Zootaxa 2639: 35–39 (2010)
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

A new species of *Lepicerus* (Coleoptera: Lepiceridae) from Ecuador

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Abstract

Lepicerus pichilingue **new species** (type locality: Quevedo, Los Ríos, Ecuador) is described from leaf litter in mixed plantings of plantain and cacao in western Ecuador. *L. pichilingue* is very similar to *L. inaequalis*, but differs distinctively in the structure of the aedeagus.

Key words: Lepiceridae, *Lepicerus*, new species, description, Ecuador

Resumen

Se describe adultos de *Lepicerus pichilingue* una **especie nueva** (localidad tipo: Quevedo, Los Ríos, Ecuador), encontrados en hojarasca en una parcela mixta de plátano y cacao en el oeste de Ecuador. *L. pichilingue* es muy semejante a *L. inaequalis* Motschulsky y se difiere únicamente en la estructura del aedeago.

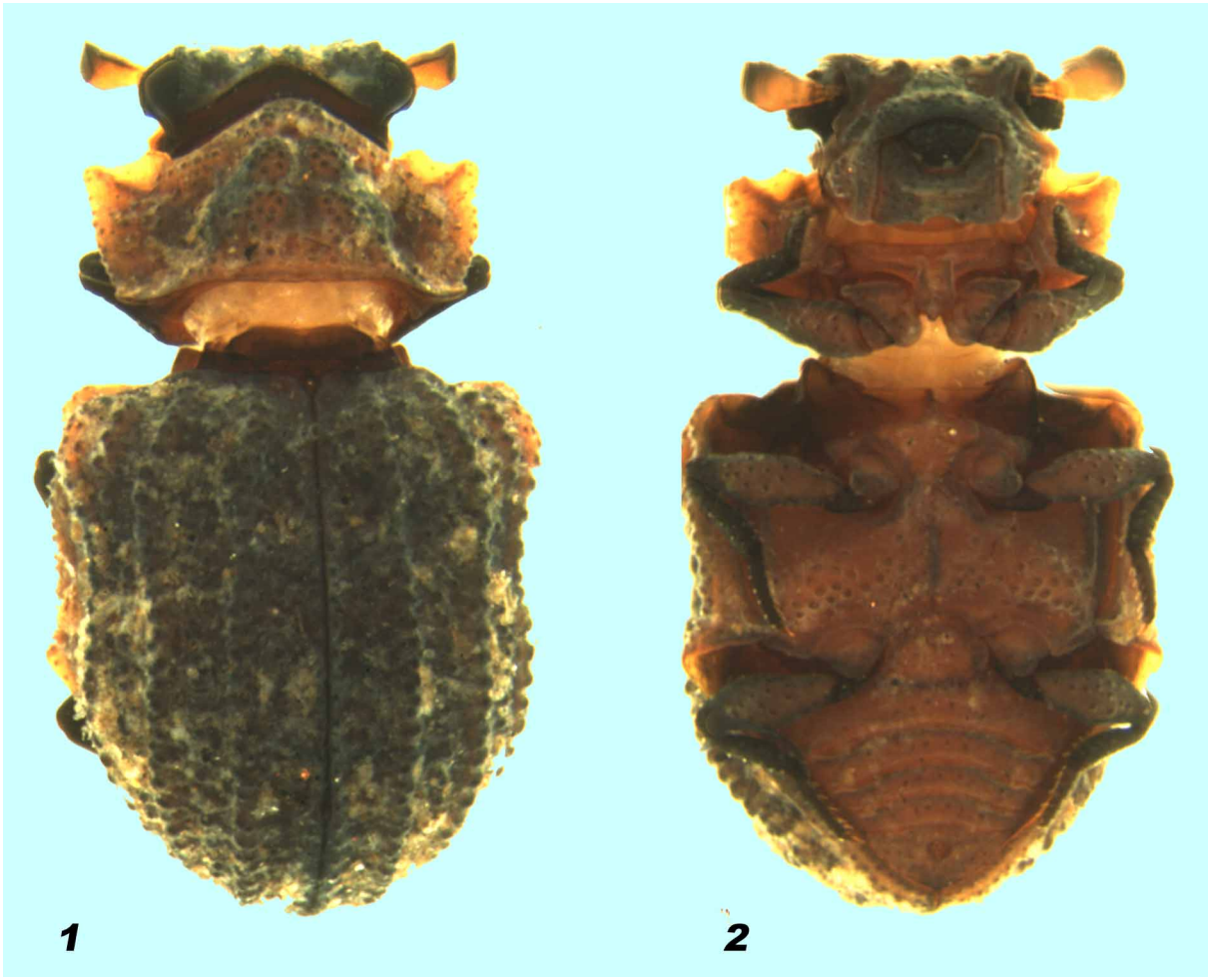
Introduction

Lepiceridae is a small, little known family in the Suborder Myxophaga. Until recently only two species were known, *Lepicerus inaequalis* Motschulsky 1855, and *Lepicerus bufo* Hinton 1933. The former is known from collections throughout Central America while the latter is known only from Mexico. Shepard *et al.* (2005) and Navarrete-Heredia *et al.* (2005) cover the previous literature, morphology, distribution, and habitat of the two species. Additional information is included in Beutel (1998–1999) and Arce-Pérez *et al.* (2005). Reichardt (1976) gave Venezuela as the southern limit of Lepiceridae, based on specimens in the Paris Museum; however, he was subsequently unable to locate these specimens. However, there are two specimens of *Lepicerus* from Venezuela in the insect collection of Universidad Central de Venezuela. They have the general facies of *L. inaequalis*, but no species determination has been attempted with these specimens.

It was particularly surprising recently when a new species of *Lepicerus* was found in Ecuador during a study of soil insects. This is a major range extension for lepicerids and constitutes the first specimens found south of the equator, and in South America west of the Andes. Additionally, the specimens came from agricultural fields. This new species is described below. Habitus photographs were taken with a Spectroscopy Automontage unit, and genitalia photographs were taken with a Spot Insight 4 camera mounted on an Olympus SZX16 stereo microscope; both at Florida A&M University. Specimens are deposited in the following institutions: FSCA, Florida State Collection of Arthropods, Gainesville, Florida, USA; PUCE, Pontifica Universidad Católica de Ecuador, Quito, Ecuador.

Accepted by P.D. Perkins: 11 Sep. 2010; published: 7 Oct. 2010

***Lepicerus pichilingue* Flowers, Shepard and Troya, new species**
(Figs 1–5)



FIGURES 1–2. *Lepicerus pichilingue.* 1, dorsal view; 2, ventral view.

Description. Morphology (Figs 1–2) externally similar to *L. inaequalis*. Total length 1.6 mm; maximal width 1.0 mm. Body color yellowish; legs, labrum, clypeus, and middle of elytra black. Much of surface with round tubercles. Head between eyes with two longitudinal ridges with tubercles; supra-antennal ridges not pronounced; posterior of head with raised rim that meets anterior margin of prothorax. Clypeus triangular, strongly raised. Submentum and labrum completely covering mandibles and maxillae. Pronotal sides microdentate, slightly curved; posterior angles with a strong tooth projecting laterally; anterolateral corners excavate to receive antennal club. Scutellum small, triangular. Elytra with costae on intervals 3, 6, 8 (short), and 9, extending to apex where 6 and 8 join 9; intervals between costae with row of tubercles parallel to costae; transverse carinae absent; umbo projecting above actual anterolateral angle; strial punctures separated by own width. Epipleura extremely sinuate for reception of metathoracic legs, but not projecting strongly laterally. Wings fully developed; margin with numerous setae. Prosternum short, prosternal spine raised; prosternal carinae raised, parallel through most of length, strongly converging apically; extending only halfway through procoxae. Mesosternum with narrow anterior spine extending between procoxae. Metasternum long; anterior with deep fossa between mesocoxae; longitudinal medial suture; transverse suture just anterior to metacoxae. Legs retractable into grooves in sterna and epipleura. Meso- and metacoxae with flange covering base of trochanter when leg is fully retracted. Protrochanter triangular; meso- and metatrochanters elongately conical; widest at apex. Tibiae with two apical stout setae. Tarsi with two rows of stout setae ventrally. Aedeagus (Figs 3–5) long, narrow, flat; constricted in basal 1/4; strongly constricted in apical 1/3, then expanded slightly; apex minutely bifid; parameres fused to basal piece; fibula long, slightly sinuate. Female externally identical to male. Egg ovoid; 0.42–0.46 mm long, 0.22 mm wide.

Diagnosis. This new species has elytral carinae much less coarse than in *L. bufo*, but is so similar to *L. inaequalis* as to require genitalic dissection for conclusive species determination. The elytral carinae of *L. pichilingue* are somewhat more widely spaced than those of *L. inaequalis* and there is a row of tiny tubercles between carinae 2 and 3 in *L pichilingue*. However, these differences are apparent only in a side-by-side comparison of the two species. On the other hand, the differences in the aedeagi (Figs. 3–8) are easily seen. Characters useful in separating the three species are in the key below.

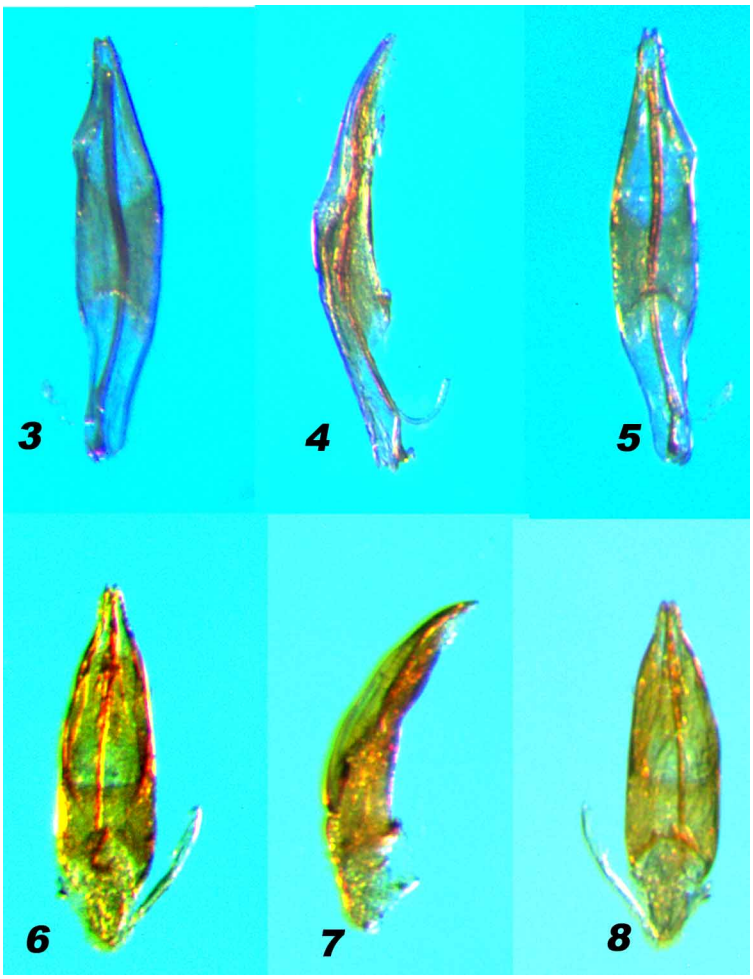
Etymology. *pichilingue*, Spanish, noun in apposition. Named for the Estación Experimental Tropical Pichilingue, where the specimens were collected.

Distribution. Known only from the type locality in Ecuador.

Specimens Examined: (1♂, 1♀ point mounted and dissected, 2 intact). Male HOLOTYPE labeled: ECUADOR, Los Ríos, Estación Experimental Tropical Pichilingue, 5.5 km SW Quevedo, El Empalme Hwy, Lote "La Teca", S01.08382°;W79.48425°, 128m; 25-IV-2008, leaf litter R. Troya, leg. (PUCE). Female ALLOTYPE (same data as Holotype) (FSCA). PARATYPES: (2 in alcohol), same data as Holotype (1 PUCE, 1 FSCA).

Habitat. This site (Fig. 9) was a pasture for many years before becoming a plantain plantation until nematodes made monoculture plantain uneconomic. It next became a plantain/cacao plantation (D. Vera, pers. comm.). All specimens were from leaf litter, extracted with Winkler funnels. There is a stream approximately 200 m away, down a steep slope. Associated Coleoptera in the soil samples included Staphylinidae, Hydrophilidae, and Corylophidae.

Biology. The female had four eggs in the abdomen, so the reproductive period includes April.



FIGURES 3–8. Aedeagi of *Lepicerus.* 3–5, *L. pichilingue*: 3, dorsal view; 4, lateral view; 5, ventral view; 6–8, *L.inaequalis* : 6, dorsal view; 7, lateral view; 8, ventral view.

FIGURE 9. Type locality of *Lepicerus pichilingue*.

Key to Known Species of *Lepicerus*

1 Elytral carinae strongly raised and interrupted along their length; aedeagus with fibula robust and notched at apex (Navarrete-Heredia et al. 2005); total length 1.8–2.0 mm; Mexico ..... *bufo* Hinton

1′ Elytral carinae raised only slightly, not interrupted along their length; fibula of aedeagus slender, not notched at apex (Figs 3–8); total length less than 1.7 mm 2

2. Aedeagus elongate and slender, 0.68 mm long, width 1/5 of length (Figs 3–5); known from Ecuador .... *pichilingue* Flowers, Shepard & Troya

2′ Aedeagus shorter and more robust, narrowing at apex, 0.57 mm long, width 1/4 of length (Figs 6–8); known from Central America ..... *inaequalis* Motschulsky

Discussion

Although the external similarity between *L. pichilingue* and L. *inaequalis* is extremely close, the aedeagi of the two are easily distinguishable. The aedeagus of our specimen of *L. inaequalis* differs from the photo in Navarette-Heredia *et al.* (2005) in having a shorter and blunter basal hood. There is also inter-specific variability in the fibula of *L. inaequalis* (Shepard, unpubl. data). We did not find the sperm pump in *L. pichilingue* that Navarette-Heredia *et al.* (2005) found in *L. bufo*, but that could easily have been broken off because it is attached to the aedeagus by only an unsclerotized duct.

Acknowledgements

We sincerely thank Dra. Carmen Suarez C., Ing. Raúl Quijije P., Jacqueline Cabanilla L., and the staff at the Estación Experimental Tropical Pichilingue (Instituto Nacional Autónomo de Investigaciones Agropecuarias) for their assistance and support during this study. We thank Krista E.M. Galley, ELS, of Galley Proofs Editorial Services for editorial assistance. This publication was made possible through support provided by the Offices of Agriculture and of Natural Resources Management, Bureau for Economic Growth, Agriculture, and Trade, U.S. Agency for International Development, under the terms of the Award No. EPP-A-00-04-00016-00, and by a grant (FLAX 02-03) from CSREES, USDA to Florida A&M University. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development.

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