

Oospila orula, a new species of emerald moths from Ecuador (Lepidoptera: Geometridae: Geometrinae)

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Oospila orula sp. n. is described from Napo biogeographical region, Upper Amazon, and compared to *O. tricamerata* Prt. and *O. hyalina* Warrt.

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The genus *Oospila* Warren, including 74 species, has been recently revised by Cook & Scoble (1995). Revisions like this and those by Pitkin (1993, 1996) allow further, faunistical study of the Neotropical fauna of emerald moths and evaluation of material scattered in different collections.

The monograph by Cook & Scoble (1995) has served as a reference book during the study. As the intraspecific variability of some species is wide for an eye confined to Old World material of looper moths, at least one genital slide has been made from each population (collection locality) of each species to compare limits of variation in wing pattern and internal morphology. Remaining determination problems were solved during a monthly stay of the author at the Natural History Museum, London, where the author had an opportunity to compare his identifications with type specimens or compared with types material.

Oospila orula sp. n. (Figs 1-5)

Holotype. ♂, Ecuador, *Sucumbios* [prov.], Panayacu River, Jarrin Expediciones Lodge, 210 m, 14-19.X.1999, leg. A. Lindt & T. Kesküla, coll. Estonian Museum of Natural History, Tallinn.

Paratypes. 1 ♂ and 2 ♀ with same data as holotype, coll. A. Lindt, Tallinn.

Description. External facies. Wingspan 22.0-22.5 mm in males, 24-26 mm in females. Male antennae bipectinate; rami 1.0 mm long. Female antennae bipectinate; pectinations fine and untidy, 0.5 mm long. Abdominal tergites with 3 (anterior) large and 2 (posterior) small brown crests. Male hind tibia slender, not projecting apically, without hairpencil; proximal spurs lack-

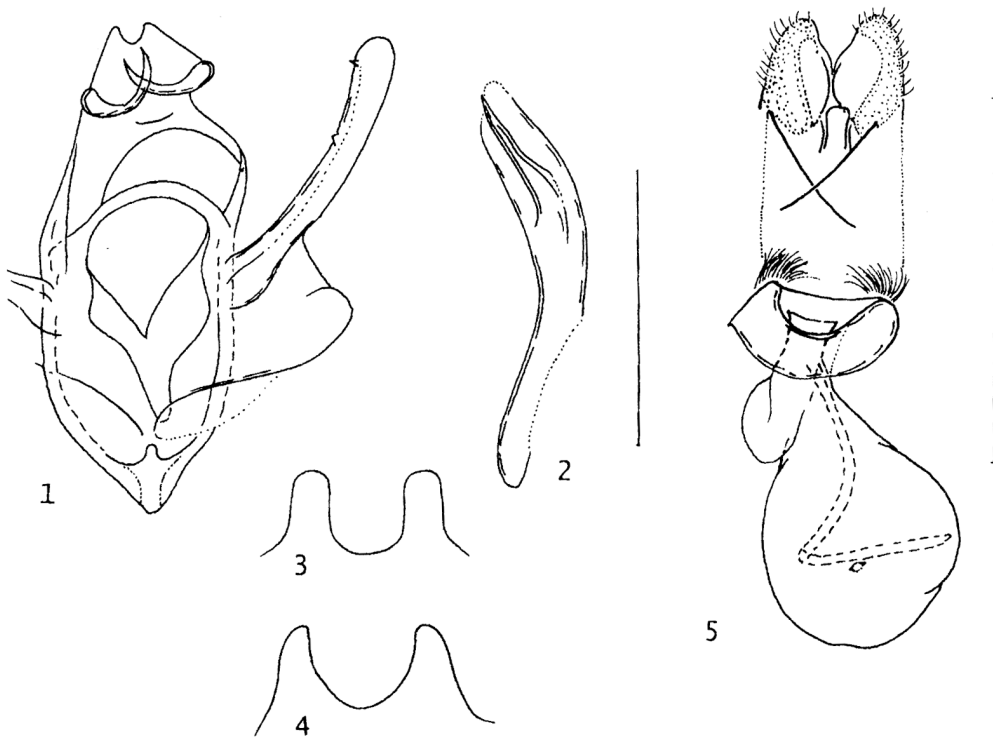
ing; distal spurs 0.5 and 1.0 mm long. Male hind leg: femur 2.5 mm, tibia 2.25 mm, tarsus 2.5 mm long. Female hind leg: femur 1.5 mm, tibia 3.0 mm, tarsus 2.25 mm long. Male sternite III without hair lock.

Segment III of palpus stick-shaped, cylindrical, 0.5 mm long in female, bullet-shaped and 0.12 mm long in male. [Segment III of male palpus is 0.25 mm long, and antennal pectination 0.62 mm long in *Oospila hyalina* Warren, 1897. An unnamed male specimen (probably *O. carnulunata* Warren, 1906, but without hair pencil on hind tibia and hair locks on sternite III, with ampulla and sacculus more complicated) with similar but poorer wing pattern from Venezuela (Puerto Ayacucho, 19-21.X.1999, A. Selin & T. Armolik leg.) has its antennal pectinations up to 1.25 mm long, and segment III of palpus 0.1 mm long, with distal spurs of hind tibia 0.4 mm and 0.76 mm long].

Forewing venation: vein R_1 rises at apex of discal cell; veins R_2 - M_1 stalked; R_3 diverging proximal to R_2 . Hindwing venation: R_s and M_1 on a long stalk; M_3 and Cu , stalked, short.

Head and wings pattern. Palpi brown. Frons creamy in lower half, dark brown above. Fillet whitish; vertex green behind; collar, thorax and tegulae green. Abdomen green laterally, dorsally with a white basal spot and 5 brown crests, darker basally and paler terminally; the 3rd crest followed by a white spot.

Wings above green; discal spots blackish rings, centered brown in both wings. White spots at hindwing base and halfway to the discal spot. Ante- and postmedial lines absent. Costa of forewing with a thin light brown line, subapically spotted dark brown. Terminal line dark grey in both wings, produced at veins as grey spots in



Figs 1-5. *Oospila orula*, sp. n. (1-3, ♂, holotype; 4, ♂, paratype); 5, ♀, paratype); 1, male genitalia, ventral view; 2, aedeagus; 3, distal projections (octavals) of sternite VIII (slide); 4, distal projections of sternite VIII (descaled, in paratype); 5, female genitalia. Scale bar: 1.0 mm.

creamy fringe. Subterminal line close to terminal one, leaving small creamy brown blotches between veins R_5-M_3 and at tornus in forewing, from Sc to M_3 in hindwing, otherwise coinciding with terminal line.

Underside greenish white with brown marginal line thin and disrupted at veins. Costal stripe yellow in forewings; discal rings greyish, centered pale.

Male genitalia (Figs 1-4). Although resembling those of *O. tricamerata* Prout and *O. obsolescens* Prout externally (in discal spots centered pale), different in broad roundish lobes (0.25 mm long) of the sternite VIII and in presence of a long horn-shaped cornutus on vesica. Valve costal part parallel-sided, with two tiny dentate projections medially; saccular part of valve lobed. Anellar complex fused and produced towards saccus. Gnathi hooked and pointed; socii short. The characters of anellar complex, valve shape, octavals, and cornutus are used to locate the new species in the classification of the genus *Oospila*.

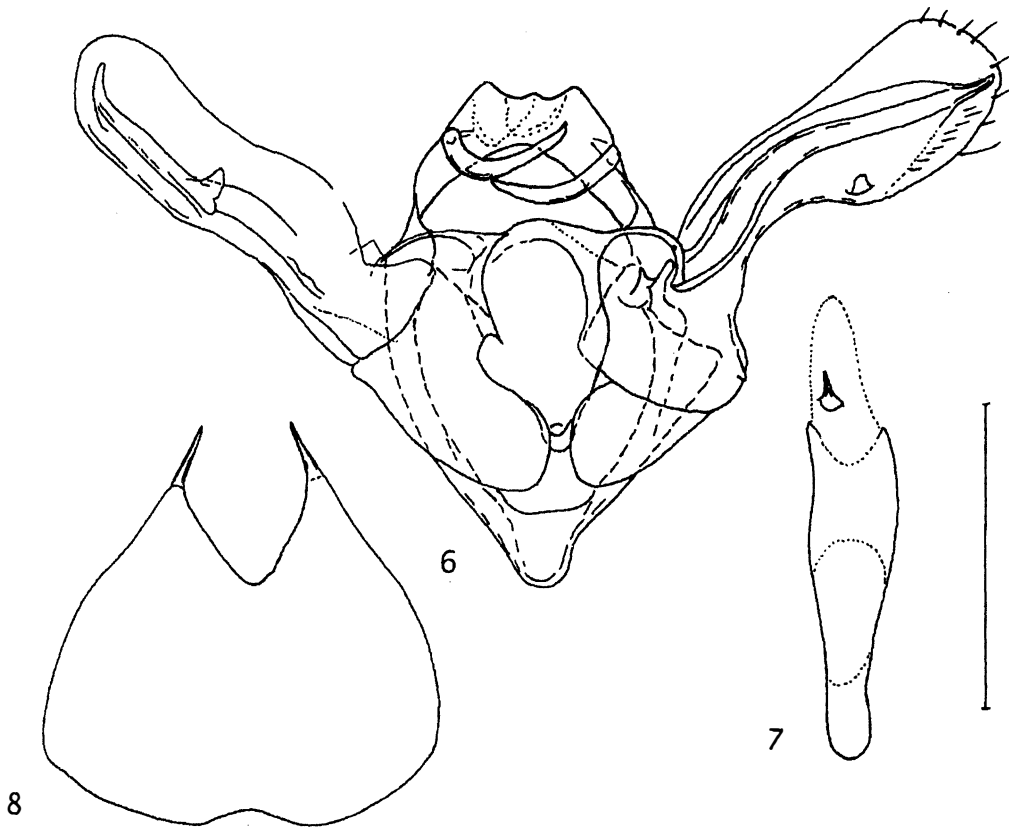
Female genitalia (Fig. 5). Anterior apophyses reduced; posterior apophyses filiform. Bursa

copulatrix pyriform. Sterigma a transverse band as in *O. tricamerata* Prout, 1916, ductus bursae not folded but provided with a lateral appendix like in *O. pellucida* Prout, 1916 and *O. obeliscata* Warren, 1906. A small bicornute signum present.

Comparison. The monophyly of *Oospila* Warr. is supported by a combination of characters as follows: fusion of juxta with transtilla into an anellar complex; presence of specialised crests of scales dorsally at abdomen; often supplemented by the presence of ampulla in valvae, and of elliptical sclerite in the intersegmental membrane of abdominal segments A2 and A3 (Cook & Scoble, 1995).

Deeply emarginate valvae and strongly specialised octavals are shared by 21 species of *O. athena*, *O. trilunaria*, *O. marginata* and *O. atopchlora* species groups.

Another character, a more or less parallel-sided costal part of valvae provided with a longitudinal ampulla, is shared by *O. marginata* species group (*O. marginata* Warren, 1897 and *O. obsolescens* Prout, 1932) and some species of *O. trilunaria* group.



Figs 6-8. *Oospila hyalina* Warr. 6, male genitalia, ventral view; 7, aedeagus; 8, sternite VIII. Scale bar: 1.0 mm.

The two species of *O. athena* group lack a sclerotised cornutus, which is present in the new species. The cornutus is long spine-shaped in some *O. trilunaria* group species (*O. carnelunata* Warren, 1906, *O. confluaria* Warren, 1906). A cornutus is present also in *O. tricamerata* Prout, 1916 from the *O. marginata* species group.

The new species is characterised by apically rounded octavals (projections of sternite VIII) as broad as the emargination between them, whereas octavals are pointed-triangular in species of the *O. atopochlora* species group (e.g. *O. hyalina* Warren, 1897, Figs 6-8).

According to external facies, the new species is similar to *O. marginata* Warr. (which has long and slender projections of octavals diverging V-shaped), *O. altonaria* Jones, 1921 (with a massive harpe, and triangular basocostal projection of valve), *O. tricamerata* Prt. (characterised by different shape of octavals, valve, harpe, and anellar complex), and *O. obsolescens* Prt. (dif-

ferent in slenderer octaval projections, slenderer anellar complex, and leg-shaped rugose ampulla). Peculiarly, the valve shape in the *O. atopochlora* group of species, especially in *O. atroviridis* Warren, 1904 and *O. congener* Warren, 1900, is reminiscent of that in *O. orula* sp. n., but the structure of octavals and anellar complex being different, wingspan exceeding 30-40 mm and wing pattern consisting of suffused large blackish blotches on dirty greenish wings. *O. orula* sp. n. can be attributed to the species group of *O. tricamerata* Prt.

Etymology. The name for the new species is elected by pupils and teachers of Oru Basic School in Läänemaa, Estonia.

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