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Two new braconid species from Switzerland (Hymenoptera, Braconidae)

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Two new braconid species, *Diospilus helveticus* sp. n. and *Triaspis efluctus* sp. n. from Canton Ticino, South Switzerland, are described and the distinction from related species is discussed. A checklist of the 9 *Diospilus* and 11 *Triaspis* species recorded from Switzerland is presented.

Keywords: *Diospilus*, *Triaspis*, description, keys, checklist.

INTRODUCTION

Within the project of the entomological research of Canton Ticino, South Switzerland, conducted by the Natur-Museum Luzern and Museo cantonale di storia naturale, Lugano, under the personal management of Dr. Ladislaus RESER (REZBANYAI) (Natur-Museum Luzern), a fairly great quantity of braconid wasps has been accumulated (PAPP & REZBANYAI-RESER, 1996, 1997). The elaboration of this material, among others, resulted in the recognition of two new species. Their description is presented in this paper completed with the taxonomic separation from their related species. The new species, *Diospilus helveticus* sp. n. and *Triaspis efluctus* sp. n., belong to the braconid subfamilies Helconinae and Calyptinae, respectively, which have been studied particularly by REINHARD (1862), IVANOV (1899), ŠNOFLÁK (1953), FISCHER (1966), ABDINBEKOVA (1975), and PAPP (1997).

Abbreviations applied in the descriptions: OOL = shortest distance between hind ocellus and eye; POL = shortest distance between hind two ocelli; *cuqu1–cuqu2* = first and second transverse cubital vein; *CU2* = second cubital cell; *r1–r3* = first, second and third sections of the radial vein.

TAXONOMIC RESULTS

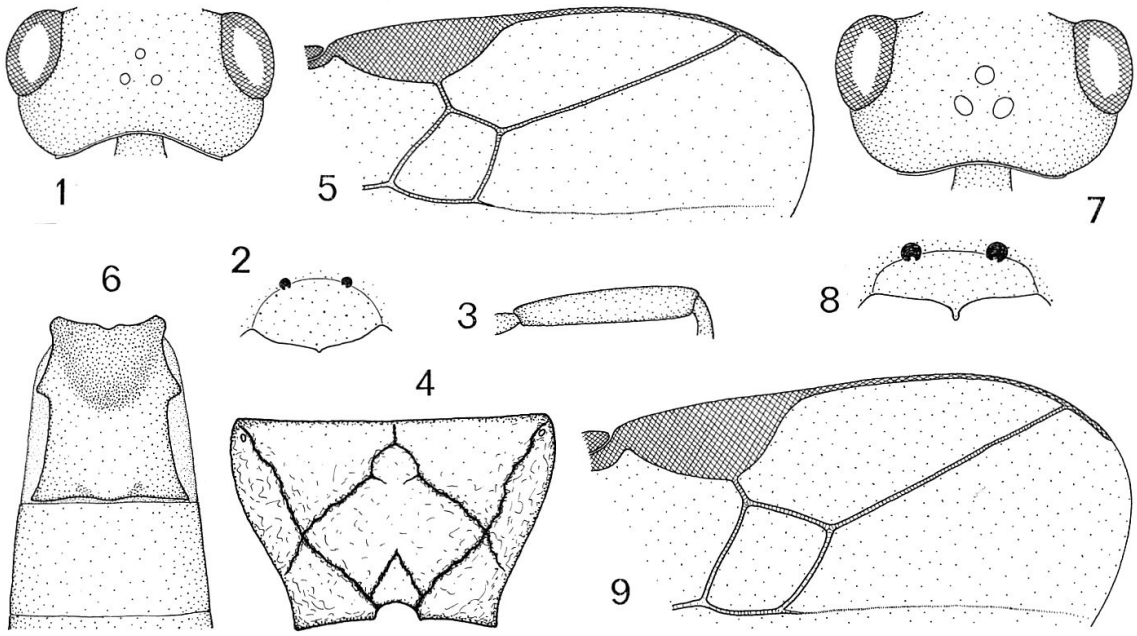
Helconinae / Diospilini

Diospilus helveticus sp. n. ♀ (Figs 1–6)

Material examined. — Holotype ♀: Switzerland, Canton Ticino, Monte Generoso, Bellavista (Mendriso), 1200 m, taken with light trap, 21–31 May 1982, leg. L. REZBANYAI-RESER. — Holotype deposited in the Hungarian Natural History Museum (Department of Zoology), Budapest, Hym. Typ. No. 7766.

Etymology. — The species name "helveticus" refers to the country of the type locality.

Description of the female holotype. — Body 4.2 mm long. Head in dorsal view (Fig. 1) 1.8 times as broad as long, eye about one-fourth longer than temple, latter



Figs 1–9. — Figs 1–6. *Diospilus helveticus* sp. n.: 1, head in dorsal view, 2, clypeus, 3, hind femur, 4, propodeum, 5, distal part of right fore wing, 6, tergites 1–2. — Figs 7–9. *Diospilus kokujevi* TOBIAS: 7, head in dorsal view, 8, clypeus, 9, distal part of right fore wing.

rounded, occiput excavated. Ocelli small and round, OOL almost three times as long as POL. Eye in lateral view nearly round, i.e., 1.3 times as high as wide, temple beyond eye one-third less wide than eye. Malar space as long as basal width of mandible. Clypeus distinctly less wide than face, its lower margin projecting and pointed medially (Fig. 2), pair of tentorial pits clearly nearer to each other than to lower margin of eye (8:14). Head polished, face and clypeus hair-punctured. — Antenna as long as body and with 28 antennomeres. First flagellomere three times, further flagellomeres progressively shortening so that penultimate flagellomere 1.5 times as long as broad.

Mesosoma in lateral view 1.3 times as long as high. Notaulix evenly deep, subcrenulate. Sternaulix crenulate. Propodeum (Fig. 4) areolated, area basalis relatively large, along keels with rugulae, middle area uneven to smooth. Mesonotum and mesopleuron hair-punctured, shiny; pronotum with transverse rugulae. — Hind femur 5.7 times as long as broad distally (Fig. 3). Hind basitarsus as long as tarsomeres 2–4.

Fore wing as long as body. Pterostigma (Fig. 5) three times as long as wide, issuing radial vein from its middle, *r1* clearly shorter than half width of pterostigma, *r2* almost twice as long as *r1*, *r3* straight and approaching tip of wing, radial cell along metacarp one-fifth longer than pterostigma, metacarp itself reaching tip of wing. *CU2* narrowing, i.e., *cuqu1* and *cuqu2* converging anteriorly. Nervellus interstitial.

Metasoma about as long as mesosoma. First tergite (Fig. 6) subquadrate, somewhat longer than broad behind, 1.4 times as broad behind as basally, evenly broadening posteriorly; pair of spiracles on relatively large tubercules, tubercules themselves before middle of tergite; basal half of first tergite deeply excavated. Second

tergite transverse, almost twice as broad behind as long medially (Fig. 6). Every tergite polished. Ovipositor sheath long, 1.28 times as long as body or three times as long as fore tibia + tarsus combined.

Body black. Antenna black. Palpi fumous yellow. Tegula and legs yellow. Middle and hind tarsi fumous, every fifth tarsomere darkening fumous. Wings hyaline, pterostigma brown, veins opaque light brown.

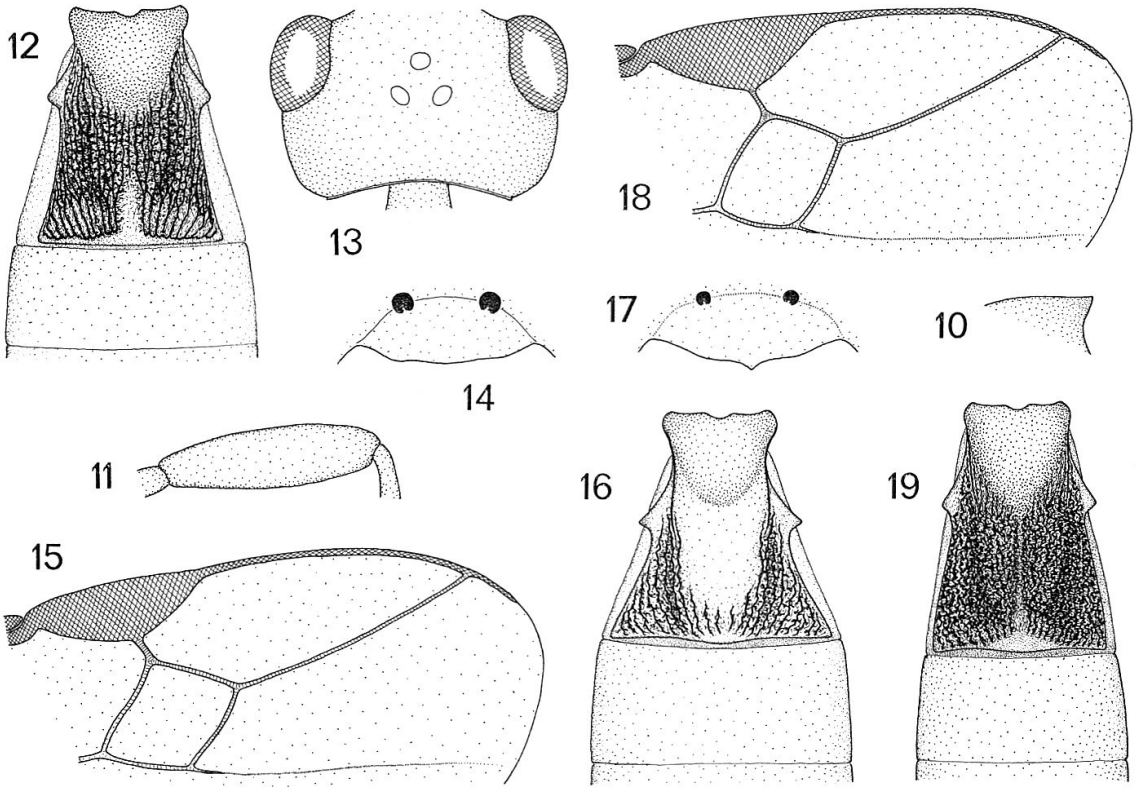
Male and host unknown.

Distribution: South Switzerland.

The new species, *Diospilus helveticus* sp. n., is nearest to *D. kokujevi* TOBIAS (European part of Russia, Germany: new record) and resembles also *D. molorchicola* FISCHER (France, Germany, Austria, Hungary, Georgia, European part of Russia: Krasnodarsk) as well as *D. tuberculatus* ABDINBEKOVA (Azerbaijan, Germany, Poland). The four species are distinguished by the following features keyed:

1 (4) Head in dorsal view (Figs 1, 7) transverse, 1.8–1.9 times as broad as long, temple rounded. First tergite (Figs 6, 12) less broadening posteriorly, i.e., at most 1.6 times as broad behind as basally. *CU2* either anteriorly or posteriorly narrowing (Figs 5, 9).

2 (3) First tergite (Fig 6) short, i.e., slightly longer than broad distally, polished. Pterostigma (Fig. 5) three times as long as wide and issuing radial vein from its middle; *CU2* narrowing anteriorly. Ocelli relatively small (Fig. 1). Tem-



Figs 10–19. — Figs 10–12. *Diospilus kokujevi* TOBIAS: 10, scutellum in lateral view, 11, hind femur, 12, tergites 1–2. — Figs 13–16. *Diospilus molorchicola* FISCHER: 13, head in dorsal view, 14, clypeus, 15, distal part of right fore wing, 16, tergites 1–2. — Figs 17–19. *Diospilus tuberculatus* ABDINBEKOVA: 17, clypeus, 18, distal part of right fore wing, 19, tergites 1–2.

ple in dorsal view less rounded (Fig. 1). Lower margin of clypeus projecting and pointed medially (Fig. 2). Hind femur long, 5.7 times as long as broad distally (Fig. 3). Scutellum not pointed posteriory. Metasoma black. ♀: 4.2 mm ..... *D. helveticus* sp. n.

3 (2) First tergite (Fig. 12) longer, i.e., 1.2–1.3 times (♀) and 1.3–1.4 times (♀) as long as broad behind, rugose. Pterostigma (Fig. 9) 2.2–2.5 times (♀ ♂) as long as wide and issuing radial vein distally from its middle; *CU2* narrowing posteriorly. Ocelli relatively large (Fig. 7). Temple in dorsal view more rounded (Fig. 7). Lower margin of clypeus with a median denticule (Fig. 8). Hind femur less long, 3.8 times as long as broad medially (Fig. 11). Scutellum pointed posteriorly (Fig. l0). Metasoma, except black first tergite, yellowish brown to dark brown. ♂ ♀: 4.5–5 mm ..... *D. kokujevi* TOBIAS, 1986

4 (1) Head in dorsal view (Fig. 13) less transverse to cubic, 1.55–1.7 times as broad as long, temple less rounded. *CU2* with subparallel (Fig. 15) to parallel *cuqu1* and *cuqu2* (Fig. 18).

5 (6) Mesosoma in lateral view elongate, 1.8–2 times as long as high. First tergite (Fig. 16) unevenly broadening posteriorly, medially smooth and shiny. *CU2* relatively large and subparallel-sided, i.e., *cuqu1* and *cuqu2* somewhat converging posteriorly (Fig. 15). Clypeus truncate, i.e., without median denticule (Fig. 14). Antenna with 28–32 antennomeres. Coxae yellow. ♂ ♀: 3–5 mm ..... *D. molorchicola* FISCHER, 1966

6 (5) Mesosoma in lateral view less elongate, 1.4–1.5 times as long as high. First tergite (Fig. 19) evenly broadening towards the distal end, entirely rugose. *CU2* relatively less large and parallel-sided, i.e. *cuqu1* and *cuqu2* parallel (Fig. 18). Clypeus with a median denticule (Fig. 17). Antenna with 26 antennomeres. Coxae blackish to black. ♂ ♀: 4–4.6 mm .... *D. tuberculatus* ABDINBEKOVA, 1969

Calyptinae / Triaspidini

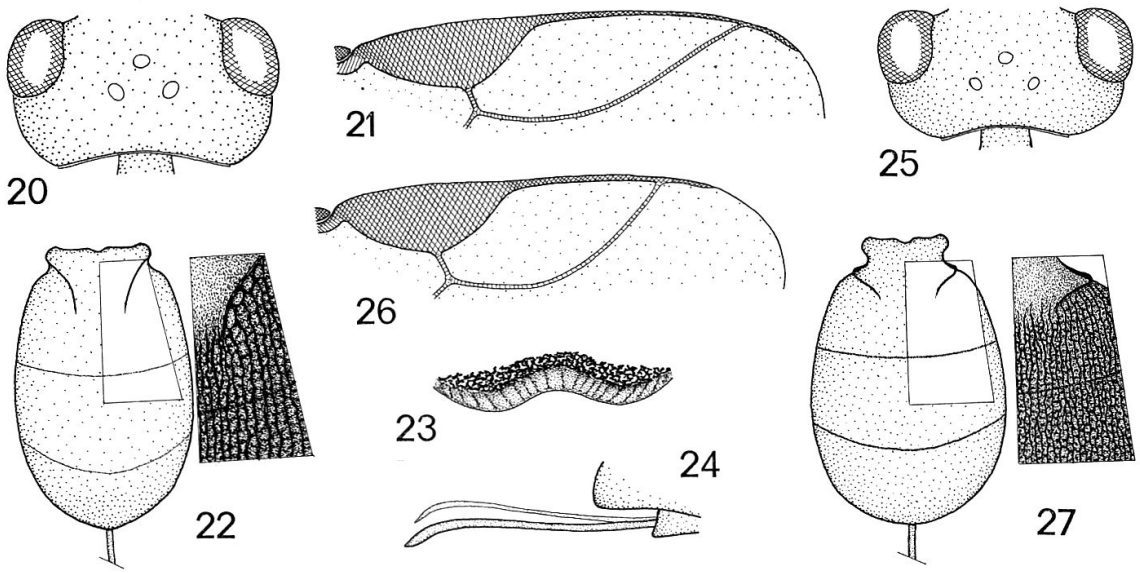
Triaspis efluctus sp. n. ♀ ♂ (Figs 20–24)

Material examined. — Holotype ♀, 1 ♀ and 1 ♂ paratypes: Switzerland, Canton Ticino, Isola Brissago (Brissago), 200 m, 19 June (holotype and 1 ♂ paratype) and 9 July (1 ♀ paratype) 1993, leg. L. REZBANYAI-RESER. — Holotype and 1 ♂ paratype are deposited in the Hungarian Natural History Museum (Department of Zoology), Budapest, Hym. Typ. Nos 7767 (holotype) and 7768 (paratype); 1 ♀ paratype in Natur-Museum Luzern.

Etymology. — The species name "efluctus" refers to the faintly distinct first and second sutures of the carapace.

Description of the female holotype. — Body 3.3 mm long. Head in dorsal view (Fig. 20) transverse, 1.8 times as broad as long, eye a bit longer than temple, latter distinctly rounded, occiput moderately excavated. Ocelli elliptic, POL somewhat shorter than OOL. Clypeus two-thirds as wide as face. Eye in lateral view twice as high as wide, temple as wide as eye. Head polished, face hair-punctured, clypeus punctate. — Antenna about as long as head, mesosoma + half carapace and with 23 antennomeres. First flagellomere three times as long as broad apically, flagellomeres 11–21 cubic.

Mesosoma in lateral view 1.5 times as long as high. Notaulix crenulate, sternaulix relatively wide and rugose. Propodeum also rugose, laterally with a pair of somewhat strong tubercules, medially with a somewhat pointed protuberance. —



Figs 20–27. — Figs 20–24. *Triaspis efluctus* sp. n.: 20, head in dorsal view, 21, distal part of right fore wing, 22, carapace in dorsal view with indication of its sculpture, 23, posterior end of carapace in frontal view, 24, ovipositor sheath and ovipositor. — Figs 25–27. *Triaspis flavipes* (IVANOV): 25, head in dorsal view, 26, distal part of right fore wing, 27, carapace in dorsal view with indication of its sculpture.

Hind femur three times as long as broad medially. Hind basitarsus as long as tarsomeres 2–4.

Fore wing as long as body. Pterostigma (Fig. 21) 2.8 times as long as wide, issuing radial vein distally from its middle, first section of metacarp along radial cell somewhat longer than pterostigma, second section of metacarp reaching tip of wing.

Carapace in dorsal view (Fig. 22) semiglobose, 1.5 times as long as broad medially. Pair of keels strong and converging. First and second sutures faintly distinct; carapace longitudinally rugo-striate with transverse rugae-rugulae. Apical margin of carapace weakly emarginate (Fig. 23). Ovipositor sheath in lateral view as long as hind tibia + basitarsus. Posterior end of ovipositor sheath and ovipositor downcurved (Fig. 24).

Body black. Antennomeres 1—5–6 darkening reddish yellow, rest of flagellum black. Palpi pale yellow. Tegula blackish. Legs yellow, distal end of hind tibia and every tarsus dark fumous. Wings hyaline, pterostigma brown, veins light opaque brown.

Paratypes (1 ♀ and 1 ♂) agreeing in all respects with the holotype.

Host unknown.

Distribution: South Switzerland.

The new species, *Triaspis efluctus* sp. n., runs with the help of TOBIAS's key (TOBIAS, 1986: 167–172) to *T. flavipes* IVANOV (Ukraine, Bohemia); the two species are differentiated by the features keyed as follows:

1(2) Head in dorsal view (Fig. 25) transverse, twice as broad as long, temple slightly more rounded. Pterostigma less long, 2.5 times as long as wide and issuing radial vein from its middle (Fig. 26). Sculpture of carapace less strong, carapace itself somewhat more globose (Fig. 27). Antenna with

20–21 antennomeres. ♀ ♂: 2–3.3 mm. (? = *Sigalphus complanellae* HARTIG, 1847, sen. name; Details for the taxonomic position of the two taxa *S. complanellae* and *S. flavipes* see PAPP, 1997) ..... *T. flavipes* (IVANOV, 1899)

2(1) Head in dorsal view (Fig. 20) less transverse, 1.8 times as broad as long, temple slightly less rounded. Pterostigma long, 2.8 times as long as wide and issuing radial vein distally from its middle (Fig. 21). Sculpture of carapace strong, carapace itself somewhat less globose (Fig. 22). Antenna with 23 antennomeres. ♀ ♂: 3.3 mm ..... *T. efluctus* sp. n.

APPENDIX

In Europe 12 *Diospilus* and 26 *Triaspis* species are recorded (TOBIAS, 1986: 155–158, 167–172) of which 9 and 11 species, respectively, are known from Switzerland including the two new species described in this paper. They are listed below completed with abbreviated bibliographic references:

Diospilus HALIDAY, 1833
- *capito* (NEES, 1834): PAPP, 1991: 8
- *dilatatus* THOMSON, 1895: ČAPEK & HOFMANN, 1997: 84
- *ephippium* (NEES, 1834): FERRIÈRE, 1927: 12
- *helveticus* sp. n.
- *morosus* REINHARD, 1862: ČAPEK & HOFMANN, 1997: 84
- *oleraceus* HALIDAY, 1833: FERRIÈRE, 1927: 12
- *ovatus* MARSHALL, 1889: ČAPEK & HOFMANN, 1997: 84
- *productus* MARSHALL, 1894: ČAPEK & HOFMANN, 1997: 84
- *rufipes* REINHARD, 1862: PAPP & REZBANYAI-RESER, 1996: 89

Triaspis HALIDAY, 1835
- *aciculatus* (RATZEBURG, 1848): PAPP & REZBANYAI-RESER, 1997
- *caledonicus* MARSHALL, 1888: SHENEFELT, 1970: 285
- *caudatus* (NEES, 1816): ČAPEK & HOFMANN, 1997: 87
- *efluctus* sp. n.
- *floricola* (WESMAEL, 1835): SCHENKER, 1951: 713
- *luteipes* (THOMSON, 1874): FERRIÈRE, 1927: 9
- *metacarpalis* TOBIAS, 1986: PAPP & REZBANYAI-RESER, 1996: 75
- *obscurellus* (NEES, 1816): ČAPEK & HOFMANN, 1997: 88
- *pallipes* (NEES, 1816): ČAPEK & HOFMANN, 1997: 88
- *striatellus* (NEES, 1816): FERRIÈRE, 1927: 9
- *thoracicus* (CURTIS, 1860): PAPP & REZBANYAI-RESER, 1996: 89

ZUSAMMENFASSUNG

Zwei neue Braconiden-Arten aus der Schweiz (Hymenoptera, Braconidae). – Der Verfasser beschreibt zwei für die Wissenschaft neue Brackwespenarten aus dem Kanton Tessin, Südschweiz, und zwar *Diospilus helveticus* sp. n. (Monte Generoso: Bellavista) und *Triaspis efluctus* sp. n. (Isola Brissago) (beide leg. L. REZBANYAI-RESER, Natur-Museum Luzern). Die neuen Arten werden mit anderen ähnlichen Arten verglichen und die bisher aus der Schweiz bekannten 9 *Diospilus*- und 11 *Triaspis*-Arten aufgelistet.

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