Genus	Vol. 10 (3): 497-522	Wrocław, 31 X 1999

Contribution to the knowledge of Ecuadorian *Pronophilini*. Part III. Three new species and five new subspecies of *Lymanopoda* (*Lepidoptera*: *Nymphalidae*: *Satyrinae*)

TOMASZ W. PYRCZ [1], KEITH R. WILLMOTT[2] & JASON P. W. HALL[2]

1. Zoological Museum, Institute of Zoology, Jagiellonian University, Ingardena 6, 30-060 Kraków, Poland, E-mail: pyrcz@zuk.iz.uj.edu.pl
2. Department of Entomology and Nematology, University of Florida, Gainesville, Florida 32611, U.S.A., E-mail: krwi@gnv.ifas.ufl.edu

ABSTRACT. Three new species and five subspecies of *Lymanopoda* are described from Ecuador and their affinities within the genus are discussed. Misidentifications in BROWN's (1943) survey of the genus *Lymanopoda* in Ecuador are corrected. *Lymanopoda hannemanni* L. MILLER, 1991, is synonymised with *Lymanopoda confusa* F. M. BROWN, 1943 (**n. syn.**), and the female of this species is described and figured for the first time.

Key words: entomology, taxonomy, *Lepidoptera*, *Nymphalidae*, *Lymanopoda*, new taxa, Colombia, Ecuador, Peru, Podocarpus National Park.

INTRODUCTION

The genus *Lymanopoda* WESTWOOD, 1851 is a member of the tribe *Pronophilini* sensu MILLER (1968), which was downranked to subtribe *Pronophiliti* by HARVEY (1991), an entirely Neotropical section of the nymphalid subfamily *Satyrinae*. It comprises approximately sixty species almost exclusively confined to the Andes, with only two representatives in the Central American mountains (PYRCZ, in prep.).

Typologically, the adults of *Lymanopoda* can be characterised by their small to medium size (forewing length 20-25 mm) compared to other members of the tribe, triangular forewings which usually have an acute apex and often a convex

outer margin, oblong hindwings, often with scalloped outer margins and a short tail-like emargination at vein Cu_1, rather short antennae, approximately 2/5 length of the costa, and eyes which are covered with short, sparse setae. The venation pattern is typical of the tribe *Pronophilini*, with the base of the cubitus of the forewing moderately swollen and the anal weakly so, and the disco-cellular vein of the hindwing between veins M_1 and M_2 sharply angled basally near M_1 (BROWN 1943; MILLER 1968).

Despite the coloration of the wings varying greatly between species, ranging from white, dull brown to russet, metallic silver, green and blue, at least two synapomorphies of the genus *Lymanopoda* can be identified in the wing pattern: the ocelli in forewing cells Cu_1 and Cu_2 are always displaced basally in relation to the remainder (we refer throughout the text to wing cell spaces by the vein which lies beneath, or posterior to, that cell) and the hindwing ventral surface median band is broken and displaced in the discal cell, connected to the postbasal band („pierellization"-type distortion of the ground plan (sensu SCHWANWITSCH 1925)). Other generic synapomorphies are evident in the male genitalia, including: the presence of a superuncus (sensu RAZOWSKI 1996), a bulbous projection of the tegumen at the dorsal junction with the uncus; the complete absence of subunci (although a weakly sclerotised projection occurs in all species which is probably not homologous with the subunci, appearing to be a modification of the basal part of the uncus); a (usually) strongly sclerotised sub-scaphium; and two prominent sculptured processes on the valvae (in a few cases the dorsal process is atrophied). In the female genitalia, synapomorphies include: a sclerotised lamella on the distal part of the posterior apophysis of the papillae anales and an accessory gland (of unknown function, most probably producing an egg gluing secretion) posterior to the ostium bursae.

As far as is known, the larvae of *Lymanopoda* feed on *Chusquea* bamboo in cloud forest (SCHULTZE 1929; ADAMS 1985), or *Swallenchloa* bamboo (*Poaceae*) in the páramo (PYRCZ unpubl.), and only exceptionally on other gramines (*L. caeruleata* GODMAN & SALVIN, 1880, a species endemic to the Sierra Nevada de Santa Marta, Colombia, was observed by the senior author while laying eggs on *Bambusa*). The larvae of only one species, *L. samius* WESTWOOD, have been described (SCHULTZE 1929), and therefore no comparative taxonomic characters are available as yet from the immature stages.

The species of *Lymanopoda* show intricate patterns of horizontal and vertical distribution. Whereas one species, *L. obsoleta* (WESTWOD, [1851]), is nearly Panandean, most have a much more restricted distribution, several being single range endemics, including *L. confusa* F. M. BROWN 1943, discussed in this paper. They are found in premontane forests from around 800 m (*L. panacea* (HEWITSON 1869)), in cloud forests and up to boggy páramo over 4000 m (*L. huilana* WEYMER 1890), within well defined, sometimes very narrow bands of elevation (ADAMS 1985; PYRCZ & WOJTUSIAK in press). While *L. obsoleta* occurs from approximately 1800 to 2900 m (ADAMS 1986; PYRCZ & WOJTUSIAK in press), *L. marianna* STAUDINGER, 1897 is known from Venezuela from a narrow band between 3000 m

and 3200 m (ADAMS & BERNARD 1981). The patterns of altitudinal distribution appear to be related to ecological specialisation and interspecific interactions (PYRCZ & WOJTUSIAK in press). The species with particularly narrow vertical ranges are in most cases exclusive inhabitants of the cloud forest - páramo ecotone, such as *L. marianna* and three of the species described herein. The adults of cloud forest *Lymanopoda* are strongly attracted to decomposing organic material, including carrion (WILLMOTT & HALL unpubl.), dung, urine, fruits, and mineral matter found in mud (ADAMS 1985, 1986), but páramo species have not yet been reported to be attracted to baits. Páramo species are energetic butterflies, flying low above the ground, zigzagging among *Espeletia* composites and active only during longer periods of sunshine, whereas the cloud forest species are less motile, usually not moving far away from stands of their *Chusquea* hosts; individuals can be observed for several consecutive days in the same spot.

BROWN (1943) surveyed the genus *Lymanopoda* in Ecuador, describing two new species and listing a total of 11 species for the country. That paper contains a number of identification errors resulting from the fact that Brown had no access to English and German type material, and is now largely outdated due to more extensive sampling for montane butterflies during the past decade in some of the more remote areas of the country by several lepidopterists. Nevertheless, it provides a point of reference from which to begin faunistic, revisional and taxonomic research. The first author is currently working on a revision of the entire genus *Lymanopoda*, while Keith WILLMOTT and Jason HALL have been working since 1993 on the taxonomy, ecology and biogeography of the entire true butterfly fauna (*Papilionoidea*) of Ecuador. Therefore in this paper we describe the new taxa within the genus *Lymanopoda* that have come to light during our studies of Ecuadorian pronophilines. The following acronyms are used throughout the text:

AMNH: American Museum of Natural History, New York, U.S.A.;
BMNH: The Natural History Museum, London, United Kingdom;
MALUZ: Museo de Artrópodos de la Universidad del Zulia, Maracaibo, Venezuela;
MNCN: Museo Nacional de Ciencias Naturales, Quito, Ecuador;
MUSM: Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Lima, Peru;
MZUJ: Muzeum Zoologiczne Uniwersytetu Jagiellońskiego, Kraków, Poland;
PUCE: Pontificia Universidad Católica, Quito, Ecuador;
ZMHU: Zoologisches Museum, Humboldt Universität, Berlin, Germany;
AJ: Collection of Artur JASIŃSKI, Warsaw, Poland;
KWJH: Collection of Keith WILLMOTT and Jason HALL, Gainesville, Florida, U.S.A.;
MB: Collection of Maurizio BOLLINO, Milan, Italy;
PB: Collection of Pierre BOYER, Le Puy Sainte Réparade, France
TWP: Collection of Tomasz PYRCZ, Warsaw, Poland

Lymanopoda ichu PYRCZ, WILLMOTT & HALL n. sp.

(Figs 1 & 20)

DIAGNOSIS

This species is distinguished from the superficially similar *Lymanopoda excisa browni* n. ssp. (described below) by the less acute forewing apex, the straighter outer margin below the apex, by the hindwing ventral surface postmedian black dots which form a row parallel to the outer margin in *L. ichu*, instead of being incurved as in *L. excisa browni*, and by the basal area of the ventral forewing being black except for a small brown marking in the discal cell. *L. caracara* n. sp. (described below) is also similar but is larger, has a more acute forewing apex, paler dorsal ground colour, and has the base of the forewing costa dark brown, not orange-brown. The genitalia (Fig. 20) are devoid of a dorsal process on the valve and in this respect are similar to *L. caracara* (Fig. 18), *L. huilana huilana* WEYMER, 1890, (Fig. 27) and *L. melia* WEYMER, 1911, (Fig. 28). Both *L. ichu* and *L. caracara* share a hooked uncus, the dorsal surface of which is V-shaped when viewed posteriorly, which is noticeably more deeply cleft in *L. caracara*. The valvae are also slightly more elongate in *L. caracara*. *L. huilana* and *L. melia* differ from both *L. ichu* and *L. caracara* in that the valvae are ended distally by a series of spines. *L. melia* is exceptionally variable in the shape, proportions and sclerotization of some main structures, especially the valvae. The individual illustrated (Fig. 28) corresponds to a population found on the western slopes of the Central Cordillera in Huila (Colombia).

DESCRIPTION

Male (Fig. 1): ***Head***: frons with tuft of dark brown hair; eyes brown, covered with sparse setae; labial palpi dorsally dark brown with few pale brown hairs, ventrally pale brown with few dark brown hairs; antennae 1/2 length of costa, brown and very sparsely scaled with white only at base of each segment, dorsal surface of club dark brown. ***Thorax***: dorsal surface dark brown, ventral surface pale brown; legs pale brown. ***Abdomen***: dorsal surface dark brown, ventral surface pale cream. ***Wings***: forewing (length: 18-20 mm, mean: 19.2 mm, n=3) elongate, distal margin smoothly rounded; hindwing elongate and rounded. Forewing dorsal surface dark brown; basal third of costa orange-brown; a postmedial series of white dots, those in spaces Cu_1 and Cu_2 displaced basally in relation to others. Hindwing dorsal surface dark brown with tiny, faint postmedian white dots in spaces Cu_2-M_3. Forewing ventral surface ground colour black, dusted with ochreous along costa, on apex distally as white subapical dots and along outer margin; five white dots reflected from dorsal surface, those in Cu_1-M_3 ringed with black. Hindwing ventral surface ochreous, suffused with chestnut scales forming a poorly defined darker band stretching from base towards outer margin, except in lower half of discal cell; a series of black postmedian dots, parallel to outer margin, in spaces 1A+2A-M_1. ***Male genitalia*** (Fig. 20): valvae lacking upper process; superuncus well developed; uncus hooked with shallow dorsal groove; aedeagus smooth.

Female: unknown.

TYPES

Holotype **male**: Ecuador: *Loja*: km. 20 Jimbura-San Andrés rd., 3300 m, 24.IX.1997, K. R. WILLMOTT *leg.*, to be deposited in BMNH. ***Paratypes***: **2 males**: same data as holotype, in KWJH.

ETYMOLOGY

This species is named after the Quechua word "ichu", which is used to designate the bunch-grass typical of puna and páramo grassland in southern Ecuador and Peru - the habitats of this species.

REMARKS

L. ichu n. sp. is currently known only from the type locality in Ecuador. It is closely allied in facies to an undescribed species (PYRCZ, in prep.) occurring in the area of Chachapoyas in northern Peru, with which it shares similar wing shape and ventral surface colour pattern but differs considerably in the male genitalia. As for other Ecuadorian species, there are strong affinities with *L. caracara* n. sp., found further north, as indicated by genitalic morphology, the elongate wing shape, the shape of the row of postmedian black dots of the hindwing ventral surface and the similar habitat type and altitude. *L. ichu* is also related to *L. melia* on the same morphological and ecological grounds, even though *L. melia* is distinctly marked, being predominantly white. *L. ichu, L. caracara* and *L. melia* belong to a group including also *L. huilana* and *L. tolima* WEYMER, 1911, whose diagnostic feature is that the postmedian black dots on the hindwing ventral surface form a row parallel to the outer margin.

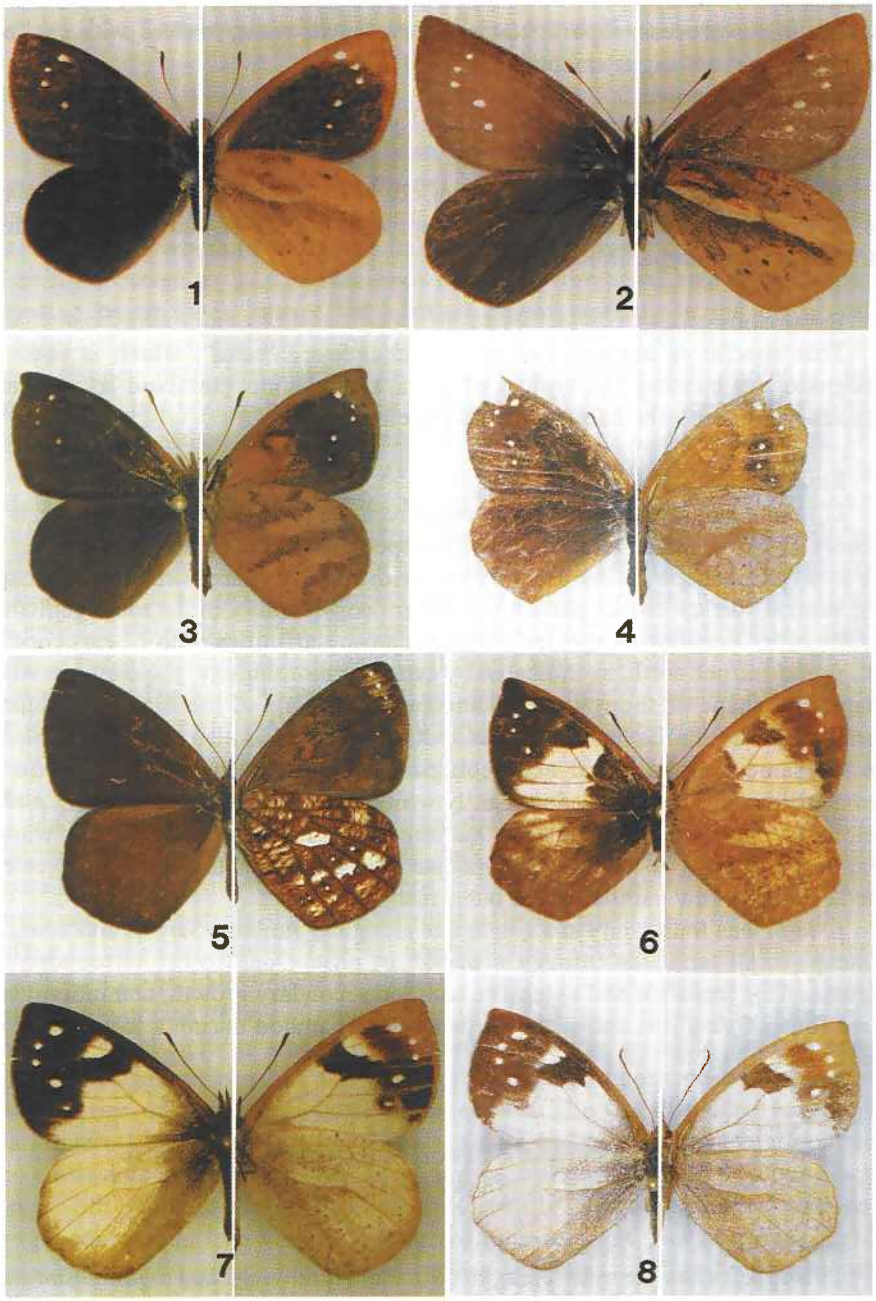
L. ichu was found only at a single site along the Jimbura-San Andrés road, at a steep, small landslide through a pocket of elfin cloud forest surrounded by páramo. This landslide had extensive bamboo secondary growth, and individuals were found flying just above the surface of the bamboo during a long period of bright sun.

Lymanopoda caracara PYRCZ, WILLMOTT & HALL n. sp.

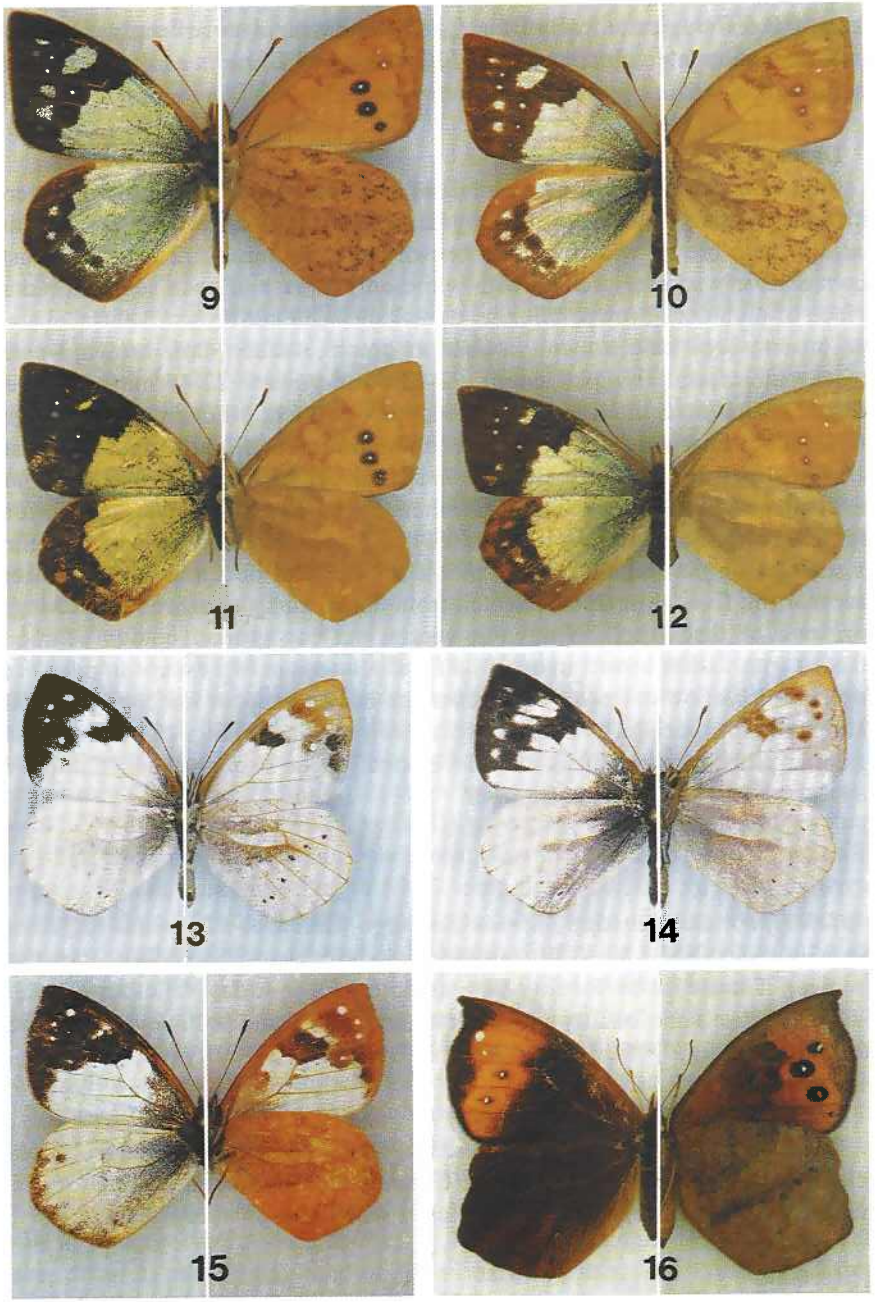
(Figs 2 & 18)

DIAGNOSIS

This species has the same elongated fore and hindwings and overall hindwing ventral surface colour pattern as *L. huilana* and *L. tolima*, but is immediately distinguished from these species by being entirely chestnut on the dorsal surface. It is also similar to *L. ichu* n. sp., described above (see Diagnosis under that



1. *Lymanopoda ichu* n. sp. male, dorsum/venter; 2. *L. caracara* n. sp. male, dorsum/venter; 3. *L. excisa browni* n. ssp. male, dorsum/venter; 4. *Lymanopoda excisa browni* n. ssp. female, dorsum/venter; 5. *L. nadia* n. sp. male, dorsum/venter; 6. *L. labineta piniasi* n. ssp. male, dorsum/venter; 7. *L. nivea bingo* n. ssp. male, dorsum/dorsum; 8. *L. nivea bingo* n. ssp. female, dorsum/dorsum



9. *Lymanopoda hazelana summa* n. ssp. male, dorsum/venter; 10. *L. hazelana summa* n. ssp. female, dorsum/venter; 11. *L. hazelana hazelana* male, dorsum/venter; 12. *L. hazelana hazelana* female, dorsum/venter; 13. *L. nivea nivea* male, dorsum/venter; 14. *L. melia* male, dorsum/venter; 15. *L. nivea bonita* n. ssp. male, dorsum/venter; 16. *L. confusa* female, dorsum/venter;

species). It differs genitalically from *L. ichu* by having a more deeply cleft uncus and a more elongate valva, and from *L. huilana* and *L. melia* as specified in the diagnosis of *L. ichu*.

DESCRIPTION

Male (Fig. 2): ***Head***: frons with tuft of dark brown hair; eyes brown, covered with sparse setae; labial palpi dorsally dark brown with a few pale brown hairs, ventrally pale brown with few dark brown hairs; antennae 1/2 length of costa, brown and very sparsely scaled with white only at base of each segment, dorsal surface of club dark brown. ***Thorax***: dorsal surface dark brown, ventral surface pale brown; legs pale brown. ***Abdomen***: dorsal surface dark brown, ventral surface pale cream. ***Wings***: (length: 22-23.5 mm, mean: 22.75 mm, n=2) very elongate, distal margin slightly rounded, apex pointed; hindwing very elongate and rounded. Forewing dorsal surface medium brown, slightly lighter in distal half; a postmedial series of white dots in spaces Cu_2-M_1, those in spaces Cu_2 and Cu_1 displaced basally in relation to others. Hindwing dorsal surface uniform medium brown. Forewing ventral surface dull brown, slightly dusted with ochreous scales along costa, apex distal of white subapical dots and narrowly along outer margin; five white dots reflected from dorsal surface; ochreous marking at distal end of discal cell. Hindwing ventral surface ground colour ochreous, suffused with darker brown in basal half and along vein M_3, except in discal cell which is pale yellow in lower half and orange-brown in upper half; a row of black postmedian dots parallel to outer margin. ***Male genitalia*** (Fig. 18): valvae lacking upper process; superuncus well developed; uncus strongly hooked and with deep dorsal groove; aedeagus smooth.

Female: unknown.

TYPES

Holotype **male**: Ecuador: *Morona-Santiago*, Gualaceo-Chiguinda rd., east of pass, 3300 m, 20.XI.97, K. R. WILLMOTT *leg.*, to be deposited in BMNH. ***Paratypes*** (6 males): **1 male**: same locality data as holotype, I. Aldas Villafuerte *leg.*, in KWJH; **3 males**: same locality and collector, in TWP; **2 males**: *Azuay*: Gualaquiza-Cuenca rd., Sigsig, 1998, 3000-3600 m, P. BOYER *leg.*, in PB.

ETYMOLOGY

This species is named with reference to its distinctive, strongly hooked uncus, reminiscent of the beak of the Carunculated Caracara, a predatory bird inhabiting the windswept Andean highlands where this species flies.

REMARKS

L. caracara n. sp. is most closely related to *L. ichu*, L. *huilana*, occurring in northern Ecuador and south-central Colombia, and *L. tolima* (considered a subspecies of *L. huilana* by ADAMS (1986)), endemic to the Tolima massif in the north-central part of the Central Cordillera in Colombia. *L. caracara* was found

at a single point where the Gualaceo-Chiguinda road traversed a very steep hill covered with low highland vegetation just below páramo, with a noticeable absence of bamboo, where males were encountered flying rapidly up the slope in bright sun.

Lymanopoda nadia PYRCZ, n. sp.

(Figs 5 & 17)

DIAGNOSIS

L. nadia n. sp. differs from the most closely related species, *L. labda* HEWITSON, 1861, in having four subapical white dots on the forewing ventral surface, instead of three as in *L. labda* (and also *L. lebbaea* C. & R. FELDER, 1867). It is also darker on the dorsal surface and ventral surface, making the ventral silvery pattern more contrasting. The two species differ genitalically, the valvae in *L. labda* being more elongate and the dorsal projection smaller in relation to the ventral projection. Genitalic differences are consistent throughout the ranges of both species. *L. rana* WEYMER, 1911 (Peru) is also similar to *L. nadia*, but has a wide rufous area on the forewing ventral surface and very distinct genitalia.

DESCRIPTION

Male (Fig. 5): ***Head***: frons dark brown; eyes chocolate brown covered with short, sparse setae; labial palpi twice length of head, covered with grey hair ventrally and black hair dorsally, black on third segment; antennae 2/5 length of costa, chestnut dorsally and ventrally, with sparse white scales at base of each segment, club flattened costally, blackish brown except last segments chestnut. ***Thorax***: dorsally blackish brown, ventrally pale grey, covered with short, sparse hair; tibia grey, femur chestnut. ***Abdomen***: dorsally blackish brown, ventrally pale grey. ***Wings***: forewing (length 19-22 mm, mean=20.16 mm, n=29) triangular, outer margin slightly incurved below apex; hindwing angular. Forewing and hindwing dorsal surface uniform dark brown. Forewing ventral surface dark brown, red-brown scales in discal cell and along distal margin at apex; four white subapical dots in spaces R_5-M_3 and two submarginal white dots in spaces Cu_2 and Cu_1 displaced basally in relation to subapical dots. Hindwing ventral surface ground colour red-brown with paler silvery brown streaks in basal half of space 1A+2A, basal area of space Cu_2, submarginal area of spaces 1A+2A-Cu_1, in subapical area, base of discal cell and most of area between costa and discal cell; irregular silver markings filling distal quarter of discal cell and forming a broken postmedial band from space 1A+2A-M_3; six postmedial black spots with white pupils in spaces 1A+2A-M_2, double in 1A+2A and single in remaining cell spaces, distal to postmedial band of silver markings in spaces 1A+2A and Cu_2, basal to this band in remainder of wing. ***Male genitalia*** (Fig. 17): valvae broad, with two short, broad processes of approximately equal size, each with several long "teeth"; aedeagus smooth.

Female (not illustrated): Forewing length 22 mm, n=1. Dorsal surface lighter than male, and ventral dots reflected on dorsal surface. Otherwise differences between male and female are similar to those in the related *L. labda* and *L. lebbaea*.

TYPES

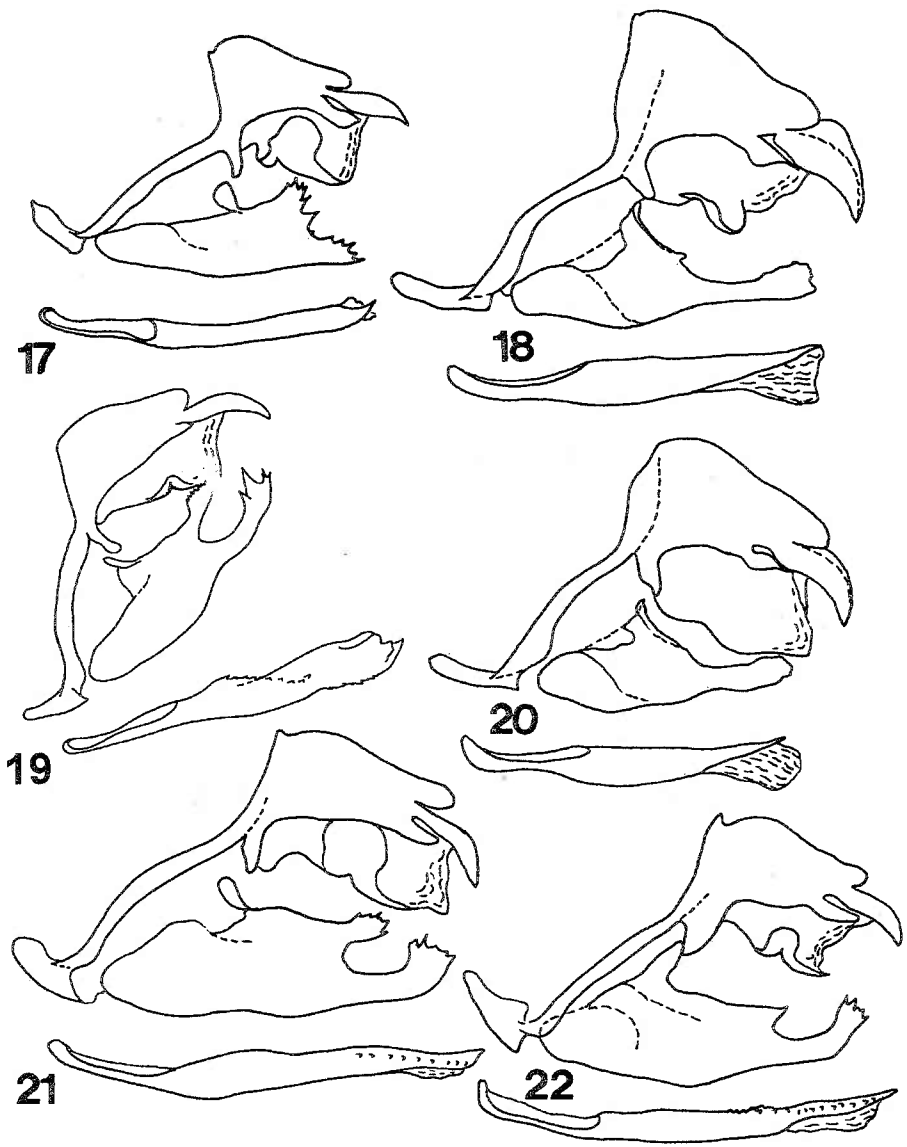
Holotype* male**: Ecuador: *Zamora-Chinchipe*: Valladolid, Río Chinchipe, Ecuador, 22.V.1996, 2200 m, S. ATTAL & I. ALDAS *leg.*, in MZUJ. ***Allotype* female**: Ecuador: *Tunguruhua*: Baños, Pastaza, east Ecuador, 5-7000 feet, M.G. PALMER *leg.*, in BMNH. ***Paratypes (66 males): Ecuador: *Loja*: **1 male**: Route Catamayo-Porto Velo, Ecuador, 16.II.1993, B. MÉRY & S. ATTAL *leg.*, in TWP; *Zamora-Chinchipe*: **1 male**: north of Valladolid, 2600 m, 18-19.V.94, J. P. W. HALL *leg.*, in KWJH; *Morona-Santiago*: **1 male**: km. 22 Limón-Gualaceo rd., 2050 m, 3.XI.96, K. R. WILLMOTT *leg.*, in KWJH; *Zamora-Chinchipe*: **2 males**: San Andrés, Cordillera de Lagunillas, 2000 m, 13.VIII.1998, T. PYRCZ *leg.* in TWP; **2 males**: same locality, V.1998, A. JASIŃSKI *leg.*, in AJ; **2 males**: North of Valladolid, National Park Podocarpus, 2700 m, 14.VIII.1998, T. PYRCZ *leg.*, in TWP; *Tunguruhua*: **1 male**: Ulbilla, Rio Ulba, nr. Baños, 2200 m, 16.XI.96, K. R. WILLMOTT *leg.*, in KWJH; **2 males**: Viscaya, road to Urba [sic], Baños, Ecuador, 15.V.1996, 2500 m, S. ATTAL & I. ALDAS *leg.*, in TWP; **2 males**: Biscaya [sic], Ecuador, 06.IV.1995, local dealer *leg.*, in TWP; **3 males**: Biscaya [sic], 2100-2300 m, 06-07.V.1996, A. JASIŃSKI *leg.*, in TWP; **1 male**: Viscaya, 2000 m, 06.IV.1995, P. BOYER *leg.*, in PB; **1 male**: same locality and collector, V.1996, in PB; **8 males**: Río Verde Chico, 24.IX.1995, 2100 m, A. NEILD & A. JASIŃSKI *leg.*, in MNCN (1 male), in PUCE (1 male), in MALUZ (1 male), in TWP (5 males); **13 males**: Baños, Río Pastaza, 5-7000 feet, M.G. PALMER *leg.*, in BMNH; **1 male**: San Antonio, 2100 m, IV.1971, LEFEBRE *leg.*, in BMNH; **1 male**: Río Machay, 1550 m, 4-5.VII.93, J. P. W. HALL *leg.*, in KWJH; *Pastaza*: **1 male**: Alpayacu, Río Pastaza, Ecuador, 3600 feet, M.G. PALMER *leg.*, in BMNH; *Vague data*: **1 male**: „Aloag", A. JASIŃSKI *leg.*, in TWP; **2 males**: Ecuador, coll. HEWITSON, in BMNH; **2 males**: Ecuador, coll. GROSE-SMITH, in BMNH; **1 male**: Ecuador, 1920, coll. BRABANT, in BMNH; **6 males**: Ecuador, no precise data, in TWP. Peru: *Cajamarca*: **2 males**: Tabaconas, Peru, VIII.1996, I. ALDAS *leg.*, TWP (1 male), MUSM (1 male); **4 males**: Manchara, North Peru, 7000 feet, IX.1912, A. & E. PRATT, in BMNH; **5 males**: River Tabaconas, North Peru, 6000 feet, 1912, A. & E. PRATT, in BMNH.

ETYMOLOGY

This species is dedicated to Nadia Valentina SÁNCHEZ, a sister-in-law of the author.

REMARKS

BROWN (1943) illustrated the male genitalia of *L. nadia* as *L. labda*, pointing out anatomical and colour pattern differences between Ecuadorian (*L. nadia*) and



17-22. Male genitalia: 17 - *Lymanopoda nadia* n. sp.; 18 - *L. caracara* n. sp.; 19 - *L. nivea bonita* n. ssp.;20 - *L. ichu* n. sp.; 21 - *Lymanopoda labineta piniasi* n. ssp.; 22 - *Lymanopoda excisa browni* n. ssp.

Colombian (*bona fide*) specimens of *L. labda*, but did not propose any name for the former. D'ABRERA (1988: 818) also illustrated a male of *L. nadia* as the female of *L. labda*. In fact, *L. nadia* differs more consistently in male genitalia from *L. labda* than *L. labda* does from *L. lebbaea* found in the Colombian Eastern Cordillera (east slopes). *L. nadia* occurs on the eastern slopes of the Andes in Ecuador, in the upper valley of the Río Pastaza southwards to northernmost Peru, the Río Tabaconas valley, in middle elevation cloud forest from 1550 to 2600 m (the single historical record from Alpayacu, a site at 1000 m, is almost certainly mislabelled). It is replaced allopatrically northwards, in the Cosanga and Baeza areas of the upper valley of the Río Quijos, by *L. labda*. Males are common in disturbed primary habitat and are most frequently encountered along streams and paths puddling at water seepages.

Lymanopoda excisa browni PYRCZ, n. ssp.

(Figs 3, 4 & 22)

Lymanopoda excisa WEYMER, 1911, pl. 52, row f. (illustration), 1912: 247 (text), Syntypes in ZMHU? [not examined]

DIAGNOSIS

This subspecies is smaller (mean forewing length 18.9 mm) than typical *L. excisa* (mean forewing length 22 mm), has the reddish-brown colour on the ventral forewing restricted to the basal half, and the basal third of the dorsal forewing costa orange-brown, rather than dark brown. East Ecuadorian specimens of a taxon which appears to be *L. excisa*, although possibly subspecifically distinct from the nominate, also have the base of the dorsal forewing costa orange-brown, but dusted with sandy yellow, and have no postmedian black on the ventral forewing. As far as the genital structure is concerned, *L. excisa browni* (Fig. 22) has a shorter dorsal process on the valvae than in nominate *excisa* or a related species *L. labineta* (Fig. 23). These genitalic characters are consistent within specimens from both the areas where this subspecies is so far known, namely the Loja area and the Cordillera de Lagunillas on the Ecuador/Peru border.

DESCRIPTION

Male (Fig. 3): ***Head***: frons dark brown; eyes chestnut, covered with short, sparse setae; labial palpi twice length of head, dorsally brown, covered with light beige hairs; antennae 1/2 length of costa, dorsal surface dark brown, ventral surface paler, sparse white scales at base of each segment, clubs slightly flattened and concave, darker brown. ***Thorax***: dorsally blackish brown, densely hairy, ventrally pale grey; legs with femur pale grey, tibia and tarsus pale brown. ***Abdomen***: dorsally blackish brown, ventrally paler brown. ***Wings***: forewing

(length: 18-20 mm, mean: 18.9 mm, n=23) triangular, apex slightly falcate, outer margin incurved below apex; hindwing rounded. Dorsal surface of both wings uniform dark brown, except for basal third of forewing costa which is red-brown and five forewing subapical and submarginal white dots in spaces M_1-Cu_2, the latter two displaced basally. Forewing ventral surface ground colour blackish brown; brick red in discal cell and basal area of spaces 1A+2A-Cu_1, discal cell traversed by an indistinct darker line at cell end and a second similar line opposite base of vein Cu_1; six white subapical and submarginal dots in spaces 1A+2A-M_1, those in spaces Cu_2-Cu_1 displaced basally relative to remainder; beige along costa, in apex distal of subapical white dots and thinly along outer margin. Hindwing ventral surface ground colour beige, three roughly parallel, indistinct darker brown bands, one running from middle of discal cell to near apex, one just distal of discocellulars, third a sinuate submarginal line; six faint black postmedial dots arranged in a shallow, basally pointing „V", spot in space Cu_1 most basal. ***Male genitalia*** (Fig. 22): valvae with prominent lower process terminating with several spines, upper process a short point; uncus shallowly curving; aedeagus with numerous tiny "teeth" on dorsal surface of posterior half.

Female (Fig. 4): Forewing length 20 mm. Compared to male: dorsal surface lighter brown with black, white-pupilled ocelli clearly showing through from ventral surface; hindwing ventral surface basal suffusion lighter, rusty orange, spreading over to subapical and postmedian ocelli; hindwing ventral surface dull beige, almost uniform except for a darker brown median band extending from anal margin to postdiscal area.

TYPES

Holotype **male**: Ecuador: *Loja*: Podocarpus National Park, Cajanuma, 2800 m, 17.V.1996, A. JASIŃSKI *leg.*, in MZUJ. ***Allotype*** **female**: ECUADOR: *Loja*: Lagunillas, Jimbura-San Andrés rd., 3000-3200 m, 15.V.1998, A. JASIŃSKI *leg.* in TWP. ***Paratypes*** (50 males and 1 female): Ecuador: *Loja*: **6 males**: Cajanuma, 2700-2800 m, 10.XI.1996, A. NEILD *leg.*, in MZUJ (1 male), in MALUZ (1 male), in TWP (4 males); **4 males**: same data as preceding except K. R. WILLMOTT *leg.* in KWJH (3 males), to be deposited in MNCN (1 male); **1 male**: Loja, 22.XI.1996, P. BOYER *leg.* in TWP; **2 males & 1 female**: Loja–Zamora rd., 2600 m, 22.XI.1996, P. BOYER *leg.*, in PB; **9 males**: Lagunillas, 2600-3000 m, 03.V.1997, A. JASIŃSKI *leg.* in TWP (7 males), MNCN (1 male), PUCE (1 male); **16 males**: *Loja*: Lagunillas, Jimbura-San Andrés rd., 3000-3200 m, 15.V.1998, A. JASIŃSKI *leg.* TWP (12 males), MUSM (1 male), AJ (3 males); *Zamora-Chinchipe*: **1 male**: km. 29 Jimbura-San Andrés rd., 3100 m, 22.IX.97, K. R. WILLMOTT *leg.*, in KWJH; **1 male**: North of Valladolid, National Park Podocarpus, 2700 m, 14.VIII.1998, T. PYRCZ *leg.*, in TWP; *Vague data*: **9 males**: Ecuador, coll. HEWITSON, coll, Grose-Smith, coll. Chris Ward, coll. Druce, coll. SAUNDERS, all in BMNH; **1 male**: Ecuador, Macas, coll. BUCKLEY, in BMNH; **1 female**, *Loja*: Loja–Zamora, 2600 m, 22.XI.1996, P. BOYER *leg.*, in PB.

ETYMOLOGY

This subspecies is dedicated to Martin BROWN for his contributions to the knowledge of Ecuadorian *Pronophilini*, including the monographs on *Lymanopoda* (1943), *Penrosada* (1944), *Steroma* and *Steremnia* (1941).

REMARKS

L. excisa appears to belong to a group of closely related species including *L. ionius*, *L. labineta* HEWITSON and *L. pieridina* RÖBER. All of these share a similar ventral hindwing pattern, wing shape and pattern of postmedial dots on the forewing and hindwing. In addition, they fly at similar altitudes, from 2600 to 3100 m, and are alloparapatric. To date two populations of *L. excisa*, apart from *browni*, are known in Ecuador. One of them occurs on the western slopes near Quito, while the second one in the north-east near Tulcán. They probably represent further undescribed subspecies as typical *L. excisa* seems restricted to the Colombian Western and Central Cordilleras (ADAMS 1986). *L. labineta* appears to be an east Ecuadorian member of this group, and is also known from southern Colombia (ADAMS 1986). *L. excisa browni* is common in elfin cloud forest with abundant bamboo, and flies along the edges of paths and roadsides. Males are readily attracted to rotting fish and faeces and puddle at the edges of small streams.

Lymanopoda labineta piniasi PYRCZ n. ssp.

(Figs 6 & 21)

Lymanopoda labineta HEWITSON, 1870: 159. Syntype male: Ecuador, HEWITSON collection, in BMNH [examined].

DIAGNOSIS

This subspecies differs from nominate *L. labineta* in that the ground colour is much darker, blackish brown, instead of brown or chestnut brown, the white median area on the forewing extends much more basally, and the white markings on the hindwing, although variable in both subspecies, are much more pronounced in *L. l. piniasi*.

DESCRIPTION

Male (Fig. 6): ***Head***: frons dark brown; eyes chestnut, covered with short, sparse setae; labial palpi twice length of head, dorsally brown, covered with light beige hair; antennae 1/2 costa, chestnut, club slightly flattened and concave, darker brown. ***Thorax***: dorsal surface blackish brown, densely hairy; legs brown, greyish on ventral surface with long grey hairs. ***Abdomen***: dorsally blackish brown, ventrally beige. ***Wings***: forewing (length 22-23 mm, mean 22.5 mm, n=2) apex slightly acute, outer margin truncate. Forewing dorsal surface ground colour dark brown/black, proximal half of costa chestnut; basal area black; median area white, remainder of wing black from distal two thirds of discal cell, and from basal 1/3 of vein M_3 to tornus, except for a narrow, irregular white patch enclosed in postdiscal area, and for a series of four submarginal white dots, that in space M_3 displaced basally in relation to others. Hindwing suffused with a variable amount of blackish brown, less so in discal cell and along costa. Forewing ventral surface pattern reflected from dorsal surface, except basal area grey, with costa, apex and outer margin beige. Hindwing beige with white spreading from lower half of discal cell towards apex; two darker brown bands across discal cell and from anal margin to base of vein M_3. ***Male genitalia*** (Fig. 21): valvae with long lower process, approximately twice length of upper process, each terminating with several sharp "teeth"; aedeagus with sparse, fine "teeth" on dorsal surface of posterior half. Compare with male genitalia of *L. labineta labineta* (Fig. 23).

Female: Similar to the male but lighter on both the dorsal and ventral surface of the wings; hindwing upperside light beige colour with white areas suffused with milky-white scales.

TYPES

Holotype **male**: ECUADOR: *Azuay*: Gualaceo-Plan de Milagro Km 16, III.1998, 2900-3500 m, P. BOYER *leg.*, in MZUJ; ***Allotype*** **female**: same data as the holotype, in PB; ***Paratypes*** (14 males): **2 males**: ECUADOR: *Azuay*: Gualaceo-Plan de Milagro rd., 3050-3200 m, 11.XII.1997, P. BOYER *leg.*, in PB (1 male) and TWP (1 male); **4 males**, Gualaceo-Plan de Milagro Km 16, III.1998, 2900-3500 m, P. BOYER *leg.*, in PB; **7 males**, same data, in TWP (5 males), MNCN (1 male) and PUCE (1 male); **1 male**: *Morona-Santiago*: Río Culebrillas, VII.1994, F. PIÑAS *leg.*, in PUCE.

ETYMOLOGY

This subspecies is named after its first collector, Father Francisco PIÑAS, of the Pontificia Universidad Católica, Quito, Ecuador.

REMARKS

L. labineta piniasi n. ssp. occurs only in south-eastern Ecuador on the western slopes of the Eastern Cordillera in the vicinity of Cuenca, being replaced on the outer slopes of the Eastern Cordillera by *L. labineta labineta*. It is known so far from 3050 to 3200 m.

Lymanopoda nivea bingo PYRCZ n. ssp.

(Figs 7, 8 & 24)

Lymanopoda nivea STAUDINGER, 1888: 232, pl. 83. Syntype male: Quito, Ecuador, in ZMHU, [examined].

DIAGNOSIS

This subspecies differs from nominate *L. nivea* (Fig. 13) and *L. nivea sororcula* THIEME, 1904, in having the forewing white postdiscal patch entirely enclosed within a black area, and from *L. pieridina* RÖBER, 1927, in having an entirely white forewing discal cell and the hindwing dorsal surface distal margin not edged with black. The male genitalia closely resemble those of *L. nivea nivea* (Fig. 25) and *L. nivea bonita*, while the dorsal process on the valvae is more prominent than in *L. nivea sororcula* (Fig. 26).

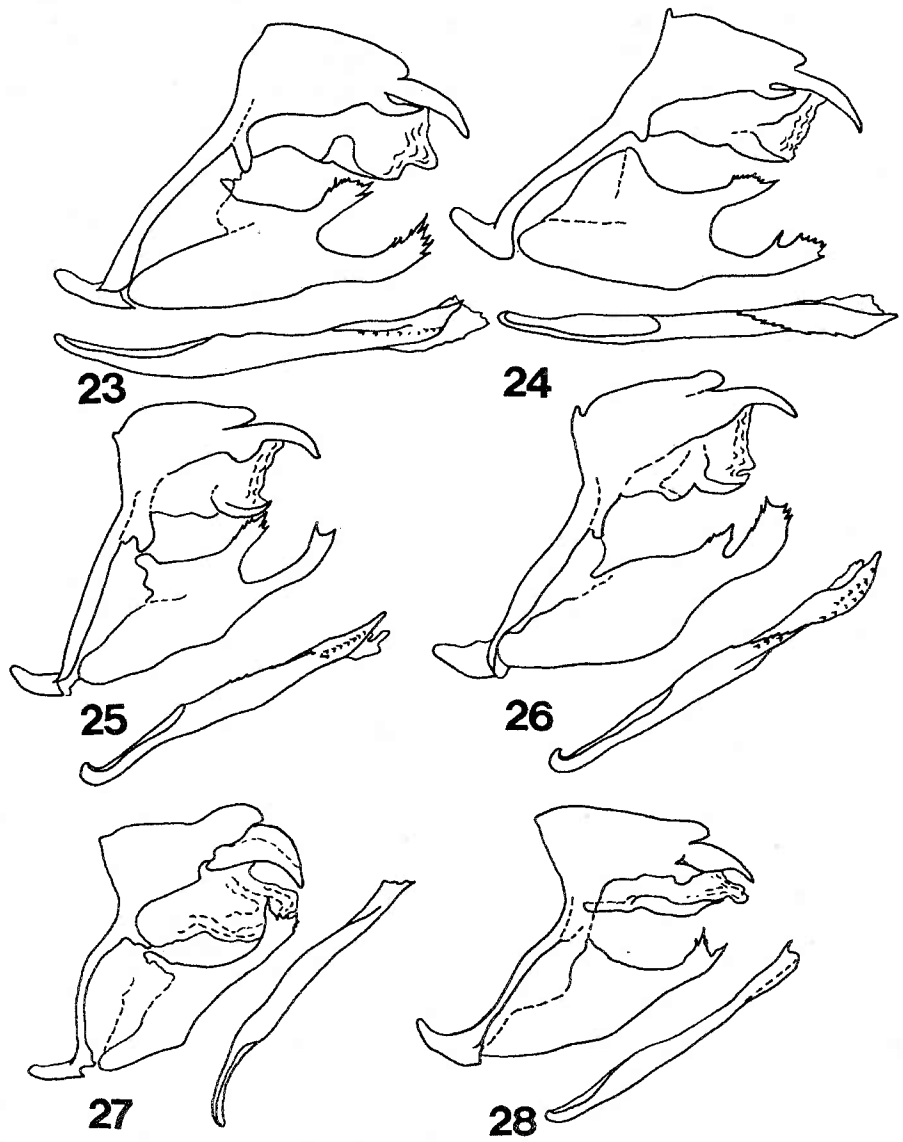
DESCRIPTION

Male (Fig. 7): ***Head***: frons with a tuft of short chestnut hair; eyes brown, covered with very short and sparse setae; labial palpi dorsally brown, labial hair white, grey on terminal segment; antennae 1/2 length of costa, dorsally chestnut, club brown, ventrally totally beige. ***Thorax***: dorsally and ventrally black, dorsally covered with dense, short hair, ventrally naked; base of femur covered with white hair. ***Abdomen***: dorsally and laterally dark grey, ventrally whitish grey. ***Wings***: forewing (length 21-23 mm, mean: 22.4 mm, n=17) apex slightly acute, outer margin truncate; hindwing outer margin rounded, tornus slightly angular. Forewing dorsal surface basal area, and towards postbasal area along costa and inner margin, suffused with grey; remainder of wing divided into two areas, basally white from discocellular veins and from basal 2/5 of space Cu_1, 3/5 of space Cu_2, and 5/6 of space 1A+2A, distally black, except for a white rhomboid postdiscal patch and concave row of four white spots in spaces M_1-Cu_1, and an additional faint, white spot within black area in space Cu_2. Hindwing white, except for basal area, filling basal half of discal cell, from vein Cu_2 to anal margin, and on distal margin where suffused with grey; veins M_1 to Cu_2 marked with black at distal margin. Forewing ventral surface pattern mirrors that of dorsal surface, except that ground colour of distal half is not totally black but beige in apical area from middle of space M_3 to costa, between outer margin and white subapical spots, and along costa, red-brown basally from submarginal white spots to white postdiscal rhomboid patch in 1A+2A. Hindwing white, liberally dusted with sparse grey and beige scales, more densely in basal area, anterior half of discal cell, along posterior edge of discal cell, and on outer margin from mid space M_1 to tornus; three minute black dots in spaces Cu_1-1A+2A. ***Male genitalia*** (Fig. 24): valvae with two prominent processes on ampulla bearing several teeth; saccus short; uncus thin and long; superuncus fully developed; sub-scaphium well sclerotised.

Female (Fig. 8): Forewing length 23 mm (n=1). Similar to male, except that the black markings on the forewing are slightly paler.

TYPES

Holotype **male**: Ecuador: *Cotopaxi*: Pilaló, IX.1996, 2500-3000 m, I. ALDAS *leg.* in MZUJ; ***Allotype*** **female**: Ecuador: *Bolívar*: Guaranda, VIII.1997, I. ALDAS



23-28. Male genitalia: 23 - *Lymanopoda labineta labineta* (Nariño, Colombia); 24 - *Lymanopoda nivea bingo* n. ssp.; 25 - *Lymanopoda nivea nivea;* 26 - *Lymanopoda nivea sororcula;* 27 - *Lymanopoda huilana huilana* (Huila, Colombia); 28 - *Lymanopoda melia* (Huila, Colombia)