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PARASIEROLA SWIRSKIANA N. SP. (HYMENOPTERA: BETHYLIDAE), FROM THE LESSER DATE MOTH, BATRACHEDRA AMYDRAULA MEYRICK (LEPIDOPTERA: BATRACHEDRIDAE)

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ABSTRACT

A new parasitic wasp, *Parasierola swirskiana*, associated with the lesser date moth, *Batrachedra amydraula* Meyrick, is described from Israel, Jordan and Afghanistan.

KEY WORDS: *Parasierola swirskiana sp. nov., Bethylidae, Batrachedra amydraula, Batrachedridae, Israel*

INTRODUCTION

While studying bethylids that emerged from caterpillars damaging young date fruitlets in Israel, I have found specimens of an undescribed species. This species is being described here, so the name will be available to scientists investigating its biology.

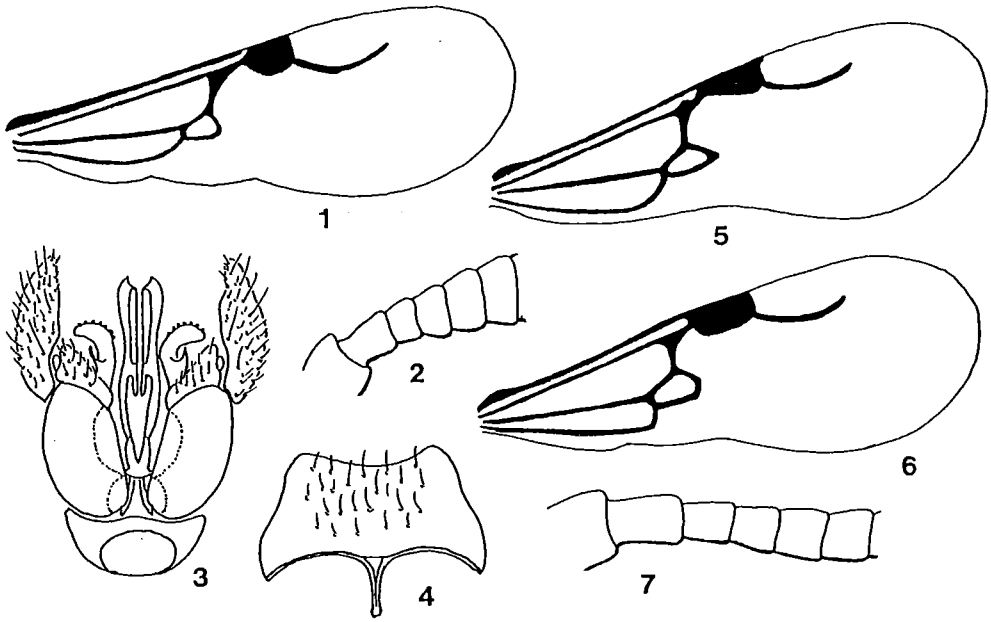
Parasierola swirskiana n. sp.

(Figs. 1-4)

Holotype female

Length 2.7 mm, length of fore wing 1.6 mm. Black; apical third of scape, pedicel, basal half of flagellum, fore tibia and tarsi, a narrow basal and a wide apical ring on mid and hind tibia, tarsal segments 1-4 of mid and hind legs, radial and costal veins of fore wing straw yellow. Subcostal vein, prostigma and pterostigma dark piceous, almost black. Other veins of fore wing and palpi yellowish white. Teeth of mandible reddish. Head, thorax and abdominal terga 3-6 sparsely clothed with semidecumbent, snow white pubescence. Wings membrane hyaline, vitrous; distal half of fore wing clothed with uniformly distributed, short and dark setulae.

Head 1.17 x as long as wide. Eye glabrous; at its maximum (in lateral view of head) 1.4 x as long as wide, and 1.3 x as long as occiput (measured between eye tops and vertex crest). Front (at its minimum between eyes) 1.25 x as wide as length of eye. Mandibles quadridentate apically. Median clypeal lobe as long as width of scape, sides forming a right angle; median keel sharp, continuous up to base of frontal lobe, arcuately declivous in lateral view. Front angle of ocellar triangle right angle. Ocello-ocular line 1.3 x width of ocellar triangle. Lateral ocelli touching vertex crest, separated between them by two ocellar diameters. Antennal scrobe unbordered dorsally. Antenna short, at most reach anterior margin of pronotal disc. Relative length of first four antennal segments in a ratio as 4.0:1.5:1.0:1.0. Flagellar segments 1-7 transverse, dor- soventrally flattened, segments shorter than thick and trapezoidal in shape (Fig. 2). Flagellar segments 8-10 subglobular, as long as thick; flagellar segment 11 longer than thick. Pubescence



Figs. 1–7. *Parasierola* spp. 1–4. *Parasierola swirskiana* n.sp. 1. Fore wing of holotype female. 2. Apex of scape, pedicel and basal flagellar segments of holotype female. 3. Genitalia of paratype male, ventral view. 4. Subgenital plate of paratype male. 5. *Parasierola gestroi* Kieffer, female fore wing. 6–7. *Parasierola legneri* (Gordh). 6. Female fore wing. 7. Apex of scape, pedicel and basal flagellar segments of female.

of flagellum short and decumbent. Surface of head with deeply engraved alutaceous sculpture, and sparsely distributed shallow piliferous punctures, separated by 2–3 puncture diameters.

Thorax, including propodeum, 1.8 × as long as wide. Anteriorpronotal margin, in lateral view of thorax, evenly arcuate, obliquely declivous, not abrupt. Pronotal disc 2.25 × as wide as long medially, sculptate like the head, except the alutaceous sculpture less deeply impressed. Mesoscutum without trace of notaulices, parapsidal furrows weak, expressively diverging anteriorly. Alutaceous sculpture of the mesoscutum conspicuous, of scutellum mostly vanished, especially on the sides. Propodeal disc 0.8 × as long medially as wide apically, bordered behind by a rather delicate ridge broadly interrupted mesad. Surface of propodeal disc with a humped, smooth basal triangle, and dull alutaceous sculpture on the lateral discal areas, arranged in oblique rows, almost striolate. Mesopleuron and pleural lobe of propodeum rather shallowly alutaceous. Legs normal. Fore femur twice as long as wide. Mid and hind tibia not spinose on their outer face. Claws cleft, with inner tooth half as long as the outer tooth. Fore wing (Fig. 1) with proximal side of basal vein almost perpendicular to submarginal vein. Pterostigma semicircular, only 1.4 × as long as wide. Inner-dorsal margin of areolet twice as long as upper sector of basal vein, up to the bottom of prostigma. Radial cell about twice as long as wide. Hind wing costal vein developed on the basal 0.2 wing length, or a little less.

Abdomen 2.7 × as long as wide. Surface mirror-likely polished and shining. Terga 4–6 with few large punctures on disc, widely scattered.

Male

Length 2.3 mm, length of fore wing 1.3 mm. Coloration similar to female, save mandible,

antennal scape, fore coxa and apical tarsal segments of mid and hind legs also straw yellow. Head only 1.08 × as long as wide. Basal and apical yellow ring of mid and hind tibia broader than in female, so that the median black stripe occupy only a third of tibial length. Main structural features otherwise as in female. Genitalia and subgenital plate as figured (Figs. 3–4).

Variation

This is a small species; females 1.8–2.8 mm in length. Body colour approaches shining black in all specimens reared from the host, although collected material may be lighter, with dark brown to castaneous articulations. All these Israeli specimens possessing a very characteristic yellow-ringed black tibiae of mid and hind legs. In some specimens, however, especially those from Jordan and Afghanistan, mid and hind tibiae are uniformly straw yellow or at most slightly darkened medially. Otherwise, these specimens are closely similar to the holotype, and I feel certain they are conspecific. Males vary in length from 1.5 to 2.5 mm, and also exhibit variation in colour pattern of fore coxa: in eight males the coxa is entirely black, while in four males it is uniformly yellow, with transitory states not yet encountered. Specimens from both of these colour forms were reared from the host, and thus seem safely assigned to this species.

DISTRIBUTION. Afghanistan, Jordan, Israel.

MATERIAL EXAMINED. Holotype female, ISRAEL, Central Coastal Plain, "Mikhmoret, Miramare hotel garden", 11.viii.1980, Q. Argaman (temporarily deposited in the author's collection; in due course will be deposited in Israel National Insect Collection, Tel Aviv University, Tel Aviv).

Paratypes: 22 ♀♀ and 12 ♂♂ from: AFGHANISTAN: 1 ♂ Prov. Kabul, 16.vi.1974, Leg. L. Papp (Zoological Department, Hungarian Natural History Museum, Budapest). JORDAN: 1 ♀ Wadi Schaib, 200 m, 9.xi.[19]57, J. Klapperich; 1 ♂ Li, 900 m South Madaba, 16.iv.[19]59, J.Klapperich (Zoológical Department, Hungarian Natural History Museum, Budapest). ISRAEL: 1 ♂ same data as holotype; 1 ♀ Tarum, 24.v.[19]72, A. Goldstein, ex *Prosopis farcta* fruits, 31.x, No. 1376 (Israel National Insect Collection, Tel Aviv University); 7 ♀♀, 2 ♂♂ Yotvata, on dates, 4.v, 8.v, 31.v, 1.vi, 12.vi.1989, A. Eitam; 1 ♀ Shizzafon orchard, on dates, 13.vi.1989, A. Eitam; 1 ♀ Yahel, 27.vi.1989, A. Eitam; 3 ♀♀, 2 ♂♂ Elot, 2.vii.1989, A. Eitam; 2 ♂♂ Qetura, 17.ix.1989, A. Eitam; 8 ♀♀, 3 ♂♂ laboratory culture, ex *Batrachedra amydraula* larva, collected at 2.vii.1989, emerged at 12.vii.1989, A. Eitam.

The paratypes will be deposited in Museum of Comparative Zoology, Harvard University, Cambridge, MA, U.S.A.; National Museum of Natural History, Washington, D.C.; Israel National Insect Collection, Tel Aviv University, Tel Aviv; Zoological Department, Hungarian Natural History Museum, Budapest; Museo Civico di Storia Naturale, Genova; Department of Entomology, Agricultural Research Organization, The Volcani Center, Bet Dagan; Ministry of Agriculture, Department of Plant Protection and Inspection, Bet Dagan; and in the author's collection.

ETYMOLOGY. It is a great honour to dedicate this new species to Prof. Dr. Eliahu Swirski, a good friend and eminent specialist in acarology, on his 70th birthday.

BIOLOGY. This species is a parasitoid of lepidopterous larvae infesting young fruitlets of the date palm, *Phoenix dactylifera*. At the Arava Research Station, Elot, Israel, many adult wasps were laboratory reared from *Batrachedra amydraula* Meyrick (Lepidoptera: Batrachedridae), by Mr. A. Eitam. The lesser date moth — also known with a vernacular name 'hemera' according to Wyniger (1962:227) — is a serious pest of the date palm. Therefore, Parasierola swirskiana may have a potential role in its biological control. It was also captured on the mesquite (*Prosopis farcta*, Mimosaceae), and I have collected specimens in Central Coastal Plain, on the seashore, in a biocoenosis of xerothermic, mostly halophilous vegetation, where the species is probably parasite on a different host. According to the collecting data, *P. swirskiana* seems to be at least bivoltine in Israel.

Comparison with related species

Besides *swirskiana*, there are seven species in Israel that belong to *Parasierola*, four of them still undescribed.

Parasierola swirskiana resembles *P. gestroi* Kieffer, in its small size and in having identically shaped flagellar segments (both as in Fig. 2), which are quadrate to transverse, and their tibiae similarly infuscated. Pterostigma of fore wing in *gestroi*, however, is pale brown and roughly triangular in shape (Fig. 5). Apex of the areolet of fore wing is acute in *gestroi*, which is even much smaller than the areolet of *swirskiana*. This species was first recorded from Israel under the name *Perisierola gestroi* Kieffer, by Richards (1955) as to have been reared from larvae of *Lasioderma* sp. (Coleoptera: Anobiidae) in flower heads of *Carthamus tinctorius* (Compositae). However, since all known representatives of the subfamily Bethylinae are parasites of lepidopterous larvae, the above record is considered as doubtful.

The second known species in Israel, *Parasierola legneri* Gordh, n. comb., was recently introduced by Gothilf and Mazor (1987), against the carob moth, *Ectomyelois ceratoniae* (Zeller) (Pyralidae). It was originally described from the Neotropical Region as *Goniozus legneri* Gordh. Initially obtained from the navel orangeworm, *Amyelois transitella* (Walker) (Pyralidae) in Uruguay, it was recovered from the pink bollworm, *Pectinophora gossypiella* (Saunders) (Gelechiidae) in California. Specimens of *Parasierola legneri* received from Riverside, CA, cannot be separated on morphological grounds from *Parasierola punctata* Kieffer. The latter was described from Sicily (Italy). I have examined the lectotype as well as specimens collected in Israel prior to the introduction of *legneri* (Gothilf & Mazor, 1987). *Parasierola punctata* is here newly recorded from Israel, from *Ephestia* sp., very probably *E. elutella* (Huebner) (Lepidoptera: Pyralidae), Rosh Pinna, 20.xi.1983, reared by Dr. S. Steinberg.

Both *legneri* and *punctata* differ from *swirskiana* in having the body size considerably bigger; front angle of ocellar triangle much less than right angle; basal flagellar segments longer than thick to subquadrate, but never conspicuously transverse (Fig. 7); and in shape of pterostigma and areolet of fore wing (Fig. 6).

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