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## **A new species of the myrmecophilous genus *Ecitonides* from Peru (Coleoptera: Staphylinidae: Paederinae)**

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**A b s t r a c t :** *Ecitonides volans* nov.sp. (Peru: Huanaco) is described, illustrated, and distinguished from its congeners. The holotype was collected with a light trap; the host ant is unknown. The myrmecophilous genus *Ecitonides* WASMANN 1894, whose distribution is confined to South America and whose species are associated with army ants (Ecitoninae), now comprises seven species. A checklist of the *Ecitonides* species is provided. The distribution of the genus is mapped.

**K e y w o r d s :** Coleoptera, Staphylinidae, Paederinae, *Ecitonides*, Neotropical region, Peru, new species, myrmecophile, army ants, checklist.

### **Introduction**

WASMANN (1894) described the enigmatic, myrmecophilous genus *Ecitonides* with *E. tuberculosus* WASMANN 1894 as the type species by monotypy and placed it in the Paederinae, tribe Paederini. The genus, whose phylogenetic affiliations among the genera of Paederini are somewhat unclear, previously included six species, four of them from Brazil and two from Argentina (BORGMEIER 1949, 1959; SEEVERS 1965). A catalogue, including the known hosts, was presented by SEEVERS (1965). BORGMEIER (1949) keyed the five species known at that time. The last species was described more than half a century ago. The male sexual characters of these species have neither been described nor illustrated.

All *Ecitonides* species are associated with army ants of the genera *Labidus* JURINE 1807 and *Nomamyrmex* BORGMEIER 1936 (SEEVERS 1965). *Labidus praedator* (SMITH 1858) has been recorded as the host of *E. brevicornis* WASMANN 1900, *E. fraterculus* BORGMEIER 1959, and *E. tuberculosus* WASMANN 1894, *L. coecus* (LATREILLE 1802) as the host of *E. longiceps* WASMANN 1900 and *E. serrucosus* BRUCH 1933, and *Nomamyrmex esenbeckii* (WESTWOOD 1842) and *N. mordax* (SANTSCHI 1929) as the host ant species of *E. spectabilis* BORGMEIER 1932 (SEEVERS 1965).

In staphylinid material recently collected with light traps in Peru by Günter Riedel (München) and kindly made available to me by Volker Brachat (Geretsried) a male of a most remarkable paederine species was discovered, which turned out to belong to *Ecitonides*. A subsequent study of the literature, which provides illustrations of almost all the previously described species, revealed that the specimen from Peru belonged to an undescribed species, the seventh representative of the genus.

## Material and methods

The holotype is deposited in the author's private collection.

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). A digital camera (Nikon Coolpix 995) was used for the photographs.

Head length was measured from the anterior margin of the frons (including median tubercle) to the posterior margin of the head (including posterior tubercles); head width is given as the maximum width including tubercles, elytral length was measured at the suture from the apex of the scutellum to the posterior margin of the elytra (including marginal tubercles) and the length of the aedeagus from the apex of the ventral process to the base of the aedeagal capsule.

The conspicuous structures on the forebody and on the abdominal segments III-V are probably modified setae and not homologous to what is generally referred to as tubercles in other insects (i.e., modifications of the ectoskeleton). However, since these structures in *Ecitonides* have traditionally been referred to as tubercles in the literature, this usage is here maintained, but the "tubercles" are given in quotation marks.

The map was created using MapCreator 2.0 (primap) software.

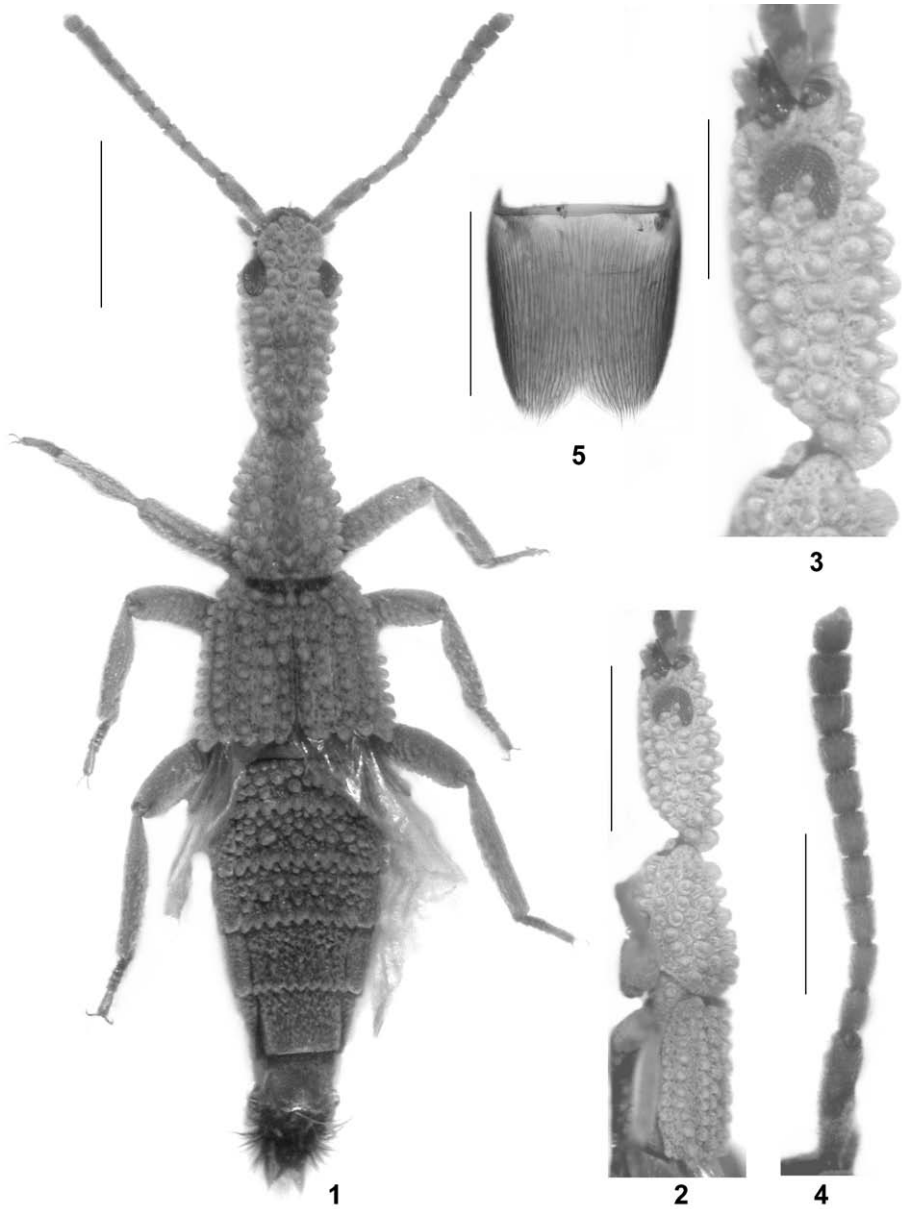
### *Ecitonides volans* nov.sp. (Figs 1-8, Map 1)

**Type material:** Holotype ♂: "Peru, Huanuco Prov., Panguana station at Rio Lullapichis, 9°37'S, 74°56'W, 260 m, at light, 2.-20.X.2009, leg. G. Riedel / Holotypus ♂ *Ecitonides volans* sp.n. det. V. Assing 2012".

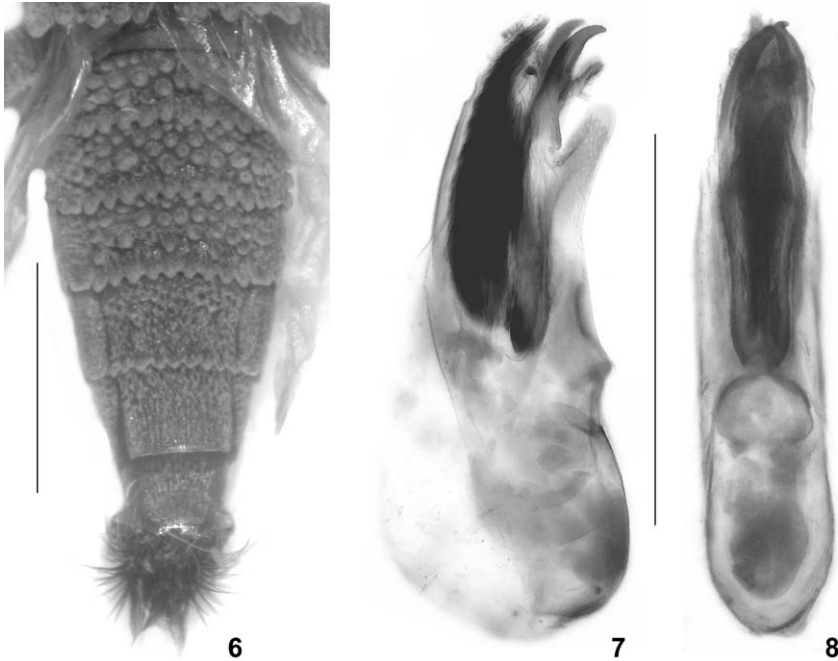
**Etymology:** The specific epithet (Latin, present participle of *volare*: to fly) alludes to the fact that the holotype was collected on the wing.

**Description:** Body length 5.9 mm. Habitus as in Fig. 1. Coloration: forebody pale-greyish; abdomen pale-reddish with segments VI-VIII slightly darker reddish; abdominal segments IX-X with conspicuous tuft of long black setae; legs and antennae pale-reddish.

Head (Figs 1, 3) strongly oblong, twice as long as wide, widest across eyes; lateral margins behind eyes straight and converging posteriad; postocular portion more than three times as long as eyes; whole head densely covered with large, unflattened "tubercles" arranged in rather regular longitudinal rows. Eyes well-developed, somewhat kidney-shaped in lateral view (Fig. 3), and distinctly visible from above (Fig. 1). Antenna (Fig. 4) 1.7 mm long, much longer than head; antennomere I approximately as long as the combined length of II-IV; II and III distinctly oblong and of subequal length; IV and V oblong, but less so than II and III; VI and VII weakly oblong; VIII and IX approximately as long as broad; X weakly transverse; XI approximately as long as X and transverse.



**Figs 1-5:** *Ectonides volans* nov.sp.: (1) habitus; (2) forebody in lateral view; (3) head in lateral view; (4) antenna; (5) male sternite VIII. Scale bars: 1-2: 1.0 mm; 3-5: 0.5 mm.



**Figs 6-8:** *Ecitonides volans* nov.sp.: (6) abdomen; (7) aedeagus in lateral view; (8) aedeagus in ventral view. Scale bars: 6: 1.0 mm; 7-8: 0.5 mm.

Pronotum approximately 1.4 times as long as broad and slightly broader than head, widest approximately in the middle, more strongly tapering anteriorly than posteriorly; whole dorsal surface covered with large and unflattened "tubercles" arranged in distinct rows, the "tubercles" of the series along midline larger than the lateral "tubercles".

Elytra of trapezoid shape, approximately 0.8 times as long as pronotum, lateral margins distinctly diverging posteriorly; suture gaping posteriorly; each elytron with five series of "tubercles" visible from above. Hind wings fully developed. Legs stout; metatibia flattened; all legs furnished with greyish scales; external ridges of tibiae furnished with seams of scales; tarsi short; tarsomeres I-IV transverse; tarsomere V approximately as long as the combined length of I-IV.

Abdomen (Fig. 6) wedge-shaped, distinctly tapering posteriorly, widest at segment IV; segments III-VI with pronounced and sharply edged paratergites; segment VII with narrower and more obtuse paratergites; tergites III-V with numerous "tubercles" of variable size and with transverse row of larger "tubercles" at posterior margins; tergite VI covered with scales, its posterior margin with a transverse row of "tubercles"; tergite VII with longitudinally striate sculpture and with scales, its posterior margin with narrow palisade fringe; tergite VIII longitudinally striate and densely furnished with golden, depressed, and relatively long setae, its posterior margin semi-transparent and weakly concave; segments IX-X strongly modified and with tufts of conspicuously long black setae.

♂: sternite VIII longitudinally striate and with dense and depressed pubescence, poste-

rior excision rather broad and not very deep (Fig. 5); aedeagus 0.7 mm long and shaped as in Figs 7-8; parameres absent; internal sac with pair of long and distinctly sclerotised apical structures and with large, dark, membranous dorsal structure.

**C o m p a r a t i v e n o t e s :** The new species is distinguished from all its congeners by the shorter and posteriorly more strongly dilated elytra, the denser "tubercles" on the forebody, and additionally as follows:

from *E. spectabilis* by much smaller size (*E. spectabilis*: body length 10 mm), paler coloration (*E. spectabilis*: blackish-brown), the more slender pronotum, and by the unflattened "tubercles" of the forebody; for an illustration of the habitus of *E. spectabilis* see BORGMEIER (1932);

from *E. fraterculus* by the different head shape (*E. fraterculus*: with parallel lateral margins), slightly larger size (*E. fraterculus*: body length 5 mm), relatively longer antennae with more slender antennomeres III-X (*E. fraterculus*: antennae approximately as long as head, antennomeres VII-X strongly transverse), and by the dense "tubercles" on the abdominal tergites III-V (*E. fraterculus*: small "tubercles" present only at the base of tergite III);

from *E. tuberculosus* by the paler abdomen, the relatively shorter antennae, and the much denser "tubercles" on the abdominal tergites III-V; for illustrations of the habitus and the antenna of *E. tuberculosus* see BRUCH (1933), the head is figured by WASMANN (1909) (as *E. fiebrigi*);

from *E. verrucosus* by the different coloration (*E. verrucosus*: body ferrugineous with darker abdomen), the more slender head and abdomen, and by the presence of "tubercles" on the abdomen (*E. verrucosus*: abdomen with longitudinal carinae, but without "tubercles"); for a drawing and a photograph of the habitus, as well as illustrations of other external characters and the mouthparts see BRUCH (1933);

from *E. brevicornis* by relatively longer antennae, the different position of the eyes (*E. brevicornis*: less visible when viewed from above), and a more slender pronotum; for a photograph of the habitus of *E. brevicornis* see BORGMEIER (1949);

from *E. longiceps* by smaller size (*E. longiceps*: 7 mm), the differently shaped head (parallel-sided in *E. longiceps*), the relatively longer antennomere III (shorter than II in *E. longiceps*), the larger and differently situated eyes (*E. longiceps*: eyes almost obsolete, barely visible when viewed from above); for illustrations of the habitus and the head see WASMANN (1900) and WASMANN (1909), respectively.

**C o m m e n t :** The phylogenetic affiliations of the genus within the tribe Paederini is somewhat unclear, particularly because the external characters are so conspicuously derived as a result of adaptation to an association with army ants. According to NEWTON (pers. comm.), *Ecitonides* may be close to the *Echiaster* ERICHSON 1839, which is currently in the subtribe Echiasterina. However, based on the morphology of the mouthparts, the antennae, and the male sexual characters, it does not seem unlikely that the genus may actually belong to the Cryptobiina.



**Map 1:** Distribution of *Ecitonides* species. Open squares: *E. brevicornis*; filled square: *E. volans*; open and filled triangles: *E. tuberculosus*; filled triangle: *E. verrucosus*; open diamond: *E. longiceps*; filled diamond: *E. spectabilis*; filled circle: *E. fraterculus*. The data for all the species, except *E. volans*, are taken from SEEVERS (1965).

**Distribution and natural history:** The type locality is situated in Huanuco province, central Peru, near the junction of the Llullapichis and Pachitea rivers at an altitude of 260 m. Thus, the known distribution of the genus is considerably expanded towards the west (Map 1). The holotype was collected with a light trap in October. As can be inferred from what is known about other species of the genus, *E. volans* is probably associated with army ants.

### Checklist of the species of *Ecitonides*

species	distribution
<i>brevicornis</i> WASMANN 1900	Brazil
<i>fraterculus</i> BORGMEIER 1959	Brazil
<i>longiceps</i> WASMANN 1900	Brazil
<i>spectabilis</i> BORGMEIER 1932	Brazil
<i>tuberculosis</i> WASMANN 1894 = <i>fiebrigi</i> WASMANN 1909	Brazil, Argentina, Paraguay
<i>verrucosus</i> BRUCH 1933	Argentina
<i>volans</i> nov.sp.	Peru

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My thanks are extended to Lee H. Herman (New York) and Alfred F. Newton (Chicago) for their invaluable help in clarifying the generic identity of the species described above and for pointing out relevant literature. Also, I am most grateful to Günter Riedel and Volker Brachat for the generous gift of staphylinid material from Peru. Benedikt Feldmann (Münster) proof-read the manuscript.

### Zusammenfassung

*Ecitonides volans* nov.sp. (Peru: Huanaco) wird beschrieben, abgebildet und von anderen Arten der Gattung unterschieden. Der Holotypus wurde mit einer Lichtfalle gefangen; die Wirtsameise ist daher unbekannt. Die ausschließlich in Südamerika verbreitete und mit Ameisen der Unterfamilie Ecitoninae (Wanderameisen) assoziierte Gattung *Ecitonides* WASMANN 1894 umfasst damit sieben Arten. Ein Katalog der *Ecitonides*-Arten wird erstellt. Die Verbreitung der Gattung wird anhand einer Karte illustriert.

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