A NEW GENUS AND SPECIES OF SPIDER BEETLE FROM THE VIRGIN ISLANDS: *LACHNONIPTUS LINDAE* (COLEOPTERA: ANOBIIDAE: PTININAE)

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ABSTRACT

Lachnoniptus lindae, a **new genus** and **new species** from the Virgin Islands, is described. It appears most similar to *Trigonogenius*, and characters differentiating the two genera are given. The habitat and probable biology are discussed.

Key Words: Ptininae, Ptinidae, spider beetles, Virgin Islands, West Indies

RESUMEN

Lachnoniptus lindae, un nuevo género y especie de las Islas Vírgenes, es descrito. Es parecido a *Trigonogenius*, y los caracteres que diferencian a ambos géneros son provistos. El hábitat y probable biología de esta nueva especie son discutidos.

The ptinine fauna of the Virgin Islands includes one recorded species, *Pitnus antillanus* Bellés (Bellés 1992). In the more inclusive West Indies, another species of *Pitnus* Gorham, four species of *Ptinus* Linnaeus, three *Gibbium* Scopoli, and one *Fabrasia* Martinez and Viana (= *Cubaptinus* Zayas, Philips 1997) have been recorded (Boieldieu 1856, Gorham 1898, Pic 1906, Lepesme 1947, Wolcott 1948, Bellés and Halstead 1985, Zayas 1988, Bellés 1992). Recent investigations on the beetle fauna of the Virgin Islands have resulted in the discovery of two undescribed ptinine species. One of these belongs in the genus *Ptinus*, but the unique morphology and phylogenetic position of the other requires the creation of a new genus. I take this opportunity to make a name available for the latter.

Lachnoniptus Philips **New Genus**

Type Species. *Lachnoniptus lindae* **New Species**.

Diagnosis. This genus is easily recognized by the transverse pronotum and the very convex globose shape of the elytra. The dense pubescence dorsally results in a woolly, fluffy appearance. Also, the apical antennomere is slightly but distinctly wider than the penultimate one. *Trigonogenius* is the only genus that approaches this elytral and pronotal shape, but *Trigonogenius* has dense, appressed setae on the elytra, unlike the fluffy elytral setae of *Lachnoniptus*. Further, *Trigonogenius* does not have the laterally enlarged and distally rounded apical antennomere of *Lachnoniptus*. In contrast, *Trigonogenius* is characterized by the apical and penultimate antennomeres subequal in diameter and the apex acuminate. Other differences include the following: *Lachnoniptus* with a mesosternal process $^{2}/_{3}$ the width of the mesocoxa ($^{1}/_{3}$ the width for *Trigonogenius*); the absence of the mesosternal-mesepisternal suture (present in *Trigonogenius*); metepisternum not visible due to fusion with metaster-

num (distinctly visible in *Trigonogenius*); metacoxae approximately round *(rectangular* in Trigonogenius); the metacoxae laterally contacting the first ventrite (laterally adjacent to the metepisternum in *Trigonogenius*); the fourth ventrite compared to third about equal in length (a ratio of about 1.15:1) (greatly reduced in *Trigonogenius* (a ratio of about 3:1)); and the anterior margin of the first ventrite narrowly pointed laterally (sharply pointed in *Trigonogenius*). Two more subtle characters also differentiate these two genera. The scutellum is narrowly rounded in *Lachnoniptus* but is broadly rounded in *Trigonogenius*. In some specimens of *Lachnoniptus* there is a faint row of transverse setal tufts on the pronotum. Pronotal tufts are always absent in *Trigonogenius*. While *Lachnoniptus* is known from the West Indies, *Trigonogenius* is found in the western part of North and South America.

Description. Body robust and globular, densely covered with erect fluffy setae that obscure cuticular surface.

Head. Very robust, not visible from above, partially hidden within the pronotum up to the posterior dorsal margin of the eye, eye nearly semicircular, slightly rounded on dorsal side; longitudinal groove on the frons between antennal insertions, clypeus equilaterally triangular, labrum narrow, no wider than proximal edges of antennal insertions, anterior margin approximately truncate, anterio-lateral edges broadly rounded; antennae 11 segmented, second segment attached on side of scape near apex, apical antennomere distinctly widest at anterior $^1/_3$, tapering to rounded tip; mentum slightly longer than wide, triangular, not truncate but narrowly rounded at anterior margin, with a small round depression medially at basal $^1/_3$, a patch of 4-8 moderately long setae anterio-medially; hypopharygeal setal rows closely spaced and nearly overlapping; maxillary and labial palpi with apical segment tapered to a point; galea and lacinia with stout spines, spines obscured with fine setae.

Thorax. Pronotum globose and convex, transverse, 1.35 times wider than long, widest at middle; scutellum small, hidden, slightly tranversely ovoid, distinctly below level of elytra; procoxae cylindrical, projecting, prosternal process with apex expanded and rounded, extending ventrally about as far as coxae, at narrowest width about $^1/_3$ the width of coxa; mesosternum smoothly concave, slightly narrower posteriorly, process about $^2/_5$ width of mesocoxa; mesepimeron visible but narrow, mesosternal-mesepisternal suture absent; metasternum about half the length of the mesosternum, sharply, obtusely emarginate at posterior margin; metacoxae transversely triangular, laterally in contact with first ventrite.

Elytra. Globose and convex, fused, nearly as wide as long, length 1.10 times width; large strial punctures easily discernible and in longitudinal rows, puncture edges broadly rounded, intervals convex, surface usually hidden beneath dense pubescence.

Ventrites. All sternal sutures clearly defined, second ventrite widest at middle and at lateral edge, third ventrite distinctly narrowest at middle, third ventrite only slightly longer than fourth, about 1.1-1.2 times length of fourth.

Legs. Femora gradually increasing in size towards apex, pro- and mesotibiae about $^2/_3$ as long as metatibiae, all tarsomeres about equal in length, except first metatarsomere about $^1/_3$ longer than second.

Etymology. Derived from the Boieldieu genus *Niptus* combined with the greek *lachno*. The name translates as “woolly haired” *Niptus*.

Discussion. Putative synapomorphies for *Lachnoniptus* are as follows: 1) the first ventrite narrowly pointed laterally; 2) the ultimate antennomere enlarged; 3) the scutellum vertical and narrowly rounded posteriorly; and 4) the fourth ventrite approximately equal in length to the third. The first character state appears to be uniquely derived while the second and third have similar states or convergences in other ptinine taxa. The fourth character state is hypothesized to be a reversal to the pleisiomorphic state. While most ptinines have the fourth ventrite reduced to various

degrees relative to the third, *Lachnoniptus* and the Gibbiinae (sensu Bellés 1985) have the fourth and third ventrites approximately equal, similar to the non-ptinine Bostrichoidea.

Lachnoniptus lindae **New Species**

Figs. 1-6

Diagnosis. This species is easily recognized by the variegated pattern of brown and tan pubescence on the elytra. It can also be recognized by the laterally (but not posteriorly) carinate antennal fossae that are separated by a ridge as broad as the second antennomere length. Pronotal tufts are usually absent or, at most, very loose and indistinct.

Description. Length: 2.25-3.04 mm (n = 23). Body very robust and globular, covered with dense fine short brown and tan pubescense, on pronotum and elytra relatively longer and more erect than the rest of the body, also much longer scattered erect or suberect setae arising above short setae that usually have the tips curved towards the posterior.

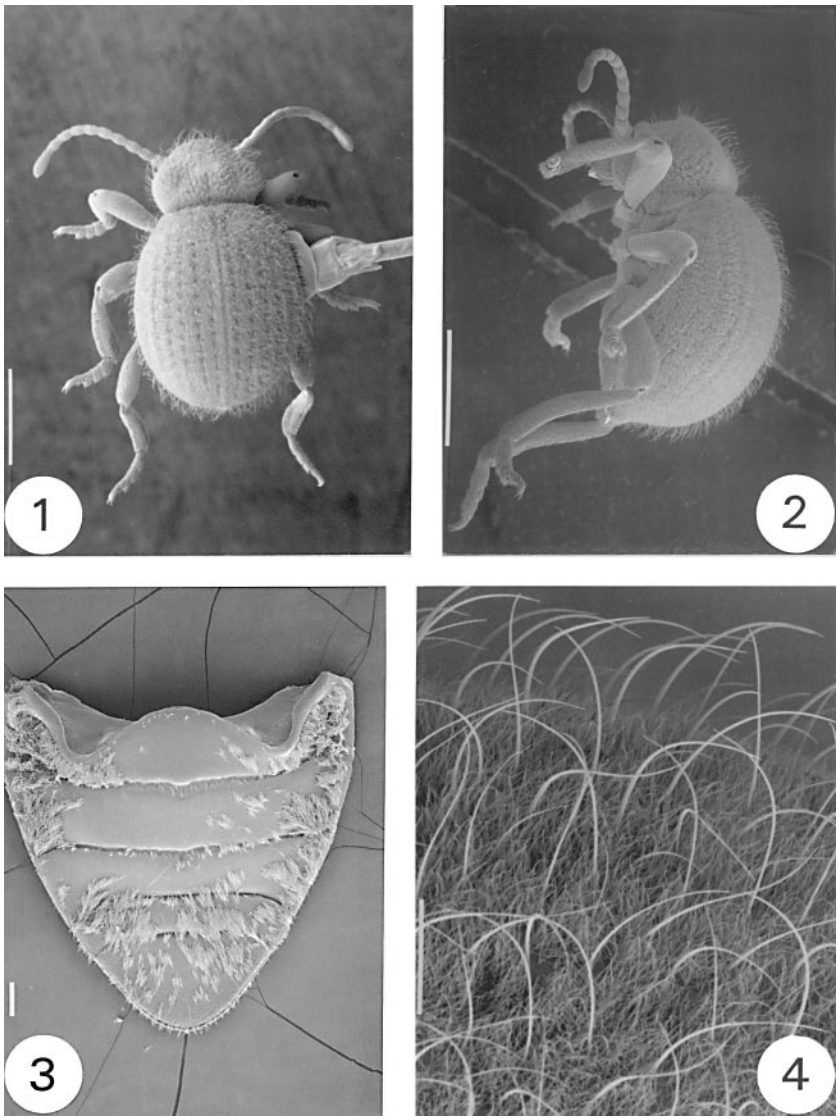
Head. Covered with appressed very dense tan setae, slightly darker towards vertex and on the fronto-clypeal area, longer, slender, suberect brown setae scattered on front of head; antennal fossae separated by a ridge as broad as second antennomere, laterally with carinate borders that become obsolete posterior to antennal insertions; relatively deep narrow longitudinal groove between fossae, deepest at a point about equal to posterior margin of fossae; eyes moderate in size, maximum length about as long as second antennomere, usually eight ommatidia at minimum width, 9-10 ommatidia at maximum.

Thorax. Pronotum covered with dense brown pubescence except pale orange or tan in a longitudinal median band at middle on anterior $^{3}/_{5}$, expanding on posterior $^{2}/_{5}$ to form a triangular patch adjacent to base about 3 times as wide as scutellum; this same color of setae laterally at posterior edge expanding slightly from a point near coxae up to dorsal-lateral border and forming an elongate triangle on each side, another less distinct lateral band near anterior margin; shallowly, moderately rugose-reticulate surface visible beneath setae; erect, elongate curved setae occasionally forming very loose, indistinct tufts on dorsal surface, two inner tufts at posterior $^{1}/_{3}$ on either side of midline, two outer tufts at middle but laterad inner tufts; scutellum covered with pale tan pubescence.

Elytra. Dense tan and brown pubescence in a mottled or variegated pattern, slightly darker brown surrounding scutellum and along first elytral interval at basal $^{1}/_{5}$; moderately large, well-separated, somewhat square-shaped strial punctures slightly visible beneath pubescence, edges smoothly rounded, middle punctures separated longitudinally by about 3 times their length, puncture rows separated by about 4 times puncture width; long erect setae rising above dense pubescence, about 1.5 times as long as one elytral interval at middle, decreasing in length laterally and posteriorly; dense pubescence slightly more orange adjacent to apical margin.

Ventral surface. With dense yellowish-tan pubescence, slightly darker patches near margins of second through fourth ventrites, and evenly scattered suberect dark brown setae; posterior margin of mesepisternum with orange pubescence; first and second sutures between ventrites becoming more obscure laterally; ventrite ratios (first to fifth): 20: 21: 15: 13: 30.

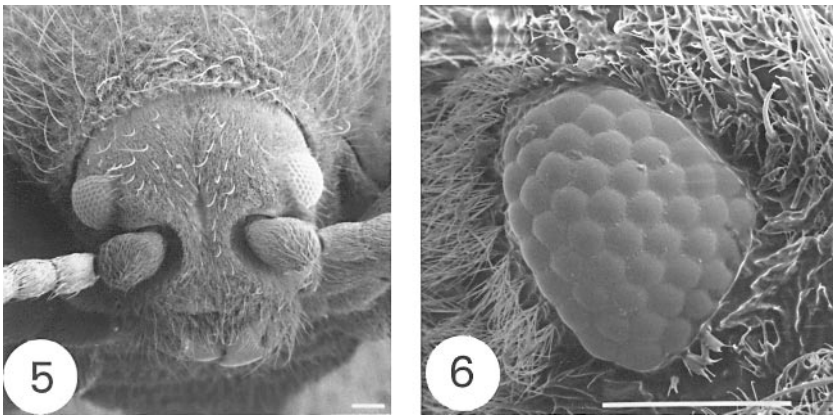
Legs. Covered with dense recumbent tan pubescence and longer darker scattered appressed setae; trochanters and apices of femora and tibia orange-tan, longer, coarser setae at tibial apex and ventral margin distinctly orange; margins at apical 2/5 of pro- and mesotibiae and apical $^{1}/_{3}$ of metatibiae covered with longer, coarser more erect setae.



Figs. 1-4. External morphology of *Lachnoniptus lindae*: 1) dorsal habitus; 2)lateral view; 3) ventrites (most of the setae abraded); 4) elytral setae. Scale line = 1.0 mm for figs. 1-2, 100 um for 3-4.

Sexual dimorphism. None.

TYPES. Holotype: **Virgin Islands**: Guana Island, Quail Dove Ghut, 600 ft., 12.VII-09.X.1994, flight intercept #13, M. A. & L. L. Ivie colr [600, 18°28.49'N, 64°34.21'W] (NMNH); Paratypes, same data as holotype (10), same data except 12-24.VII.1994, S. A. Bucklin colr (1), 25.I-25.II.1993, Lio Wei Peng colr (1), 25.II.-



Figs. 5-6. Head of *Lachnoniptus lindae*: 5) frontal view; 6) lateral view of eye. Scale line = 100 um.

25.III.1993, Lio Wei Peng colr, flight intercept trap #5 [400', 18°28.64'N, 64°34.20'W] (5), Monkey Point Trail, 5-10.X.1997, T. K. Philips, dung pitfalls (26), St John, Estate Carolina, NW Coral Bay, 250 ft., 09.V.1994, litter among rocks, Muchmore (1), St John, Lameshur Bay, V.I.E.R.S., 10.III.1984, leaf litter, W. B. Muchmore (1), St John, Maho Bay, 12.III.1984, in hollow tree, W. B. Muchmore colr (1), Guana Island, VII-X.1993, "beetle-trap," collected by C. Bartlett & J. Cryan (1), Tortola, Windy Hill, 25-28.XII.1993, 350', thorn-scrub for., T. K. Philips, colr., dung pitfall (1) (Paratypes in the collections of the author, the Virgin Islands Beetle Project Collection [Montana State University, Bozeman, Montana], Xavier Bellés, Fred Andrews, The Natural History Museum [BMNH], Canadian Museum of Nature [CMNC], Muséum National d'Histoire Naturelle de Paris [MHNP], United States National Museum [USNM]).

Distribution. This species is known from three of the northern Virgin Islands (Guana Island, St John, and Tortola). It seems likely that it will be found on other Virgin Islands and Puerto Rico, of the Puerto Rican Bank, which were connected as a single land mass during periods of low eustatic water levels during the Pleistocene (Heatwole and MacKenzie 1966).

Etymology. Named after my wife Linda, in recognition of her support and encouragement of my career.

DISCUSSION

Lachnoniptus lindae is one of the more highly derived ptinines as characterized by fused elytra, winglessness, and a very globular body form. The majority of species in this group use dung or other accumulated organic material of animal or plant origin as a food source. Most specimens have been captured with dung baited pitfall traps. Dung from numerous reptiles and introduced mammals, such as sheep and goats, are likely sources of food for both adults and larvae. Larvae have been easily reared on cat dung in the laboratory.

All sites where this species was collected are tropical dry forest, characterized by rocky, thin red soils. Evapotranspiration is considerably higher than rainfall for much of the year, especially during droughts, such as those occurring in 1993-1994. The absence of scarabaeine competition in these areas might be critical for successful reproduction of this ptinine.

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