

## A considerable enlargement of the distribution of *Stomodes letzneri* Reitter, 1889 with first records from Crete, Greece (Coleoptera, Curculionidae)

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On an excursion to western Crete Island, the first specimens of the weevil genus *Stomodes* Schoenherr, 1826 were discovered by sifting leaf litter in an olive grove in the Chania province. The three specimens collected proved con-specific with *Stomodes letzneri* Reitter, 1889 described from the Peloponnese. The new finds enlarge considerably the distribution of the flightless and not very mobile species. An accidental introduction is supposed. The female genital organs are illustrated for the first time.

Keywords: Curculionoidea, Entiminae, Otiiorhynchini, *Stomodes letzneri*, new record, Crete, Greece

### INTRODUCTION

The weevil fauna (Curculionoidea) of Crete Island is still being explored. First literature references date back to Von Heyden (1884) and Von Oertzen (1886) who together compiled about 100 taxa. Further research by Faust (1889a, 1889b), descriptions by Pic (1904), Voss (1948), Osella (1980), Bahr & Bayer (2005), the listed species in Fauna Europaea (2007), the records by Germann (2009), Winkelmann *et al.* (2012) and the catalogue of Greek weevils (Bahr *et al.* 2014), resulted in more than 230 species of Curculionoidea presently recorded from Crete.

The composition of the weevil fauna of Crete is influenced by elements of the eastern Mediterranean basin and also consists of endemic species. Even species with flight ability as *Polydrusus cressius* Pic, 1904 or *Dichorhynchus creticus* (Faust, 1889) have undergone separate evolution on Crete Island (Borovec & Germann 2013, Germann 2013). The discovery of *Stomodes letzneri* Reitter, 1889 on the Peloponnese and Crete is astonishing, as Crete is isolated already since about 10 Million years from the Greek mainland (Rögl & Steininger 1983), and its fauna shows more affinities to the Anatolian fauna, where a land bridge enabled longer lasting exchanges of the fauna (Creutzburg 1966).

In the following the records of *Stomodes letzneri* are presented, and a possible explanation for its occurrence on Crete is provided.

### MATERIAL & METHODS

#### *Abbreviations used:*

NMBE – Naturhistorisches Museum der Burgergemeinde Bern  
SDEI – Senckenberg Deutsches Entomologisches Institut, Münchenberg  
cCG – collection Christoph Germann, Thun

For sifting leaf litter a beetle sifter with grid width of 7 mm was used. The extraction method applied follows Germann (2014).

The drawings by Olena Domschke were made using a camera lucida attached to a stereomicroscope (Olympus BH-2).

The following female specimens from the SDEI were used for comparison: 1 ex. Syntype *Stomodes angustatus* (Stierlin, 1872) Griechenland., coll. Stierlin. 2 ex. Griechenland, Taygetos, coll. Letzner. 1 ex. GR: Peloponnes (Lakonia): Parnon Mts.: 4.5 km W Karies, 930 m, unter *Quercus*, gesiebt, 19.IV.1999, 37°17'12" N, 22°28'02" E, leg. & coll. Behne. 2 ex. Nauplia, coll. Kraatz. Additionally the records in Bahr *et al.* 2014 (6 females Messinia, Mt. Taygetos W, Saidona E, 36°52'59" N 22°17'25" E, 800 m, 19.05.2011, leg. & coll. Winkelmann) were used for the map.

## RESULTS

On a joint entomological excursion together with Lepidopterologists, Crete Island was visited from 5th to 14th April 2012. The focus was set on the western province Chania, and there mainly on an area along a north-south axis at the foothills of the Lefka Ori massif. With different collection techniques (hand catches on plants, beating tray, sweeping and sifting), more than 88 taxa of Curculionoidea were collected, among them three female specimens of a member of the genus *Stomodes* Schoenherr, 1826 with the indications given in the following:



Fig. 1. Habitat of *Stomodes letzneri* Reitter, 1889 within an olive grove on Crete, Krapis, 7<sup>th</sup> April 2012.

2 ex. 166\_12.2 GREECE, Crete Island, Chania, S-Alikambos, Krapis, N 35°19'47"/ E 24°12'01", 440 m [a.s.l.], Olivenhain auf Kalkfels [olive grove on limestone], 7.4.2012, leg. C. Germann (cCG, NMBE).

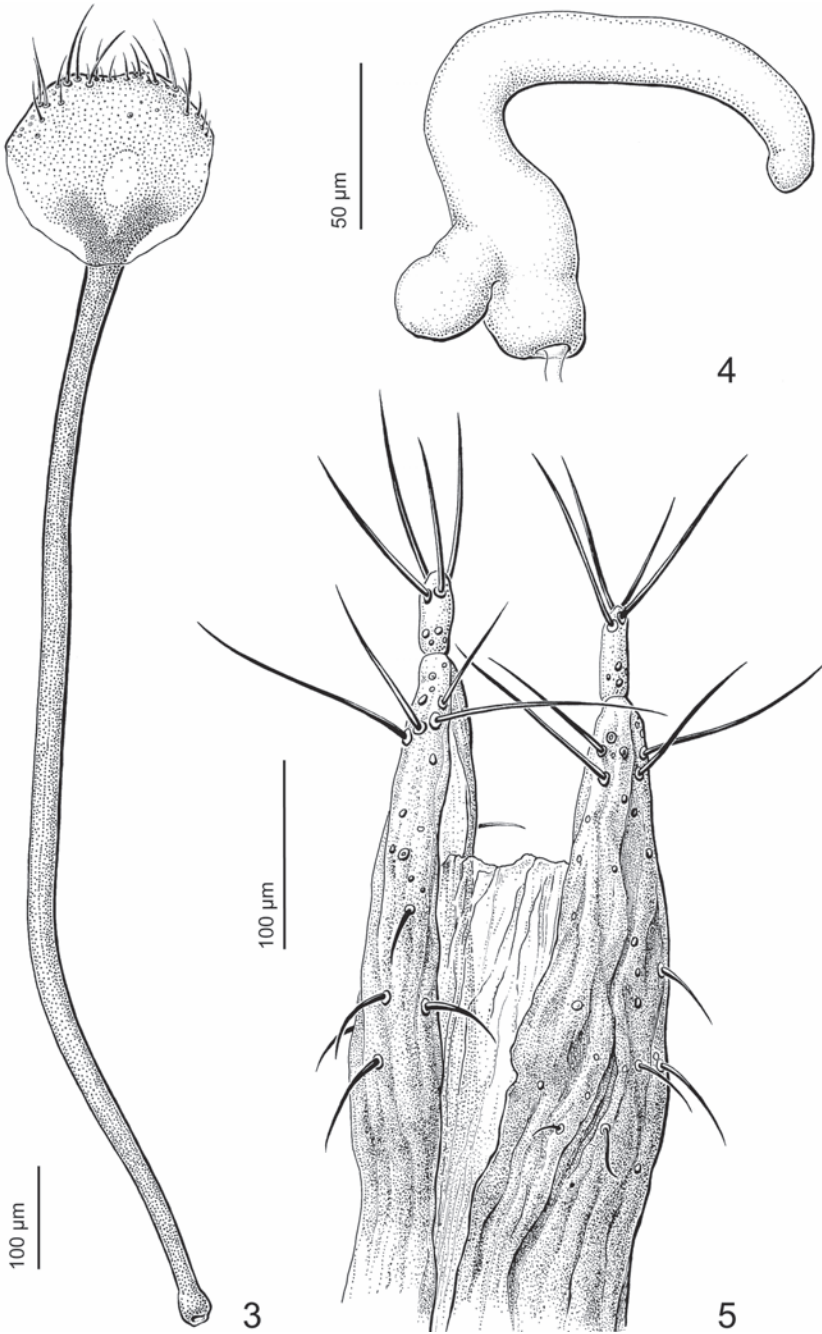
1 ex., 166\_12.4 GREECE, Crete Island, Chania, S-Vrises, N35°21'41"/ E24°11'44", 130 m [a.s.l.], Olivenhain auf Kalkfels [olive grove on limestone], 8.4.2012, leg. C. Germann (cCG).

All specimens were sifted from leaf litter under *Phrygana*-vegetation (*Asphodelus*, *Euphorbia*, various Fabaceae) in old olive groves on limestone rocks (Fig. 1) in western Crete, about 200 km SSE away from the localities on the Peloponnese.

It was Wagner (1912) who made the last revision of *Stomodes*. Presently the genus includes 13 taxa (11 species and two subspecies) in the Palaearctic realm



Fig. 2. Habitus of *Stomodes letzneri* Reitter, 1889, Crete, Chania, S-Alikambos, Krapis.



Figs 3–5. Female genital structures of *Stomodes letzneri* Reitter, 1889. — 3. Spiculum ventrale. — 4. Spermatheca. — 5. Ovipositor (Illustrations by Olena Domschke).

(Magnano & Alonso-Zarazaga 2013), whereas five of which – *Stomodes gyrosicollis* Boheman, 1842, *S. leonhardi* Wagner, 1912, *S. letzneri*, *S. puncticollis* s. str. Tournier, 1864 and *S. tolutarius* Schoenherr, 1826 – are recorded from Greece (Bahr *et al.* 2014), and at present none from Crete island. The former synonymous name *letzneri* was proposed recently by Magnano & Alonso-Zarazaga (2013), because *S. angustatus* (Stierlin, 1872) – described as *Otiiorhynchus* – is a homonym of *Otiiorhynchus angustatus* Stierlin, 1861 (in its own turn a synonym of *O. (Otiiorhynchus) coecus* Germar, 1824).

Members of the genus *Stomodes* belong to the tribe Otiiorhynchini and are indeed similar to *Otiiorhynchus*. They differ by the very short and parallel sided rostrum and the pterygia which are not or hardly protruding. Species of *Stomodes*, as far as known, show nocturnal activity, and in the case of *S. gyrosicollis* Boheman, 1843, larvae were found living in roots of Fabaceae (*Medicago*), and adults feeding on leaves of *Medicago* and *Trifolium* (Hoffmann 1950, Dieckmann 1980).

The examination of type specimens of *S. angustatus*, and further specimens from the Peloponnese (see above) allowed determining the specimens from Crete as *Stomodes letzneri* Reitter, 1889 (Fig. 2). Only female specimens are presently known from *S. letzneri*. The genital organs are illustrated in the following for the first time (Figs 3–5). The spiculum has a slender apodeme and a broad oval plate (Fig. 3). The spermatheca has a well-developed long and slender, somewhat angular cornu, and a short ramus and nodulus (Fig. 4). The gonocoxites are elongate, with styli (Fig. 5).

#### DISCUSSION

Although *Stomodes letzneri* is a flightless and thus not very mobile species, it seems to inhabit both, Peloponnese and Crete. The finds from Crete are about 200 km SSE from the localities Nauplia, Taygetos and Mount Parnon where *S. letzneri* is presently known from (Fig. 6). This is surprising, and at least some differences e.g. in the genital organs could have been expected, if the populations were separated since long ago. But such differences could not be detected. However, as *S. letzneri* might reproduce parthenogenetically – only female specimens are at present known – and the records from Crete are from a cultivated area (an olive grove), an accidental introduction can be strongly supposed. This could happen rather easily via transport of plant material, earth or even construction material. The surroundings of the finding places on Crete are extensively used for agriculture, and farmhouses are spread over the whole area.

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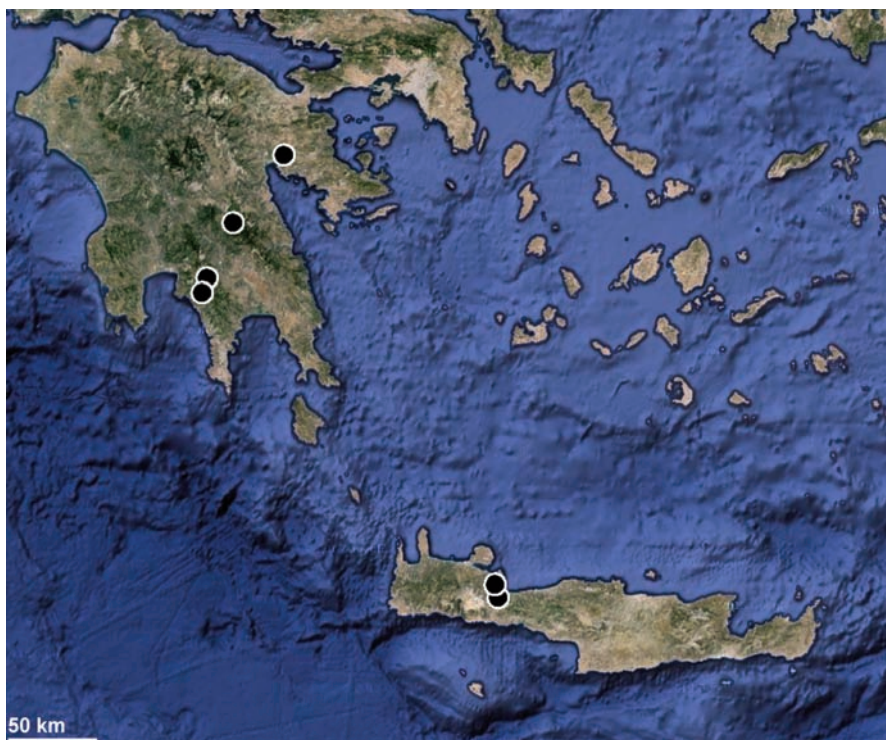


Fig. 6. Map showing records of *Stomodes letzneri* Reitter, 1889 on the Peloponnese and the present ones from Crete (Copyright 2013 Google).

#### REFERENCES

- Bahr, F. & Bayer, C. 2005. In: Stüben, P.E., Bahr, F., Germann, C., Behne, L. & Bayer, C. Beschreibung neuer Cryptorhynchinae aus dem mediterranen Raum (Coleoptera: Curculionidae: Cryptorhynchinae). — *Snudebiller* 6: 84–113.
- Bahr, F., Winkelmann, H. & Bayer, C. 2014. The Curculionoidea-Fauna of Greece. — *Le Charançon: Catalogues & Keys*, No. 4. URL: <http://www.friedbahr.de/> (Accessed 20.3.2014)
- Borovec, R. & Germann, C. 2013. Two new species of *Polydrusus* (*Polydrusus* s. str.) from Samos (Greece) and from Turkey and Iran (Coleoptera: Curculionidae: Entiminae: Polydrusini). — *Zootaxa* 3693 (1): 75–84.
- Creutzburg, H. 1966. Die südägäische Inselbrücke. Bau und geologische Vergangenheit. — *Erdkunde* 20: 20–30.
- Dieckmann, L. 1980. Beiträge zur Insektenfauna der DDR: Coleoptera – Curculionidae (Brachycerinae, Otiiorhynchinae, Brachyderinae). — *Beiträge zur Entomologie*, Berlin 30: 145–310.
- Fauna Europaea 2007. Version 2.6.2 URL: <http://www.faunaeur.org/> (Accessed 20.3.2014).
- Faust, J. 1889a. VII. Griechische Curculioniden. — *Deutsche Entomologische Zeitschrift*: 66–91.
- Faust, J. 1889b. VIII. Zur Curculionidenfauna Griechenlands und Cretas. — *Deutsche Entomologische Zeitschrift*: 91–98.
- Germann, C. 2009. Bericht über eine Exkursion nach Kreta (Griechenland) mit Einblicken in die Rüsselkäfer-Fauna (Coleoptera, Curculionoidea). — *Weevil News* 46: 5 pp.
- Germann, C. 2013. A review of *Dichorrhinus* Desbrochers, 1875 with two new species from Greece and Turkey, and from Cyprus (Coleoptera, Curculionidae). — *European Journal of Taxonomy* 46: 1–13.
- Germann, C. 2014. Contribution to the praxis in entomology: an easy-to-use and efficient sifting separation method for beetles (Coleoptera). — *Entomo Helvetica* 7: 141–144.

- Heyden, E. von (1884): Coleopterologische Ausbeute des Baron H. v. Maltzan von der Insel Creta. — Deutsche Entomologische Zeitschrift 28 (2): 363–368.
- Hoffmann, A. 1950. Faune de France, No. 52. Coléoptères Curculionides. — Editions Paul Le Chevalier, Paris, Première partie: 1–486.
- Magnano, L. & Alonso-Zarazaga, M. A. 2013. Otiorhynchini p. 302–347. In: Löbl, I. & Smetana, A. — Catalogue of Palaearctic Coleoptera Volume 8 Curculionoidea II, Brill Leiden Boston, 700 pp.
- Oertzen, E. von 1886. Verzeichnis der Coleopteren Griechenlands und Cretas. — Berliner Entomologische Zeitschrift 30: 189–293.
- Osella, G. 1980. Due nuovi Curculionidi anoftalmi del Mediterraneo orientale. — Revue Suisse de Zoologie 87 (3): 813–819.
- Pic, M. 1904. Notes et Descriptions. — L' Echange 229: 2–5.
- Rögl, F. & Steininger, F. 1983. Vom Zerfall der Tethys zu Mediterran und Paratethys. Die neogene Paläogeographie und Palinspatik des zirkum-mediterranen Raumes. — Annalen des Naturhistorischen Museums Wien, 85A: 135–163.
- Voss, E. 1948. Über einige von Herrn Dr. Wettstein auf Kreta gesammelte Curculioniden (Col. Curc.). 109. Beitrag zur Kenntnis der Curculioniden. — Annalen des Naturhistorischen Museums in Wien 56: 70–76.
- Wagner, H. 1912. Revision der Gattung *Stomodes* Schoenherr (Col. Curcul.). — Wiener Entomologische Zeitung 31: 257–277.
- Winkelmann, H., Bahr, F. & Bayer, C. 2012. Ergebnisse der Osterexkursion 2011 nach West-Kreta zur Erforschung der griechischen Rüsselkäfer. Fünfter Beitrag zur Fauna von Griechenland. — Weevil News 80: 6 pp.

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