has been separated since the Pliocene (TRIANTIS & MYLONAS 2009).

In a study of the ground beetles (Carabidae) of the Karpathos archipelago, BAEHR (1985) recorded 48 species from the whole archipelago and 44 species from Karpathos proper, among them three endemics of the archipelago and two (sub-)species whose distributions are confined to Karpathos and Rhodos. He also found that the fauna was closely related to that of Rhodos, much more so than to that of Crete. This conclusion is in accordance with the geological history of Karpathos (see above).

While the Staphylinidae of several larger islands (Crete, Rhodos, Cyprus, Lesbos, Chios, Samos) in the East Mediterranean have been addressed in several recent articles (ASSING 2005, 2013a-b, 2015a-c; Assing & Wunderle 2001), little was known about the staphylinid fauna of Karpathos. In all, 21 species have been recorded from there (only primary records considered): Proteinus utrarius ASSING, 2004 of the Proteininae, Mycetoporus glaber glaber (SPERK, 1835) of the Tachyporinae, Habrocerus pisidicus KORGE, 1971 of the Habrocerinae, Anotylus clypeonitens (PANDELLÉ, 1867) and A. complanatus (ERICHSON, 1839) of the Oxytelinae, Myrmecopora fugax (ERICHSON, 1839) and Geostiba maxiana (TIKHOMIROVA, 1973) (recorded under its junior synonym G. euboica PACE, 1990) of the Aleocharinae, Medon cerrutii COIFFAIT, 1976, M. maronitus (SAULCY, 1864), M. dilutus pythonissa (SAULCY, 1864), Micranops pilicornis (BAUDI, 1870), Pseudomedon dido (SAULCY, 1865), Scopaeus gracilis (SPERK, 1835), and S. creticus FRISCH, 1994 of the Paederinae, Stenus parcior BERNHAUER, 1929 of the Steninae, Othius laeviusculus Stephens, 1833, O. lapidicola Märkel & Kiesenwetter, 1848, Xantholinus varnensis COIFFAIT, 1972, and X. rufipennis ERICHSON, 1839 of the Staphylininae, Tychus carpathius BESUCHET & SABELLA, 2012 of the Pselaphinae, and Scydmoraphes kerpensis MEYBOHM, 2008 of the Scydmaeninae (ASSING 1997, 1999a, 1999b, 2000, 2003, 2004a, 2004b, 2007a, 2007b, 2008a, 2008b, 2009b; BESUCHET & SABELLA 2012; FRISCH 1997, 1998, 1999; MEYBOHM 2008; PUTHZ 2008, SCHÜLKE 2009, 2012; SCHÜLKE & KOCIAN 2000). Of these species, only Tychus carpathius and Scydmoraphes kerpensis are true island endemics. Medon cerrutii had been recorded from Crete and Karpathos, and the remaining species are more widespread in the East Mediterranean or even in the West Palaearctic.

Among the East Mediterranean islands whose staphylinid fauna has been subject to recent studies, Crete hosts by far the greatest diversity of island endemics, which is explained not only by its more than eight million years of isolation, its long time of fragmentation into a chain of islands from more than eight million years ago into the Pliocene (TRIANTIS & MYLONAS 2009), its size, and its topology. As many as 67 named endemic species and subspecies have been recorded from Crete up to today (ASSING 2013a, 2015a). Significantly fewer endemics are known from Cyprus and Rhodos, from where 26 and eight named island endemics have been reported, respectively (ASSING

Omalium rhodicum ZANETTI & ASSING, 2013, which was originally considered an island endemic of Rhodos, has meanwhile been recorded also from Crete (ASSING 2015a).

2013b). Seven named (plus eleven unnamed) endemic species have been recorded from Samos (Assing 2009a, 2015c). Lesbos hosts only four named island endemics (one of them of doubtful status) (ASSING 2015b). Not a single named endemic<sup>2</sup> is known from Chios (ASSING 2015b). It is worth noting, however, that all these islands host a significant number of additional unnamed endemics of Scydmaeninae and Pselaphinae, which are pending description (BRACHAT pers. comm.; MEYBOHM pers. comm.).

In order to explore the staphylinid fauna of Karpathos, a field trip was conducted by the author in December 2015 and January 2016. This field trip focused on the autochthonous epigeic fauna of various forest, shrub, grassland, and ruderal habitats. Special habitats such as compost and dung, which generally host a great diversity of widespread Staphylinidae, were largely neglected.

The descriptions of the Scydmaeninae are authored exclusively by Heinrich Meybohm, Großhansdorf.

#### Material and measurements

The material treated in this study is deposited in the following public and private collections:

The Pselaphinae and Scydmaeninae are all deposited in cBra and cMey, respectively. Reference material of the remaining species is deposited in MNHUB and cAss.

The measurements indicated in the descriptions of the Scydmaeninae are based on the respective holotypes. The photographs of the habitus and other morphological characters of the Scydmaeninae (Figs 32-40) were prepared by Heinrich Meybohm and Roland Suikat (Preetz).

The morphological studies of the remaining subfamilies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). The images of some external characters were created using a photographing device constructed by Arved Lompe (Nienburg) and CombineZ software. For the remaining photographs a digital camera (Nikon Coolpix 995) was used. The map was created using MapCreator 2.0 (primap) software.

Body length was measured from the anterior margin of the mandibles (in resting position) to the abdominal apex, the length of the forebody from the anterior margin of the mandibles (in resting position) to the posterior margin of the elytra, head length along the middle from the anterior margin of the clypeus to the posterior constriction of the head, and elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra.

<sup>&</sup>lt;sup>2</sup> Xantholinus chiosicus ASSING, 2015 was recently reported also from Samos (ASSING 2015c).

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#### Results

During the time of the field trip, Karpathos was unusually dry for the season. According to the wetteronline.de website, there had been no significant rainfall since May and only few days with slight precipitation during the period from September through December 2015. Thus, all the streams surveyed, as well as marsh habitats and other wetlands were dry. Only in one locality (locality number 10) was a small spot with little water trickling out of the slope found. Thus, the conditions for recording Staphylinidae were not optimal, particularly not regarding riverine and other wetland fauna.

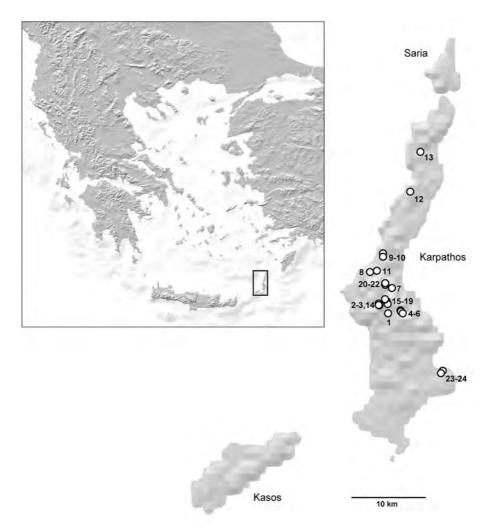
Nevertheless, 931 adult specimens of Staphylinidae were collected in various localities distributed across most of the island (Map 1). The material is composed of 59 species, eight of them undescribed, thirteen of them previously recorded, and the remainder reported from Karpathos for the first time (Tab. 1). Three of these species (*Cypha spathulata*; *Oxypoda schminkei*; *Quedius job*) even represent first records from Greece. Thus, including the previously recorded species and two additional species whose records had not been published (see species section), the currently known staphylinid fauna of the island includes 69 species (see checklist).

Two of these species are of doubtful identity, as they belong to taxa that require thorough taxonomic revision (subgenus *Mocyta* MULSANT & REY, 1874 of the genus *Atheta* THOMSON, 1858; subgenus *Baeoglena* THOMSON, 1867 of the genus *Oxypoda* MANNERHEIM, 1830). Three species of the Pselaphinae and the Scydmaeninae are undescribed, all of them island endemics (Brachat pers. comm., Meybohm pers. comm.).

Based on currently available evidence, ten (14.5 %) of the 69 species are endemic to Karpathos, two of them (one of the Pselaphinae and one of the Scydmaeninae) previously described, five (one of the Aleocharinae, one of the Paederinae, three of the Scydmaeninae) described in the present paper, and three undescribed (see above).

For a zoogeographic assessment, the species with restricted distributions are of particular interest. Two of them have been recorded from only one other island, *Dinusa cretica* from Crete and *Astenus rhodicus* from Rhodos. Aside from Karpathos, the third species, *Xantholinus chiosicus*, is known only from Chios and Samos. Finally, *Oxypoda schminkei* was previously known only from one locality in Muğla, southwestern Anatolia. The fauna of Karpathos includes 19 species whose distributions are confined to the East Mediterranean.

In accordance with the geological history of the island and with the trends found for the Carabidae (BAEHR 1985), the affinities of staphylind fauna of Karpathos are much closer to that of Turkey and Rhodos than to that of Crete or mainland Greece (including the Pelopónnisos), as is revealed not only by several endemic species which have their closest relatives in Turkey or Rhodos (Oxypoda angustior; O. bicornuta; Euconnus (Cladoconnus) nov.sp.). Other species indicating such a relationship are Proteinus utrarius (unknown from Crete), Habrocerus cyprensis (otherwise known only from Cyprus, southern Anatolia, and Rhodos), Cypha tenebricosa (southern Anatolia and Chios), Oxypoda schminkei (see above), Astenus rhodicus, Xantholinus chiosicus, and Quedius job (previously known only from Lebanon and Turkey). The only species that seems to be in disagreement with this trend is Dinusa cretica, suggesting that its presence in Karpathos is the result of a more recent colonization on the wing.



**Map 1**: Geographic position of Karpathos (left) and sample plots in Karpathos (right). Plots where no Staphylinidae were found are omitted. The numbers correspond to the sample numbers in Tab. 1.

The staphylinid fauna of Karpathos includes 32 species that are widespread in the Mediterranean region, in the West Palaearctic, or across the Palaearctic region.

The records of the two myrmecophilous species *Dinusa cretica* and *Astenus rhodicus* reveal that they are not island endemics of Crete and Rhodos, respectively, as was hypothesized by ASSING (2013a, b, 2015a). On the other hand, the discovery that what had been recorded from Karpathos as *M. cerrutii* in fact represents a distinct island endemic of Karpathos, makes *M. cerrutii* an endemic of Crete. Consequently, the number of named island endemics of Rhodos is reduced to seven and that of Crete remains unchanged.

Compared to other previously sampled Greek islands, some gaps in the staphylinid fauna

of Karpathos are evident. These gaps can partly be attributed to the season, e.g., Omalium spp. and many Aleocharinae. These taxa are best recorded in spring. Remarkably, aside from two specimens of Dinusa SAULCY, 1865, no myrmecophilous Staphylinidae were found with ants of the genus Messor FOREL, 1890, which may host Stenus spp. and particularly Myrmecopora spp. In all other previously surveyed Aegean islands, at least one, in Crete even five species of Myrmecopora SAULCY, 1865 were recorded, also in winter and partly in large numbers. In more than 50 nests - of the particular Messor species group that usually has these myrmecophiles - examined in various parts of the island the usual myrmecophilous cholevids were found frequently, but never Myrmecopora, suggesting that this genus is actually absent from Karpathos. Moreover, despite considerable efforts in suitable habitats, a search for endemic species of genera such as Sunius STEPHENS, 1829 (two local endemics in Crete, two in Samos, and one in Rhodos) and Geostiba THOMSON, 1858 (several endemics in Crete, one in Samos), which are represented in the East Mediterranean by numerous local endemics, was not successful. The only Geostiba species found in Karpathos, the widespread G. maxiana, was the most common species of Staphylinidae in the samples and accounts for nearly half of the Staphylinidae collected (total: 444 specimens).

**Tab. 1**: Staphylinidae collected in Karpathos in December 2015 and January 2016 (all leg. Assing). In the localities column, the number of specimens is given in parentheses behind the locality number. Island-endemic species are marked with an asterisk.

Localities/samples: 1: N Volada, Lastos, 35°34'40"N, 27°08'23"E, 720 m, road margin, under stones, 23.XII.2015; 2: Kali Limni, 35°35'14"N, 27°07'37"E, 1070 m, N-slope with phrygana, litter, moss, and grass sifted, 23.XII.2015; 2a: same data, but under stones; 3: Kali Limni, near peak, 35°35'23"N, 27°07'34"E, 1190 m, moist litter, moss, and grass beneath small tree and shrubs sifted, 23.XII.2015; **4**: N Volada, pista E Lastos to Agios Nikolaos, 35°34′53″N, 27°09′27″E, 670 m, in cow dung, 24.XII.2015; **5**: N Volada, pista E Lastos to Agios Nikolaos, 35°34′48″N, 27°09′30″E, 680 m, pine forest, pine litter sifted, 24.XII.2015; 6: N Volada, pista E Lastos to Agios Nikolaos, 35°34'40"N, 27°09'39"E, 700 m, terraced calcareous slope with grass, under stones, 24.XII.2015; 7: S Spoa, 35°36'28"N, 27°08'43"E, 250 m, dry stream valley, litter sifted, 25.XII.2015; **8**: SW Spoa, 35°37'37"N, 27°06'48"E, 380 m, pine forest, litter and grass roots sifted, 25.XII.2015; 9: W Spoa, 35°38'56"N, 27°07'56"E, 230 m, stream valley, moist litter sifted, 25.XII.2015; **10**: W Spoa, 35°38'42"N, 27°07'56"E, 210 m, stream valley, moist leaf litter near running water sifted, 25.XII.2015; **10a**: same data, but 31.XII.2015; **11**: SW Spoa, 35°37'42"N, 27°07'24"E, 380 m, pine forest, litter, moss, and grass roots sifted, 25.XII.2015; 12: S Olympos, 35°43'19"N, 27°10'19"E, 460 m, dry shrub litter between large calcareous rocks sifted; 13: N Olympos, E Avlona, 35°46'09"N, 27°11'13"E, 260 m, dry margin of pista and dry ruderal habitat, under stones, 26.XII.2015; **14**: Kali Limni, 35°35'16"N, 27°07'34"E, 1100 m, N-slope with phrygana, litter, grass and moss beneath shrubs sifted, 27.XII.2015; **14a**: same data, but under stones; **15**: Kali Limni, trail to Spoa, 35°35'32"N, 27°08'15"E, 870 m, plateau, under stones, 28.XII.2015; **15a**: same data, but sifted; **15b**: same data as 15, but 29.XII.2015; **16**: Kali Limni, trail to Spoa, 35°35'23"N, 27°08'18"E, 830 m, phrygana, dry shrub litter sifted, 28.XII.2015; **17**: Kali Limni, trail to Spoa, 35°35'20"N, 27°08'20"E, 800 m, pine litter and grass roots between cushion plants beneath old pine tree sifted, 28.XII.2015; 18: Kali Limni, trail to Spoa, 35°35'39"N, 27°08'07"E, 890 m, plateau with grass and phrygana, shrub litter and moss sifted, 29.XII.2015; 19: Kali Limni, trail to Spoa, grass and phrygalia, strub met and moss struct, 22.741.2013, 12. Kair Limit, that to 5poa, 35°35'41"N, 27°08'07"E, 900 m, litter and grass between rocks beneath old pine tree sifted, 29.XII.2015; 20: 3 km SSW Spoa, 35°36'45"N, 27°08'07"E, 760 m, grassy plateau with phrygana, under stones, 30.XII.2015; 21: 3 km SSW Spoa, 35°36'42"N, 27°08'08"E, 760 m, beneath old pine tree, pine litter and roots near large rocks sifted, 30.XII.2015; 22: 3 km SSW Spoa, 35°36'49"N, 27°08'07"E, 760 m, 50°38'18" 27°08'08"E, 770 m, pine stand near large rocks, pine litter and roots sifted, 30.XII.2015; 23: Karpathos, 35°30'35"N, 27°13'08"E, 40 m, terraced dry grassy fallow, under stones, 1.I.2016; 24: Karpathos, 35°30'25"N, 27°12'59"E, 20 m, hotel room, 1.I.2016.

Species	Localities/samples					
O m a l i i n a e						
Acidota cruentata Mannerheim, 1830	2(1)					
Proteininae	, ,					
Proteinus utrarius Assing, 2004	17(1)					
P s e l a p h i n a e						
*Afropselaphus nov.sp. (♀)	2(1)					
*Tychus nov.sp. $(\circ)$	12(1)					
Tachyporinae						
Lordithon thoracicus (FABRICIUS, 1777)	11(3)					
Mycetoporus glaber glaber (SPERK, 1835)	5(1), 19(2)					
Mycetoporus ignidorsum EPPELSHEIM, 1880	2(1), 3(2), 11(1), 14(2), 17(1), 19(1), 21(2)					
Mycetoporus simillimus FAGEL, 1965	2(6), 3(5), 5(2), 7(2), 12(1), 14(5), 16(10),					
	17(1), 18(6), 19(3), 21(12)					
Parabolitobius inclinans (GRAVENHORST, 1806)	5(1), 12(1)					
Tachyporus nitidulus (FABRICIUS, 1781)	11(1)					
Habrocerinae						
Habrocerus cyprensis Assing & Wunderle, 1995	10(21), 10a(13)					
Habrocerus pisidicus KORGE, 1971	7(1), 9(1), 10(4), 10a(2), 22(1)					
Aleocharinae						
Aloconota subgrandis Brundin, 1954	10(2), 10a(2)					
Atheta aeneicollis (SHARP, 1869)	5(5), 7(4)					
Atheta (Mocyta) pulchra (KRAATZ, 1856)	5(6), 7(2), 21(1)					
Atheta (Mocyta) sp.	9(23), 10(2), 10a(16)					
Caloderina hierosolymitana (SAULCY, 1865)	2a(1)					
Cypha spathulata Assing, 2007	16(1)					
Cypha tenebricosa Assing, 2004	16(1)					
Dinusa cretica Assing, 2013	15(1), 20(1)					
Falagria sulcatula (Gravenhorst, 1806)	21(1)					
Geostiba maxiana (TIKHOMIROVA, 1973)	2(22), 5(11), 7(1), 12(38), 14(44), 15a(1),					
	16(39), 17(48), 18(4), 19(56), 21(159),					
100	22(21)					
Myllaena intermedia ERICHSON, 1837	10(4), 10a(3)					
*Oxypoda bicornuta ASSING sp. n.	5(1), 9(1), 15(2), 21(17), 22(1)					
Oxypoda carbonaria (HEER, 1841)	4(1)					
Oxypoda lurida WOLLASTON, 1857	2(2), 5(1)					
Oxypoda schminkei Assing, 2004	15(2)					
Oxypoda cf. nova Bernhauer, 1902	7(1), 8(1), 9(2), 10(1), 11(1), 21(13), 22(2)					
Pronomaea picea HEER, 1841 (♀)	10a(1)					
O x y t e l i n a e	1/2					
Anotylus complanatus (ERICHSON, 1839)	4(2)					
Anotylus inustus (GRAVENHORST, 1806)	4(1), 5(1)					
Platystethus nitens (Sahlberg, 1832)	10a(1)					

Species	Localities/samples						
Thinodromus bodemeyeri (BERNHAUER, 1902)	10(1)						
Steninae							
Stenus aceris Stephens, 1833	11(1)						
Stenus maculiger WEISE, 1875	10(1), 10a(2)						
Stenus turbulentus BONDROIT, 1912	5(3), 7(1), 11(1), 22(1)						
S c y d m a e n i n a e							
*Cephennium kerpense MEYBOHM nov.sp.	12(5), 16(2), 17(1)						
*Euconnus (Cladoconnus) nov.sp. (♀)	16(1)						
*Euconnus kerpensis MEYBOHM nov.sp.	12(5)						
*Scydmoraphes kerpensis Meybohm, 2008	12(4), 14(4), 16(3), 19(1), 21(1)						
*Stenichnus kerpensis МЕҮВОНМ nov.sp.	12(4)						
Paederinae							
Astenus rhodicus Assing, 2013	6(4)						
Domene stilicina (ERICHSON, 1840)	23(3)						
Medon dilutus pythonissa (SAULCY, 1865)	5(2), 7(1), 8(2), 9(1), 10a(2), 22(1), 21(1)						
*Medon carpathius AssING sp. n.	9(4), 10(5), 10a(4)						
Ochthephilum turkestanicum (KORGE, 1968)	10(7), 10a(3)						
Scopaeus creticus Frisch, 1994	10(1)						
Staphylininae							
Gabrius nigritulus (Gravenhorst, 1802)	10(3), 10a(1)						
Ocypus orientis Smetana & Davies, 2000	13(2)						
Othius laeviusculus Stephens, 1833	1(2)						
Othius lapidicola Märkel & Kiesenwetter,	2(11), 3(1), 5(3), 12(16), 14(3), 17(1),						
1848	18(2), 19(4), 21(24), 22(11)						
Quedius coloratus FAUVEL, 1875	13(1)						
Quedius humeralis Stephens, 1832	5(3), 17(1)						
Quedius job Coiffait, 1963	10(9), 10a(5)						
Quedius levicollis (Brullé, 1832)	6(1), 23(2)						
Quedius nemoralis Baudi di Selve, 1848	5(3), 12(1), 14(1), 22(4), 24(1)						
Xantholinus chiosicus Assing, 2014	2a(1), 9(1), 11(3), 12(4), 14a(3), 15b(1),						
	19(1), 21(2), 22(3)						
Xantholinus rufipennis Erichson, 1839	3(1), 11(2)						
Xantholinus varnensis Coiffait, 1972	10(1)						

# Checklist of the Staphylinidae recorded from Karpathos

The species currently known from Karpathos (K) are listed below. In addition, information on the general distribution (Dis) and the presence on other surveyed East Mediterranean islands (CR = Crete; CY = Cyprus; R = Rhodos; S = Samos; C = Chios; L = Lesbos) is provided. The general distributions are abbreviated as follows: E = E = endemic; EM = E = East Mediterranean; EM = E = Mediterranean; EM = E = Palaearctic (native); EM = E = restricted; EM = E = West Palaearctic. The assignment to these categories is in some cases somewhat tentative; expansive Holo- or Ponto-Mediterranean species are categorized as West

Palaearctic. For more information on the staphylinid faunas of the other East Mediterranean islands see Assing (2005, 2013a-b, 2015a-c) and Assing & Wunderle (2001).

Species	Dis	K	CR	CY	R	S	С	L
Acidota cruentata Mannerheim, 1830	P	•	•				•	
Proteinus utrarius Assing, 2004	EM	•			•	•	•	•
Micropeplus staphylinoides (MARSHAM, 1802)		•	•	•	•	•		
Afropselaphus nov.sp.		•						
Tychus carpathius BESUCHET & SABELLA, 2012		•						
Tychus nov.sp.	Е	•						
Lordithon thoracicus (FABRICIUS, 1777)	P	•		•	•			
Mycetoporus glaber glaber (SPERK, 1835)	WP	•		•				
Mycetoporus ignidorsum EPPELSHEIM, 1880	EM	•	•	•	•	•	•	
Mycetoporus simillimus FAGEL, 1965	EM	•	•		•	•	•	•
Parabolitobius inclinans (GRAVENHORST, 1806)	WP	•		•	•			
Tachyporus nitidulus (FABRICIUS, 1781)	P	•	•	•	•	•	•	•
Habrocerus cyprensis Assing & Wunderle, 1995	EM	•		•	•			
Habrocerus pisidicus KORGE, 1971	EM	•	•	•	•	•		•
Aloconota subgrandis Brundin, 1954	WP	•						
Atheta aeneicollis (SHARP, 1869)	WP	•	•	•	•	•	•	
Atheta (Mocyta) pulchra (KRAATZ, 1856)	?	•	?	?	?	?	?	?
Atheta (Mocyta) sp.	?	•	?	?	?	?	?	?
Caloderina hierosolymitana (SAULCY, 1865)	M	•	•	•				
Cypha spathulata Assing, 2007	M	•						
Cypha tenebricosa Assing, 2004	EM	•					•	
Dinusa cretica Assing, 2013	R	•	•					
Falagria sulcatula (GRAVENHORST, 1806)	P	•						
Geostiba maxiana (TIKHOMIROVA, 1973)	EM	•				•	•	•
Myllaena intermedia ERICHSON, 1837	WP	•				•		
Myrmecopora fugax (ERICHSON, 1839)	M	•	•	•	•	•		
Oxypoda bicornuta Assing sp. n.	Е	•						
Oxypoda carbonaria (HEER, 1841)	WP	•		•				
Oxypoda lurida WOLLASTON, 1857	WP	•	•	•		•	•	
Oxypoda schminkei Assing, 2004	R	•						
Oxypoda cf. nova Bernhauer, 1902	?	•	?	?	?	?	?	?
Pronomaea picea HEER, 1841	WP	•						
Anotylus clypeonitens (PANDELLÉ, 1867)	WP	•	•	•	•			•
Anotylus complanatus (ERICHSON, 1839)	P	•	•	•	•			
Anotylus inustus (Gravenhorst, 1806)	P	•	•	•	•	•	•	
Platystethus nitens (SAHLBERG, 1832)	P	•	•	•	•			
Thinodromus bodemeyeri (BERNHAUER, 1902)	EM	•		•				
Stenus aceris Stephens, 1833	WP	•	•	•	•	•		•
Stenus brunnipes lepidus WEISE, 1875	EM	•		•	•			
Stenus maculiger WEISE, 1875	WP	•			•	•		
Stenus parcior Bernhauer, 1929	WP	•	•	•		•		

Species	Dis	K	CR	CY	R	S	C	L
Stenus turbulentus Bondroit, 1912	EM	•		•	•	•	•	•
Cephennium kerpense MEYBOHM nov.sp.		•						
Euconnus (Cladoconnus) nov.sp.	Е	•						
Euconnus kerpensis MEYBOHM nov.sp.	Е	•						
Scydmoraphes kerpensis MEYBOHM, 2008	Е	•						
Stenichnus kerpensis MEYBOHM nov.sp.	Е	•						
Astenus rhodicus Assing, 2013	R	•			•			
Domene stilicina (ERICHSON, 1840)	EM	•	•	•	•	•		
Medon maronitus (SAULCY, 1864)	EM	•		•	•	•		•
Medon dilutus pythonissa (SAULCY, 1865)	EM	•	•	•	•	•	•	•
Medon carpathius Assing sp. n.	Е	•						
Micranops pilicornis (BAUDI DI SELVE, 1870)	WP	•		•	•			•
Ochthephilum turkestanicum (KORGE, 1968)	WP	•	•	•				
Pseudomedon dido (SAULCY, 1865)	EM	•						
S. creticus Frisch, 1994	EM	•	•					
Scopaeus pusillus (Kiesenwetter, 1843)	P	•						
Gabrius nigritulus (Gravenhorst, 1802)	P	•	•	•		•		
Ocypus orientis Smetana & Davies, 2000	EM	•		•	•			
Othius laeviusculus Stephens, 1833	M	•	•	•	•			•
Othius lapidicola MÄRKEL & KIESENWETTER, 1848	WP	•	•		•	•	•	•
Quedius coloratus FAUVEL, 1875	EM	•						
Quedius humeralis Stephens, 1832	WP	•	•	•	•			•
Quedius job Coiffait, 1963	EM	•						
Quedius levicollis (BRULLE, 1832)	WP	•	•	•	•			•
Quedius nemoralis BAUDI DI SELVE, 1848	WP	•	•	•	•	•	•	
Xantholinus chiosicus Assing, 2014	R	•				•	•	
Xantholinus rufipennis Erichson, 1839	EM	•		•		•	•	
Xantholinus varnensis CoiffAit, 1972	EM	•			•	•		

# Notes on some species

## Acidota cruentata MANNERHEIM, 1830

C o m m e n t: In Greece, this widespread, wing-dimorphic, and rarely found species had been recorded from several localities in the mainland, from Crete, and from Chios (ASSING 2002, 2013a, 2015b). The male listed in Tab. 1 is micropterous and at the low end of the size range.

## Micropeplus staphylinoides (MARSHAM, 1802)

M a t e r i a l e x a m i n e d: <u>Karpathos:</u> 3 exs., Lastos, Oros Kolla, 600 m, 16.IV.1999, leg. Meybohm (cAss); 2 exs., Lastos, N Oros Lastos, 600 m, 16.IV.1999, leg. Meybohm (cAss). Crete: 1♂ [teneral], Dikti Oros, Selakano, 35°05′N, 25°32′E, 850 m, 9.III.2001, leg. Meybohm (cAss). Cyprus: 1♂, Latchi, 9.III.1994, leg. Meybohm (cAss); 1 ex., Troodos range, Moumourus, Argatitis Agias, S Stavros, 600 m, sifted, 30.III.1999, leg. Weidlich (cAss).

C o m m e n t : This widespread Mediterranean species was previously unknown from Karpathos, Crete, and Cyprus.

## Habrocerus cyprensis Assing & Wunderle, 1995

C o m m e n t: The previously known distribution of *H. cyprensis* was confined to Cyprus, southern Anatolia, and Rhodos.

## Cypha spathulata Assing, 2007

C o m m e n t : *Cypha spathulata* is widespread in the Mediterranean region, its known distribution ranging from Spain to Turkey. The male listed in Tab. 1 represents the first record from Greece.

#### Cypha tenebricosa Assing, 2004

C o m m e n t: This species had been known only from Turkey until it was recently recorded from Chios (Assing 2015b). The female collected in Karpathos represents the second record from Greece.

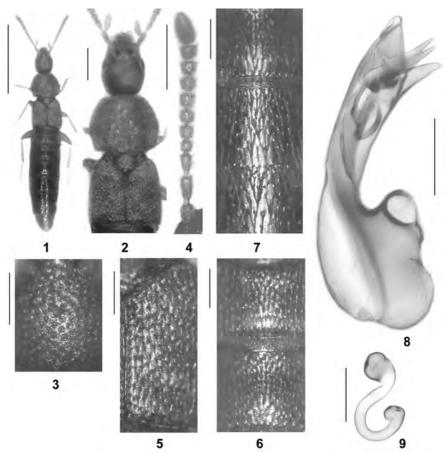
#### Dinusa cretica Assing, 2013

C o m m e n t: *Dinusa cretica* is a rare myrmecophile associated with ants of the genus *Messor* FOREL, 1890. It was previously hypothesized to be endemic to Crete (ASSING 2013a, 2015a). The two specimens (a male and a female) listed in Tab. 1 are distinguished from material known from Crete by somewhat darker coloration of the pronotum and the elytra, as well as by a slightly larger crista apicalis of the aedeagus, but otherwise no significant differences were found suggesting that they should represent a distinct species. In view of the long time of separation of Crete and Karpathos (see introduction), it would seem likely that the presence of *D. cretica* in Karpathos is the result of a more recent colonization by flight.

Based on the different shape of the spermatheca, the specimens from Karpathos are not conspecific with the unnamed *Dinusa* sp. from Rhodos (see ASSING 2013b).

# Geostiba maxiana (TIKHOMIROVA, 1973)

C o m m e n t: *Geostiba maxiana* is the most common species of Staphylinidae in the litter layer of phrygana and pine forest habitats of Karpathos at intermediate and higher elevations. As many as 444 specimens were collected, with the altitudes ranging from 250 to 1100 m. One of them is infested with Laboulbeniales. This wing-dimorphic species is widespread in the East Mediterranean and has primarily been recorded from islands. Nevertheless, it is absent from Crete and Rhodos, where other species of the subgenus *Sipalotricha* SCHEERPELTZ, 1931 are present.



**Figs 1-9**: *Oxypoda schminkei*: (1) habitus; (2) forebody; (3) median portion of head; (4) antenna; (5) right elytron; (6) median portion of abdominal tergites III-IV; (7) median portion of abdominal tergites V-VII; (8) median lobe of aedeagus in lateral view; (9) spermatheca. Scale bars: 1: 1.0 mm; 2, 4: 0.2 mm; 3, 5-9: 0.1 mm.

## Oxypoda (Deropoda) schminkei ASSING, 2004 (Figs 1-10)

C o m m e n t: Oxypoda schminkei was described from a single male collected in the Baba Dağ in Muğla, southwestern Anatolia (ASSING 2004c), and had never been recorded since. The two specimens, a male and a female, listed in Tab. 1 are distinguished from the holotype of O. schminkei by a slightly different shape of the ventral process of the aedeagus and by a somewhat narrower head (in relation to pronotum), so that they were first suspected to represent a distinct species. However, a thorough comparison of the material from Karpathos with the holotype revealed no further evidence that would confirm this hypothesis, so that the observed differences are attributed to intra- rather than interspecific variation. The external sexual characters, including the previously unknown spermatheca, of the material from Karpathos are illustrated in Figs 1-9. Both specimens were collected on a calcareous plateau with scattered grassy patches and low phrygana by turning stones (Fig. 10).



**Fig. 10**: Locality where *Oxypoda schminkei* was found (sample number 15).

#### Pronomaea picea HEER, 1841

C o m m e n t: The specimen from Karpathos is a female, so its identification should be considered tentative. It is impossible to reliably distinguish *P. picea* from *P. wunderlei* ASSING, 2007, which is known only from Crete. The nearest record of *P. picea* is from the Greek island Ikaría (ASSING 2007c).

## Stenus brunnipes lepidus WEISE, 1875

A d d i t i o n a l  $\,$  r e c o r d s : Karpathos:  $9 \circlearrowleft \circlearrowleft$ ,  $14 \circlearrowleft \circlearrowleft$ , Aperi, 300 m, 25.IV.1994, leg. Frisch (MNHUB, cPut);  $1 \circlearrowleft$ ,  $1 \circlearrowleft$ ,  $1 \circlearrowleft$ , Volada, 22.IV.1994, leg. Frisch (MNHUB).

C o m m e n t: The above records of this East Mediterranean subspecies were identified and communicated by PUTHZ (e-mail, 10.I.2016).

## Astenus (Eurysunius) rhodicus Assing, 2013

C o m m e n t: *Astenus rhodicus* is a myrmecophile associated with ants of the genus *Tetramorium* MAYR, 1855. It was previously known only from Rhodos (ASSING 2013b). All four specimens (Tab. 1) were found in the same *Tetramorium* nest. An examination of the ants revealed that it was in fact a mixed colony of *Tetramorium* sp. and a species of the dulotic (slave-making) ant genus *Strongylognathus* MAYR, 1853.

## Othius lapidicola MÄRKEL & KIESENWETTER, 1848

C o m m e n t: This widespread wing-dimorphic species is, by far, the most common representative of the genus in the East Mediterranean. It has been found on all studied islands except for Cyprus (Tab. 2).

The populations of Karpathos are characterized by rather dark average coloration. While the brachypterous morph was predominant in the samples from pine litter and phrygana litter at intermediate elevations, those from phrygana litter at higher altitdes on Kali Limni were almost exclusively composed of macropterous specimens. Larvae, mostly of the first and second instar, were observed in numerous samples. Eleven specimens were infested with Laboulbeniales.

## Quedius job COIFFAIT, 1963

C o m m e n t: *Quedius job* was originally described from Lebanon and subsequently also reported from Turkey (KORGE, 1971). The material from Karpathos represents the first records from Greece.

## Xantholinus chiosicus Assing, 2015

C o m m e n t: This species poses a mystery. Only recently redescribed from the Greek island Chios, it was subsequently recorded also from Samos (ASSING 2015b, c); it is unknown from Rhodos. The material from Karpathos is distinguished from that from Chios and Samos by darker coloration (particularly of the pronotum and the elytra), but I have found no significant differences in the internal structures of the aedeagus, suggesting that the populations from the three islands are conspecific. All 32 specimens collected thus far are micropterous, like all other species of the subgenus *Helicophallus* COIFFAIT, 1956 known from the East Mediterranean. Considering that Karpathos has had no land connection to Samos and Chios for more than four million years, it appears remarkable that no speciation should have occurred. This species may be wing-dimorphic after all.

# **Description of new species**

# Oxypoda (Atlantoxypoda) bicornuta ASSING nov.sp. (Figs 11-22)

T y p e m a t e r i a l : Holotype  $\[ \vec{\sigma} \]$ : "Greece: Karpathos [21], 3 km SSW Spoa, 35°36'42"N, 27°08'08"E, 760 m, pine litter, 30.XII.2015, V. Assing / Holotypus  $\[ \vec{\sigma} \]$  Oxypoda bicornuta sp.n. det. V. Assing 2016" (cAss). Paratypes:  $12\[ \vec{\sigma} \]$   $\[ \vec{\sigma} \]$  42  $\[ \vec{\sigma} \]$  same data as holotype (cAss);  $1\[ \vec{\sigma} \]$ : "Greece: Karpathos [5], N Volada, pista E Lastos 35°34'48"N, 27°09'30"E, 680 m, pine forest, 24.XII.2015, V. Assing" (cAss);  $1\[ \vec{\sigma} \]$ : "Greece: Karpathos [9], W Spoa, 35°38'56"N, 27°07'56"E, 230 m, stream valley, sifted, 25.XII.2015, V. Assing" (cAss);  $1\[ \vec{\sigma} \]$ ,  $1\[ \vec{\sigma} \]$ : "Greece: Karpathos [15], Kali Limni, 35°35'32"N, 27°08'15"E, 870 m, plateau, under stones, 28.XII.2015, V. Assing" (cAss);  $1\[ \vec{\sigma} \]$ : "Greece: Karpathos [22], 3 km SSW Spoa, 35°36'49"N, 27°08'08"E, 770 m, pine litter, 30.XII.2015, V. Assing" (cAss);  $1\[ \vec{\sigma} \]$ : "Greece, Karpathos, Spoa, 500 mNN, 23.04.1994, leg. J. Frisch" (cAss).

E t y m o l o g y: The specific epithet (Latin, adjective: with two horns) alludes to the conspicuous pair of processes at the base of the ventral process of the aedeagus.

D e s c r i p t i o n: Body length 2.8-3.5 mm; length of forebody 1.3-1.5 mm. Habitus as in Fig. 11. Coloration: head brown to black; pronotum pale-reddish to brown, paler

than head; elytra yellowish-red to dark-reddish, with the scutellar and postero-lateral portions usually slightly infuscate; abdomen blackish-brown to blackish, with the posterior margins of tergites III-VI, the posterior portion of tergite VII, and all of segments VIII-X reddish; legs yellowish; antennae dark-brown with the basal 2-3 antennomeres dark-yellowish; maxillary palpi dark-yellowish with palpomere III more or less distinctly infuscate.

Head (Fig. 12) approximately as long as broad or indistinctly transverse, of suborbicular shape; punctation fine and dense; interstices with shallow microreticulation. Eyes of moderate size, weakly convex, distinctly shorter than postocular region in dorsal view. Antenna 0.7-0.8 mm long and shaped as in Fig. 13. Maxillary palpus elongate, palpomere III approximately four times as long as broad.

Pronotum (Fig. 12) approximately 1.25 times as broad as long and 1.4 times as broad as head, widest behind middle; posterior angles obsolete; punctation fine and very dense; interstices with extremely shallow microreticulation barely visible even at high magnification (100 x).

Elytra (Figs 12, 14) approximately 0.9 times as long as pronotum; punctation dense and moderately fine; interstices without microsculpture. Hind wings dimorphic, reduced in micropterous morph, fully developed in macropterous morph. Metatarsomere I as long as, or slightly longer than, the combined length of II-IV.

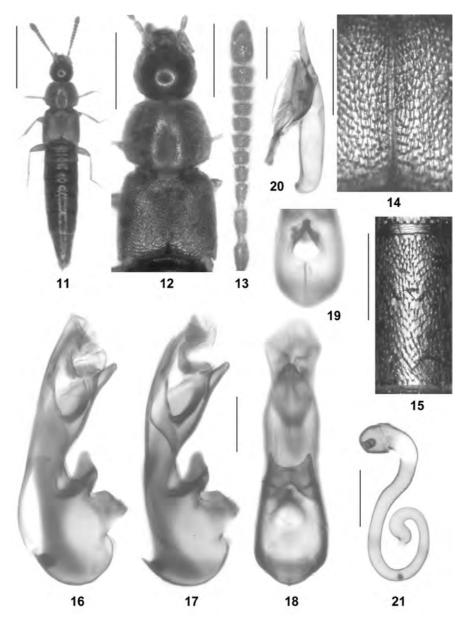
Abdomen slightly narrower than elytra; segments III-VI of subequal width; punctation fine and very dense, only slightly less dense on tergite VII (Fig. 15) than on tergite V; interstices mostly without microsculpture (indistinct traces may be visible at high magnification in posterior portions of tergites VI-VIII); posterior margin of tergite VII with palisade fringe.

 $\delta$ : middle of sternite VIII convexly produced; median lobe of aedeagus (Figs 16-19) 0.40-0.44 mm long and of conspicuous shape, at base of ventral process with a pair of processes; crista apicalis strongly projecting in lateral view; parameres (Fig. 20) enormous (approximately 0.8 mm), nearly twice as long as median lobe, with moderately long apical lobe and with pronounced velum.

φ: posterior margin of sternite VIII broadly convex; spermatheca shaped as in Fig. 21.

C o m p a r a t i v e n o t e s: In general habitus, elongate maxillary palpi, and dense punctation *O. bicornuta* is similar to the sympatric (present also in Karpathos), widespread, parthenogenetic *O. lurida*, from which it differs by slightly larger body, darker antennae, the usually more colourful appearance (head more strongly contrasting with the paler pronotum and elytra; elytra bicoloured), the wing dimorphism, and by the presence of males. The spermathecae of both species are nearly identical in shape, but that of *O. lurida* is only weakly sclerotized. Based on the similar, undoubtedly synapomorphic, modifications of the aedeagus (median lobe with pair of process at base of ventral process and with strongly projecting crista apicalis; paramere of enormous size and with strongly developed velum), *O. bicornuta* is most closely related to a species from southern Turkey, which is described in an appendix to this article. For characters distinguishing both species see the description in the appendix.

Oxypoda bicornuta is tentatively assigned to Atlantoxypoda ZERCHE, 1996, based on the general resemblance to O. lurida, which is currently included in this subgenus, too.



Figs 11-21: Oxypoda bicornuta nov.sp.: (11) habitus; (12) forebody; (13) antenna; (14) sutural portion of elytra; (15) median portion of abdominal tergite VII; (16-17) median lobe of aedeagus in lateral view; (18) median lobe of aedeagus in ventral view; (19) base of median lobe in ventral view; (20) paramere; (21) spermatheca. Scale bars: 11: 1.0 mm; 12: 0.5 mm; 13-15, 20: 0.2 mm; 16-19, 21: 0.1 mm.



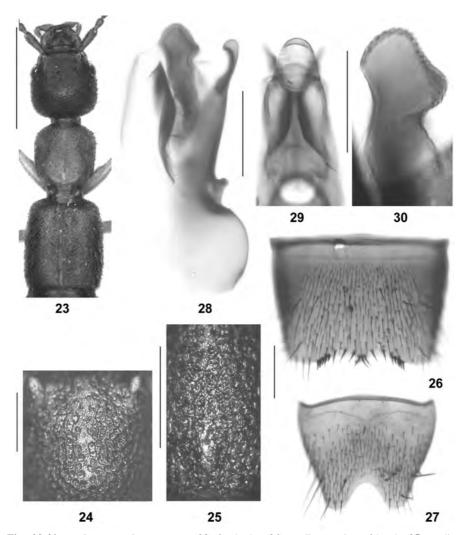
Fig. 22: Type locality of Oxypoda bicornuta nov.sp. (sample number 21).

D is tribution and natural history: The specimens were found in six localities in the southern part of the island (northwards to the environs of Spoa). Two specimens were collected from under stones in a plateau with grass and phrygana vegetation, the remainder was sifted from litter and herb roots beneath old pine trees and in a stream valley. The vast majority of specimens (17 exs.) was found in the type locality by sifting pine litter and herb roots beneath an old pine tree in the shade of large rocks (Fig. 22). The altitudes range from 230 to 870 m. Eight of the specimens are macropterous, the remainder brachypterous.

## Medon carpathius ASSING nov.sp. (Figs 23-30)

C o m m e n t: The unsexed paratypes collected by J. Frisch have my identification label "*Medon cerrutii* Coiffait, det. V. Assing 2006" attached to them. The specimens recorded from Karpathos as *M. cerrutii* Coiffait, 1976 by Assing (2007a) refer to *M. carpathius*.

 $E\ t\ y\ m\ o\ l\ o\ g\ y$ : The specific epithet is an adjective derived from Carpathus, the Latin name for Karpathos.



**Figs 23-30**: *Medon carpathius* nov.sp.: **(23)** forebody; **(24)** median portion of head; **(25)** median portion of pronotum; **(26)** male sternite VII; **(27)** male sternite VIII; **(28)** aedeagus in lateral view; **(29)**; apical portion of aedeagus in ventral view; **(30)** apical internal structure in lateral view. Scale bars: 23: 1.0 mm; 24-29: 0.2 mm; 30: 0.1 mm.

Description: Body length 4.0-4.8 mm; length of forebody 2.4-2.6 mm. Size, coloration, and other external characters (Figs 23-25) as in *M. cerrutii* and other species of the *M. petrochilosi* subgroup. Distinguished only by the male sexual characters:

 $\delta$ : shapes and chaetotaxy of sternites VII (Fig. 26) and VIII (Fig. 27) similar to those of *M. cerrutii*, except for the setae at the posterior margin of sternite VII (median setae shorter; lateral combs usually composed of five setae); aedeagus (Figs 28-29) approximately 0.6 mm long; apex of ventral process and apical internal structures (Fig. 30) of distinctive shapes.

C o m p a r a t i v e n o t e s: Based on the external (punctation and sculpture of head and pronotum) and the male primary and secondary sexual characters, *M. carpathius* belongs to the *M. petrochilosi* subgroup of the *M. apicalis* group. The *M. petrochilosi* subgroup previously included eight species distributed in the East Mediterranean, all of them with restricted distributions; for a distribution map see ASSING (2013c). The new species is reliably distinguished from the geographically closest representatives of the *M. petrochilosi* subgroup only by the chaetotaxy of the male sternite VII and the morphology of the aedeagus, particularly the shape of the ventral process of the aedeagus in lateral and in ventral view and the shape of the sclerotized apical internal structures. For illustrations of other related species see ASSING (2004a, 2013c). The geographically closest representatives of the *M. petrochilosi* subgroup are *M. cerrutii* (Crete), *M. impar* ASSING, 2004 (Rhodos), and *M. caricus* FAGEL, 1970 (southwestern Anatolia; Greek island Nikaría).

D is tribution and natural history: The known distribution is confined to the environs of Spoa and Olympos in Karpathos. The specimens collected in December 2015 were sifted from moist leaf litter in stream valleys. The altitudes range from 210 to 500 m.



Fig. 31: Type locality of *Cephennium kerpense* nov.sp., *Euconnus kerpensis* nov.sp., and *Stenichnus kerpensis* nov.sp. (sample number 12).

# Scydmaeninae

The descriptions below are based on material collected during the 2015 field trip, as well as on two field trips conducted by Heinrich Meybohm in 1999 and 2000. All five species of Scydmaeninae recorded from the island were found in one locality to the south of Olympos at an altitude of 460 m (Fig. 24). Two of the species were collected exclusively in this locality.

## Cephennium (Phennecium) kerpense MEYBOHM nov.sp. (Figs 31-32, 38-40)

T y p e m a t e r i a l : Holotype 3: "GR Karpathos 500 m Olympos Paßhöhe südl. Prof. Ilias, Meyohm 18.4.1999 / Cephennium (Phennecium) kerpense m. Meybohm 2016 det. / Holotypus" (cMey). Paratypes: 1 9: same data as holotype (cMey); 1 3: same data, but "450 m ... 27.4.2000" (cMey); 36 36, 29 9: "Greece: Karpathos [12], S Olympos, 35°43'19"N, 27°10'19"E, 460 m, shrub litter sifted, 26.XII.2015, V. Assing" (cMey); 1 36, 1 97: "Greece: Karpathos [16], Kali Limni, 35°35'23"N, 27°08'18"E, 830 m, shrub litter sifted, 28.XII.2015, V. Assing" (cMey); 1 36: "Greece: Karpathos [17], Kali Limni, 35°35'20"N, 27°08'20"E, 800 m, pine litter & grass sifted 28.XII.2015, V. Assing" (cMey).

C o m m e n t: The label data of the material collected near Olympos all refer to the same locality (sample number 12; Fig. 31).

E t y m o l o g y: The specific epithet is an adjective derived from Kerpe, the Turkish name for Karpathos.

Description: Body length 1.0 mm. Habitus as in Fig. 32. Coloration pale reddish-brown. Body glossy, with curved erect pubescence directed posteriad. Eyes reduced to three ommatidia without pigmentation. Pronotum 0.30 mm long, maximal width (0.38 mm) at anterior third, 0.34 mm broad at posterior margin; punctation fine in anterior half, somewhat asperate in posterior half. Elytra 0.59 mm long, broadest (0.43 mm) at anterior third; punctation fine. All tibiae dilated in distal two-thirds and flattened on inner surface (i.e., the side facing body); without sexual dimorphism.

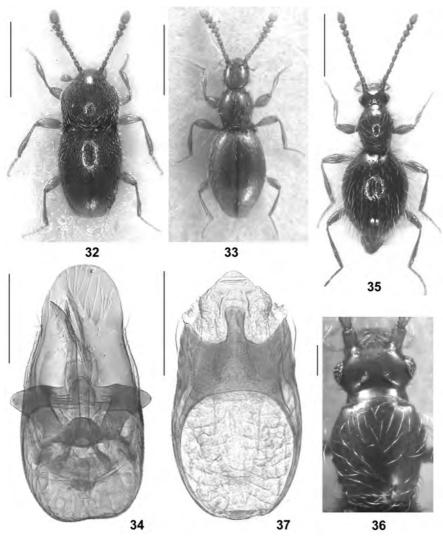
 $\delta$ : aedeagus (Figs 38-40) 0.25 mm long and 0.14 mm broad, symmetric; endophallus with two bent sclerites, the larger of these sclerites with three apices, two of which are strongly curved mediad, the smaller sclerite with two apices.

C o m p a r a t i v e n o t e s: *Cephennium kerpense* is reliably distinguished from the externally similar *C. jonicum* HOLDHAUS, 1908 and several undescribed species from Crete, Rhodos, Samos, and Ikaría only by the shape and internal structures of the aedeagus.

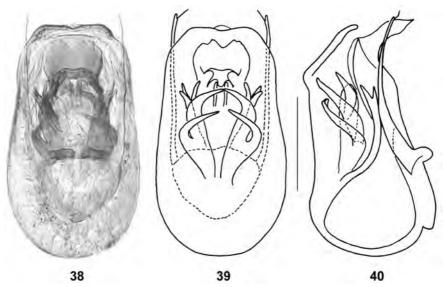
Distribution and natural history: *Cephennium kerpense* is endemic to Karpathos, where it was collected in three localities, one to the south of Olympos (Fig. 31) and two in the Kali Limni range (localities 12, 16, and 17 in Map 1). Most of the specimens found in 2015 were sifted from dry litter beneath shrubs in phrygana vegetation, one specimen also from litter and roots beneath an old pine tree. The altitudes range from 450 to 830 m.

# Euconnus (Tetramelus) kerpensis MEYBOHM nov.sp. (Figs 31, 33-34)

T y p e m a t e r i a l : <u>Holotype 3</u>: "Greece: Karpathos [12], S Olympos,  $35^{\circ}43'19$ "N,  $27^{\circ}10'19$ "E, 460 m, shrub litter sifted, 26.XII.2015, V. Assing / *Euconnus (Tetramelus) kerpensis* m. Meybohm 2016 det. / Holotypus" (cMey). <u>Paratypes</u>:  $13^{\circ}$ ,  $39^{\circ}$ : same data as holotype (cMey).



**Figs 32-37:** Cephennium kerpense nov.sp. (**32**), Euconnus kerpensis nov.sp. (33-34), and Stenichnus kerpensis nov.sp. (**35-37**): (**32-33**, **35**) habitus; (**34**, **37**) aedeagus in dorsal view; (**36**) male head and pronotum. Scale bars: 32-33, 35: 0.5 mm; 34, 36-37: 0.1 mm.



Figs 38-40: Cephennium kerpense nov.sp.: (38) aedeagus in ventral view; (39) aedeagus in dorsal view; (40) aedeagus in lateral view. Scale bar: 0.1 mm.

E t y m o l o g y : The specific epithet is an adjective derived from Kerpe, the Turkish name for Karpathos.

Description: Body length 1.1 mm. Habitus as in Fig. 33. Coloration pale reddish-brown. Pubescence suberect and directed posteriad. Head 0.12 mm long and 0.19 mm broad. Eyes reduced to approximately four ommatidia with weakly pronounced pigmentation. Antenna short, 0.46 mm long, with the apical four antennomere forming a distinct club; antennomeres III-VI as long as broad; antennomeres IX and X twice as broad as long. Pronotum 0.28 mm long and 0.24 mm broad, broadest in the middle; basally with four impressions, the two median impressions larger than the lateral ones, separated from each other and from the posterior margin by approximately their diameter, and connected by a shallow transverse furrow. Elytra 0.64 mm long and 0.43 mm broad, broadest anterior to middle; with two small basal pits; humeral angles obsolete. Profemur much more strongly dilated apically (club-shaped) than meso- and metafemur. Metaventrite with sexual dimorphism, more strongly impressed in male than in female.

 $\delta$ : aedeagus (Fig. 34) 0.29 mm long and 0.14 mm broad; dorsal plate scoop-shaped, symmetric (except for a shallow lateral concavity), with a longitudinal structure of similar shape and orientation as internal sclerites; endophallus with two long and slender sclerites, the shorter one more strongly bent and with a short lateral process above the middle; ventral plate with wing-shaped, prominent lateral processes; parameres apically with two long and bent setae, subapically with a shorter staight seta.

Comparative notes: *Euconnus kerpensis* is reliably distinguished from other similar *Tetramelus* species only by the shape and internal structures of the aedeagus.

Distribution and natural history: Like all other named Scydmaeninae recorded from Karpathos, *E. kerpensis* is endemic to the island. The type

locality is identical to that of *Cephennium kerpense*. The specimens were sifted from very dry litter beneath shrubs near large rocks in phrygana vegetation at an altitude of 460 m (Fig. 31).

## Stenichnus (Stenichnus) kerpensis MEYBOHM nov.sp. (Figs 31, 35-37)

T y p e m a t e r i a 1 : Holotype 3: "GR Karpathos 500 m Olympos Paßhöhe südl. Prof. Ilias, Meyohm 18.4.1999 / Stenichnus kerpensis m. Meybohm 2016 det. / Holotypus" (cMey). Paratypes: 13: same data as holotype (cMey); 233; "Greece: Karpathos [12], S Olympos,  $35^{\circ}43'19$ "N,  $27^{\circ}10'19$ "E, 460 m, shrub litter sifted, 26.XII.2015, V. Assing" (cAss).

E t y m o l o g y: The specific epithet is an adjective derived from Kerpe, the Turkish name for Karpathos.

Description: Male. Habitus as in Fig. 35. Body length 1.20-1.25 mm. Body bicoloured, with head and pronotum pale reddish-brown and elytra dark reddish-brown to blackish-brown; legs, antennae, and palpi slightly paler than head and pronotum.

Head (including eyes) strongly transverse, 0.28 mm broad and 0.20 mm long, 0.9 times as broad as pronotum, distinctly tapering behind eyes; supra-antennal elevations weakly pronounced; between eyes with a large impression on either side, these impressions gradually becoming deeper mediad and posteriad, posteriorly delimited by an oblique carina (completely visible only when head is fully protracted) (Fig. 36); anterior end of each carina with a cluster of few minute setae. Eyes large and prominent, composed of approximately 20 ommatidia, twice as long as postocular region in dorsal view.

Pronotum (Fig. 36) weakly oblong, 0.34 mm long and 0.31 mm broad, broadest at anterior two-fifths; pubescence long, directed posteriad in anterior half and mediad in posterior half; basally only with two more or less minute pits separated from each other by a greater distance than from the posterior margin; lateral margins anteriorly straight or weakly concave in dorsal view; anterior angles weakly prominent, between them with short setae at anterior margin directed towards the middle of anterior margin.

Elytra broadly oval and strongly convex in cross-section, 0.70 mm long and 0.57 mm broad, broadest at anterior two-fifths, height approximately three-fifths of elytral length (lateral view); humeral angle or fold absent; at base of each elytron with a circular impression; pubescence very long and erect, longest setae approximately as long as the combined length of antennomeres III-V; punctation very fine.

Legs relatively long and slender, with weakly dilated femora; profemora without sexual dimorphism, only slightly more dilated than meso- and metafemora.

Aedeagus (Fig. 37) slender, 0.24 mm long and 0.12 mm broad; sclerotized portion of dorsal aspect relatively long.

Female. Characters as in male, except as follows: dorsal surface of head weakly convex in cross-section, without impressions and carinae; eyes slightly smaller, less prominent, composed of approximately 15 ommatidia; pronotum anteriorly with smoothly convex lateral margins in dorsal view, not angled and without special setae at anterior margin; pronotum in one female as long as broad.

C o m p a r a t i v e  $\,$  n o t e s : This species is readily distinguished from all described congeners by its bicoloured body, the long and erect pubescence, and the male secondary sexual characters on the head and the pronotum. The latter are unique among the species of the genus.

Distribution and natural history: This island endemic is currently known only from one locality (Fig. 31), which is identical to the type locality of *Cephennium kerpense* and *Euconnus kerpensis*.

## Euconnus (Cladoconnus) sp.

Additional record: <u>Karpathos:</u> 1φ, pass S Olympos, 500 m, 18.IV.1999, leg. Meybohm (cMey).

C o m m e n t: The above female was collected in the locality illustrated in Fig. 31, where the other four species of Scydmaeninae were found, too. This species is similar to, but presumably not conspecific with, *Euconnus dodecanicus* FRANZ, 1966 from Rhodos. Males are required to clarify its identity.

## **Appendix**

The below material was not treated in previous studies on the *Oxypoda* fauna of Turkey (ASSING 2006, 2007d) because, owing to the resemblance of this species to the widespread *O. lurida*, its status was uncertain. However, the discovery of the closely related *O. bicornuta* in Karpathos suggests that these specimens in fact represent a distinct species.

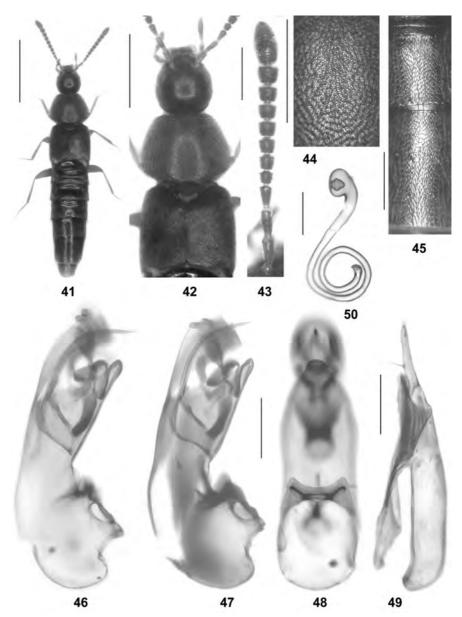
#### Oxypoda (Atlantoxypoda) bistirpata ASSING nov.sp. (Figs 41-50)

T y p e m a t e r i a l : Holotype 3: "TR - Niğde, ca. 10 km N Pozanti, 870 m, No. 5, 37°30'02N, 34°49'26E, Salix wood near stream, 26.12.2000, V. Assing / Holotypus 3 Oxypoda bistirpata sp.n. det. V. Assing 2015" (cAss). Paratypes: 233, 19 [slightly teneral]: "TR Nigde N Pozanti, ca. 20 km S Camardi, N37°39'30 E34°59'30, l. Meybohm 21.5.2009" (cAss); 13: "TR -Mersin, public park near Tarsus Baraji, 36°57'N, 34°54'E, 16.IV.2014, Rossi & Kutlay" (cAss); 13 [teneral]: "TR [14] - Mersin, NW Silifke, Mut-Ermenek, 36°37'42N, 33°01'10E, 1030 m, 20.IV.2005, Brachat & Meybohm" (cAss); 13 [slightly teneral]: "TR - Antalya, No. 29, 60 km SSW Antalya, Çiralı, grassland, 40 m, 36°24'34N, 30°28'05E, 4.IV.2002, V. Assing" (cAss); 13: "TR Gaziantep (13), S Birecik 340 m, Westufer Euphrat / 37°0'31N 37°57'39E, (13) leg. 24.4.2004, Brachat & Meybohm" (cAss); 19: "TR - Adana, Eglence Çayı near Eglence, 37°17'N, 35°17'E, 12.IV.2014, Rossi & Kutlay" (cAss); 19: "N37°50' E36°48'48 (26), Kahramanmaras, Süleymanli 5 km S 690 m, Brachat & Meybohm 29.4.2007" (cAss).

E t y m o l o g y: The specific epithet is an adjective derived from the Latin noun stirps (stump, trunk) and alludes to the pair of short processes at the base of the ventral process of the aedeagus.

D e s c r i p t i o n: Body length 3.0-3.6 mm; length of forebody 1.3-1.6 mm. Habitus as in Fig. 41. Coloration: head dark-brown to black; pronotum and elytra brown to blackish-brown; abdomen blackish, with the posterior margins of tergites III-VII and all of segments VIII-X usually reddish to reddish-brown; legs yellowish to pale-reddish; antennae dark-brown with the basal 1-2 antennomeres dark-yellowish; maxillary palpi dark-yellowish with palpomere III more or less distinctly infuscate.

Head (Fig. 42) approximately as long as broad, of suborbicular shape; punctation fine and dense; interstices with distinct microreticulation. Eyes of moderate size, weakly convex, as long as, or longer than postocular region in dorsal view. Antenna 0.9-1.0 mm long and shaped as in Fig. 43. Maxillary palpus elongate, palpomere III approximately four times as long as broad.



**Figs 42-50**: *Oxypoda bistirpata* nov.sp.: **(41)** habitus; **(42)** forebody; **(43)** antenna; **(44)** posteromedian portion of pronotum; **(45)** median portion of abdominal tergites VI-VII; **(46-47)** median lobe of aedeagus in lateral view; **(48)** median lobe of aedeagus in ventral view; **(49)** paramere; **(50)** spermatheca. Scale bars: 41: 1.0 mm; 42: 0.5 mm; 43-45, 49: 0.2 mm; 46-48, 50: 0.1 mm.

Pronotum (Figs 42, 44) approximately 1.3 times as broad as long and 1.45-1.55 times as broad as head, widest behind middle; posterior angles nearly obsolete; punctation fine and very dense; interstices with distinct microreticulation.

Elytra (Fig. 42) 0.9-1.0 times as long as pronotum; punctation dense and fine; interstices with microreticulation. Hind wings fully developed. Metatarsomere I as long as, or slightly longer than, the combined length of II-IV.

Abdomen narrower than elytra; segments III-V of subequal width, VI slightly narrower than V; punctation fine and very dense, as dense on tergite VII as on tergite V (Fig. 45); interstices mostly without microsculpture (indistinct traces may be visible at high magnification in posterior portions of tergites VI-VIII); posterior margin of tergite VII with palisade fringe.

 $\delta$ : middle of sternite VIII strongly convex; median lobe of aedeagus (Figs 46-48) 0.42-0.44 mm long, at base of ventral process with a pair of short processes; crista apicalis moderately prominent in lateral view; parameres (Fig. 49) enormous (approximately 0.9 mm), approximately twice as long as median lobe, with moderately long apical lobe and with pronounced velum.

 $\varphi$ : posterior margin of sternite VIII broadly convex, in the middle weakly concave; spermatheca (Fig. 50) with very long and slender proximal portion.

C o m p a r a t i v e n o t e s: Based on several evident synapomorphies (maxillary palpus elongate; median lobe of aedeagus with a pair of processes and a median carina at the base of the ventral process, and with a prominent crista apicalis; parameres enormous and with a pronounced velum; spermatheca with long and slender proximal portion), O. bistirpata is closely allied to O. bicornuta, from which it differs by longer antennae, larger eyes, finer and much denser punctation of the pronotum, elytra, and abdomen, on average slightly longer elytra, the absence of a brachypterous morph, the posteriorly less produced male sternite VIII, the shape of the median lobe of the aedeagus (processes at the base of the ventral process shorter; crista apical less prominent; ventral process of different shape both in lateral and in ventral view), the shape of the female sternite VIII (concave in the middle), and the morphology of the spermatheca (proximal portion much longer; distal portion truncate, less slender, and with sclerotized invagination of different shape. From East Mediterranean specimens of the common, widespread, and sympatric O. lurida, O. bistirpata is distinguished by larger average size, a somewhat broader body, usually darker coloration, and the shape of the spermatheca (proximal portion of capsule longer; distal portion less slender; cuticular invagination much larger).

Like O. bicornuta, O. bistirpata is closely allied to O. lurida and consequently assigned to the subgenus Atlantoxypoda.

Distribution and natural history: The known distribution extends across southern Anatolia from western Antalya in the west to Gaziantep in the east. The specimens collected by myself were sifted from *Salix* litter near a stream and from grass roots and moss in a lowland grassland. The altitudes range from 40 to 1030 m.

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The following colleagues identified part of the material: Volker Brachat (Geretsried): Pselaphinae; Johannes Frisch (Berlin): *Scopaeus creticus*; Mikhail Gildenkov (Smolensk): *Thinodromus bodemeyeri* (based on a photo of the aedeagus); Vladimir Gusarov (Oslo): *Atheta (Mocyta)* spp. Volker Puthz (Schlitz) communicated the records of *Stenus brunnipes lepidus*. Heinrich Meybohm

(Großhansdorf) authored the descriptions of three species of Scydmaeninae. Roland Suikat (Preetz) provided the photographs in Figs 33, 36.

## Zusammenfassung

Eine Untersuchung von 931 Staphyliniden, die im Dezember 2015 und Januar 2016 auf der griechischen Insel Karpathos gesammelt wurden, ergab 59 Arten, darunter acht unbeschriebene Inselendemiten sowie drei Erstnachweise für Griechenland. Eine Checkliste der von Karpathos bekannten Staphylindenarten wird erstellt. Einschließlich früherer Nachweise umfasst die Fauna der Insel derzeit 69 Arten. Eine zoogeographische Analyse ergab, dass die Fauna der Insel deutlich nähere Beziehungen zur Südtürkei und den ägaischen Inseln vor der türkischen Küste als zur Fauna Kretas und des griechischen Festlands (einschließlich Peloponnes) aufweist. Zehn Arten (14.5 %) sind Inselendemiten, von denen drei (zwei der Pselaphinae und eine der Scydmaeninae) unbeschrieben sind. Zwei myrmecophile Arten, die bisher als Inselendemiten von Kreta bzw. Rhodos galten, kommen auch auf Karpathos vor. Oxypoda (Atlantoxypoda) bicornuta ASSING nov.sp. (Aleocharinae), Medon carpathius ASSING nov.sp. aus der M. petrochilosi-Gruppe (Paederinae) sowie Cephennium (Phennecium) kerpense MEYBOHM nov.sp., Euconnus (Tetramelus) kerpensis MEYBOHM nov.sp. und Stenichnus (Stenichnus) kerpensis MEYBOHM nov.sp. (Scydmaeninae) werden beschrieben und abgebildet. In einem Anhang wird Oxypoda (Atlantoxypoda) bistirpata ASSING nov.sp. (Süd-Anatolien), eine nahe Verwandte von O. bicornuta, beschrieben und abgebildet.

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