



A review of Drilini (Coleoptera: Elateridae: Agrypninae) of the Northern Levant, with description of a new species from Syria and a key to Levantine species

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Abstract

The species of the elaterid soft-bodied tribe Drilini from the Levant are reviewed. All known species are redescribed and *Drilus nemethi* **sp. nov.** is described. *Drilus adustus* (Chevrolat, 1854), comb. nov. and *D. akbesianus* (Fairmaire, 1895), comb. nov. are transferred from *Malacogaster* Bassi, 1834 to *Drilus* Olivier, 1790. *Drilus posticus* Schaufuss, 1867, syn. nov. is a junior subjective synonym of *Drilus adustus* (Chevrolat, 1854). All Levantine species are keyed and diagnostic characters are illustrated. Their distribution, morphological diversity and the statuses of type specimens of *Drilus reitteri* Bourgeois, 1908 and *Cydistus reitteri* Bourgeois, 1885 are discussed.

Key words: Elateroidea, *Drilus*, *Malacogaster*, *Cydistus*, Turkey, Syria, Lebanon, Israel, hot-spot, taxonomy, new species, key

Introduction

Drilini is a unique lineage of click-beetles with fully winged males and apterous larviform females. Due to the morphological distinctiveness they had been long classified as a separate family of soft-bodied elateroids (e.g., Crowson 1972). Only recently, Kundrata & Bocak (2011b) investigated the phylogeny of Elateroidea using four molecular markers and placed drilids as tribe Drilini in Elateridae: Agrypninae. This quite rare lineage has not been seriously studied and their classification depends on original descriptions and occasional distributional notes (for review see Bocak *et al.* 2010). Olivier (1910) and Wittmer (1944) listed 20 and 35 drilid genera, respectively, but Crowson (1972), Kundrata & Bocak (2011a, b), Jeng (2012), and Janisova & Bocakova (2013) transferred bulk of these genera to other elateriform families. The current concept of Drilini includes only *Drilus* Olivier, 1790, *Malacogaster* Bassi, 1834, *Selasia* Laporte, 1836 and *Paradrilus* Kiesenwetter, 1865. Similar morphological structures are encountered in unrelated soft-bodied lineages and therefore we have failed to define Drilini and their genera by clear synapomorphies (Kundrata & Bocak 2007). Several taxa were recently transferred between genera and to different families when primary types were found in historical collections (Wittmer 1989, 1995; Ivie & Barclay 2011; Kundrata 2012). The Mediterranean, where all known genera have been reported, is one of the hot-spots of Drilini (Bocak 2007, Bocak *et al.* 2010).

All genera but *Paradrilus* occur in the Levant, a unique biogeographic region within southwestern Asia. It is a meeting place and dispersal corridor for the Palaearctic, Oriental and Afrotropical faunas (Por 1975, Bar-Yosef & Belmaker 2011). The Northern Levant encompasses the area of Lebanon, major part of Syria, and Hatay province of Turkey (Genz 2012). All Levantine Drilini were described already in the 19th century (Chevrolat 1854, Schaufuss 1867, Reitter 1894, Fairmaire 1895). Since that time, several catalogues were compiled (Olivier 1910, Wittmer 1944, Bocak 2007), but no comprehensive study has critically considered the old fragmentary descriptions and reports. Therefore, we studied all available material deposited in major European museums to revise the Drilini fauna of the Northern Levant and to provide a stable taxonomic framework for further research on this insufficiently known lineage.

Measurements. BL 3.0 mm, EL 2.2 mm, WH 0.9 mm, PL 0.6 mm, PW 0.8 mm, Edist 0.5 mm, Ediam 0.2 mm.

Distribution. Cyprus, Israel.

Remarks. *Drilus rufipes* belongs to the fauna of Cyprus and northern Israel, however, we include it here because its occurrence in the Northern Levant is highly probable. The border between the Northern and Southern Levant (i.e., between Syria and Israel) is artificial and there is no barrier for animal migration (Genz 2012). Baudi di Selve (1871) described *Malacogaster rufipes* from Cyprus and Bourgeois (1908) described *Drilus reitteri* from mainland Levant (type locality: "Syrie"). Zürcher (1911) transferred *M. rufipes* to *Drilus* and synonymized *Drilus reitteri* under *Drilus rufipes*.

The type series of *Drilus reitteri* Bourgeois, 1908 should contain two syntypes; one syntype should be deposited in the collection of Bourgeois in MHNP (no syntype found) and the second syntype in the Reitter's collection in HNHM (Bourgeois 1908). We found a specimen of *Drilus* in the Reitter's collection in HNHM which bears the type label "Holotypus, *Cydistus reitteri* Bourgeois, 1885, ♂". The label was apparently written by a curator after the collection of Edmund Reitter was deposited in the museum. *Cydistus* Bourgeois, 1885 is a genus of uncertain position in Elateriformia (Lawrence *et al.* 2010) with *Cydistus reitteri* Bourgeois, 1885 as the type species. The type specimen bearing the subsequently attached label *Cydistus reitteri* Bourgeois, 1885 is a *Drilus* and we consider it as a syntype of *Drilus reitteri* Bourgeois, 1908.

Identification key for the males of Levantine Drilini

1. Body small, 3.0 mm long; antennae slightly serrate (Fig. 12); pronotum dark brown to black (Fig. 6); aedeagus as in Fig. 24 *Drilus rufipes* (Baudi di Selve)
- Body medium-sized, 5.4–9.3 mm long; antennae shortly flabellate; pronotum yellowish to light brown 2
2. Elytra bicolored, head and antennae yellowish to light brown 3
- Whole elytra, head and antennae brown to black 4
3. Elytra dark brown to black only apically (Fig. 1); antennomere 3 about 3 times longer than antennomere 2; pronotal hind angles inconspicuous, obtuse (Fig. 13); pronotal punctures large, shallow; aedeagus as in Fig. 19 . *Drilus adustus* (Chevrolat)
- Elytra dark brown to black in apical four fifths (Fig. 3); antennomere 3 about 2.5 times longer than antennomere 2; pronotal hind angles prominent, sharp (Fig. 15); pronotal punctures fine, deep; aedeagus as in Fig. 21 *Drilus bicolor* Schaufuss
4. Edist/Ediam ratio 2.0–2.1; head including eyes narrower or as wide as anterior margin of pronotum; aedeagus as in Fig. 23 *Drilus rectus* Schaufuss
- Edist/Ediam ratio 1.6–1.8; head including eyes wider than anterior margin of pronotum 5
5. Clypeus narrowed apically; antennae robust (Fig. 8), antennomeres 1–2 apparently lighter than remaining ones; PW/PL ratio 1.5 (Fig. 14); paramerae long (Fig. 20) *Drilus akbesianus* (Fairmaire)
- Clypeus wide; antennae slender (Fig. 10), antennomeres 1–2 about the same color as remaining ones; PW/PL ratio 1.3–1.4 (Fig. 16); paramerae short (Fig. 22) *Drilus nemethi* sp. nov.

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