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New and little known Palearctic species of the genus *Hydraena* (s.l.) KUGELANN XI. Descriptions of three new species from the Greek island of Euboea, and taxonomic notes on the *Hydraena* (s.str.) *dryops* complex (Coleoptera: Hydraenidae)

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Abstract

Three new species of *Hydraena* s.str. KUGELANN, 1794 are described from the island of Euboea (Greece). Two of these species belong to the *H. rufipes* group: *H.* (s.str.) *euboia* and *H.* (s.str.) *vladimiri*, and the third belongs to the *H. pulchella* group: *H.* (s.str.) *hera.* The *H. subinflata* complex is briefly discussed. *Hydraena* (s.str.) *dryops* JANSSENS, 1969 is resurrected, and faunistic notes on the *H. dryops* complex are provided.

Key words: Coleoptera, Hydraenidae, *Hydraena*, taxonomy, new species, Greece, Euboea.

Introduction

Euboea (Greek: Εύβοια, Evvia) is the second-largest Greek island. It lies in the Aegean Sea.

Several water beetles specialists have visited Euboea, but they collected mainly around Mt. Dirfi (1743 m) in the central part of the island. The southernmost tip of the island, around the mysterious Mt. Ochi (1398 m), second highest peak of Euboea, was very inadequately explored so far. In 1980, Hans Malicky found a single female of an obviously undescribed species of *Hydraena* KUGELANN, 1794 near Platanistos in the foothills of Mt. Ochi. Twenty-seven years later, Vladimir Pešić visited this region and collected five specimens of this species, including three males. In addition he found one new species of *Ochthebius* LEACH, 1835 (see JÄCH & DELGADO 2015) and two other undescribed species of *Hydraena*, which prompts that Mt. Ochi is a veritable hotspot of microendemism.

These three new species of *Hydraena* are described below, and taxonomic notes about *H. dryops* JANSSENS, 1969 (described from Euboea) are provided.

All specimens are deposited in the Naturhistorisches Museum Wien, Austria (NMW).

Hydraena (s.str.) *hera* sp.n.

TYPE LOCALITY (Fig. 52): Dimosari rivulet (near bridge), ca. 3–5 m wide, 38°8'16.9"N 24°28'52.3"E, ca. 12 m a.s.l., between Kalergo and Kallianos, Karystos Municipality, southern Euboea, Greece.

TYPE MATERIAL: **Holotype** ♂ (NMW): "GREECE: Evia Island region of Ochi, stream Gefira [bridge] Dimosaris, downstr. betw. Kalergo & Kallianos vill. 30.06.2007. leg. Pesic". **Paratypes** (NMW): 2 ♂♂, 1 ♀: same label data as holotype.

Fig. 1: *Hydraena hera*, holotype.

DIFFERENTIAL DIAGNOSIS: Habitus as in Fig. 1. Body length: 1.48–1.56 mm (males), 1.58 mm (female). Externally, *Hydraena hera* is very similar to *H. bicolorata* JÄCH, 1997 (Montenegro, Albania, Macedonia, Greece (incl. central Euboea), Turkey). In *H. hera* the male mesotibia is slightly more strongly curved and the inner margin of the male metatibia (Figs. 1, 15) is always slightly expanded subapically, with some off-standing setae. The shape of the male metatibia distinguishes *H. hera* also from *H. phassilyi* ORCHYMONT, 1931 (endemic to the Peloponnese) and *H. canakcioglui* JANSSENS, 1965 (Greece, Turkey, Armenia, southern Russia).

Male terminal sternite and spiculum (Fig. 18) very similar to that of *H. bicolorata* (Fig. 8): Sternite small, subtriangular, symmetrical, approximately as wide as long, not firmly connected with spiculum; with round subapical cavity, smaller than in *H. bicolorata*.

Aedeagus (Figs. 13–14, 16–17): In general appearance, the aedeagus of the new species is very similar to that of *H. bicolorata* (Figs. 4–7). The main piece is slightly shorter (260 µm) than that of *H. bicolorata* (280–290 µm); in lateral view, the apical tip is not curved ventrad, and in dorsal/ventral view it is more or less straight and not sinuous as in *H. bicolorata*; the distal lobe of the new species is considerably thinner, flagellum-like.

Gonocoxite (Fig. 19), female tergite X (Fig. 20) and spermatheca (Figs. 21–22) more or less as in *H. bicolorata* (Figs. 9–12).

ASSOCIATION: At the type locality, this species was found together with *Hydraena euboia* sp.n. and *H. morio* KIESENWETTER, 1849.

DISTRIBUTION: So far known only from the type locality. This species is obviously microendemic to southernmost Euboea.

ETYMOLOGY: This species is named for the Greek goddess Hera, wife of Zeus. Noun in apposition. *Hydraena hera* was collected at the foot of Mt. Ochi, where, according to Greek mythology, the wedding of Zeus and Hera took place (ULRICHS 1863). The name of Mt. Ochi is derived from the Greek word "ochevo" (ὀχεύω) = to mate.

Hydraena (s.str.) *vladimiri* sp.n.

TYPE LOCALITY (see JÄCH & DELGADO 2015: fig. 3): Lala spring near Lala Village, 38°2'54.2"N/24°24'37.1"E, ca. 1 km N Kalivia, Karystos Municipality, southern Euboea, Greece.

TYPE MATERIAL: **Holotype** ♂ (NMW): "GREECE: Evia Island region of Ochi (S Evia) Lala spring near Lala vill. 29.06.2007, leg. Pesic".

DIFFERENTIAL DIAGNOSIS (male): Habitus as in Fig. 2. Body length: 1.95 mm. Externally, *Hydraena vladimiri* is very similar to *H. kuehnelti* JÄCH, 1989 (endemic to Kefaloniá Island, Greece) and *H. bimagua* JÄCH, 1986 (endemic to Bosnia-Herzegovina). The latter is slightly larger (2.05–2.20 mm) and more robust than the two other species; its elytra are more convex and the elytral declivity is steeper.

Male terminal sternite and spiculum (Fig. 34) very similar to that of *H. kuehnelti* (Fig. 27): Sternite small, bottle-shaped, more or less symmetrical, slightly longer than wide, not firmly connected with spiculum.

Aedeagus (Figs. 32–33, 35–36): In general appearance, the aedeagus of the new species is very similar to that of *H. kuehnelti* (Figs. 23–26). The new species differs in the following characters: main piece less s-shaped, apical half more straight in lateral view, and less strongly curved in ventral/dorsal view; dorsal setae of main piece more close to middle and less numerous (about 10); distal lobe slightly longer; right paramere slightly wider. The aedeagus of *H. bimagua* (see JÄCH 1990: fig. 2) is more robust, more s-shaped, and the distal lobe is not bifid.

Fig. 2: *Hydraena vladimiri*, holotype.

Female unknown. However, it can be expected that the gonocoxite, female tergite X and spermatheca are more or less as in *H. kuehnelti* (Figs. 28–31).

ASSOCIATION: This species was found together with *Hydraena dryops*, *H. euboia* sp.n., *H. helena* (1 ♀), *H. vedrasi* ORCHYMONT, 1931, *Ochthebius marijanmatoki* JÄCH & DELGADO, 2015, *O. montanus* FRIVALDSZKY, 1881, and *O. ragusae* KUWERT, 1887.

DISTRIBUTION: So far known only from the type locality. This species is probably micro-endemic to southernmost Euboea.

ETYMOLOGY: Named for Vladimir Pešić (Podgorica, Montenegro), excellent specialist of water mites, and excellent collector of Hydraenidae. In June 2007 he managed to collect four undescribed species of Hydraenidae within two days on the Greek island of Euboea.

Hydraena (s.str.) *euboia* sp.n.

TYPE LOCALITY (see JÄCH & DELGADO 2015: fig. 3): Lala spring near Lala Village, 38°2'54.2"N/24°24'37.1"E, ca. 1 km N Kalivia, Karystos Municipality, southern Euboea, Greece.

TYPE MATERIAL: **Holotype** ♂ (NMW): "GREECE: Evia Island region of Ochi (S Evia) Lala spring near Lala vill. 29.06.2007, leg. Pesic". **Paratypes** (NMW): 1 ♂, 1 ♀: same locality data as holotype; 1 ♂ (NMW): "GREECE: Evia Island region of Ochi, stream Gefira [bridge] Dimosaris, downstr. betw. Kalergo & Kallianos vill. 30.06.2007. leg. Pesic"; 1 ♀ (NMW): "GREECE: Evia Island region of Ochi Gialpides stream near Gialpides vill. 30.06.2007, leg. Pesic" [coordinates: 38°7'57.05"N, 24°31'2.27"E]; 1 ♀ (NMW): "GR-EUBÖA 10.10.[19]80 sw.Platanistos lg.Malicky (52)".

DIFFERENTIAL DIAGNOSIS: Habitus as in Fig. 3. Body length: 1.9–2.1 mm. Externally, *Hydraena euboia* is very similar to *H. macedonica* ORCHYMONT, 1931 (Albania, Macedonia, Bulgaria, northern Greece, Turkey). In males of the new species the inner margin of the metatibia is more expanded in the apical half. The metaventral plaques of *H. euboia* are slightly larger.

Male terminal sternite and spiculum (Fig. 47): Sternite small, more or less symmetrical, longer than wide, not firmly connected with spiculum.

Aedeagus (Figs. 44–46): In general appearance, the aedeagus of the new species is very similar to that of *H. macedonica* (Figs. 37–38). The new species differs in the following characters (in lateral view): apical half of main piece more cylindrical between middle and distal lobe; apex of main piece subtruncate (lateral view); distal lobe shorter; right paramere apically rounded, not excised; expanded apical part of left paramere elongately oval.

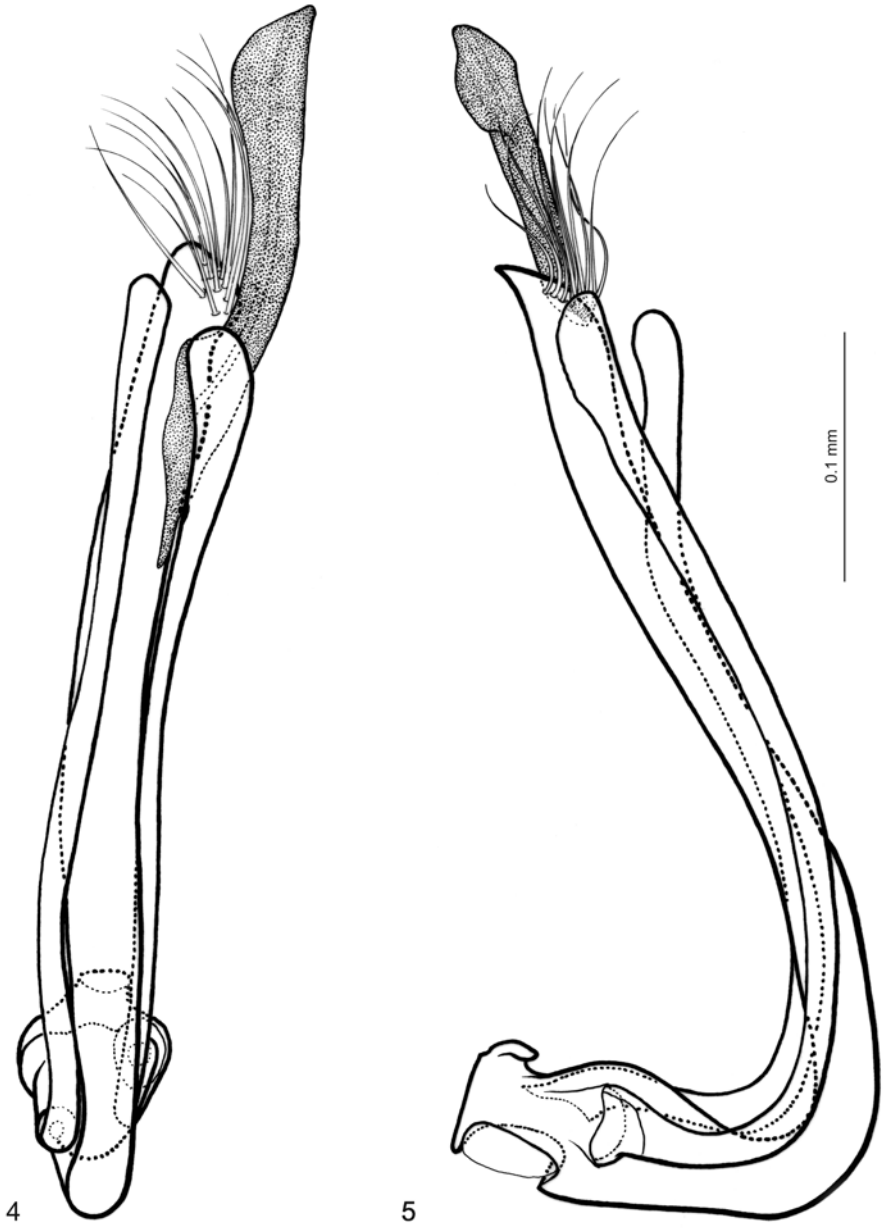
Gonocoxite (Fig. 48), female tergite X (Fig. 49) and spermatheca (Figs. 50–51) more or less as in *H. macedonica* (Figs. 40–43).

ASSOCIATION: This species was found together with *Hydraena dryops* JANSSENS, 1969, *H. helena* ORCHYMONT, 1929 (1 ♀), *H. hera* sp.n., *H. morio*, *H. vedrasi*, *H. vladimiri* sp.n., *Limnebius crassipes* KUWERT, 1890, *Ochthebius marijanmatoki*, *O. montanus*, and *O. ragusae*.

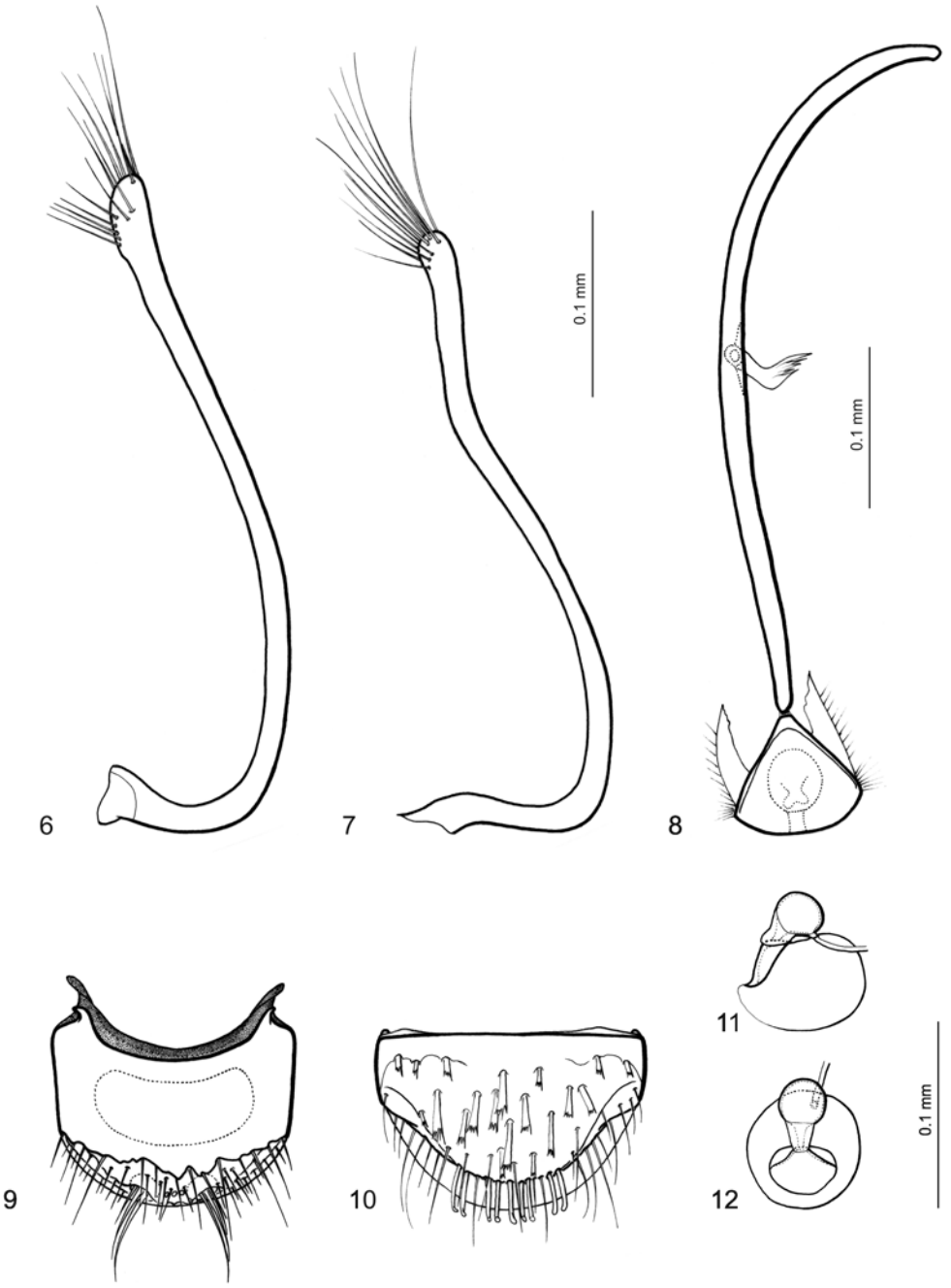
DISTRIBUTION: So far known from four streams around Mt. Ochi, Euboea Island, Greece. This species is obviously microendemic to southernmost Euboea.

ETYMOLOGY: Named for Euboea Island (Ancient Greek: Εὔβοια, Eúboia). Noun in apposition.

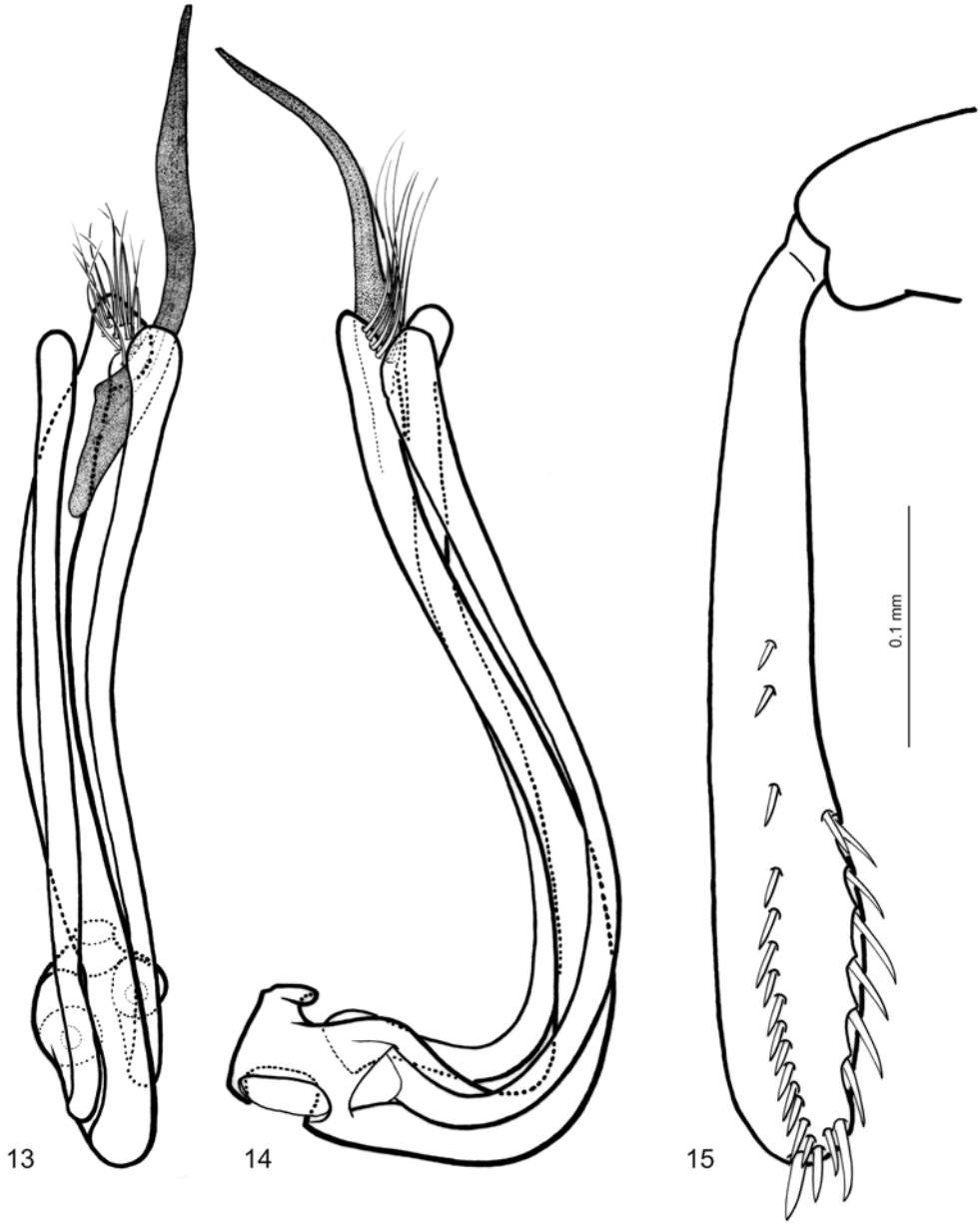
Fig. 3: *Hydraena euboia*, holotype.



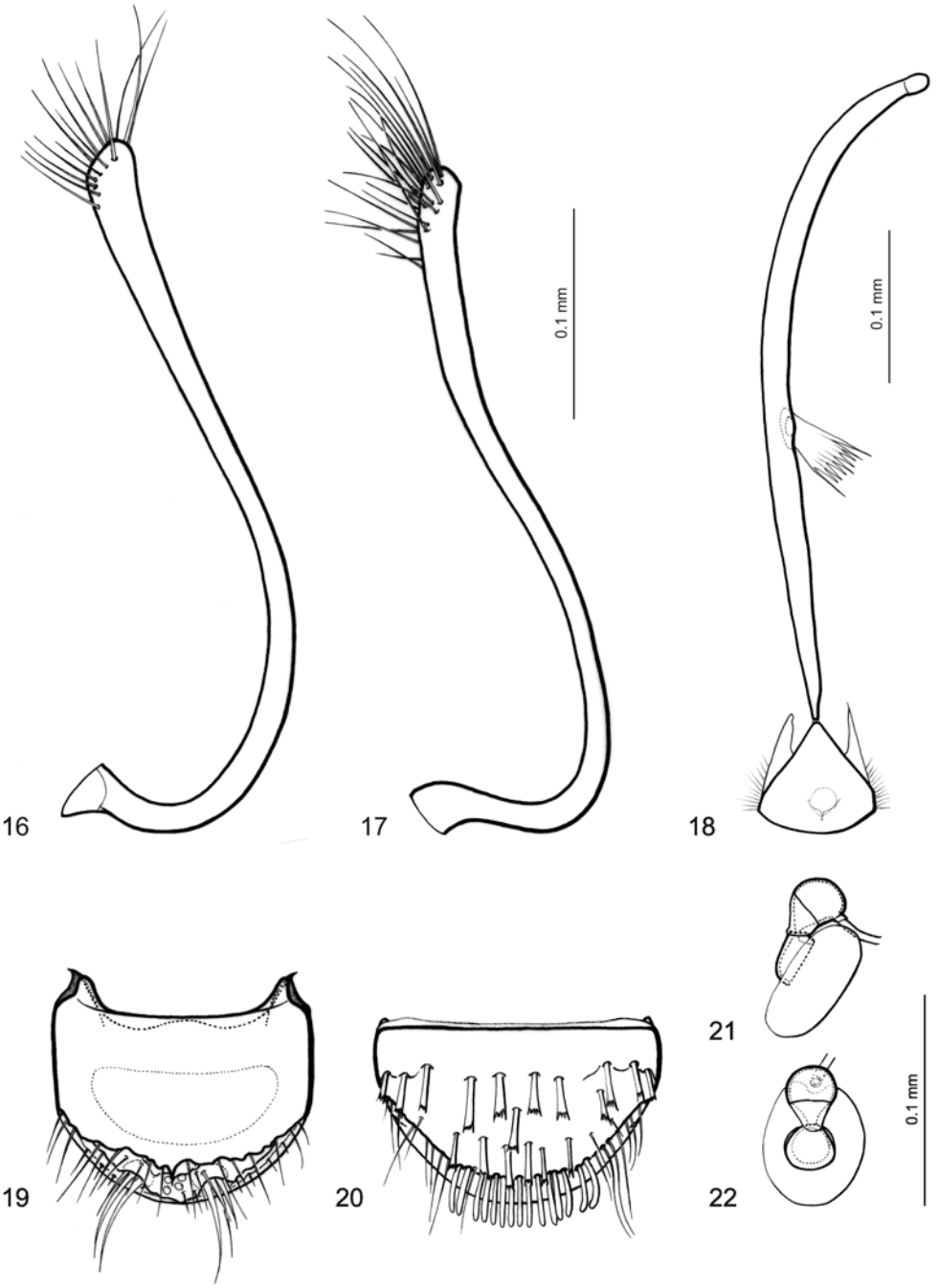
Figs. 4–5: *Hydraena bicolorata*, aedeagus (setae of parameres omitted) in 4) dorsal and 5) lateral view.



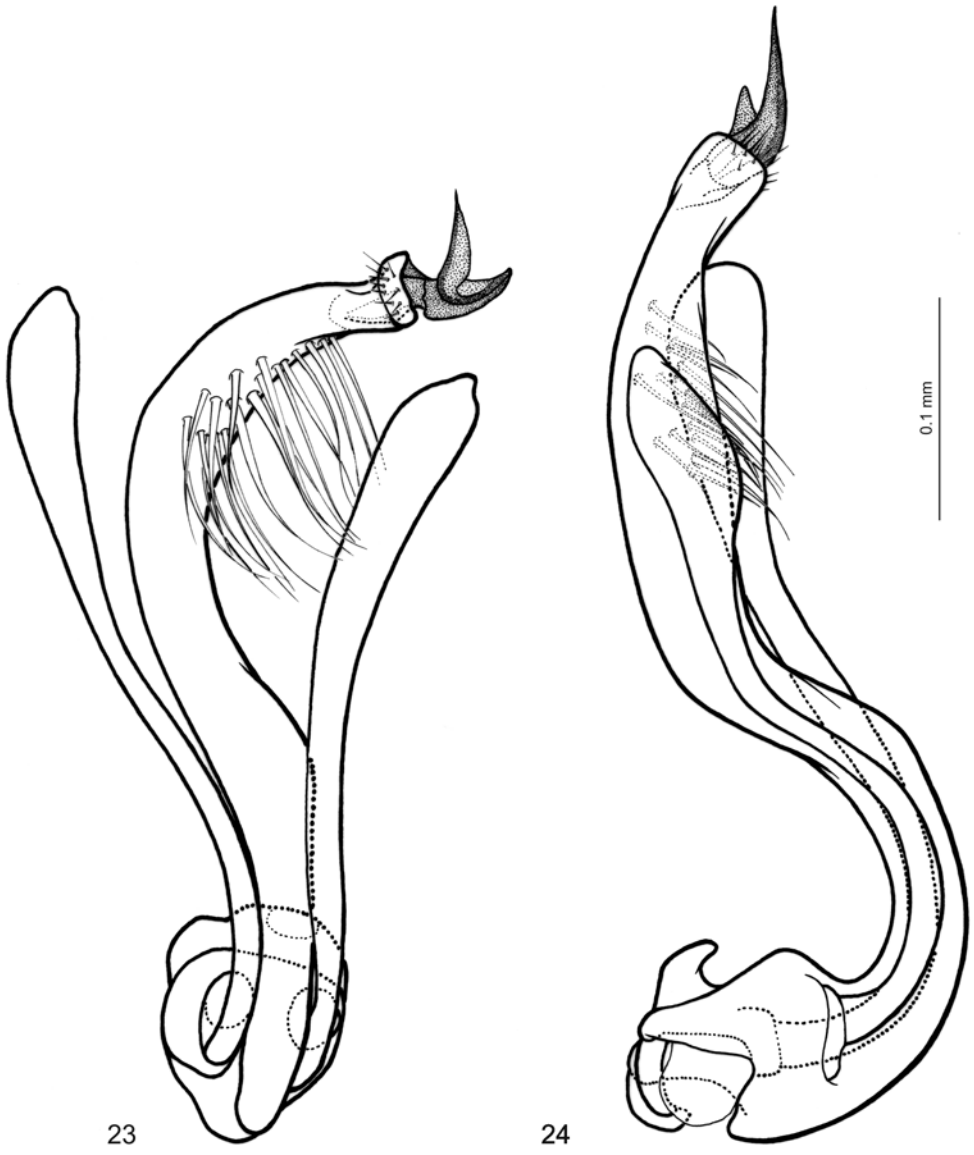
Figs. 6–12: *Hydraena bicolorata*, 6) left paramere, 7) right paramere, 8) terminal sternite and spiculum, 9) gonocoxite, 10) female tergite X, 11–12) spermatheca.



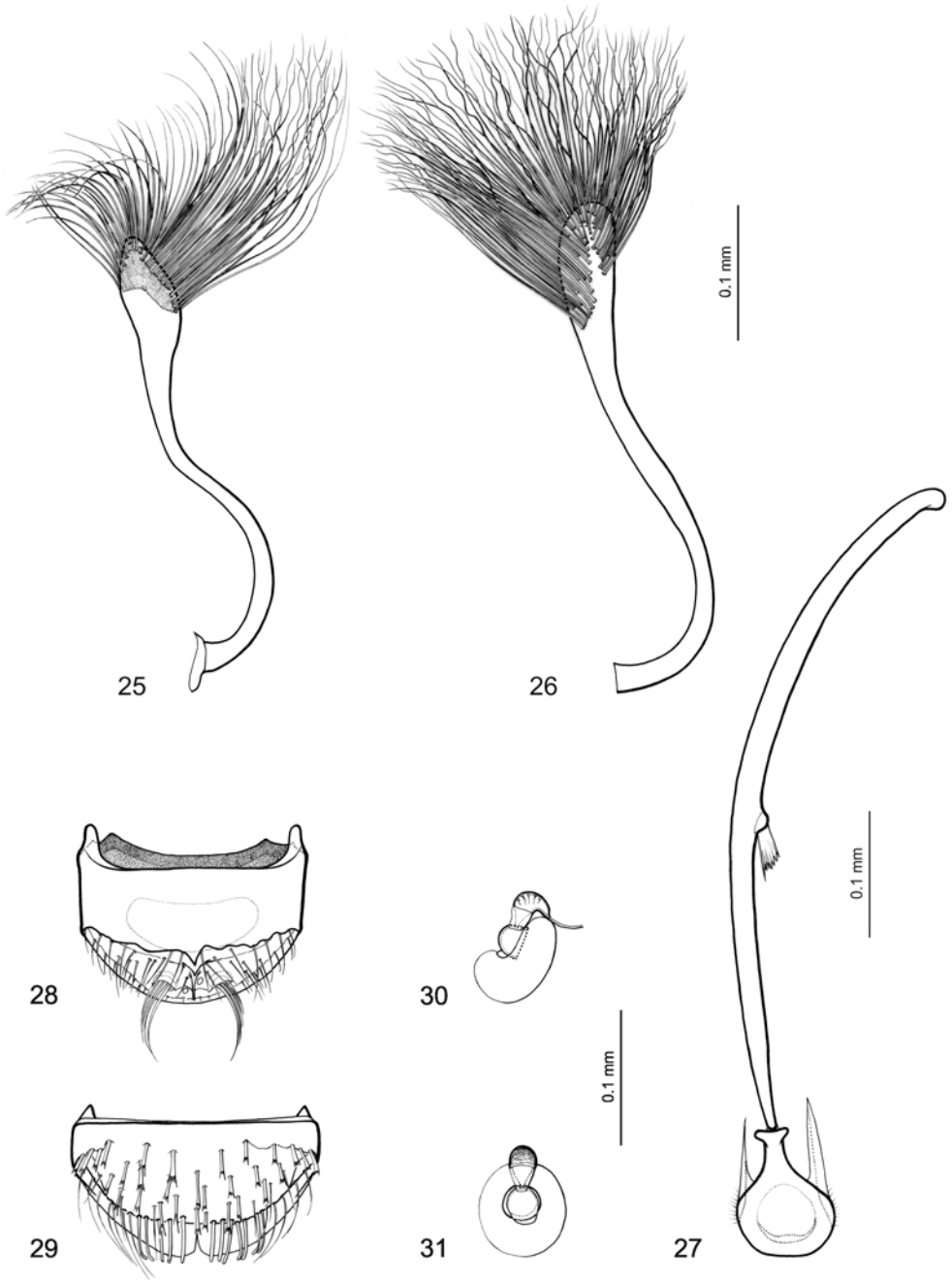
Figs. 13–15: *Hydraena hera*, aedeagus (setae of parameres omitted) in 13) dorsal and 14) lateral view, 15) left metatibia.



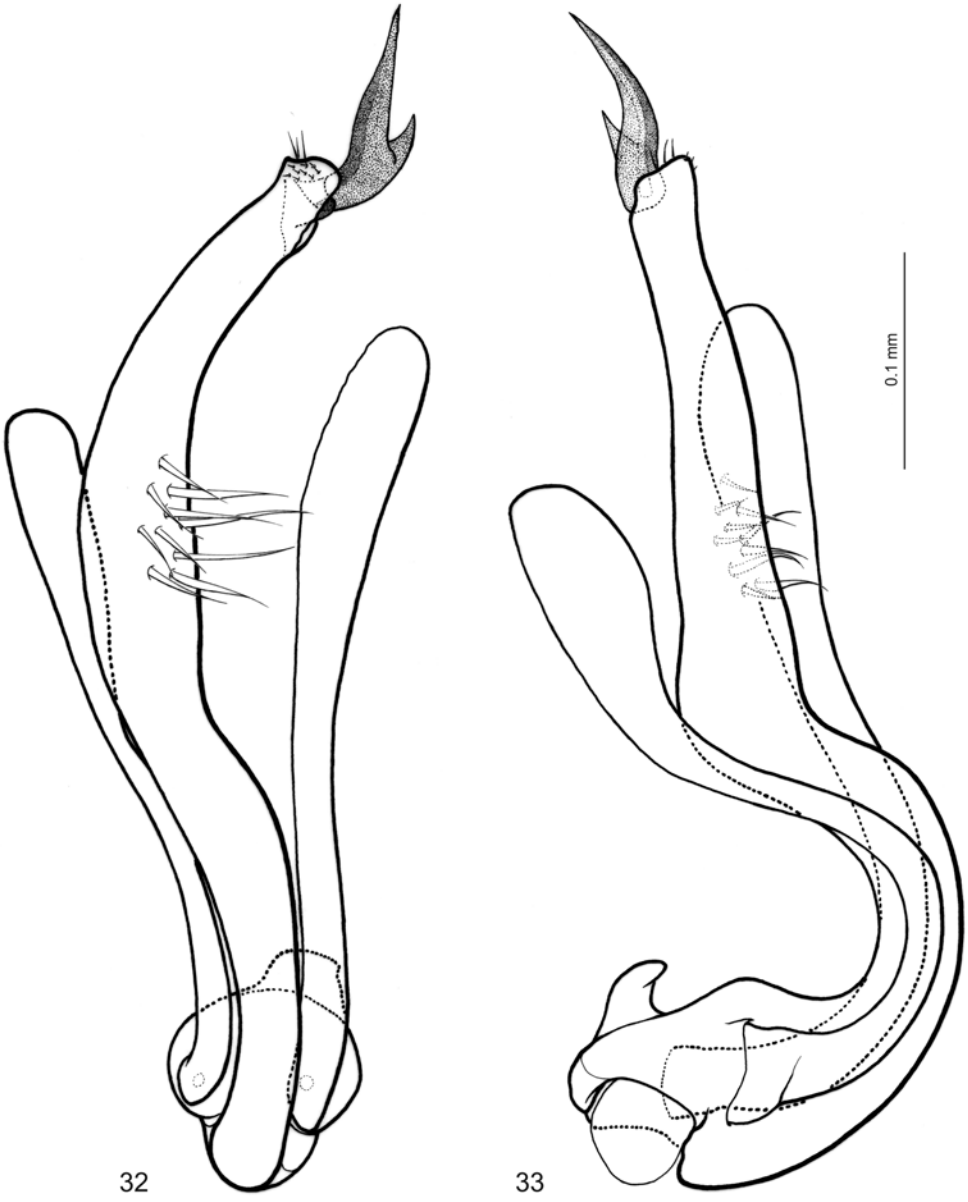
Figs. 16–22: *Hydraena hera*, 16) right paramere, 17) left paramere, 18) terminal sternite and spiculum, 19) gonocoxite, 20) female tergite X, 21–22) spermatheca.



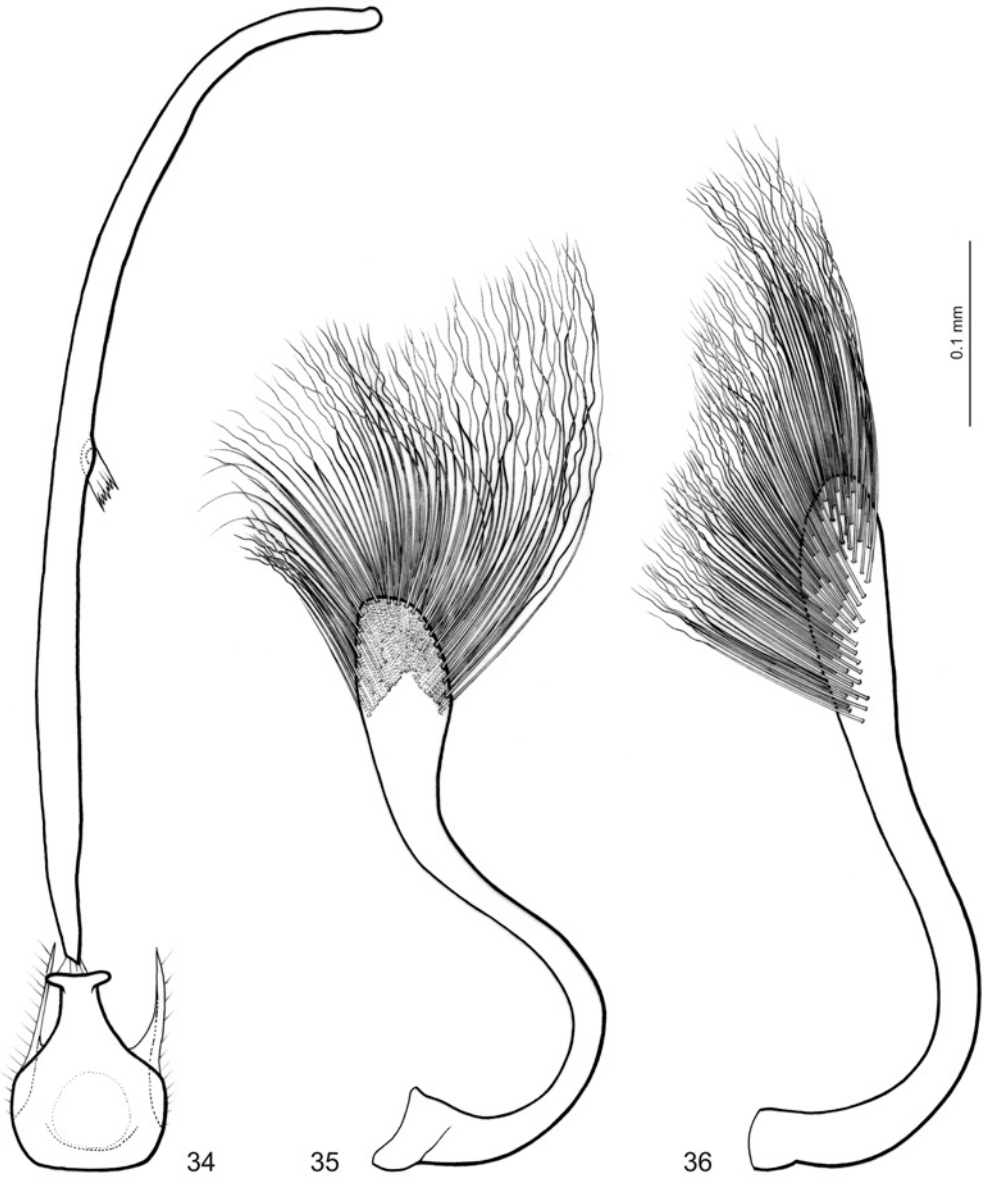
Figs. 23–24: *Hydraena kuehnelti*, aedeagus (setae of parameres omitted) in 23) dorsal and 24) lateral view.



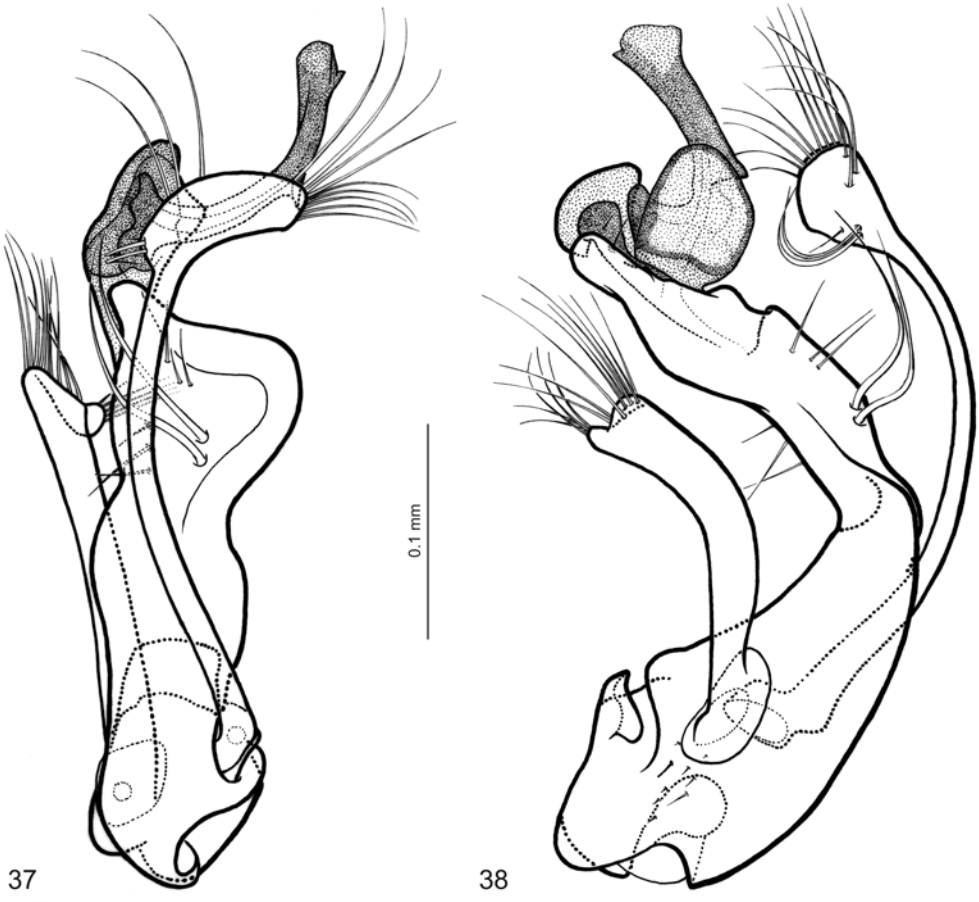
Figs. 25–31: *Hydraena kuehnelti*, 25) right paramere, 26) left paramere, 27) terminal sternite and spiculum, 28) gonocoxite, 29) female tergite X, 30–31) spermatheca.



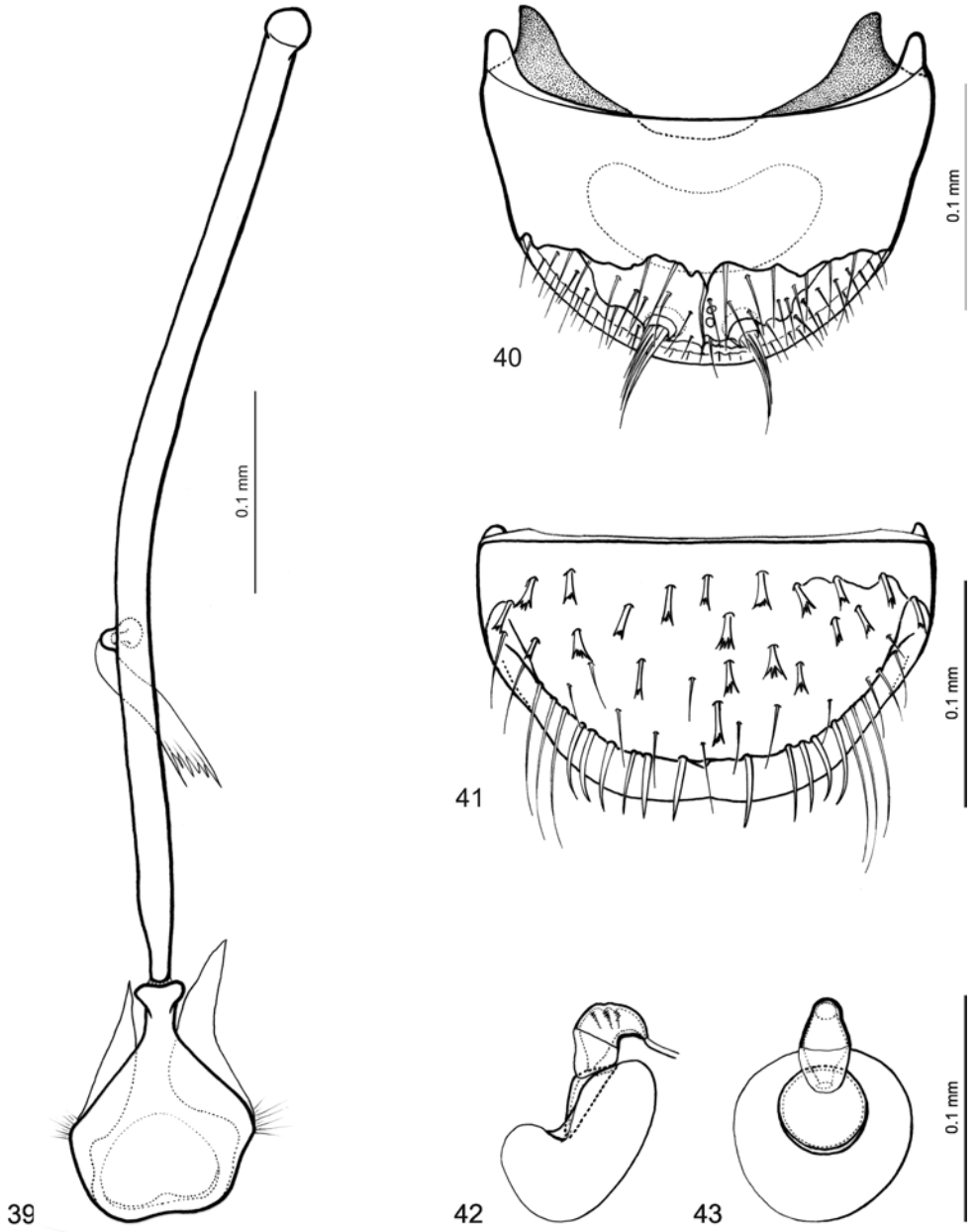
Figs. 32–33: *Hydraena vladimiri*, aedeagus (setae of parameres omitted) in 32) dorsal and 33) lateral view.



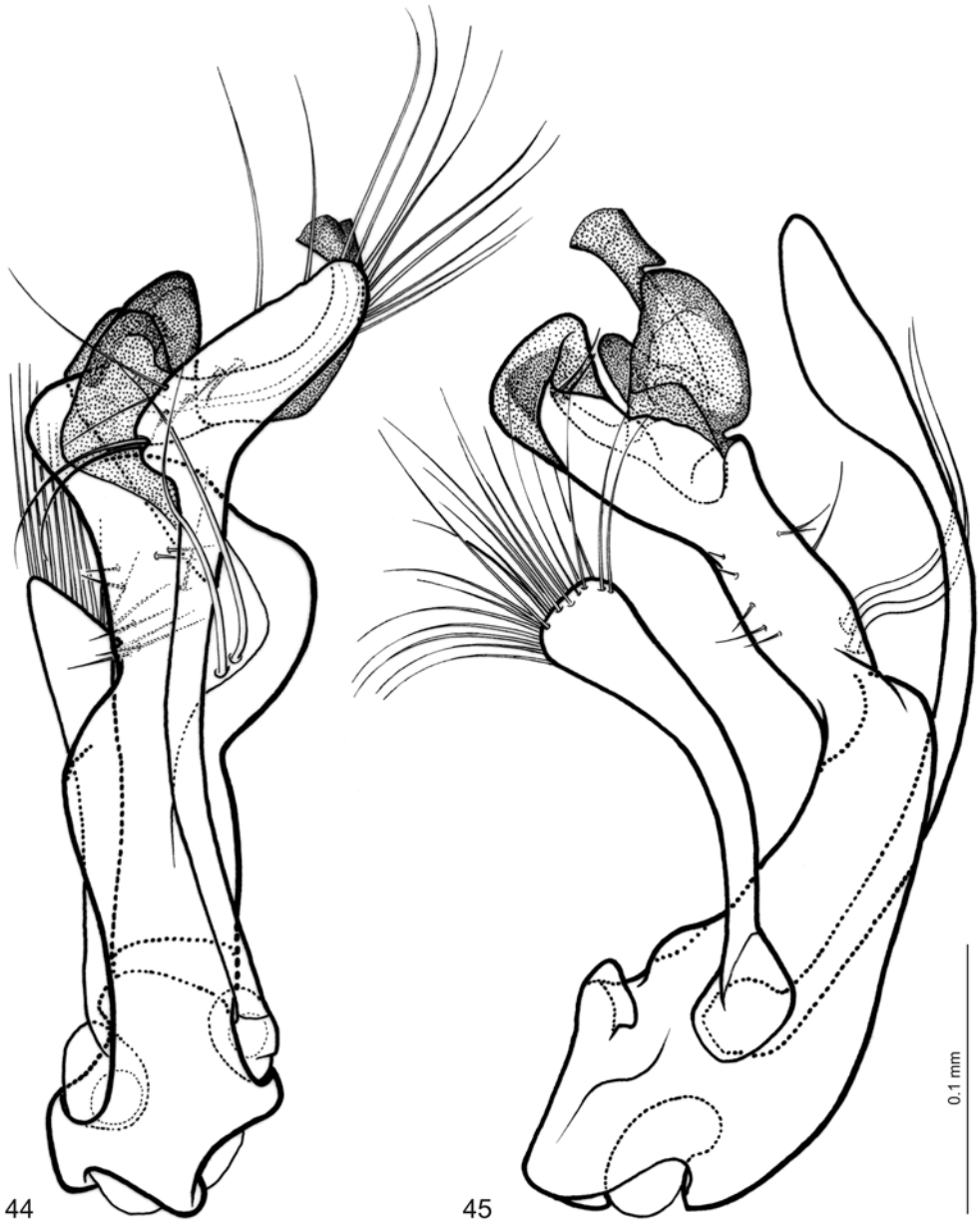
Figs. 34–36: *Hydraena vladimiri*, 34) terminal sternite and spiculum, 35) right paramere, 36) left paramere.



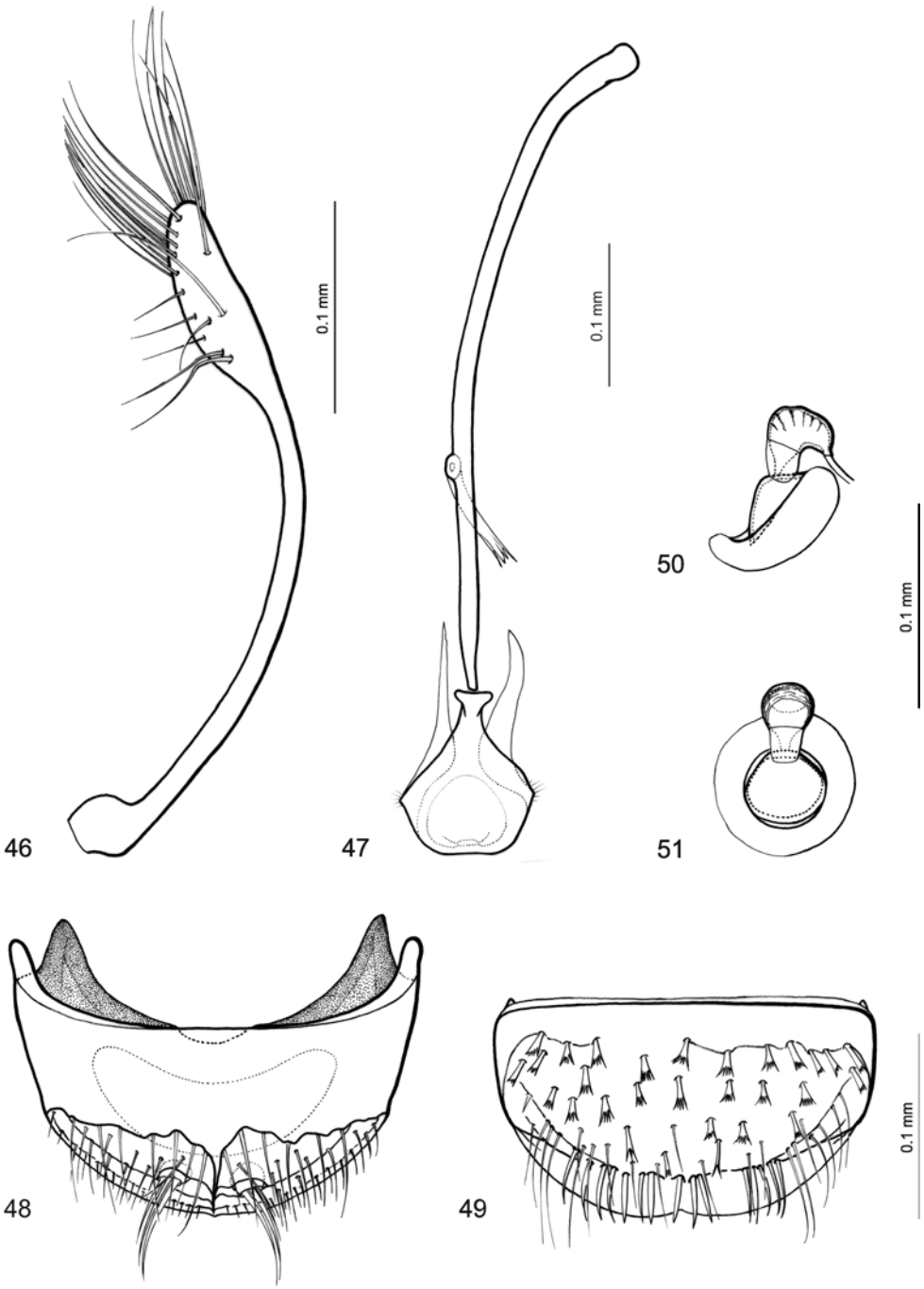
Figs. 37–38: *Hydraena macedonica*, aedeagus in 37) dorsal and 38) lateral view.



Figs. 39–43: *Hydraena macedonica*, 39) terminal sternite and spiculum, 40) gonocoxite, 41) female tergite X, 42–43) spermatheca.



Figs. 44–45: *Hydraena euboia*, aedeagus in 44) dorsal and 45) lateral view (setae of left paramere omitted).



Figs. 46–51: *Hydraena euboia*, 46) left paramere, 47) terminal sternite and spiculum, 48) gonocoxite, 49) female tergite X, 50–51) spermatheca.

Fig. 52: Type locality of *H. hera*. Dimosari rivulet, southern Euboea, Greece. Photograph: V. Pešić.

Hydraena (s.str.) *dryops* complex

Hydraena dryops, described from southernmost Euboea (Karystos) by JANSSENS (1969: 59), was synonymized with *H. subinflata* ORCHYMONT, 1944, described from Paros, by JÄCH (1992: 91). However, examination of numerous specimens from southern Euboea, the Sporades (Skyros), the Cyclades (Andros, Tinos, Kea, Paros, Ios), and the Dodecanese (Astypalaia) revealed, that *H. dryops* must be resurrected. The sclerotized rod of the aedeagal distal lobe is very strongly sinuate (almost coiled) in *H. dryops* while it is rather straight in *H. subinflata*. In addition, the main piece of *H. dryops* is more strongly curved (in ventral view) than in *H. subinflata*. The true *H. subinflata* is obviously endemic to the island of Paros.

Specimens from the Sporades (Skyros, leg. M.A. Jäch 1992, NMW) definitely represent an undescribed species closely related with *H. dryops*. While its aedeagal main piece is almost identical with that of *H. dryops*, the sclerotized rod of the distal lobe is long and only very weakly sinuate (not coiled up). This species shall be described in a forthcoming paper.

Specimens of the *H. dryops* complex sensu stricto are thus known to occur only on the following six islands: Euboea, Andros, Tinos, Kea, Ios, and Astypalaia. On Euboea, *H. dryops* seems to be confined to the southernmost tip; we have examined about 80 specimens (NMW) collected from five different streams around Mt. Ochi, collected by H. Malicky (1979, 1980) and V. Pešić (2007).

Specimens from Euboea and the northern Cyclades (Andros, Tinos, and Kea) seem to agree very well in the length and curvature of the sclerotized rod. There is only very slight variation in the size, shape and degree of sclerotization of the sheath-like structure surrounding the sclerotized rod and it seems that the populations from these four islands definitely belong to the same species.

Specimens from Ios (southern Cyclades) and Astypalaia (Dodecanese) deviate slightly in the shape of the sclerotized rod, which appears to be very slightly longer, and its median coil (when observed in ventral view) seems slightly larger. In addition, the single male examined from Astipalaia differs in the sclerotized rod being less strongly coiled up, and the apical part of the rod is slightly more strongly curved (in lateral view).

Since these morphological deviations are not very significant and might be credited to variation, we are at present unable to decide whether the populations from Astypalaia (described as *Hydraena belfiorei* AUDISIO & DE BIASE, 1990) and Ios belong to *H. dryops* or not. To solve this question specimens of the *H. dryops* complex from all the six islands mentioned above should be examined with molecular methods. Furthermore, the island of Amorgos (southern Cyclades) must be searched for *Hydraena*. It is very likely, that the *H. dryops* complex occurs also on this island, which is lying in between Ios and Astypalaia. Only in the course of such a project we will be able to find out whether *H. belfiorei* deserves resurrection, and if so, whether the population from Ios belongs to *H. dryops* or to *H. belfiorei*, or represents another discrete species. As long as these questions have not been solved we prefer to regard all populations from these six islands as *H. dryops* complex sensu stricto.

Discussion

Until now, the following 13 species of *Hydraena* are known from Euboea (endemic species underlined): *Hydraena bicolorata* JÄCH, 1997, *H. dryops* JANSSENS, 1969, *H. euboia* sp.n., *H. grandis* REITTER, 1885, *H. helena* ORCHYMONT, 1929, *H. hera* sp.n., *H. ludovicae* ORCHYMONT, 1931, *H. morio* KIESENWETTER, 1849, *H. phallica* ORCHYMONT, 1930, *H. simonidea* ORCHYMONT, 1931, *H. subjuncta* ORCHYMONT, 1930, *H. vedrasi* ORCHYMONT, 1931, *H. vladimiri* sp.n. All three new species are obviously microendemic to Mt. Ochi at the southernmost tip of Euboea. Each of these three species is very closely related with other Greek species.

By now, a total of 69 described species of *Hydraena* is known from Greece. Several new species from Greece are still awaiting description (see above under "*Hydraena* (s.str.) *dryops* complex", JÄCH & DÍAZ 2012: 108 ff., MIČETIĆ STANKOVIĆ & JÄCH 2012: 88). No other country in Europe harbours so many species of *Hydraena*.

Acknowledgements

Hans Malicky (Lunz, Austria) and Vladimir Pešić (University of Montenegro, Podgorica, Montenegro) are thanked for donating their specimens from Euboea to the NMW.

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Mitteilungen

Diethard Dauber, langjähriges Mitglied des Wiener Coleopterologen-Vereins starb am 21. März 2016 75-jährig nach schwerer Krankheit.

Seine umfangreiche Sammlung (29.891 Exemplare) hinterließ er dem Linzer Landesmuseum.

Ein ausführlicher Nachruf wurde von Gusenleitner (2016: Linzer biologische Beiträge 48 (1): 5–19) veröffentlicht. Siehe http://www.zobodat.at/pdf/LBB_0048_1_0005-0019.pdf.

M.A. JÄCH

Franz Hebauer, langjähriges Mitglied des Wiener Coleopterologen-Vereins starb am 5. März 2016 nach langer Krankheit – kurz vor seinem 81. Geburtstag.

Seine umfangreiche Käfersammlung wurde vom Staatlichen Museum für Naturkunde Stuttgart angekauft.

Ein kurzer Nachruf wurde von Foster (2016: Latissimus 38 (1): 1) veröffentlicht.

M.A. JÄCH