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## New Records of Bruchidae (Coleoptera) from the Dominican Republic

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## A New Genus and Species of Flightless Longhorned Beetle from Central America (Coleoptera: Cerambycidae)

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### Abstract

An undescribed genus and species of flightless longhorned beetle, *Apteralcidion lapierrei* new genus, new species, in the subfamily Lamiinae, has been collected from giant thistle, *Cirsium subcoriaceum*, at high elevations in Costa Rica and Panama. This new taxon appears most-closely related to genera in the tribe Acanthocini.

### Resumen

Se describen e ilustran el adulto de *Apteralcidion lapierrei* nov. gen., nov. sp., colectado del cardón, *Cirsium subcoriaceum*, en las montañas altas de Costa Rica y Panamá, América Central. Se asignan este especie por el tribo Acanthocini.

**Key Words:** Insecta, Coleoptera, Cerambycidae, Costa Rica, Panamá, *Apteralcidion lapierrei*, thistle

### Introduction

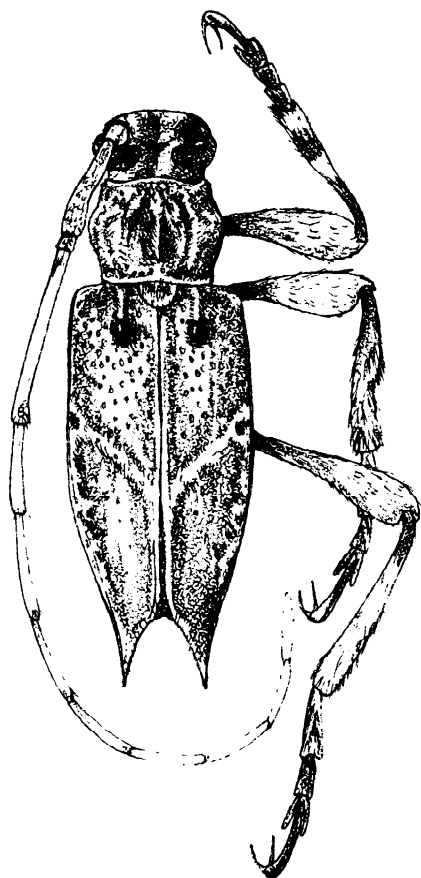
An undescribed genus and species of flightless longhorned beetle in the subfamily Lamiinae, has been collected from giant thistle, *Cirsium subcoriaceum*, at high elevations in Costa Rica and Panama. This new taxon appears most-closely related to genera in the tribe Acanthocini, and is provisionally assigned to this tribe, despite its superficial resemblance to certain flightless genera in the tribe Parmenini.

### *Apteralcidion* Hovore, new genus

*Type species:* *Apteralcidion lapierrei* Hovore, new species.

**Description.** Body form moderately small, robust, oblong-ovate; integument non-metallic; body pubescence appressed, without erect elytral setae. Head large, broad, pronounced, genae not elongated below, clypeus small, rounded, membranous; mandibles large, simple; palpi unequal, terminal segments inflated basally, tapering apically; eyes

moderately-finely faceted, moderate-sized, emarginate around antennal tubercles, upper and lower lobes connected by several rows of facets; antennal tubercles rounded, prominent, strongly elevated; front impressed between lower eye lobes; antennae 11-segmented, filiform, longer than body in both sexes, scape elongate, subcylindrical, sinuate in lateral outline, apex slightly produced ventrally, without cicatrix, flagellar segments unarmed, cylindrical. Pronotum subcylindrical, slightly wider than long, apex wider than base; sides broadly tuberculate, disk with several elevated tubercles; prosternal process very narrow, plane, medially impressed, expanded behind coxae, procoxae prominent, globose, procoxal cavities closed behind, strongly, narrowly angulated externally to episternum; mesosternum simple, rounded, mesocoxal process about twice the width of prosternal process, truncate before hind margin of coxae, mesocoxae prominent, globose, mesocoxal cavities angulated externally to episternum; metasternum subequal in length to mesosternum, not retracted, episternum normal, visible below elytral epipleura. Elytra convex, arcuate around body outline, humeral angles prominent; epipleura declivous, lateral margins of elytra carinate above epipleura; centro-basal tubercles acute, strongly elevated, without apical penicilli; disk feebly costate, suture not fused; apices strongly produced. Legs robust, femora elongate, strongly clavate; tibiae and tarsi elongate, subcylindrical. Abdomen strongly tapering apically, 5 segments visible.



**Figure 1.** Holotype male, *Apteralcidion lapierrei* Hovore, new genus, new species.

**Diagnosis.** *Apteralcidion* does not appear to be related to genera currently placed in tribes containing most flightless Neotropical taxa: Parmenini, Moneilemini, Adetini and Apomecynini. Flightless members of these tribes typically lack well-defined elytral humeral angles, have the metasternum greatly abbreviated and usually also strongly retracted, with the episternum and epimeron at least partly concealed beneath the elytral epipleura. Contrastingly, *Apteralcidion* possesses pronounced humeri and has the metasternum unretracted, with the entire episternum visible. The elytra are not fused along the suture, and both sternal and elytral characters are similar to those of winged taxa, strongly suggesting recent degeneration of the hindwings. In the elongated, slightly sinuated, but unexpanded antennal scape, pronotal

shape and tuberculation, and coxal characters *Apteralcidion* most closely resembles genera in the large and complex tribe Acanthocini, where it is provisionally placed. It appears to have structural affinities to *Nealcidion* Monné, several as-yet undescribed Central American genera, and perhaps also *Paracobelura* Monné and Martins, *Hexacona* Bates, and *Xenocona* Gilmour. From all of these it is immediately distinguished by the strongly ovoid body form, absence of hind wings and relatively shorter meso- and metasterna.

**Distribution.** Known from montane Costa Rica and Panama.

**Etymology.** "apter-," wingless, "alcidion," a genus containing numerous neotropical acanthocine cerambycids.

**Discussion.** Flightless longhorned beetle taxa occur within several different tribes in the subfamily Lamiinae, often in apparent evolutionary heterogeneity, and there has been little concordance among workers as to tribal definitions or placement of genera (see Linsley and Chemsak, 1984, for discussions of tribal parameters in the subfamily Lamiinae). Determining generic relationships among flightless taxa is difficult, in part because much of cerambycid classification is based upon characters of the hindwings, which are absent or reduced in flightless species, and also because anatomical modifications may represent character convergence in otherwise unrelated organisms. In determining the relationship of *Apteralcidion* to Parmenini and other groups of flightless neotropical longhorns, I utilized tribal concepts defined by Linsley and Chemsak (1984).

Of the Central American and Mexican Parmenini, *Apteralcidion* is superficially similar in appearance to the monotypic genera *Mecynome* Bates and *Neoplectrura* Chemsak and Linsley, both of which possess the retracted metasternum typical of that tribe. From *Mecynome* (species *aenescens* Bates) *Apteralcidion* is further distinguished by its much longer appendages, absence of erect setae on the body, much larger eyes, longer metasternum, slender scape, medially-placed lateral thoracic tubercles (placed behind the middle in *Mecynome*), and centrobasal elytral tubercles (absent in *Mecynome*). *Neoplectrura* (species *breedlovei* Chemsak and Linsley) may be separated by its abruptly declivous mesosternum, acute lateral pronotal

tubercles, bigibbous elytral disk, notched scutellum, and numerous other character differences.

The genus *Echthistatis* Pascoe, appears anomalous from other parmenines in several characters, including a prominent tubercle on the procoxal process, tuberculate elytral humeri, inflated elytral tubercles, an exceptionally elongate gena and frons, greatly elevated antennal tubercles, and prominent, acute pronotal tubercles. By these characters and its retracted metasternum it may be easily distinguished from *Apteralcidion*.

### *Apteralcidion lapierrei* Hovore, new species (Figure 1)

**Description. Male.** Holotype (Fig. 1). Form moderate-sized, elongate-ovoid, tapering posteriorly; integument dark reddish-brown to piceous, appendages paler, femoral bases and tibiae pale testaceous; pubescence short, fine, appressed, whitish to yellow. **Head** prominent, not retractile; integument minutely punctulate, thinly clothed with yellowish pubescence, with a few erect setae at margins of front; front broadly convex, median impunctate line fine, feebly elevated, gena shorter than lower eye lobe, sinuate-truncate below; eyes with lower lobes broad, rounded below, upper lobes narrower, interocular space on vertex wider than upper lobe, upper and lower lobes connected by 4 rows of facets; antennae surpassing elytral apices by five and one-half to six segments, scape elongate, attaining pronotal base, second segment short, pyriform, third segment slightly longer than scape, about one-third longer than fourth segment, distal segments from fourth successively shorter, scape mottled with whitish pubescence, remaining segments thinly clothed with white pubescence, scape and segments three and four thinly clothed beneath with a narrow row of suberect setae. **Pronotum** wider than long; sides broadly tuberculate, slightly angled anteriorly, tubercles obtusely rounded at apex, placed at middle and nearly even with plane of discal surface; disk trituberculate, tubercles obtuse, median tubercle elongate-ovate, a smaller tubercle at either side of median line immediately in front of middle, each slightly angled inward anteriorly; discal surface coarsely, sparsely, irregularly punctate between tubercles, thinly clothed with whitish pubescence, sides of disk and lateral margins with a reticulate pattern of yellowish pubescence, not extending below lateral tubercles; apical and basal constrictions

coarsely punctured, moderately impressed; prosternum minutely punctulate, thinly white pubescent; meso- and metasterna minutely to finely punctulate, mottled with yellowish pubescence. **Scutellum** rounded apically, clothed with yellow pubescence. **Elytra** slightly more than twice as long as wide, widest at middle, strongly tapering behind middle; moderately coarsely, densely and irregularly punctate basally, apical punctures smaller and less numerous; surface thinly pubescent, vestiture whitish over the basal one-half, becoming denser and yellowish apically, elytral markings yellowish, consisting of a small humeral patch, a thin line extending from elytral base to anterior base of centrobasal tubercle, epipleura and lateral margin of disk irregularly mottled and reticulated, a narrow band extending diagonally from sides at middle posteriorly to suture and then along sutural margin to apical one-third, a narrow line along the inner margin of the apical emargination; humeral angles pronounced, carinate above, epipleural fold vertical, lateral discal carina above epipleura extending posteriorly to beyond middle of elytra; disk with an acute, elevated centrobasal tubercle, the apex of which is angled posteriorly, without penicilli, two feeble discal carinae present, extending to apical one-third; apices slightly flared, elongated laterally into an acute spine, inner emargination rounded to suture, suture not fused. **Legs** long, apex of posterior femora attaining elytral apices; anterior femora more strongly clavate than meso- and metafemora, pubescence moderately dense, whitish to yellowish, mottled; tibial pubescence thin, whitish, forming a vague median annulus on each tibia; tarsal pubescence whitish, dense on basal segments, thinner apically. **Abdomen** concave, minutely punctulate, basal and apical segments elongate, basal four segments moderately densely mottled with yellow pubescence, fifth sternite thinly pubescent, apex rotundate-truncate, apex of fifth tergite narrowly emarginate. Length: 6.5 - 10 mm.

**Female.** Form broader, more robust and ovoid; antennae surpassing elytral apices by about 4 segments; legs shorter, femora less-strongly clavate; abdomen convex. Length: 7.5 - 12 mm.

**Types.** Holotype male, allotype (California Academy of Sciences), and 12 male, 5 female paratypes from: COSTA RICA, Cartago Province, Cerro de la Muerte ("Cerro Buenavista"), near summit, 3,450 m, on *Cirsium*, 11/13 June 1987, F.T. Hovore.

Additional paratypes mostly from the summit area of Cerro de la Muerte: 3 males, 2 females, 1 km N summit, 18 June 1989, F.T. Hovore, on *Cirsium*; 1 female, Cerro de la Muerte, 3150 m, 21-23 February 1980, R.S. Anderson, "beating dead vegetation"; 14 males, 12 females, Highway 2, 1 km S Villa Mills to 2 km N Ojo de Agua, F.T. Hovore, L. M. LaPierre, on *Cirsium*; 1 female, San José Province, "Pan Am Hwy (Rt. 2) nr. Ojo de Agua, 2800 m, 27 v 1987," A.L. Norrbom, R. Mexzon, M.A. Condon, "on *Cirsium subcoriaceum* in bloom"; 1 female, Heredia Province, "Parque Nac. Braulio Carrillo, 1180 m, Mar '89," A. Retana. Also representing this species, but not designated as paratypical, is a single specimen from PANAMA, Chiriqui Province, Bambito, 14 May 1981, E.F. Giesbert. Paratypes deposited in the collections of the University of California, Berkeley; University of Costa Rica; Instituto de Biodiversidad, Costa Rica; L. M. LaPierre, R.L. Penrose, E.F. Giesbert, and the author.

Discrepancies in the provincial assignment of Cerro de la Muerte localities, all of which are within a few kilometers of one another along the Pan American Highway, are due to the fact that the line between Cartago and San José Provinces is shown as following the highway alignment on maps, and so these areas may appear to be in Cartago Province on some maps, in San José on others. San Jose Province is apparently the correct citation.

**Diagnosis.** The ovoid body form, prolonged and divergent elytral apices and bold elytral pattern make this species distinctive among Central American acanthocine Cerambycidae.

**Etymology.** It is my extreme pleasure to be able to dedicate this species to my friend and student, Louis M. LaPierre, who assisted in the collection of the 1991 specimens, and who on the following day saved my life by administering first aid after I was accidentally electrocuted.

**Discussion.** Variation in the type series occurs primarily in the color of the body pubescence, which may be entirely whitish or yellowish, and in the extent of the pronotal and elytral patterns. Some specimens lack distinct lateral reticulations on the pronotum (this condition may occur as a result of abrasion), and some specimens have the elytral diagonally line widened into a triangular

marking over the center of the elytral disk. Specimens from the south side of the Cerro summit (above Villa Mills) generally possess paler pubescence and more expanded elytral patterns than do those from the north side, where most material has narrow, yellowish elytral markings. All material came from roadside vegetation along the main highway over the summit, and collecting localities represent points along a more-or-less continuous stretch of habitat, so it is probable that these differences represent local phenetic tendencies rather than genetic discontinuities in the population.

**Biology.** Most of the type series was collected from the floral heads, live and dead stalks, and persistent dead leaves of the giant thistle, "cardo" or "cardón", *Cirsium subcoriaceum* (Less.) Petrak. Cerambycid larval workings, presumably of this species, were found under the outer bark of dried, dead thistle stalks. The larval galleries were tightly-packed with shredded frass and powdery fecula. Pupation occurs within a shallow, oval depression beneath the paper-thin bark. The stems of thistle are hollow, and the entire area available for larval development consists of a relatively thin (3 - 5 mm wall thickness) tube of woody outer stem tissue.

Relatively few other invertebrates were captured in association with *Apteralcidion*, although spiders and flightless crickets occurred commonly on foliage and floral heads. Two species of broad-nosed weevils, *Chauliopleurus* n. sp. and *Exophthalmus* n. sp., and a single species of flightless carabid, *Platynus* sp. indet., occurred uncommonly in the same portions of the plant as *Apteralcidion*.

**Behavior.** Adult *Apteralcidion* assume a peculiar defensive posture when disturbed, wherein the posterior legs are extended forward and crossed under or over the anterior and middle legs, which are held outstretched from the sides of the body. In this posture the beetles resemble dried floral bracts of the thistle, portions of which dislodge when the plant is jostled. They also resemble the drab orb-weaver spiders which frequent the thistles, so this defensive posture may be mimetic as well as cryptic. Some species of *Nealcidion*, most notably *N. scutellatum* Bates (found at high elevations in the Cordillera Central of Costa Rica) assume a similar defensive posture when disturbed.

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arranged for by the Organization for Tropical Studies, San José. Logistical support, information and assistance were kindly provided by Luis Murillo, Interviajes, and Humberto J. Lezama U., Universidad de Costa Rica, Museu de Invertebratos.

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