

An annotated checklist of the weevil fauna of Samos Island with new records for Greece (Coleoptera, Curculionoidea)

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An annotated checklist of the weevil fauna of Samos Island with new records for Greece (Coleoptera, Curculionoidea)

Christoph Germann, Gerd Müller, Ursula Müller & Karel Schön

ABSTRACT

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The combined results of 4 excursions to the Eastern Aegean Island Samos focusing on Curculionoidea are presented. Altogether, including scarce literature records of little more than 20 species, 153 species of Curculionoidea (111 species of Curculionidae, 30 of Apionidae, 6 of Brachyceridae, 3 of Rhynchitidae, and 1 species each of Erihniidae, Nanophyidae and Nemonychidae) are recorded in a checklist from Samos, 5 species are according to present knowledge endemic to the island. Observations on feeding plants are given and remarkable records are discussed. *Ceutorhynchus oculatus* COLONNELLI, 1987, *C. varius* REY, 1895, *Otiorhynchus lilligi* KESKIN & CEVIK, 2007, and *O. pelliceus* BOHEMAN, 1843 are new to the fauna of Greece. 15 species rarely mentioned and/or pictured in literature and hence difficult to determine are presented in a picture gallery to facilitate determination.

Keywords: Coleoptera, Curculionoidea, Samos Island, Greece, Eastern Aegean Islands, fauna, species checklist.

Introduction

The Eastern Aegean Island Samos is the ninth largest Greek island (478 km²) and is situated solely 1.2 km west of the Turkish coast. The highest mountains are the Oros Kerkis (1434 m a.s.l.) in the west, and the Oros Ambelos (1153 m a.s.l.), north of the centre of the island.

Samos is comparably scarcely populated (about 34000 inhabitants), the ancient growing areas (mainly olive orchards and vineyards) reached up to the mountains. Lots of partly degraded, elaborate stone walls are witness to their impressive extent in the past. Nowadays, those areas are mostly abandoned and run to seed. Apart from that, lots of landscapes on Samos are still in a natural state and almost untouched, especially at higher altitudes.

The literature on the weevil-fauna of Samos Island is scarce. Faust (1889a, b) recorded eleven species from Samos Island; Stierlin (1896) described the supposedly endemic *Otiorhynchus forticornis* based on a specimen collected on Samos, mentioned by Reitter (1913b). Lodos (1977) reported *Brachycerus foveicollis* BEDEL, 1874 and *B. lutosus* GYLLENHAL, 1833 from Samos. Magnano (1999) listed Samos among localities of *Otiorhynchus brunneus* KRYNICKY, 1834, and Bahr & al. (2015) provided data on nine species from Samos in their catalogue.

Within the determination in the run-up to the present faunistic checklist, three species, preliminarily categorized as endemic to Samos, were described: *Brachysomus samos* YUNAKOV & GERMANN, 2012, *Echinodera samosa* GERMANN, 2012, and *Polydrusus wymanni* BOROVEC & GERMANN, 2013 (Germann 2012, Yunakov & Germann 2012, Borovec & Germann 2013). The two other species endemic to Samos are *Psallidium levrati rugicolle* FAUST, 1889 and *Otiorhynchus forticornis* STIERLIN, 1896. Furthermore, *Dichorhynchus geiseri* GERMANN, 2013, distributed in south-western Turkey and Samos (Germann 2013), was described based on records from one of the excursions reported herein.

In the following we present an overview of all Curculionoidea presently known from Samos Island.

Material and Methods

During four excursions to Samos Island species of Curculionoidea were collected and observed. The excursions took place on the following dates:

- C. Germann: 1.–7. April 2010; 21 localities, and litter samples taken from a subsample of 15 of those localities, see map in Yunakov & Germann (2012)
- G. & U. Müller: 7.–19. May 2013; 37 localities
- K. Schön: 11.–20. June 2007; 5 localities
- M. Geiser: 23.–29. March 2008; 5 localities

The total of 69 sampling localities (Table 1) are spread over the island, with a focus on the Northwest (Oros Ambelos and surroundings).

The beetles were collected by hand catches (directly from the plants or under stones), beaten from vegetation by the beating tray, caught using a sweeping net, or sifted from leaf litter and cushion plants using a beetle sifter with grid width of 7 mm. To collect nocturnal species (e.g. *Otiorhynchus*) also night catches were made.

The collected specimens are conserved in the authors' collections, and in the NMBE. From several species (Cryptorhynchinae, Entiminae) specimens were conserved in alcohol (90 %) for possible subsequent molecular analyses.

The nomenclature used follows Löbl & Smetana (2011, 2013).

Abbreviations:

NMB Naturhistorisches Museum Basel

NMBE Naturhistorisches Museum der Burgergemeinde Bern

Table 1. Combined sampled 69 localities from four excursions to Samos Island in 2007, 2008, 2010 and 2013 (nos. 3–24 C. Germann; 25–29 K. Schön; 30–34 M. Geiser; 35–71 G. & U. Müller). The indicated locality numbers are repeated in the species discussed and in the checklist; altitude in m a.s.l.

3	Mytilini oberhalb, N37°44'20" / E26°53'25", 200 m, sifting leaf litter, <i>Ceratonia</i> , <i>Genista</i> , 1.4.2010
4	Oros Ambelos, W Mytilini, N37°46'06" / E26°51'23", 520 m, rock bank, sifting mosses and cushion plants, 1.4.2010
5	Oros Ambelos, W Mytilini, N37°46'18" / E26°51'16", 490 m, sifting leaf litter (<i>Quercus</i> , <i>Cistus</i> , <i>Genista</i>), cushion plants, 1.4.2010
6	Oros Ambelos, Lazarou, N-side rock bank, N37°45'27" / E26°50'36", 860 m, sifting mosses, leaf litter, cushion plants, 1.4.2010
7	Vourliotes environments., N37°47'58" / E26°51'05", 100 m, sifting under <i>Ceratonia</i> , <i>Quercus</i> , 1.4.2010
8	Pytagorio, N37°41'19" / E26°56'32", 15 m, 1.4.2010
9	Oros Ambelos, Lazarou, N-side rock bank, N37°45'28" / E26°50'50", 920 m, sifting mosses, cushion plants, 2.4.2010
10	Oros Ambelos, Lazarou (peak), N37°45'25" / E26°50'51", 960 m, sifting cushion plants, <i>Astragalus</i> , 2.4.2010
11	Kokkari, Lemonakia above, N37°46'58" / E26°52'21", 90 m, 2.4.2010
12	E Koumaradei, N37°42'10" / E26°50'54", 250 m, chalk rocks, bush vegetation, 3.4.2010
13	N Mesogio, N37°43'59" / E26°49'21", 800 m, 3.4.2010
14	Oros Ambelos, N Mesogio, N37°44'47" / E26°50'13", 1040 m, sifting <i>Quercus coccifera</i> , 3.4.2010
15	Oros Ambelos, Profitis Ilias, (SW Lazarou), N37°44'39" / E26°50'32", 980 m, sifting mosses, leaf litter, 3.4.2010
16	NW Kamara, N37°46'05" / E27°00'07", 190 m, olive orchard, 4.4.2010
17	NW Kamara, Thios, N37°45'59" / E26°59'26", 410 m, sifting mosses, cushion plants, leaf litter, 4.4.2010
18	W Agios Paraskevi, Nisi, N37°46'59" / E26°58'50", 20 m, vegetation on rocks above sea shore, 4.4.2010
19	Oros Kerkis, E Vigla, N37°43'12" / E26°37'56", 1100 m, sifting mosses, cushion plants, 5.4.2010
20	Oros Kerkis, Evangelistrias Monastery environments, N37°42'53" / E26°38'26", 680 m, sifting leaf litter (<i>Quercus coccifera</i>), 5.4.2010
21	Pytagorio, N37°41'25" / E26°56'12", 6 m, vegetation at beach, 4.4.2010
22	W Mytilini, N37°44'19" / E26°53'44", 150 m, night catches, 4.4.2010
23	W Pytagorio, Artemisia-temple, N37°41'32" / E26°55'40", 12 m, 6.4.2010
24	N Spatharei, 700 m, 6.4.2010

- 25 Votsalakia environments, 11.–20.6.2007
 - 26 Along road between Ormos and Koumeika (Ormos Marathokampu and Koumeika), 16.06.2007
 - 27 At main road near Karlovasi-Pythagorio, 16.06.2007
 - 28 Marthokampos environments, 15.06.2007
 - 29 Kastania environments, 16.06.2007
 - 30 Limnionas environments, 37° 41' N / 26° 37' E, 23.–25.3.2008
 - 31 Oros Kerkis, Agios Ilias, 37° 43.2' N / 26° 38.0' E, 26.3.2008, mountains, 1150 m
 - 32 1 km SW Potami, 37° 46.5' N / 26° 39.2' E, 27.3.2008
 - 33 Karlovassi port, 37° 47.4' N / 26° 40.4' E, 29.3.2008
 - 34 Votsalakia, Psili Ammos, 37° 42' N / 26° 39' E, 25.3.2008
 - 35 Oros Kerkis Mt., N37°42'22, E26°36'44, 274 m, 07.5.2013
 - 36 Oros Kerkis Mt., NO Paleochori, N37°42'08, E26°36'06, 306 m, 7.5.2013
 - 37 Oros Kerkis Mt., SW Drakei, N37°44'22, E26°35'47, 257 m, 7.5.2013
 - 38 S Kambos, direction Pithagoras Cave, N37°42'54, E26°39'14, 109 m, 8.5.2013
 - 39 S Kambos, direction Pithagoras Cave, N37°42'55, E26°39'12, 111 m, 8.5.2013
 - 40 Raches, near Marathokambos, N37°44'32, E26°43'18, 371 m, 9.5.2013
 - 41 Potami, W Karlovassi, N37°47'19, E26°39'36, 12 m, 9.5.2013
 - 42 Potami, W Karlovassi, N37°47'15, E26°39'26, 34 m, 9.5.2013
 - 43 Leka, SW-Karlovassi, N37°46'39, E26°41'14, 207 m, 9.5.2013
 - 44 Kastania, S Leka/Karlovassi, N37°46'06, E26°41'12, 216 m, 9.5.2013
 - 45 Kastania, S Leka/Karlovassi, N37°45'42, E26°41'08, 278 m, 9.5.2013
 - 46 Oros Kerkis Mt., NO Paleochori, N37°42'08, E26°36'06, 306 m, 10.5.2013
 - 47 Oros Kerkis Mt., S Kalithea, N37°42'33, E26°36'00, 276 m, 10.5.2013
 - 48 Oros Kerkis Mt., SW Drakei, N37°44'22, E26°35'47, 257 m, 10.5.2013
 - 49 Oros Kerkis Mt., SW Drakei, N37°45'00, E26°36'04, 299 m, 10.5.2013
 - 50 S Agios Theodori, N37°44'42, E26°44'13, 296 m, 11.5.2013
 - 51 Agios Theodori, N37°45'11, E26°44'07, 336 m, 11.5.2013
 - 52 Agios Nikolaos, E Karlovassi, N37°48'36, E26°46'19, 17 m, 11.5.2013
 - 53 Agios Nikolaos, E Karlovassi, N37°48'35, E26°47'04, 12 m, 11.5.2013
 - 54 Manolates, S Agios Konstandinos, N37°47'22, E26°49'28, 235 m, 11.5.2013
 - 55 Koumeika, W Pyrgos, N37°42'57, E26°42'27, 49 m, 13.5.2013
 - 56 SW Neochori, N37°42'18, E26°45'33, 129 m, 13.5.2013
 - 57 Skoureika, SW Pyrgos, N37°41'41, E26°46'10, 105 m, 13.5.2013
 - 58 Vourliotes, W Kokkari, N37°47'55, E26°50'58, 81 m, 14.5.2013
 - 59 Vourliotes, W Kokkari, N37°47'11, E26°51'13, 318 m, 14.5.2013
 - 60 Vourliotes, W Kokkari, N37°47'39, E26°51'10, 239 m, 14.5.2013
 - 61 Agios Nikolaos, E Karlovassi, N37°48'35, E26°47'04, 12 m, 14.5.2013
 - 62 E Kokkari, Agios Konstandinos, N37°48'18, E26°49'43, 9 m, 14.5.2013
 - 63 W Pyrgos, N37°42'58, E26°46'44, 458 m, 15.5.2013
 - 64 Mesogio, NE Pyrgos, N37°42'57, E26°48'28, 430 m, 15.5.2013
 - 65 Mesogio, NE Pyrgos, N37°43'20, E26°48'41, 501 m, 15.5.2013
 - 66 Votsalakia, S Marathokambos, N37°42'28, E26°40'04, 19 m, 15.5.2013
 - 67 Marathokambos, N37°44'12, E26°42'01, 309 m, 15.5.2013
 - 68 Marathokambos, N37°44'31, E26°41'45, 338 m, 17.5.2013
 - 69 Kastania, S Leka/Karlovassi, N37°45'44, E26°41'11, 289 m, 17.5.2013
 - 70 Oros Kerkis Mt., S Kalithea, N37°42'33, E26°36'00, 276 m, 17.5.2013
 - 71 S Kambos, direction Pithagoras Cave, N37°42'54, E26°39'14, 109 m, 19.5.2013
-

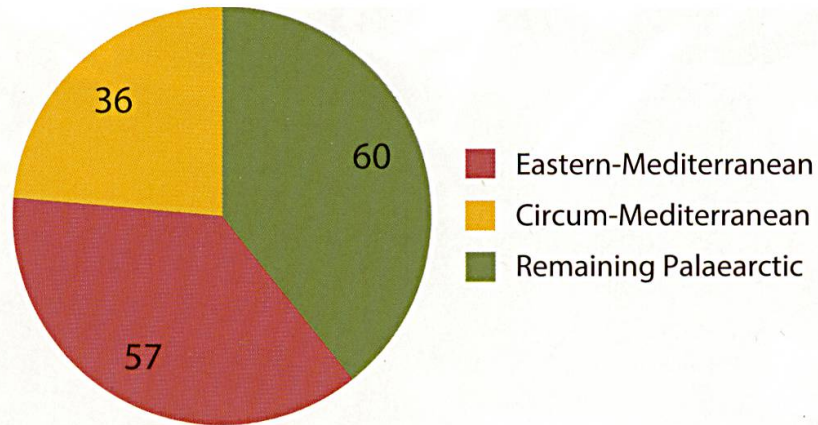


Fig. 1. Diagram showing the composition of the fauna of Curculionoidea collected so far on Samos after the three chorotypes Palaeartic, Circum-Mediterranean and Eastern-Mediterranean.

Results and Discussion

Altogether 148 species of Curculionoidea in 1216 specimens were collected on the four excursions on Samos Island. 106 species of Curculionidae, 30 species of Apionidae, 6 of Brachyceridae, 3 of Rhynchitidae, and 1 species each of Eirrhinidae, Nanophyidae and Nemonychidae (Appendix). Together with data from literature of 5 further species of Curculionidae (Table 2), in total 153 species of Curculionoidea are at present recorded from Samos Island.

To facilitate the determination of several species rarely mentioned and hardly ever depicted in literature, we provide an image gallery of those species (Figs 6–21).

Table 2. These five species (all Curculionidae) were additionally reported in the literature (double stars (**)) indicate an endemic species): A - Faust (1889a); B - Stierlin (1861) and Reitter (1913b); C - Faust (1889b).

Curculionidae	
<i>Brachytemnus porcatus</i> (GERMAR, 1824)	A
<i>Otiorhynchus forticornis</i> STIERLIN, 1896 **	B
<i>Pseudocleonus grammicus</i> (PANZER, 1789)	A
<i>Smicronyx jungermanniae</i> (REICH, 1797)	A
<i>Tychius grenieri</i> C. BRISOUT, 1862 (= <i>rufovittatus</i> FAUST, 1884)	C



Fig. 2. *Brachycerus cinereus* OLIVIER, 1807 in the Oros Ambelos feeding on leaves of *Galanthus elwesii*. Photo: C. Germann.

Evaluating roughly the distributional patterns of the species recorded (Fig. 1), we find that a similar amount of the species are either of the Palearctic (60 species) or Eastern Mediterranean (57 species) chorotype, five of them endemic to Samos. The species with a circum-Mediterranean distribution are less numerous (36 species).

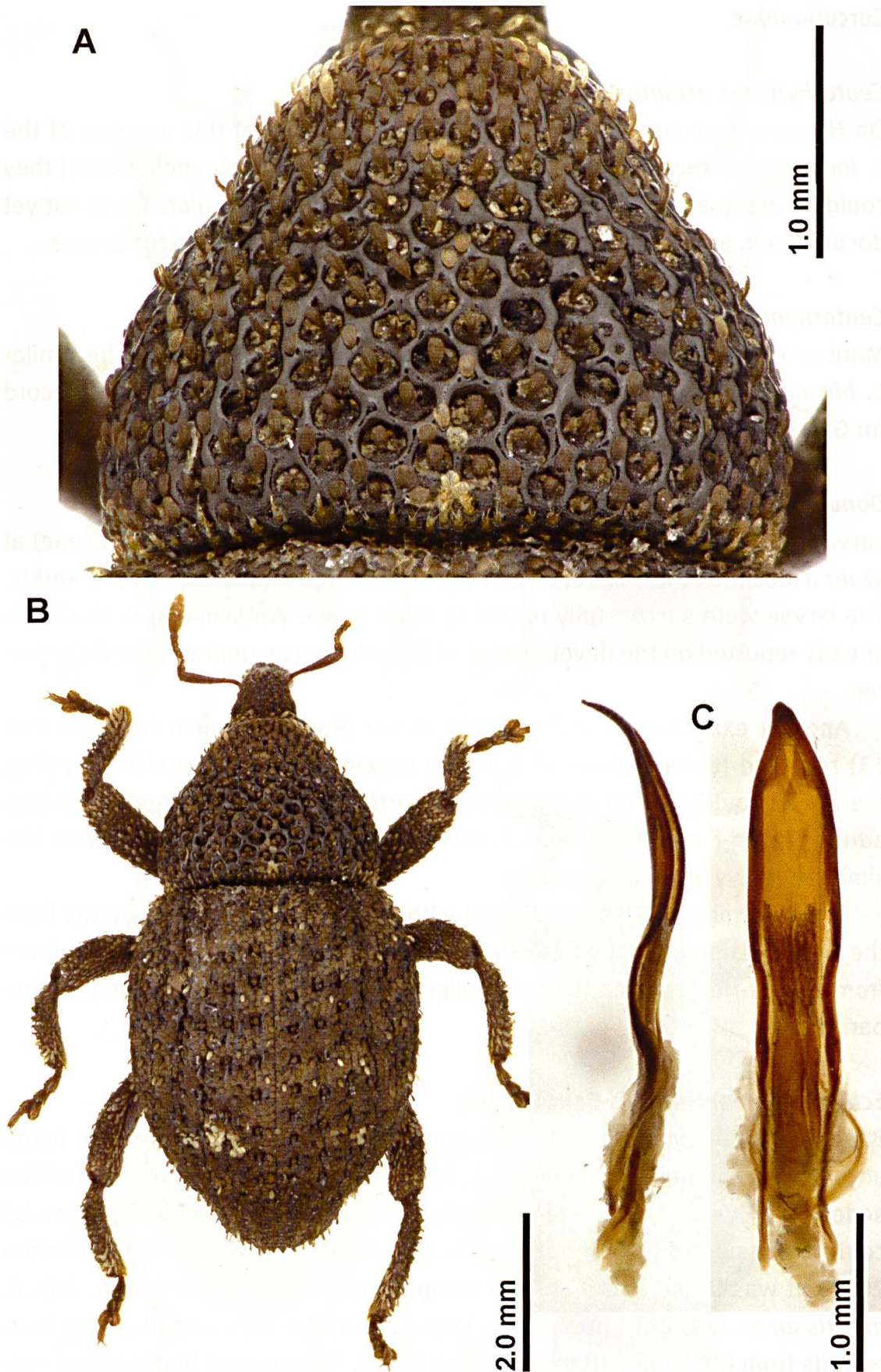
Observations on selected species

Brachyceridae

Brachycerus cinereus OLIVIER, 1807

One specimen of *B. cinereus* was found feeding on the endemic *Galanthus elwesii* on the Oros Ambelos (Fig. 2), a genus which was not yet documented as a feeding plant for any *Brachycerus*.

More than 40 species of *Brachycerus* are known from the Palearctic realm, most of them in the Mediterranean region (Friedman & Sagiv 2010). The host plants and feeding plants of *Brachycerus* are Amaryllidaceae, Araceae, Liliaceae and interestingly also Orchidaceae (Germann 2003, 2009, Friedman & Sagiv 2010).



Figs 3 A–C. *Echinodera montissacris* ВЕННЕ, 2002. A pronotum with deep and coarse punctation; B habitus, dorsal view; C penis lateral and dorsal view. Photos: C. Germann.

Curculionidae

***Ceutorhynchus oculatus* COLONNELLI, 1987 (Fig. 7)**

On *Hesperis laciniata* (Brassicaceae) three specimens of this member of the *C. inaffectatus*-species group were collected. Based on Colonnelli (2003) they could be assigned to *C. oculatus*. The feeding-plant of *C. oculatus* was not yet documented, and is provided here for the first time. First record for Greece.

***Ceutorhynchus varius* REY, 1895**

More recently Wanat & Colonnelli (2004) separated *C. varius* from the similar *C. hirtulus* Germar, 1824, which is already recorded from Greece. First record for Greece.

***Donus cyrtus* (GERMAR, 1821)**

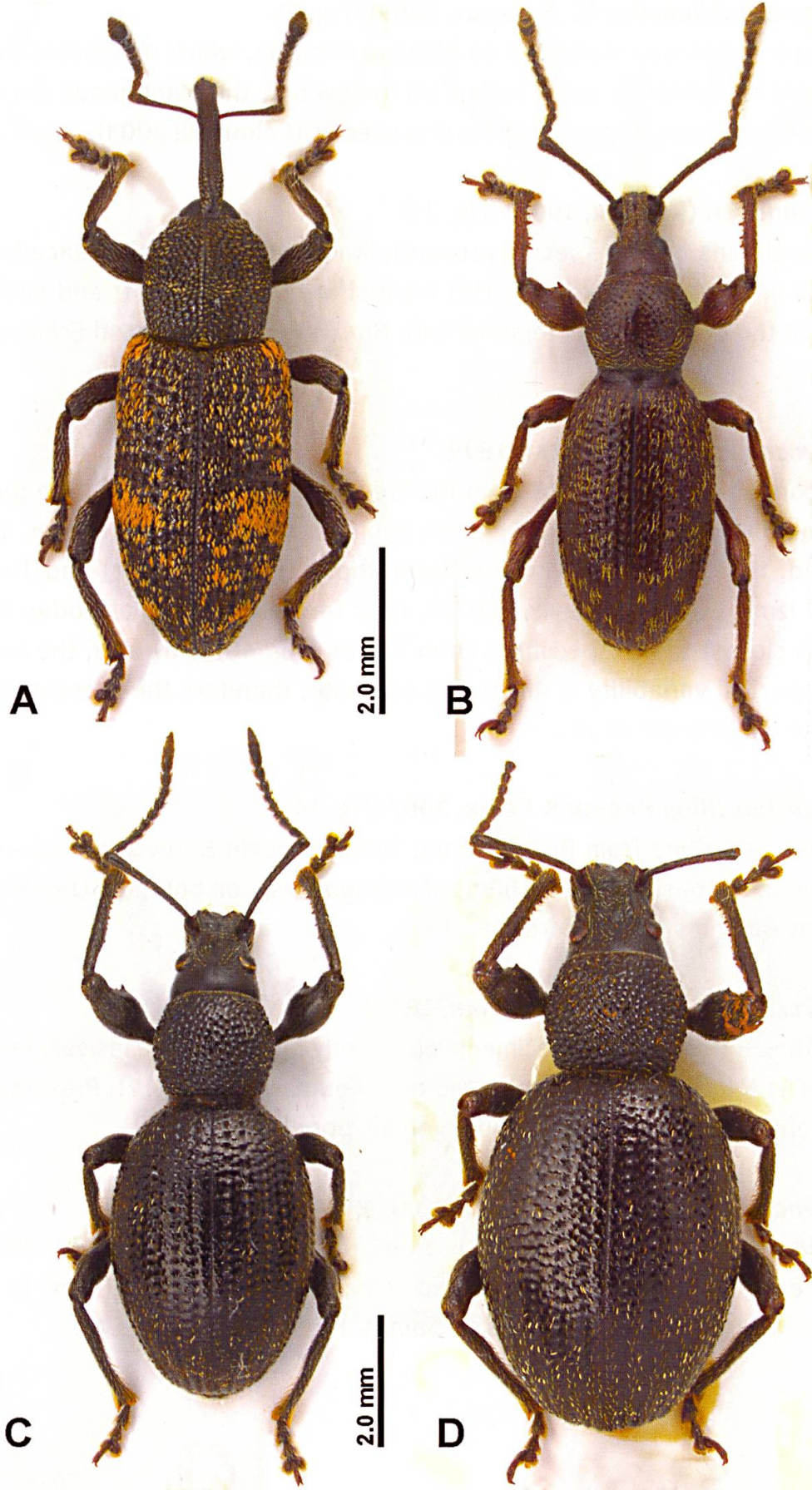
Larvae and adults of *D. cyrtus* were found under *Centaurea* sp. (Asteraceae) at several localities (nos. 6, 10, 13 and 19) on the Oros Ambelos and Oros Kerkis. The larvae were successfully reared to adult stage. Winkelmann & al. (2010) already reported on the development of *D. cyrtus* on an undetermined *Centaurea*.

Another examination of *Pimpinella minor* (Rosaceae) near Mesogio (no. 13) revealed further larvae of a *Donus* species. After successful breeding, the adults could also be assigned to *D. cyrtus*. In a feeding experiment with adults reared from Asteraceae, *P. minor* was also accepted, apart from the simultaneously offered *Centaurea*.

The determination was confirmed with a male specimen of *D. cyrtus* from the Greek mainland (Athens, collection Apfelbeck in NMB), and a specimen from Bosnia-Herzegovina (Mostar, collection Stöcklein in NMB) used for comparison.

***Echinodera montissacris* BEHNE, 2002**

Based on the very coarse, alveolar punctuation of the pronotum, the acute uncus on the protibiae, the long-oval, egg shaped elytra, and the shape of the aedeagus (Figs 3 A–C), the single male specimen of an *Echinodera* (*Rutera*) could be assigned to *E. montissacris* described from Mount Athos (Behne 2002). It was found in a leaf litter sample from the Oros Kerkis (no. 20). *E. montissacris* was until now solely known from the type locality, and from records from Chalkidike (Bahr & Stüben 2007). The present find is rather isolated, but might indicate a hitherto underestimated extent of the species' distribution.



Figs 4 A–D. A *Hypoglyptus* sp.; B *Otiorhynchus* cf. *bleusei* FAUST, 1899; C and D normal and big sized (= polyploid?) specimens of *Otiorhynchus ovalipennis* (BOHEMAN, 1843). Photos: C. Germann.

***Mogulones sublineellus* (C. BRISOUT, 1869)** (Fig. 9)

All six specimens were collected on *Alkanna tinctoria*, which represents a new host plant record for *M. sublineellus*. Up to now only the plant genus *Onosma* (Boraginaceae) was documented for this species (Colonnelli 2003).

***Omiastandneri* (REITTER, 1906)** (Fig. 21)

Four specimens of this species presently known from Albania, Macedonia, Bulgaria and Greece (Borovec 2013) were sifted from leaf litter and cushion plants on the Oros Ambelos together with *Brachysomus samos* and *Echinodera samosa*.

***Otiorynchus* cf. *bleusei* FAUST, 1899**

A comparison with specimens from the Frey collection (NMB), and the recent contribution by Magnano (2005) to the subgenus *Podenobistus* Reitter, 1912 revealed, that *O. bleusei* reported from Rhode Island (Greece) and Turkey around Izmir (Keskin & Cevik 2007b), near Denizli and Mugla (Lodos & al. 1978) is closest to the specimens from Samos (Fig. 4B). However, the extent of the species' variability is difficult to estimate; therefore the present determination remains uncertain.

***Otiorynchus lilligi* KESKIN & CEVIK, 2007** (Fig. 14)

O. lilligi – described from Bozdag-Izmir, Turkey (Keskin & Cevik 2007a) – was collected numerously under cushions of *Astragalus* sp. on both, the Oros Kerkis and Oros Ambelos. First record for Greece.

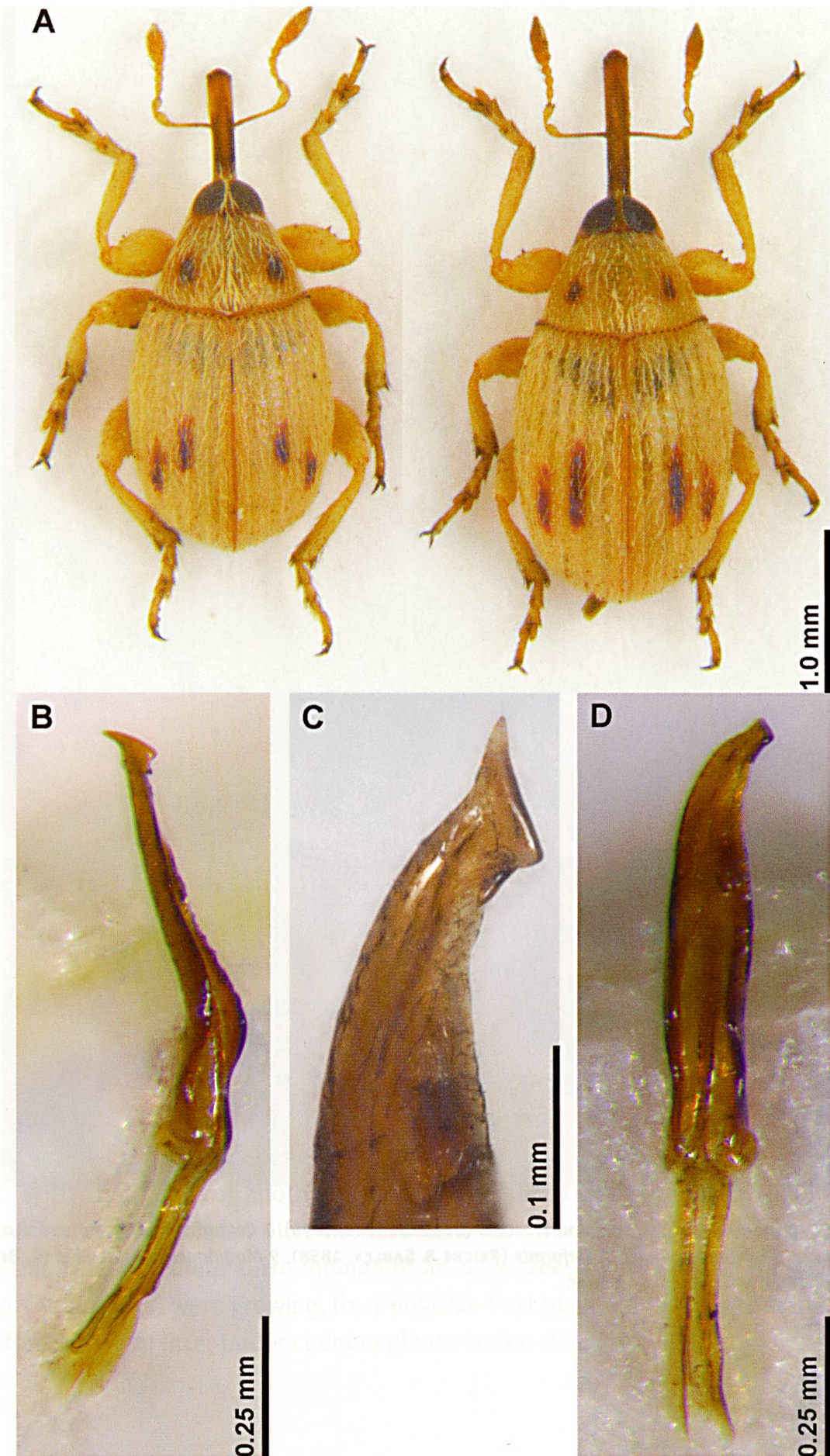
***Otiorynchus ovalipennis* (BOHEMAN, 1843)**

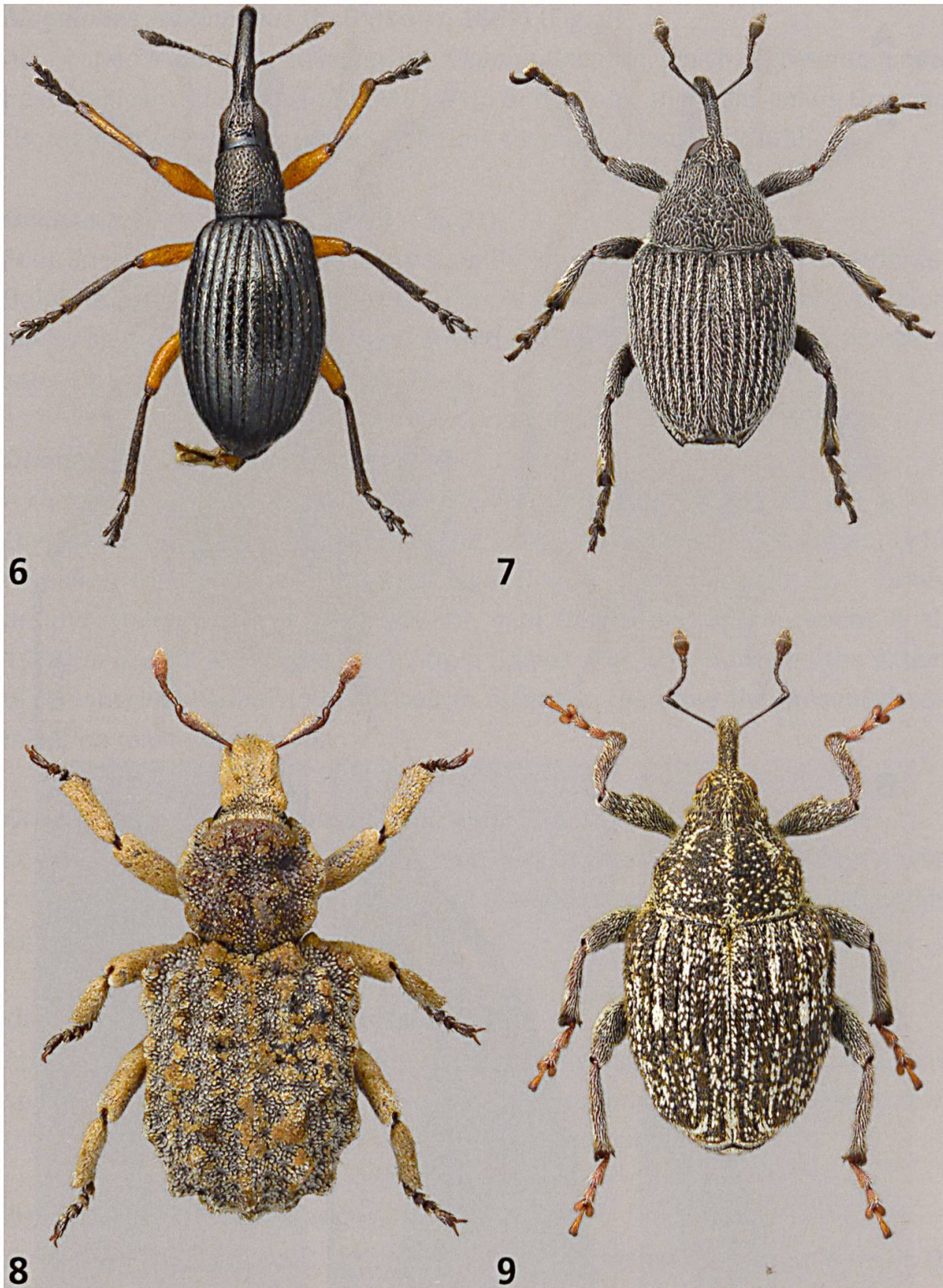
Apart from normally sized specimens, apparently bigger and exclusively female specimens (Figs 4C–D) were collected near Koumaradei (no. 12). Presumably, these represent a polyploid parthenogenetic population.

***Otiorynchus pelliceus* BOHEMAN, 1843** (Fig. 15)

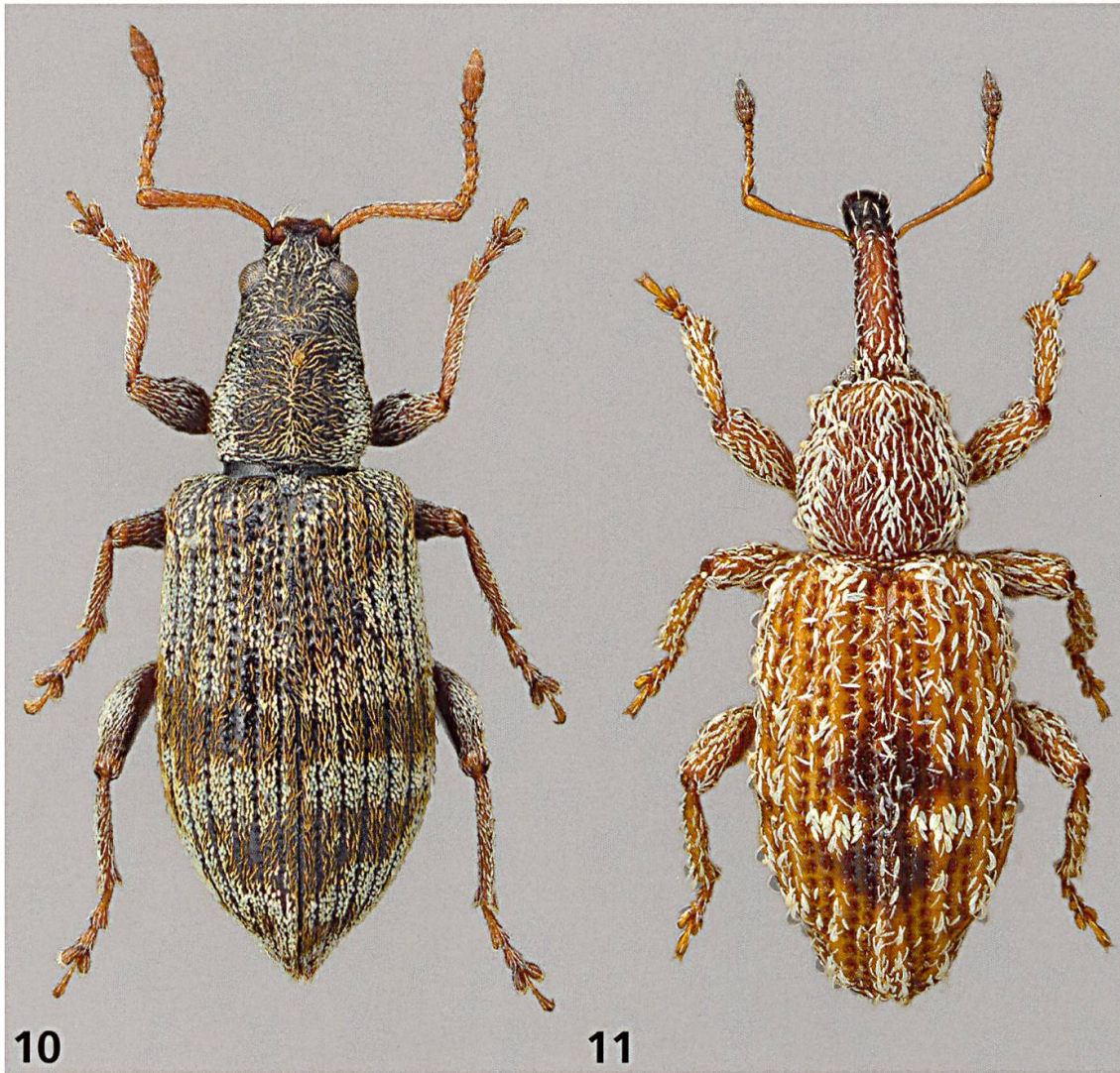
O. pelliceus was collected under the same circumstances and together with *O. lilligi*. Keskin & Cevik (2007b) reported *O. pelliceus* from around Izmir in Turkey, not far from the present finds on Samos. First record for Greece.

Figs 5A–D. *Allomalina* cf. *quadrivirgata* (COSTA, 1863). A habitus of male and female; B penis lateral view; C penis dorsal view on apex (in detail), D penis dorsal view. Photos: C. Germann.





Figs 6–9 (not in scale). 6 *Protapion brenskei* (DESBROCHERS, 1895), 7 *Ceutorhynchus oculatus* COLONNELLI, 1987, 8 *Entomoderus* cf. *deformis* (REICHE & SAULCY, 1858), 9 *Mogulones sublineellus* (C. BRISOUT, 1869). All photos: G. Müller.

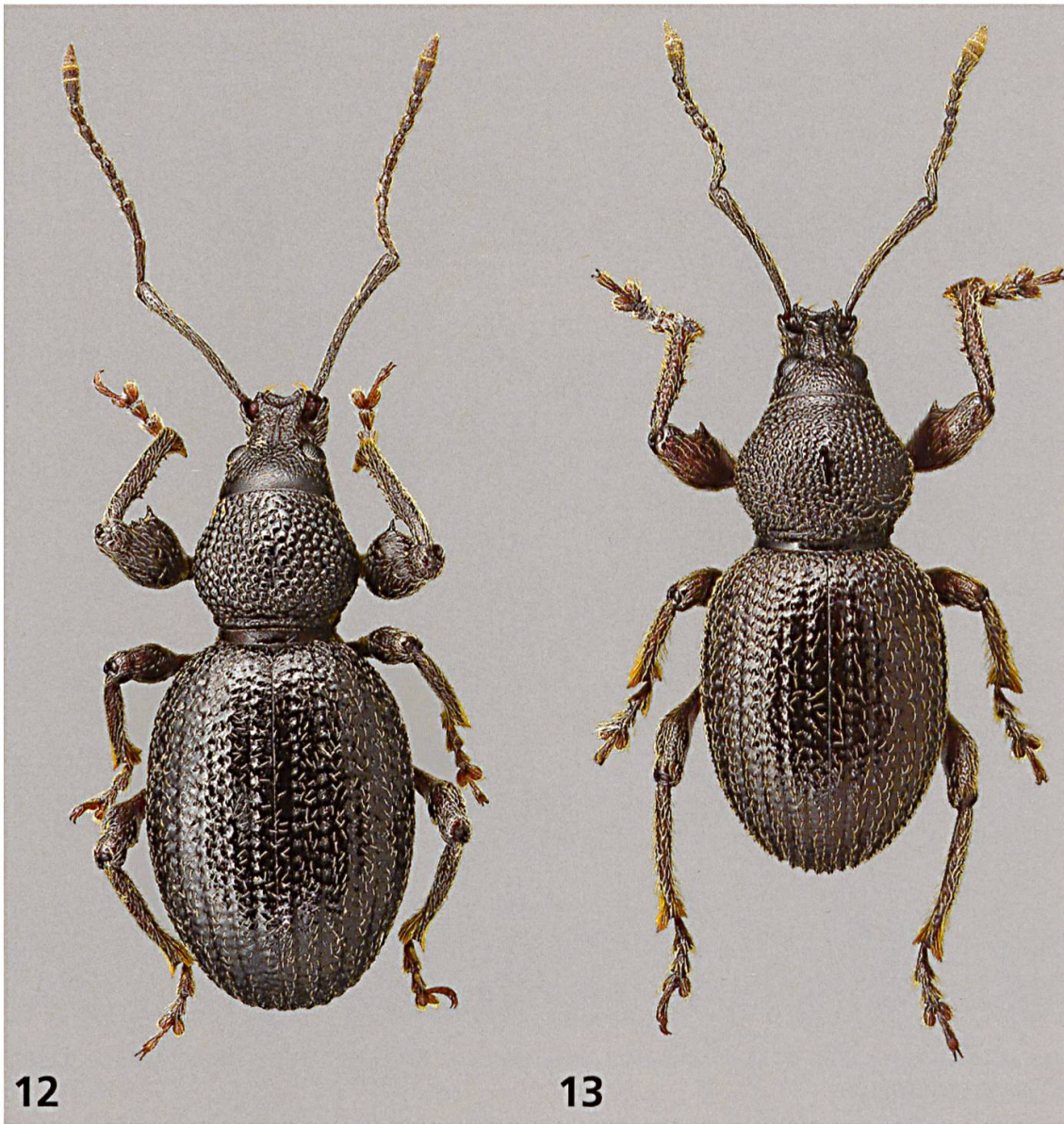


Figs 10–11 (not in scale). 10 *Oedecnemidius varius* (BRULLÉ, 1832), 11 *Styphlus oros* (REITTER, 1889). All photos: G. Müller.

***Styphlus oros* (REITTER, 1889) (Fig. 11) and *S. penicillus* SCHÖNHERR, 1826.**

S. penicillus was beaten during the night from the *Reichardia* cf. *picroides* (Asteraceae) at a beach. Bayer & al. (2007) reported on finds of the similar *S. jonicus* (Reitter, 1899) from an undetermined Asteraceae, but also from numerous finds on Fabaceae.

With *Styphlus oros* another species of the genus was sifted from leaf litter in two specimens in an olive orchard near Kamara (no. 16). The habitat lies within the immediate surroundings of an olive tree, where several *Hieracium* sp. (Asteraceae) were growing, their possible host plant. Another specimen was sifted from leaf litter under cushion plants on the Oros Kerkis.

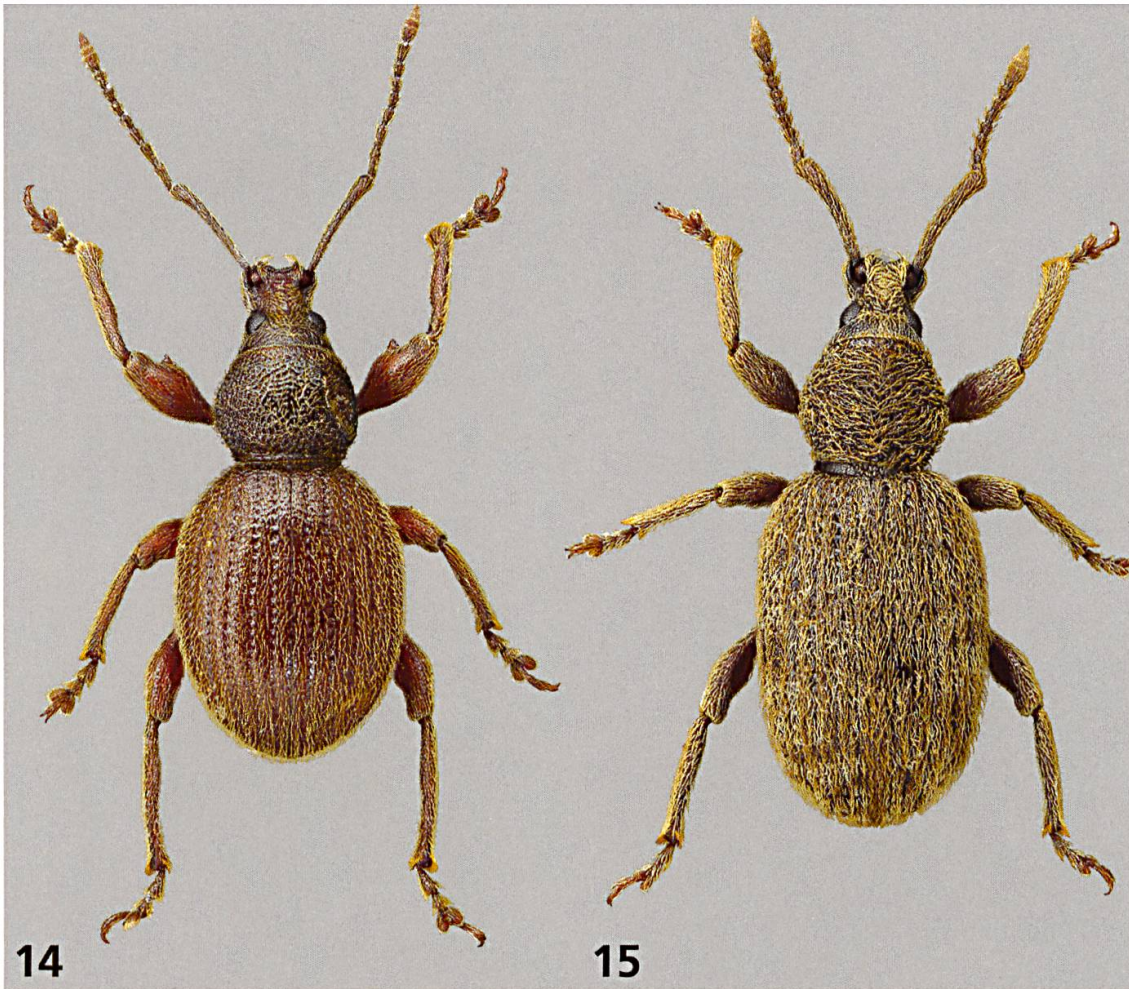


Figs 12–13 (not in scale). 12 *Otiorhynchus anadolicus* BOHEMAN, 1843, 13 *Otiorhynchus bisphaericus* REICHE & SAULCY, 1858. All photos: G. Müller.

Erirhinidae

Hypoglyptus sp.

A member of this very rarely collected genus was found while sifting plant litter under cushion plants on limestone rocks (no. 4). Another specimen was found while beating shrubs and herbs along a roadside (no. 48). Based on the key by Pic (1906), a reliable determination at species-level was not possible (Fig. 4A). Further investigations are needed to determine this species.



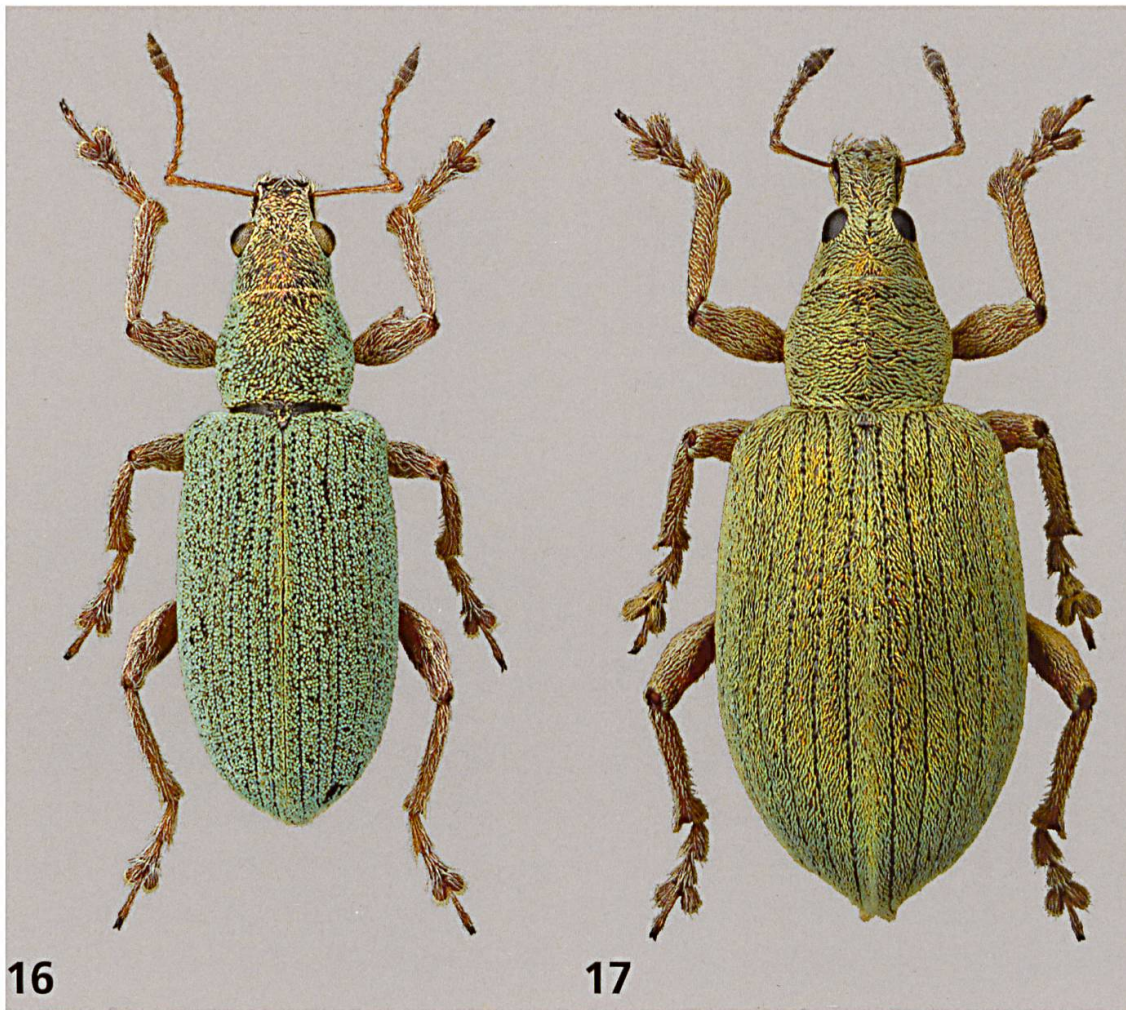
Figs 14–15 (not in scale). 14 *Otiorhynchus lilligi* KESKIN & CEVIK, 2007, 15 *Otiorhynchus pelliceus* BOHEMAN, 1843. All photos: G. Müller.

Nanophyidae

***Allomalía* cf. *quadrivirgata* (COSTA, 1863)**

The high number of synonyms of *A. quadrivirgata* listed by Alonso-Zarazaga (2011) already points out that this species shows a considerable morphological variability. On the other hand, the various forms described do not show relevant differences concerning the shape of the apex of the penis as was shown by Giordani-Soika (1937) and Alonso-Zarazaga (1989).

In the present case of the specimens from Samos, the habitus is not different from the general variability of the species (Figs 5A), but the shape of the apex of the penis is interestingly very different (Figs 5B–D). Only a revision of the genus *Allomalía* Alonso-Zarazaga, 1989 will show the significance of this trait.



Figs 16–17 (not in scale). 16 *Polydrusus armipes* BRULLÉ, 1832, 17 *Polydrusus cocciferae* KIESENWETTER, 1864. All photos: G. Müller.

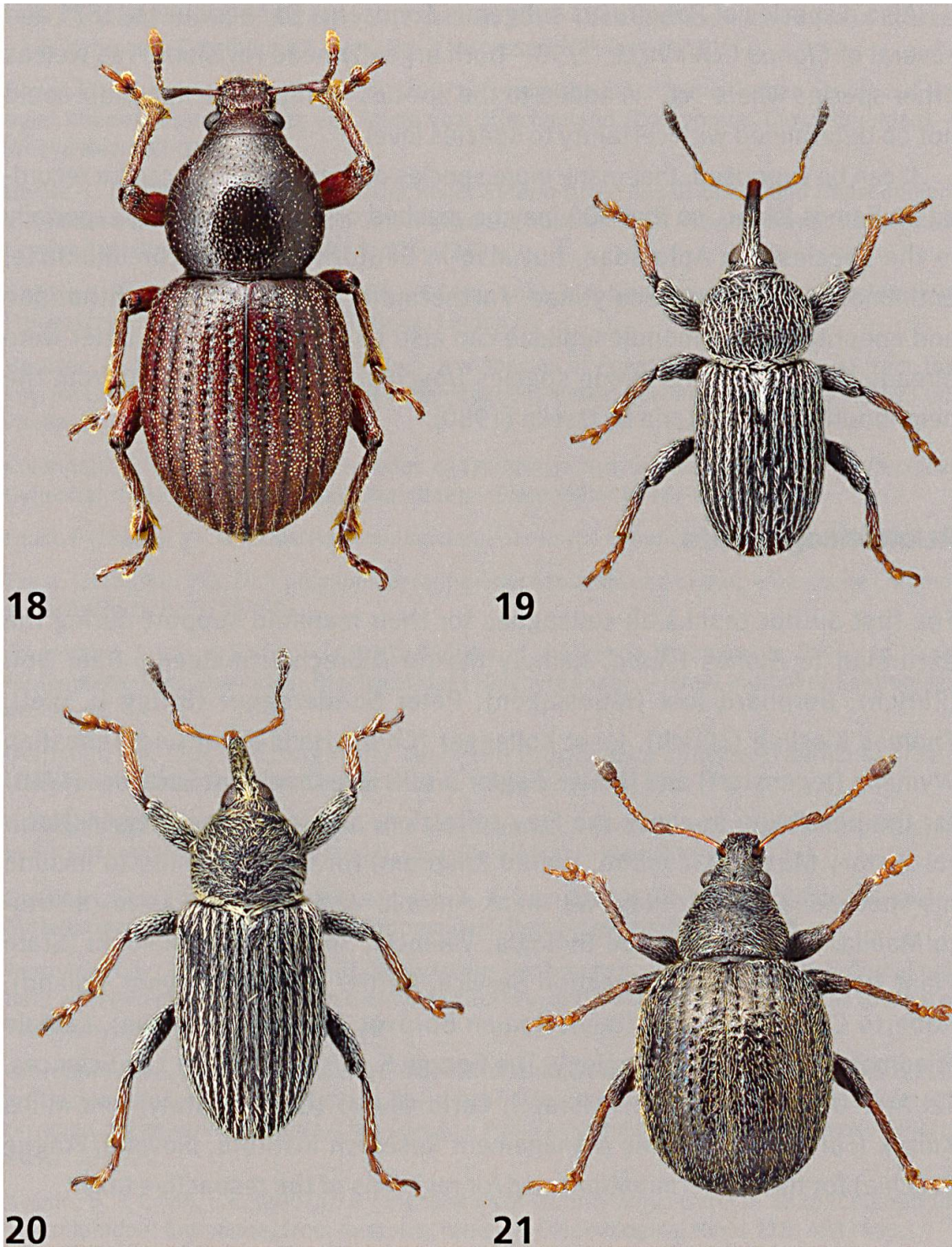
Rhynchitidae

Neocoenorrhinus cf. *pseudocribrum* (LEGALOV, 2002)

No biological data is known for this species, except that specimens were collected on young *Quercus* trees (Skuhrovec & al. 2012). All four presently recorded specimens were collected near the sea shore on flowering *Quercus coccifera* with a beating tray.

Difficulties encountered and conclusions

The determination of several species proved to be more difficult than expected. Members of the genus *Otiorhynchus* GERMAR, 1821 were determined using the keys of Reitter (1913a, b), Magnano (1999), the Frey collection (NMB), and



Figs 18–21 (not in scale). 18 *Psallidium spinimanum* REICHE, 1861, 19 *Tychius hebes* DESBROCHERS, 1875, 20 *Tychius naxiae* FAUST, 1889, 21 *Omius sandneri* (REITTER, 1906). All photos: G. Müller.

the friendly help of colleagues. However, not all specimens could be assigned with certainty to described taxa (*Otiorhynchus* cf. *bleusei*, *O.* cf. *magnicollis* STIERLIN, 1888 and a fragment with penis of an undetermined *Otiorhynchus* species).

Also a species of *Polydrusus* subgenus *Conocetus* DESBROCHERS, 1875 and several of *Cionus* CLAIRVILLE, 1798 – both urgently need revisions – as well as other species where "cf." is added to the species' name in the appendix could not be determined with certainty to species level.

It can be supposed, that many more species of Curculionoidea can be recorded on Samos Island, so that 300 may be reached or even surpassed, especially in the species-rich Apionidae, but also in Ceutorhynchinae, Curculioninae, Entiminae, Lixinae und Scolytinae. Furthermore, records of Dryophthoridae and anophthalmic Raymondionymidae can also be expected, as the latter were already recorded in the single species *Ubychia icari* OSELLA, 1980 from the neighbouring island Ikaria by Osella (1980).

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Appendix

148 species of Curculionoidea collected on 4 excursions to Samos Island (Greece). First records for Greece are in bold; 4 supposedly endemic species are marked with two stars (**), the fifth is in Table 2.

Acronyms used:

ind.	number of specimens
no.	number of locality
det.	determined by
AV	Antonio Velázquez de Castro
CG	Christoph Germann
JP	Jean Pelletier
KS	Karel Schön
LF	Laibale Friedman
NY	Nikolai Yunakov
MK	Milos Knizek
PB	Piotr Białooki
RC	Roberto Caldara
RB	Roman Borovec

References (ref.) for the respective species are given:

A	Bahr & al. 2015
B	Faust 1889a
C	Lodos 1977
D	Yunakov & Germann 2012
E	Germann 2013
F	Germann 2012
G	Magnano 1999
H	Borovec & Germann 2013

Family/genus/(sub-)species	ind. no.	det.	ref.
Apionidae			
<i>Alocentron curvirostre</i> (GYLLENHAL, 1833)	19	13, 56, 59, 64, 65	KS, CG
<i>Aspidapion aeneum</i> (FABRICIUS, 1775)	6	28, 59	CG
<i>Aspidapion radiolus radiolus</i> (MARSHAM, 1802)	16	25, 28, 30, 33, 37, 48, 59	KS, CG
<i>Catapion pubescens</i> (KIRBY, 1811)	1	53	CG
<i>Catapion seniculus</i> (KIRBY, 1808)	7	29, 42, 67, 70	KS, CG
<i>Ceratapion gibbirostre</i> (GYLLENHAL, 1813)	7	42	CG
<i>Ceratapion onopordi parviclava</i> cf. (DESBROCHERS, 1897)	1	10	KS
<i>Eutrichapion punctiger</i> (PAYKULL, 1792)	4	11, 16, 22, 45	KS, CG
<i>Eutrichapion viciae</i> (PAYKULL, 1800)	4	36, 46, 61, 67	CG
<i>Eutrichapion vorax</i> (HERBST, 1797)	11	30, 32, 37, 42, 44, 45, 54, 67	KS, CG
<i>Exapion canescens</i> (DESBROCHERS, 1894)	16	11, 18, 25	KS
<i>Hemitrichapion pavidum</i> (GERMAR, 1817)	9	12, 16, 39, 48	KS, CG
<i>Hemitrichapion reflexum</i> cf. (GYLLENHAL, 1833)	3	12, 30	KS
<i>Holotrichapion gracilicollis</i> (GYLLENHAL, 1839)	2	3, 54	CG
<i>Holotrichapion pisi</i> (FABRICIUS, 1801)	8	30, 40	KS, CG
<i>Kalcapion semivittatum semivittatum</i> (GYLLENHAL, 1833)	11	8, 25, 30, 38, 48	KS, CG
<i>Malvapion malvae</i> (FABRICIUS, 1775)	1	59	CG
<i>Oryxolaemus croceifemoratus</i> (GYLLENHAL, 1839)	25	11, 12, 36, 63, 67, 68	KS, CG
<i>Perapion violaceum</i> (KIRBY, 1808)	3	45, 54	CG
<i>Phrissotrichum tubiferum</i> (GYLLENHAL, 1833)	9	11, 13, 25, 26, 27, 29, 46, 62	KS
<i>Protapion brenskei</i> (DESBROCHERS, 1895)	4	13, 25, 31	KS A
<i>Protapion dentipes</i> (GERSTAECKER, 1854)	2	4, 35	KS, CG
<i>Protapion nigrirarse</i> (KIRBY, 1808)	10	6, 16, 53	KS, CG
<i>Protapion varipes</i> (GERMAR, 1817)	2	41, 44	CG
<i>Pseudapion rufirostre</i> (FABRICIUS, 1775)	19	37, 48, 59	CG
<i>Pseudoperapion brevirostre</i> (HERBST, 1797)	8	38	CG
<i>Pseudoprotapion elegantulum</i> (GERMAR, 1818)	2	51	CG
<i>Rhopalapion longirostre</i> (OLIVIER, 1807)	25	25, 64, 65	KS, CG
<i>Stenopterapion tenue</i> (KIRBY, 1808)	14	11, 16, 30, 40, 44, 53, 67, 71	KS, CG
<i>Taeniapion rufescens</i> (GYLLENHAL, 1833)	12	25	KS
Brachyceridae			
<i>Brachycerus aegyptiacus</i> (OLIVIER, 1807)	4	19, 30	LF
<i>Brachycerus argillaceus</i> REICHE & SAULCY, 1858	3	19, 32	LF
<i>Brachycerus cinereus</i> OLIVIER, 1807	7	6, 9, 10, 15, 19, 30	LF
<i>Brachycerus foveicollis</i> BEDEL, 1874	1	10	LF B
<i>Brachycerus lutosus</i> GYLLENHAL, 1833	1	38	CG C
<i>Brachycerus plicatus</i> GYLLENHAL, 1833	1	30	LF
Curculionidae			
<i>Acentrus histrio</i> (SCHÖNHERR, 1837)	12	41, 62	CG
<i>Achradidius syriacus</i> (BOHEMAN, 1843)	4	38	JP A, B
<i>Archarius pyrrhoceras</i> (MARSHAM, 1802)	1	19	CG
<i>Aulacobaris kaufmanni</i> REITTER, 1897	3	19	CG

Family/genus/(sub-)species	ind.	no.	det.	ref.
<i>Bangasternus planifrons</i> (BRULLÉ, 1832)	1	58	CG	
<i>Brachypera crinita</i> (BOHEMAN, 1834)	11	23	CG	
<i>Brachypera lunata</i> (WOLLASTON, 1854)	1	58	CG	
<i>Brachypera zoilus</i> (SCOPOLI, 1763)	1	44	CG	
<i>Brachysomus samos</i> YUNAKOV & GERMANN, 2012 **	64	5, 6, 9	NY, CG	A, D
<i>Carphoborus henscheli</i> REITTER, 1887	3	6, 19	MK	
<i>Caulostrophus obsoletehispidus</i> (LUCAS, 1854)	1	13	RB	
<i>Ceutorhynchus chalybaeus</i> cf. GERMAR, 1824	6	45	CG	
<i>Ceutorhynchus contractus</i> MARSHAM, 1802	9	4, 6, 9, 10, 14	CG	
<i>Ceutorhynchus lukesi</i> TYL, 1914	13	19	CG	
<i>Ceutorhynchus oculatus</i> COLONNELLI, 1987	2	9	CG	
<i>Ceutorhynchus pallidactylus</i> (MARSHAM, 1802)	8	6, 9, 10, 14, 23	CG	
<i>Ceutorhynchus varius</i> REY, 1895	1	15	CG	
<i>Cionus olens</i> cf. (FABRICIUS, 1792)	1	36	CG	
<i>Cionus olivieri</i> ROSENSCHÖLD, 1838	2	6	CG	
<i>Cionus pulverosus</i> cf. GYLLENHAL, 1838	5	43, 62	CG	
<i>Cionus</i> sp. 1	27	36, 43, 50, 52, 55, 56, 63, 70	-	
<i>Cionus</i> sp. 2	7	43, 50, 63	-	
<i>Coniatus tamarisci</i> (FABRICIUS, 1787)	6	23, 25	KS, CG	
<i>Coniocleonus nigrosuturatus</i> (GOEZE, 1777)	3	18, 19, 38	CG	B
<i>Curculio glandium</i> MARSHAM, 1802	1	11	CG	
<i>Cyphocleonus morbillosus</i> (FABRICIUS, 1792)	1	19	CG	
<i>Dichorrhinus geiseri</i> GERMANN, 2013	16	30, 42	CG	E
<i>Dichromacalles boroveci</i> STÜBEN, 1998	6	58, 60, 67	CG	
<i>Donus cyrtus</i> (GERMAR, 1821)	9	6, 10, 13, 19	CG	
<i>Echinodera montissacris</i> BEHNE, 2002	1	20	CG	
<i>Echinodera samosa</i> GERMANN, 2012 **	15	6, 15	CG	A, F
<i>Entomoderus deformis</i> cf. (REICHE & SAULCY, 1858)	20	6, 10, 14, 19	CG	
<i>Hylastes angustatus</i> (HERBST, 1793)	1	8	MK	
<i>Hylastes linearis</i> ERICHSON, 1836	1	19	MK	
<i>Hypera melancholica</i> (FABRICIUS, 1793)	1	65	CG	
<i>Hypera postica</i> (GYLLENHAL, 1813)	4	19, 23, 37	CG	
<i>Hypera venusta</i> (FABRICIUS, 1781)	16	36, 46, 53, 65, 70, 71	CG	
<i>Hypoborus ficus</i> ERICHSON, 1836	1	19	CG	
<i>Larinus syriacus</i> GYLLENHAL, 1836	3	6, 10	CG	
<i>Limobius borealis</i> (PAYKULL, 1792)	6	48, 54	CG	
<i>Liparus tenebrioides</i> (PALLAS, 1781)	3	15, 19, 22	CG	
<i>Lixus cardui</i> OLIVIER, 1807	2	13, 19	CG	A, B
<i>Lixus filiformis</i> (FABRICIUS, 1781)	3	16, 46, 70	CG	
<i>Malvaevora timida</i> (ROSSI, 1792)	4	13	CG	
<i>Mecinus labilis</i> (HERBST, 1795)	9	40, 56, 61	CG	
<i>Mecinus pascuorum</i> (GYLLENHAL, 1813)	14	3, 56, 61, 71	RC, CG	
<i>Mecinus pyraister</i> (HERBST, 1795)	4	16, 23	RC	
<i>Mecinus simus</i> (MULSANT & REY, 1859)	2	36, 39	CG	
<i>Mecinus variabilis</i> (ROSENHAUER, 1856)	8	23	RC	

Family/genus/(sub-)species	ind.	no.	det.	ref.
<i>Minyops costatus</i> BOHEMAN, 1842	1	10	CG	
<i>Mogulones sublineellus</i> (C. BRISOUT, 1869)	6	47	CG	
<i>Oedecnemidius varius</i> (BRULLÉ, 1832)	22	18, 36, 46, 54, 67	CG	
<i>Omius sandneri</i> (REITTER, 1906)	4	6, 10	RB	
<i>Oprohinus consputus</i> (GERMAR, 1824)	1	67	CG	
<i>Oprohinus</i> sp. (a single female)	1	19	CG	
<i>Oprohinus suturalis</i> (FABRICIUS, 1777)	1	6	CG	B
<i>Orchestes pilosus</i> (FABRICIUS, 1781)	2	65	CG	
<i>Otiorhynchus anadolicus</i> BOHEMAN, 1843	1	11	CG	
<i>Otiorhynchus balcanicus</i> STIERLIN, 1861	1	14	CG	
<i>Otiorhynchus bisphaericus</i> REICHE & SAULCY, 1858	16	8, 20, 21	PB	
<i>Otiorhynchus bleusei</i> cf. FAUST, 1899	8	6, 10, 15, 16, 37	CG	
<i>Otiorhynchus brunneus</i> KRYNICKY, 1834	10	5, 10, 16, 19	CG	G
<i>Otiorhynchus cribricollis</i> GYLLENHAL, 1834	7	66	CG	
<i>Otiorhynchus lilligi</i> KESKIN & CEVIK, 2007	68	10, 19	PB	
<i>Otiorhynchus lugens</i> (GERMAR, 1817)	25	2, 6, 8, 17, 19, 21, 22, 37, 38, 43, 49, 55	CG	
<i>Otiorhynchus magnicollis</i> cf. STIERLIN, 1888	11	4, 6, 9, 10	PB	
<i>Otiorhynchus ovalipennis</i> (BOHEMAN, 1843)	31	6, 9, 12, 15, 16, 37, 48, 56, 64	CG	
<i>Otiorhynchus pelliceus</i> BOHEMAN, 1843	15	6, 10, 15, 19	PB	
<i>Otiorhynchus rugosostriatus</i> (GOEZE, 1777)	1	4	CG	
<i>Otiorhynchus scopularis</i> HOCHHUTH, 1847	1	15	CG	
<i>Otiorhynchus</i> sp. (fragment with penis)	1	19	CG	
<i>Pachytychius haematocephalus</i> (GYLLENHAL, 1836)	2	21	RC	
<i>Pachytychius hordei hordei</i> (BRULLÉ, 1832)	11	2, 4, 6, 24, 51, 54	CG	
<i>Polydrusus angustus</i> LUCAS, 1854	21	36, 38, 64, 67	CG	
<i>Polydrusus armipes</i> BRULLÉ, 1832	39	7, 11, 16, 35, 36, 37, 40, 70	CG	
<i>Polydrusus cocciferae</i> KIESENWETTER, 1864	39	7, 11, 12, 16, 18, 37, 47, 61	CG	
<i>Polydrusus</i> sp. (subgenus <i>Conocetus</i> DESBROCHERS, 1875)	24	18, 40, 50, 53, 55, 58, 70	CG	
<i>Polydrusus wymanni</i> BOROVEC & GERMANN, 2013 **	22	18, 20	RB, CG	A, H
<i>Psallidium levrati rugicolle</i> FAUST, 1889 **	13	6, 10, 15, 19	CG	B
<i>Psallidium spinimanum</i> REICHE, 1861	17	11, 21, 22, 62, 67	CG	
<i>Rhinocyllus conicus</i> (FRÖHLICH, 1792)	5	21, 23, 37	CG	A
<i>Rhinusa asellus</i> (GRAVENHORST, 1807)	16	2, 6, 15, 24	CG	
<i>Rhinusa tetra</i> (FABRICIUS, 1792)	22	35, 36, 46, 52, 55, 62	CG	
<i>Sibinia attalica</i> (GYLLENHAL, 1836)	4	10, 23	RC	
<i>Sibinia planiuscula</i> (DESBROCHERS, 1873)	2	21	RC	
<i>Sirocalodes depressicollis</i> (GYLLENHAL, 1813)	4	36, 54	CG	
<i>Sirocalodes mixtus</i> (MULSANT & REY, 1858)	1	54	CG	
<i>Sitona fairmairei</i> ALLARD, 1869	10	51, 57, 71	AV	
<i>Sitona hispidulus</i> (FABRICIUS, 1777)	15	5, 10, 16, 19, 39, 53, 58, 71	CG	
<i>Sitona humeralis</i> STEPHENS, 1831	1, 2	23, 39	CG	
<i>Sitona lineatus</i> (LINNAEUS, 1758)	4	44, 45, 67	CG	
<i>Sitona puncticollis</i> STEPHENS, 1831	1	47	CG	

Family/genus/(sub-)species	ind.	no.	det.	ref.
<i>Smicronyx nebulosus</i> TOURNIER, 1874	3	70, 71	CG	
<i>Smicronyx reichii</i> (GYLLENHAL, 1836)	1	71	CG	
<i>Stereonychus phyllireae</i> CHEVROLAT, 1859	1	16	CG	
<i>Strophomorphus albarius</i> (REICHE & SAULCY, 1857)	4	38	CG, JP	
<i>Strophomorphus porcellus</i> (SCHÖNHERR, 1832)	2	21, 38	CG	
<i>Styphlus penicillus</i> SCHOENHERR, 1826	3	21	CG	
<i>Styphlus oros</i> (REITTER, 1889)	7	16, 20, 39, 50	CG	
<i>Trachyphloeus laticollis</i> BOHEMAN, 1843	5	5, 21, 67	CG	
<i>Tychius aurarius</i> BOHEMAN, 1843	1	16	RC	
<i>Tychius curtirostris</i> DESBROCHERS, 1873	1	14	RC	
<i>Tychius hebes</i> DESBROCHERS, 1875	12	10, 15, 16, 35, 44, 53, 56	RC, CG	B
<i>Tychius naxiae</i> FAUST, 1889	28	6, 11, 40, 44, 45, 53, 67, 68, 71	RC, CG	
<i>Tychius pusillus</i> GERMAR, 1842	1	16	RC	
<i>Tychius ruficornis</i> TOURNIER, 1873	1	16	RC	
Eriirhinidae				
<i>Hypoglyptus</i> sp.	2	4, 48	CG	
Nanophyidae				
<i>Allomalina quadrivirgata</i> cf. (COSTA, 1863)	2	25	KS	
Nemonychidae				
<i>Doydirhynchus austriacus</i> (OLIVIER, 1807)	2	10, 15	CG	A
Rhynchitidae				
<i>Auletobius politus</i> (BOHEMAN, 1828)	6	17, 18	KS	
<i>Neocoenorrhinus pseudocribrum</i> cf. (LEGALOV, 2002)	4	7, 11, 61	KS, CG	
<i>Rhodocyrthus cribripennis</i> (DESBROCHERS, 1869)	3	54, 58	CG	
Total specimens	1216			
Total species	148			

INSTRUCTIONS TO AUTHORS

Content: Contributions to Natural History is a publication series of the Natural History Museum Bern (NMBE). Publications cover the fields of zoology, palaeontology, and geology (including mineralogy and meteoritics) and should be related to scientific collections (preferably to those of the NMBE) and/or to research activities of museum scientists. In zoology, priority is given to contributions on taxonomy and systematics, biodiversity, morphology, faunistics, biogeography and all other aspects of organismic biology.

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Selden, P.A. & Dunlop, J.A. (1998): Fossil taxa and relationships of chelicerates. — In: Edgecombe, G.D. (ed.), Arthropod fossils and phylogeny, pp. 303–331, New York.

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