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The obsoleta clade of the genus *Lymanopoda* Westwood
(Lepidoptera, Nymphalidae: Satyrinae)

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Abstract – Ten new taxa of *Lymanopoda* WESTWOOD, 1851 are described, including four species, five subspecies of *L. dietzi* ADAMS et BERNARD, 1981 and one subspecies of *L. caudalis* ROSENBERG et TALBOT, 1914. They all belong to the *obsoleta* clade defined by adult morphology and molecular phylogenies. All the new species are found in central and southern Peru. *L. dietzi*, is an endemic species of the Cordillera de Mérida in Venezuela and was so far considered as monotypic. Pasco in central Peru is reported here as the area of highest species richness in the genus *Lymanopoda* and the tribe Pronophilini. With 52 figures.

Key words – Cordillera de Mérida, *L. balintiana* n. sp., *L. caudalis raymondae* n. ssp., *L. confusiana* n. sp., *L. dietzi argentata* n. ssp., *L. dietzi neildi* n. ssp., *L. dietzi oliva* n. ssp., *L. dietzi rosanna* n. ssp., *L. dietzi vetula* n. ssp., *L. inaudita* n. sp., *L. necalba* n. sp., male genitalia, molecular phylogeny, Oxapampa, potential altitudinal transect.

INTRODUCTION

WESTWOOD ([May 1851]) described the genera *Lymanopoda* for *L. samius*, and *Sarromia* for *S. obsoleta*. Only a few months later he came to the conclusion that the two belong to the same genus, and sank *Sarromia* as the junior synonym (WESTWOOD [July 1851]). Subsequent studies on the systematics of *Lymanopoda* did not challenge that decision, and *Sarromia* was

considered in most of the consulted sources as not valid (ADAMS 1986, LAMAS *et al.* 2004, PYRCZ 2004). Recent works based on morphological and molecular data confirmed that *Lymanopoda* is monophyletic (PYRCZ *et al.* 1999, PYRCZ 2004, CASNER & PYRCZ 2010). They also show that apart from a basal taxon, *L. prusia* HEIMLICH, 1973 all other species belong to two large clades, with the type species of *Lymanopoda* and *Sarromia* belonging to each one of them. This incidentally could justify *Sarromia* as valid.

The subgenus *Sarromia* segregates, on turn, into two clades. One of them is the *obsoleta* clade. It is identified by two synapomorphies of male genital characters, including a prominent superuncus, and slender valves with two, long, spiny processes, dorsal and apical. The second, *albocincta* clade, is recognized by a bulbous process on the uncus, and shorter dorsal valvular processes (PYRCZ 2004). The separation of the two clades based on adult morphology is consistent with molecular data (CASNER & PYRCZ 2010).

As currently recognized, the *obsoleta* clade comprises seven species. *L. obsoleta* is extremely widespread and is its only representative in Bolivia. In Peru the so far known members of this clade are also *L. magna* PYRCZ, 2004 and *L. caudalis* ROSENBERG et TALBOT, 1914 (PYRCZ 2004). In the northern Andes, the clade is represented by *L. altis* WEYMER, 1890, *L. maletera* ADAMS et BERNARD, 1979, *L. lecromi* PYRCZ et VILORIA, 2007, and *L. dietzi* ADAMS et BERNARD, 1981 in the Cordillera de Mérida. The position of *L. marianna* STAUDINGER, 1897 in the *obsoleta* clade is a matter of controversy because the data from different sources, such as different genes, male and female morphological characters, are inconsistent (PYRCZ *et al.* 2009). Recent field studies revealed that several undescribed taxa closely related to some of the species of this clade occur in Peru and Venezuela.

MATERIALS AND METHODS

The sampling for *Lymanopoda* butterflies was carried out by the authors in the departments of Huánuco, Junín, Pasco, Apurímac and Cuzco in central and southern Peru in 2002–2009, and in the Cordillera de Mérida and Sierra El Tamá in Venezuela in 1987–2010. Standard entomological hand nets and Van-Someren baited traps were used. Type material was examined in BMNH, MUSM and MZUJ. Additional material was examined in other public and private collections. Male genitalia were dissected according to standard procedure, by soaking in hot 10% KOH solution and preserved in glycerol, and examined, alongside other morphological microstructures, under an Olympus SZX9 stereomicroscope.

Adults were photographed with an Olympus E-500 digital camera, and colour plates were composed using Adobe PhotoShop 8. The following abbreviations and collection acronyms were used:

Abbreviations and collection acronyms – FW = forewing; HW = hindwing; V = ventral surface; D = dorsal surface; BMNH = Natural History Museum, London, UK (formerly British Museum (Natural History)); CMNH = Carnegie Museum of Natural History, Pittsburgh, USA; FLMNH = Florida State Museum of Natural History, Gainesville, USA; HNHM = Hungarian Natural History Museum, Budapest, Hungary; JLC = collection of JEAN FRANCOIS LE CROM, Bogota, Colombia; MALUZ = Museo de Artrópodos de la Universidad del Zulia, Maracaibo, Venezuela; MBLI = collection of MAURIZIO BOLLINO, Lecce, Italy (to be integrated into FLMNH); MHNG = Muséum d'histoire naturelle de la Ville de Genève, Genève, Switzerland; MIZA = Museo del Instituto de Zoología Agrícola de la Universidad Central, Maracay, Venezuela; MUSM = Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Lima, Peru; MZUJ = Muzeum Zoologiczne Uniwersytetu Jagiellońskiego, Kraków, Poland; PBF = collection of PIERRE BOYER, Le Puy Sainte Réparade, France; TWP = collection of TOMASZ WILHELM PYRCZ, Warsaw, Poland (to be integrated into MZUJ).

RESULTS

Four new species and six new subspecies of the genus *Lymanopoda* were identified. They are described below. All the species belonging to the *obsoleta* clade are discussed.

Lymanopoda obsoleta (WESTWOOD, [1851]) (Figs 15, 16, 44)

Sarromia obsoleta WESTWOOD, [May 1851]: 402, pl. 67, fig. 5.

Lymanopoda obsoleta (WESTWOOD): WESTWOOD [July 1851]; BROWN 1943: 98, 99, figs. 1611 (male genitalia), 1611 a-f (external morphology); HAYWARD 1958: 69, fig. 29 (male genitalia); ADAMS & BERNARD 1981: 356; D'ABRERA 1988: 819; PYRCZ & WOJTUSIAK 1999: 207; PYRCZ *et al.* 1999: 520; LAMAS *et al.* 2004: 210; PYRCZ & RODRÍGUEZ 2007: 484; PYRCZ *et al.* 2009: 524 fig. C (adult, male), 524 fig. A (male genitalia), 525 figs. A1, A2 (female genitalia).

Lymanopoda larunda HOPFFER, 1874: 361; WEYMER 1912: 247, pl. 52, row e, 248 (synonymy established); D'ABRERA 1988: 819 (erroneously figured *L. dietzi*).

Lymanopoda obsoleta form *gortynoides* WEYMER, 1912: ADAMS 1986: 262 (synonymy established).

Material examined – Syntype (male): BOLIVIA, purchased from Bridges, 46–76, type collection drawer 59, BM(NH); over 400 males and 50 females from Bolivia, Peru, Ecuador, Colombia, and Venezuela.

Comments – Male (Fig. 15): Recognized from the most similar all brown upperside taxa of the obsoleta clade, *L. lecromi* and *L. dietzi vetula* ssp. n. by the absence of any FWD lustrous basal sheen of olive green or golden brown. Other all brown species of this clade, *L. confusa*, *L. magna* and *L. confusiana* sp. n., are immediately recognized by the falcate FW apex. Female (Fig. 16): It is more difficult to recognize from *L. lecromi* and *L. dietzi vetula* because none of the females has the diagnostic FWD basal sheen. However, in *L. obsoleta* the HWV ground colour is crimson red with a violet shade, whereas in the other two taxa it is orange brown with a brick red shade. This is also a diagnostic feature of the males of the latter two species. Male genitalia (Fig. 44): As illustrated.

The types of *L. larunda* HOPFFER, 1874 and *L. gortynoides* WEYMER, 1912 were examined and their synonymy with *L. obsoleta* (ADAMS 1986, WEYMER 1912) was confirmed (LAMAS *et al.* 2004). Adults were figured several times (D'ABRERA 1988, PYRCZ *et al.* 2009, WEYMER 1912). Some aspects of the morphology of *L. obsoleta* such as venation and genitalia were compared to the related species, and figured several times (ADAMS & BERNARD 1979, 1981, BROWN 1943, HAYWARD 1958, PYRCZ *et al.* 1999, PYRCZ *et al.* 2009). Its ecology, in particular altitudinal distribution patterns were discussed in a number of papers (PYRCZ 2004, PYRCZ *et al.* 2009, PYRCZ & WOJTUSIAK 1999).

L. obsoleta is one of the most widely distributed species of the tribe Pronophilini. It is found on the eastern slopes of the Andes between northern Venezuela (Cordillera de la Costa) and central Bolivia (Santa Cruz department), and on the western slopes in Colombia and Ecuador (PYRCZ 2004, PYRCZ & RODRÍGUEZ 2006). It was described from the Venezuelan Cordillera de la Costa and despite its wide geographic range so far no subspecies were identified. The Cordillera de la Costa individuals are smaller than average but otherwise morphologically similar to the Andean populations (VILORIA *et al.* 2010).

Lymanopoda caudalis caudalis ROSENBERG et TALBOT, 1914 (Figs 2, 35)

Lymanopoda caudalis ROSENBERG et TALBOT, 1914: 681–682.

Lymanopoda caudalis ROSENBERG et TALBOT: BROWN 1943: 95; D'ABRERA 1988: 820; LAMAS *et al.* 2004: 209.

Material examined – PERU: Pasco: Lectotype (male) [herein designated]: E. Peru, Pozuzo, 1800 m, 1906–263, type collection drawer 59, BMNH; 1 male: Pozuzo, East Peru, 1800 m, BMNH; 3 males: Pozuzo, Peru, 5000–6000 feet, local collector, BMNH; 1 male: Pozuzo, NE Peru, 1911, W. ROSENBERG leg., BMNH; 2 males: Pasco, Oxapampa, V.1986, MUSM; 49 males: Pasco, Huancabamba, Cueva Blanca, 2400–2600 m, 10–11.XII.2003, J. BOTTGER leg., TWP; 31 males: Huancabamba, Cueva Blanca, 2300–2600 m, 6.XII.2003, P. BOYER leg., TWP; Junín: 1 male: La Merced, Valle de Chanchamayo, 800 m, 1932, MNHN; 1 male: JU, Puente Yanango, 1900 m, 26.X.1965, P. HOCKING leg., MUSM; 1 male: Huancabamba, 5000 feet, VIII.1905, BOTTGER leg., BMNH; Huánuco: 1 male: Cushi, W. HOFFMANNS, ex BMNH, prep. genit. 07/07.04, 1999 T. PYRCZ, TWP; 6 males: Cushi, 1900 m, W. HOFFMANNS, BMNH; 1 male: Río Palcazu, W. HOFFMANNS.

Redescription – Male (Fig. 2). Head: eyes chocolate brown, lustrous, covered with short, sparse setae; labial palpi twice the length of head, suffused with yellow scales, ventrally covered with yellowish, chestnut and brown hair, dorsally with yellow in basal part and brown in distal part; antennae 2/5 the length of costa, blackish brown with white scales at the base of each segment, club formed gradually, composed of 9–10 segments, twice as thick as shaft, flattened, tip lighter brown. Thorax: dorsally and ventrally black covered with brown hair; legs brown suffused with white. Abdomen: dorsally and laterally black, ventrally medium brown. Wings: FW (length: 23–29 mm, mean: 27.1 mm, n = 81) apex blunt; outer margin very slightly concave. HW outer margin wavy with a short, blunt tail-like extension at vein M_3 . FWD ground colour dark brown, very slightly lighter and lustrous in basal and postbasal area; in some individuals a series of faint or barely visible blackish brown submarginal ocelli circled with rufous-brown, most prominent in cells M_3 - Cu_1 , Cu_1 - Cu_2 and Cu_2 -1A. HWD ground colour dark brown; in some individuals (the same with noticeable ocelli on FWD) faint or barely visible blackish brown postmedian ocelli circled with rufous-brown from costa to cell Cu_2 -1A two white spots on the tornus in cells Cu_2 -1A and A1-A2; marginal area slightly darker brown. FWV ground colour dark brown, duller and slightly lighter than on the upperside; two parallel blackish lines across discal-cell, postbasal and median; a narrow blackish postmedian band extending from Sc to tornus with two deep protrusions in cells M_3 - Cu_1 and Cu_1 - Cu_2 ; a series of five white dots, three in the subapical area in cells R_5 - M_1 , M_1 - M_2 and M_2 - M_3 , and two slightly larger in submarginal area circled with black in cells M_3 - Cu_1 and Cu_1 - Cu_2 , the former slightly displaced basally; a narrow, irregular blackish submarginal band; outer margin blackish brown. HWV ground colour dark brown; a silver white suffusion in anal area gradually denser from Cu2 towards inner margin; a similar suffusion of silver white forming a diffused submarginal band, spreading basally and distally along veins, and enclosing a row of eight submarginal white dots, one in each cell plus two in Cu_2 -1A, forming a shallow curve from costa to tornus. Male genitalia (Fig. 35): Dorsal process on the valves half the length of apical process; superuncus less than one-third the length of uncus; pedunculus slender and elongated; saccus strongly flattened dorso-ventrally; aedeagus the length of valves, spiny in apical part.

Female. So far unknown.

Comments – A correct and unambiguous identification of the typical population of *L. caudalis* is crucial for this study as this species appears to be polytypic and occurs sympatrically with a similarly patterned species. The locality label on the single available syntype says “Pozuzo, 1800 m”. The altitude is hardly accurate because all recently collected individuals of *L. caudalis* occur at 2300–3000 m. “Pozuzo” could refer to any place along the Huancabamba–Cushi trail, rather than to a precise collecting locality. Fortunately, the original description indicates a few diagnostic characters. It states that the forewing upperside is dark brown, paler towards wing base, whereas in other related taxa the upperside is crimson-brown or dark brick-red. Importantly, it makes no allusion to any upperside ocelli. The population of *L. caudalis* found in the area of Huancabamba and Pozuzo presents in fact some individual variation affecting the expression of ocelli on dorsal surface of FW and HW. In most individuals the upperside is all brown, however in

some specimens there are faint blackish brown ocelli, occasionally with a crimson-brown halo and white pupils. These patterned individuals resemble in this respect the sympatric species described below, which however differs considerably on the underside. Surprisingly, despite the fact that *L. caudalis* is locally common in the Oxapampa area, so far the female has not been found. Male genitalia were illustrated by BROWN (1943). The nominate subspecies was figured by D'ABRERA (1988).

Lymanopoda caudalis raymondae PYRCZ et BOYER, ssp. n.
(Figs 1, 36)

Types – PERU: Holotype (male): Huánuco, 2 km de Huanacaure, Pachachupan-Huanacaure km 42, 3000 m, 22.X.2009, P. BOYER leg., MZUJ (to be deposited in MUSM); Paratypes (28 males): 12 males: au dessus de Huanacaure, km 43 de Pachachupan, est de Acomayo, 3000–3100 m, 23.X.2006, P. BOYER leg., prep. genit. 9/12.04.2007 T. PYRCZ, MZUJ; 7 males: same data, PBF; 4 males: same data, TWP; 1 male: Paso Carpish, 2500–2700 m, 26.X.2004, P. BOYER leg., PBF; 1 male: Paso Carpish vers Tingo Maria km 3, 2300 m, 23.X.2009, P. BOYER leg., PBF; 5 males: 2 km de Huanacaure, Pachachupan-Huanacaure km 42, 3000 m, 22.X.2009, P. BOYER leg., 3 PBF, 2 TWP.

Diagnosis – This subspecies is recognised from the nominate by the smaller size; dark crimson-red upperside, particularly in basal half, instead of all brown; dark brown HWV instead of crimson-brown; and a wider HWV whitish suffusion towards outer and along inner margin.

Description – Male (Fig. 1). Head, thorax and abdomen: not differing from the nominate subspecies. Wings: FW (length 24–26 mm, mean: 25.1 mm, n = 8); FWD dark crimson-red, more intensely in basal half; HWD dark crimson red, same as on the FW; FWV not differing noticeably from the nominate subspecies; HWV dark brown, with a wide HWV whitish suffusion towards outer and along inner margin. Male genitalia (Fig. 36): Not differing noticeably from nominate subspecies.

Female. So far unknown.

Etymology – This subspecies is dedicated to an aunt of the third author, RAYMONDE BOITEL.

Comments – This subspecies of *L. caudalis* occurs on the left bank of the Río Huallaga in Huánuco. It was collected so far in two localities, Carpish and Huanacaure.

***Lymanopoda balintiana* PYRCZ et BOYER, sp. n.**
(Figs 3, 34)

Types – PERU: Holotype (male): Junín: route Satipo vers Concepción vía Mariposa km 68, 2700 m, 2–12.XI.2006, P. BOYER leg., MZUJ (to be deposited in MSUM); Paratypes (32 males): 28 males: same data as the holotype, 13 PBF, 14 TWP; 1 male: route Satipo vers Concepción vía Mariposa km 60, 2400 m, 2–12.XI.2006, P. BOYER leg., PBF; 3 males: route Satipo vers Concepción km 62, 2500–2700 m, 15.X.2009, P. BOYER leg., 2 PBF, 1 MZUJ.

Diagnosis – This species is similar in size and wing shape to *L. caudalis*, from which it differs immediately by the brick-red upperside.

Description – Male (Fig. 3). Head: eyes chocolate brown, lustrous, covered with short, sparse setae; labial palpi twice the length of head, whitish, covered black and brown hair; antennae 2/5 the length of costa, black with white scales at the base of each segment, club dark brown composed of 10–11 segments, twice as thick as shaft, flattened, tip curved. Thorax: dorsally and ventrally black covered with brown hair; legs brown suffused with white. Abdomen: dorsally and laterally black, ventrally medium brown. Wings: FW (length: 25–29 mm, 27.6 mm, n = 16) apex sub-acute; outer margin very slightly concave. HW outer margin wavy with a short, blunt tail-like extension at vein M_3 . FWD ground colour varying between dark brick-brown and crimson-brown; a blackish area in distal corner of discal cell and in postdiscal area, extending towards anal margin as an irregular postmedian band; a series of blackish brown ocelli alternately with or without minute, barely visible whitish pupils, except for an invariably visible white dot in M1-M2, the ocelli in M_3 -Cu₁ and Cu₁-Cu₂ displaced basally in relation to the remainder; submarginal and marginal area blackish brown; HWD ground colour varying between dark brick-brown and crimson-brown; a faint postmedian band in some individuals broken into a series of elongated venal spots; a row of seven blackish brown postmedian ocelli, smaller than on the forewing, one in each cell plus two in Cu2-1A with one or two minute white pupils; submarginal and marginal area blackish brown. FWV ground colour varying between brick red and orange suffused to a different degree with brown, in some areas denser, forming a series of faint blackish spots; two parallel blackish lines across discal-cell, postbasal and median, enclosing a lighter brick red or orange patch; a narrow blackish postmedian band extending from Sc to tornus with a deep protrusion in cell M3-Cu1 and a shallower one in Cu1-Cu2; three white dots in the subapical area in cells R5-M1, M1-M2 and M2-M3, three black ocelli with white pupils in cells M3-Cu1, Cu1-Cu2 and Cu2-1A; a faint blackish brown submarginal line. HWV ground colour violet and magenta; a silver white suffusion in anal area gradually denser from Cu2 towards inner margin; a similar suffusion of silver white forming a diffused submarginal band, spreading basally and distally along veins, and enclosing a row of eight submarginal white dots, one in each cell plus two in Cu2-1A, forming a shallow curve from costa to tornus. Male genitalia (Fig. 34): Differ marginally from *L. caudalis* except for the more prominent pedunculus and slightly deeper saccus.

Female. Hitherto unknown.

Etymology – This species is dedicated to ZSOLT BÁLINT, Hungarian entomologist specialising in Lycaenidae taxonomy, in recognition for his valuable support of this project and for many years of friendship.

Comments – This species is currently known only from the type locality, the Satipo – Mariposa road in Junín.

Lymanopoda inaudita PYRCZ, sp. n.
(Figs 5, 33)

Types – PERU: Cusco: Holotype (male): Río Santa María, 7–14 km E. ALFAMAYO, 2700–3000 m, 5.X.1981, G. LAMAS leg., MUSM; Paratypes (8 males): 3 males: Caserío, 3800 m, 6–7.XII.1994, HÁCZ T. & JUHÁSZ I. leg., HNHM exchange 1/2009/7706, prep. genit. 01/05.10.2009 J. LORENC, MZUJ (“Caserío” means “settlement” in Spanish; in this case it refers to the small village of Carrizales between Abra Malaga and Alfamayo); 4 males: Cusco, Caserío, 3800 m, 1994.XII.6–7., HÁCZ T. & JUHÁSZ I. leg., HNHM; 1 male: Urcos, VIII.1900, GARLEPP leg., ROTSCCHILD Collection, BMNH.

Diagnosis – This species is recognised from other congeners by the large snow white patch in median area of HWD. The only two other Peruvian species of Satyrinae bearing such markings are *Lasiophila piscina* THIEME, 1907 and *L. cirta* (C. et R. FELDER, 1859), both considerably larger, with distinctive tail-like hindwing extensions and different ventral patterns.

Description – Male (Fig. 5). Head: eyes brown, lustrous, covered with short, sparse setae; labial palpi twice the length of head, covered dorsally with brown, ventrally with violet brown hair; antennae 2/5 the length of costa, dark brown, white scales at the base of each segment, club dorsally dark brown, ventrally orange brown, composed of 10–11 segments, twice as thick as shaft, flattened, tip curved. Thorax: dorsally black covered with medium brown hair; legs violet brown. Abdomen: dorsally medium brown, ventrally chestnut. Wings: FW (length: 28–31 mm, mean: 29.5 mm, n = 4) outer margin with a shallow incision below apex. HW outer margin wavy, produced at vein M_3 . FWD ground colour russet brown; a wide, irregular russet postmedian band from costa to anal margin near tornus plus a rectangular discal patch of same colour, edged basally and distally with dark brown; three large dark brown ocelli with white pupils in cells $M3-Cu1$, $Cu1-Cu2$ and $Cu2-1A$, the one in $M3$ displaced basally whereas the one in $Cu2$ distally in relation to the largest ocellus in $Cu1$; three white subapical spots in cells $R5-M1$, $M1-M2$ and $M2-M3$; apical and marginal area medium brown. HWD ground colour medium brown; a large oval snow white median patch extending from inside discal cell towards anal margin without reaching it; a faint russet postmedian band; barely noticeable dark brown postmedian ocelli with white pupils in cells $M3-Cu1$ and $Cu1-Cu2$; two white spots on the tornus in cells $Cu2-1A$ and $A1-A2$; marginal area slightly darker brown. FWV colour pattern reflected from the upperside, except that more contrasting; median bands blackish-brown;

subapical area lighter than on the upperside; ocelli in M3-Cu1, Cu1-Cu2 and a double one in Cu2-1A black and smaller than on the upperside. HWV pinkish with a straight oblique band running from half the costa to tornal angle dividing the wing into two areas, basally darker, turning gradually lighter towards base, distally lighter and turning darker again towards outer margin; a straight row of faint black submarginal dots with white pupils in cells M3-Cu1 and Cu1-Cu2; two white spots on the tornus. Male genitalia (Fig. 33): Superuncus roughly half the length of uncus, longer than in *L. caudalis*; uncus rather short and strongly hooked; dorsal process on the valva slender, with a spiny apical part, slightly more than half the length of main process; main process on the valva spiny in apical half; valva sharply curved along ventral surface; aedeagus spiny in apical part.

Female. So far unknown.

Etymology – The epithet of this species, *inaudita*, means “amazing” – (Latin, adjective) and points out its unusual colour pattern compared to other congeners.

Comments – This species is currently known from the upper valley of the Río Lucumayo, a right affluent of Urubamba, in the department of Cuzco in southern Peruvian Andes. It is certainly highly seasonal since the type locality has been sampled by the authors on several occasions in February, May, June and September without revealing its presence. All known paratypes were collected in December, which corresponds to the early rainy season. This species is involved in mimicry with the sympatric *Lasiophila piscina*, an issue which is currently studied by the senior author (PYRCZ, in prep.). The specimen collected by GARLEPP certainly does not come from Urcos as it reads on the label. Urcos is a town situated in the dry valley of Urubamba, where there are no potential habitats for cloud forest Satyrinae, such as *Lymanopoda*. Urcos is the starting point of the road leading across the Cordillera de Vilcanota to the eastern slopes of the Andes. This was a well known collecting area in the late XIX and early XX century. The authors sampled it three times (2004–2009) in the valleys of Marcapata and Kosnípata, however never in December, the flight season of *L. inaudita*. Other species collected in the two areas are also known from specimens bearing GARLEPP's label “Urcos, VIII.1900”, namely *Panyapedaliodes rahab* THIEME, 1905, *Neopedaliodes proculeja* (THIEME, 1905), *Pedaliodes albutia* THIEME, 1905, *P. phaeinomorpha* LAMAS, VILORIA et PYRCZ, 2008 and *P. demathani ockendeni* LAMAS, VILORIA et PYRCZ, 2008. It indicates that *L. inaudita* possibly occurs in either Marcapata or Kosnípata.

***Lymanopoda necalba* PYRCZ et BOYER, sp. n. (Figs 4, 37)**

Types – PERU: Holotype (male): *Pasco*: Huancabamba, Cueva Blanca, 2600 m, X-XI.2003, J. BOTTGER leg., ex coll. M. BOLLINO, MZUJ (to be deposited in MUSM); Paratypes (28 males): 3 males: Huancabamba, Cueva Blanca, 2600 m, X-XI.2003, J. BOTTGER leg., ex coll. M. BOLLINO, MZUJ; 1 male: Milpo, X.2003, J. BOTTGER leg., prep. genit. 5/11/01.2004 T. PYRCZ, TWP; 11 males: Huancabamba, Ichco, au dessus de Milpo,

3100–3300 m, 3.XI.2004, P. BOYER leg., PBF; 1 male: Huancabamba, Cueva Blanca, 2500–2900 m, 3.XI.2004, P. BOYER leg., PBF; 9 males: Huancabamba, Chulla?, au dessus de Milpo & Cueva Blanca, 3200–3400 m, 30.X.2006, P. BOYER leg., PBF; 1 male: Huancabamba, Cueva Blanca, Milpo and above, 2600–3300 m, X-XI.2005, J. BOTTGER leg., PBF; 1 male: Huancabamba, Milpo, au dessus de Cueva Blanca (Huancabamba), 2700–2800 m, 8.XII.2003, P. BOYER leg., PBF; 2 males: Huancabamba, Milpo, 3000 m, IX.2006, J. BOTTGER leg., PBF; 3 males: Huancabamba, Milpo, 3000 m, XI.2006, J. BOTTGER leg., PBF.

Diagnosis – Upperside ground colour darker than in *L. balintiana* but lighter than *L. caudalis*; conspicuous subapical fenestrulla in FW M1-M2; HWV pinkish crossed by a straight oblique darker band, similar to *L. inaudita*.

Description – Male (Fig. 4). Head: eyes brown, lustrous, covered with short, sparse setae; labial palpi twice the length of head, covered dorsally with brown, ventrally with violet brown hair; antennae 2/5 the length of costa, dark brown, white scales at the base of each segment, club composed of 10–11 segments, twice as thick as shaft, flattened, tip curved. Thorax: dorsally black covered with medium brown hair; legs light brown. Abdomen: dorsally and laterally dark brown, ventrally light brown. Wings: FW (length: 24–28 mm, mean: 26.4, n = 5) apex blunt, outer margin slightly concave. HW outer margin wavy, produced at vein M_3 (tail-like extension shorter than in *L. caudalis* and *L. balintiana*); FWD ground colour dark brown, slightly lighter with a crimson-red sheen in basal one-third and postmedian-submarginal area where forming a faint, diffused band; a series of blackish brown ocelli in M_3 -Cu₁, Cu₁-Cu₂ and Cu₂-1A, the latter with minute, barely visible white dots, ocelli in M_3 -Cu₁ and Cu₁-Cu₂ displaced basally in relation to the remainder. HWD ground colour dark brown, slightly lighter, dark crimson-red in median half and in submarginal area; a diffused barely noticeable postmedian band gradually narrowing from costal margin to postdiscal area where merging with submarginal dark brown area; in some individuals barely noticeable dark brown postmedian ocelli. FWV ground colour varying between brick red and orange suffused to a different degree with brown, in some areas denser, forming a series of faint blackish spots; two parallel blackish lines across discal-cell, postbasal and median, enclosing a lighter brick red or orange patch (narrower than in *L. balintiana*); a narrow blackish postmedian band extending from Sc to tornus with a deep protrusion in cell M_3 -Cu₁ and a shallower one in Cu₁-Cu₂ (less marked than in *L. balintiana*); two white dots in the subapical area in cells M1-M2 and M2-M3, the former as a larger fenestrulla; three black ocelli with white pupils in cells M_3 -Cu₁, Cu₁-Cu₂ and Cu₂-1A; a faint blackish brown submarginal line. HWV pinkish brown; an almost straight median oblique band, slightly curving basally near tornus, running from half the costa to tornal angle, suffused with dark violet-brown scales along inner edge, gradually sparser basally, forming a wide median band; a straight row of faint submarginal dots with white pupils in each cell, two white dots in Cu₂-1A; submarginal area gradually darker towards outer margin. Male genitalia (Fig. 37): Dorsal process on the valves two-thirds the length of apical process, dentate dorsally and ventrally, a short teeth-like process on the saddle between dorsal and apical processus; superuncus short, less than one-third the length of uncus;

pedunculus prominent and stout; saccus strongly flattened dorso-ventrally; aedeagus the length of valves, spiny in apical one-third.

Female. So far unknown.

Etymology – The epithet of this species, *necalba*, means “not white” (Latin) and is an allusion to its all dark upperside colour and the lack of the conspicuous white patch of the allied *L. inaudita*.

Comments – This species is currently known only from its type locality, the area situated above Huancabamba, north-west of Oxapampa in Pasco.

Lymanopoda confusa BROWN, 1943
(Figs 9, 10, 12, 40)

Lymanopoda confusa BROWN, 1943: 99, male genitalia fig. 1676.

Lymanopoda confusa BROWN: PYRCZ *et al.* 1999: 520; LAMAS *et al.* 2004: 209.

Lymanopoda hannemannii MILLER, 1991: 103; PYRCZ *et al.* 1999: 520 (synonymy established); LAMAS *et al.* 2004: 209.

Material examined – ECUADOR: Holotype (male, B 1676), ex coll. FRANK JOHNSON, “Ecuador”; Paratypes: 1 male: ex coll. DOGNIN, loja, VI.1886; 1 male: ex coll. E. T. OWEN, locality illegible; 1 male, (pseudoparatype), Choachi, Colombia, March 1914, number 5430, Carnegie Museum (wrong label); 1 male: ex coll. HEWISTON, BMNH; 2 males: Zamora, V.[18]96, ex coll. DOGNIN, BMNH; 1 male: environs de Loja, 1885, ex coll. DOGNIN, BMNH; 1 male: Santa Barbara, VIII.[18]96, ex coll. DOGNIN, BMNH; 1 male: environs de loja, [18]97, ex coll. DOGNIN, BMNH; 1 male: environs de loja, 1886, leg. GAUJON, ex coll. DOGNIN, BMNH; 1 male: Zamora, 1885, leg. GAUJON, ex coll. DOGNIN, BMNH; 1 female: environs de Loja, BMNH; 1 male: Sarayacu, Eastern slopes of Ecuador, ex coll. C. BUCKLEY, 1879, BMNH; 1 male: San Francisco, 1886, ex coll. DOGNIN, MNHN; 1 male: Loja vers Zamora (col), 2600–2700 m, 22.XI.1996, P. BOYER leg., PBF; 1 male: Loja-Zamora km 15 à 30, 2000–2600 m, 20.II.1996, P. BOYER leg., PBF; 1 male: Station électrique km 30, Loja-Zamora, 1800 m, 20.II.1996, P. BOYER leg., PBF; 1 male: Loja, Loja-Zamora 2200–2700 m, 25.XI.1998, P. BOYER leg., PBF; PERU: 2 males: River Tabaconas, N. Peru, 6000 feet, leg. PRATT, 1912, BMNH; 1 male: Huancabamba, N. Peru, 6–10000 feet, BMNH; 1 male: Huancabamba, 6000 feet, 1903, leg. HERM. ROLLE, MNHN.

Comments – Male (Fig. 9): It is recognized from other similarly marked, all brown upperside members of the obsoleta clade by the extremely falcate FW apex. Female (Figs 10, 12): There are two forms. In one of them sexual dimorphism is little marked with the female having some diffuse reddish markings on the HWV, whereas in the strongly dimorphic form there is a wide FWD orange band. Such an individual form is also known to occur in *L. maletera* ADAMS *et* BERNARD, 1979 (PYRCZ *et al.* 1999). Male genitalia (Fig. 40). As illustrated. This species was described from southern Ecuador, where it occurs on the

eastern slopes of the Andes (Zamora-Chinchipe). Recently it was found farther north, in the southern part of the Sangay National Park (Morona-Santiago) (www.sangay.eu). Its position in the phylogeny of *Lymanopoda* was studied by CASNER & PYRCZ (2010).

Lymanopoda magna PYRCZ, 2004
(Figs 7, 8, 39)

Lymanopoda magna PYRCZ, 2004: 468–470, figs. 5 (male), 6 (female), 124 (male genitalia).

Material examined – PERU: Holotype (male): Amazonas: Molinopampa-Granada, 2650–3250 m, 6.VII.1998, T. PYRCZ & J. WOJTUSIAK leg., MUSM; Allotype (female): Amazonas, Molinopampa-Granada, 3000–3200 m, IX.2002, B. CALDERÓN leg., TWP; Paratypes (26 male): 5 males: Amazonas, Abra Pardo Miguel, 2200–2550 m, VI.2002, B. CALDERÓN leg., Amazonas, Molinopampa-Granada, 2650–3250 m, 6.VII.1998, T. PYRCZ & J. WOJTUSIAK leg., TWP; 1 male: same data but 2565 m, 26.VIII.1998; 1 male: same data but 2800–3100 m, 20.VIII.1998; 1 male: same data but 2665 m, 1.VII.1998; 1 male: same data but 2715 m, 1.VII.1998; 1 male: same data but 2765 m, 3.VII.1998; 1 male: same data but 2715 m, 5.VIII.1998; 1 male: same data but 2800–3100 m, 20–30.VI.1998; 1 male: Amazonas, Pomacochas, Qda. El Chido, 2200–2800 m, 9.VII.1998 (10 TWP; 2 MZUJ; 2 BMNH); 2 males: Peña Blanca, Laguna de Pomacochas, 2900–3050 m, VI.2000, B. CALDERÓN leg., ex MBLI (FLMNH); 5 males: Molinopampa-Granada, 3150–3250 m, X.2000, B. CALDERÓN leg., ex MBLI (FLMNH); 1 male: 2 km from Granada, 3400 m, X.2001, B. CALDERÓN leg., ex MBLI (FLMNH); 1 male: Pomacochas, El Oso, 3200 m, 26.V.2000, B. CALDERÓN leg., PBF; 1 male: Molinopampa, XI.2000, B. CALDERÓN leg., PBF; 1 male: same data but III.2002, TWP; 2 males: Abra Pardo Miguel, 2200–2400 m, III.2002, B. CALDERÓN leg., TWP (all paratypes); 3 males: Amazonas, Pomacochas, 2200–2700 m, XII.2000, B. CALDERÓN leg., PBF; 1 male: Amazonas, Molinopampa, via Granada, 2600–3100 m, 23.VIII.1998, T. PYRCZ leg., PBF; 7 males: Amazonas, San José de Molinopampa, 2200–2300 m, V.2005, M. TAFUR leg., PBF; 1 male: Amazonas, environs de Molinopampa, XI.2000, B. CALDERÓN leg., PBF.

Comments – Wing shape is same as in *L. confusiana* n. sp., from which it can be separated by the reddish suffusion of the FWV, and the M3-Cu1 ocellus placed basally in relation to the ocellus Cu1-Cu2, whereas in *L. confusiana* the two are situated the same distance from distal margin. FW apex is acute and produced but never falcate as in *L. confusa*. Male genitalia (Fig. 39). As illustrated. This species occurs in northern Peru (Amazonas, San Martin, La Libertad) in the Eastern and Central Andean Cordillera (PYRCZ 2004). The southernmost locality is the Abiseo National Park. Its altitudinal distribution given (PYRCZ 2004), and the position in the phylogeny of *Lymanopoda* was discussed (CASNER & PYRCZ 2010).

***Lymanopoda confusiana* PYRCZ et BOYER, sp. n.**
(Figs 6, 38)

Types – PERU: Holotype (male): Pasco: Huancabamba, Milpo, 2800–3000 m, X.2005, J. BOTTGER leg., MZUJ (to be deposited in MUSM); Paratypes (5 males): 1 male: Oxapampa, La Antena, 2300–2700 m, V.2003, J. BOTTGER leg. TWP; 1 male: La Antena, SE d’Oxapampa, 2400–2600 m, 29.X.2004, P. BOYER leg., PBF; 1 male: Huancabamba, Milpo, 2900–3300 m, XI.2006, J. BOTTGER leg., PBF; 2 males: Huancabamba, Milpo, 3000–3400 m, IX.2006, J. BOTTGER leg., PBF.

Diagnosis – This species is closely similar to *L. magna* (Figs 7, 8) and *L. confusa*, in size, wing shape, particularly the acute, produced FW apex, and colour pattern. It also resembles *L. obsoleta*, which however lacks the aforementioned produced FW apex, and has smaller FWV ocelli. *L. confusiana* differs from *L. confusa* in the lighter brown FWV ground colour, lacking entirely the crimson red overcast of *L. magna*, the ocellus in M3-Cu1 is barely displaced basally in relation to Cu1-Cu2, similarly to *L. magna*, and contrary to *L. confusa*; HWV has a light crimson overcast limited to basal half, contrary to both *L. confusa* and *L. magna* whose HWV is entirely suffused with dark pink; a slightly arched basally row of clearly noticeable postdiscal white pupilled ocelli, not apparent in *L. confusa* and *L. magna*.

Description – Male (Fig. 6). Head: eyes chestnut, lustrous, covered with sparse setae; labial palpi twice the length of head, chocolate brown, covered dorsally with sandy yellow and ventrally with chestnut hair; antennae 2/5 the length of costa, orange brown, white scales at the base of each segment, club composed of 10–11 segments, twice as thick as shaft, flattened, ventrally slightly darker than dorsally. Thorax: dorsally blackish brown, laterally and ventrally medium brown, legs light brown to yellowish. Abdomen: dorsally blackish brown, laterally and ventrally light brown. Wings: FW (length: 24–26 mm, 24.8 mm, n = 6) outer margin concave, truncate below and acute apex. HW outer margin slightly undulated, produced into a short tip along vein Cu1. FWD ground colour uniform dark brown, one or two tiny subapical dots; faint black, postdiscal ocelli in M3-Cu1, Cu1-Cu2 with minute white pupils. HWD uniform dark brown. FWV ground colour medium brown; apex and subapical area along costa suffused with crimson scales; two minute white subapical dots in M1-M2 and M2-M3; two conspicuous black ocelli with white pupils in M3-Cu1 and Cu1-Cu2, distally edged with some pale yellow scales, in some individuals a third one, smaller and displaced distally, in Cu2-1A. HWV ground colour pinkish and brown, with a crimson red overcast, somewhat heavier basally; two darker, greyish bands, starting separately on inner margin, converging in postdiscal area, distal one with a row of minute ocelli with white pupils. Male genitalia (Fig. 38): Superuncus less than one-third the length of uncus, considerably shorter than in *L. magna*; uncus strongly hooked; dorsal process on the valves two-thirds the length of apical process, dentate dorsally and ventrally; pedunculus prominent and stout; saccus strongly flattened dorso-ventrally; aedeagus the length of valves, smooth.

Female. So far unknown.

Etymology – The epithet of this species is an allusion to its similarity with *L. confusa*.

Comments – This species is known so far only from the area of Oxapampa and Huan-cabamba in the department of Pasco in central Peru.

Lymanopoda dietzi dietzi ADAMS et BERNARD, 1981
 (Figs 31, 32, 45)

Lymanopoda dietzi ADAMS & BERNARD, 1981: 357, fig. 19 (male), fig. 20 (female), fig. 5 (male genitalia).

Lymanopoda dietzi ADAMS et BERNARD: D'ABRERA 1988: 822; LAMAS *et al.* 2004: 209.

Material examined – VENEZUELA: Holotype (male): Mérida: above La Montaña, S. of Mérida, 2450–2550 m, 20.VIII.1977, M. ADAMS leg., BMNH; 2 males: same data as the holotype, BMNH; 3 males: 2600–2650 m, 10.IV.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH and MIZA (1 male); 2 males: 2600–3000 m, 11.IV.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 1 male and 1 female: 2400 m, 13.IV.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 1 male: 3100 m, 7.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 4 males: 3000 m, 8.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 1 male: 2600 m, 14.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 2 males: 2600 m, 15.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 1 male: 2900 m, 3.VIII.[19]77, leg. M. J. ADAMS & G. BERNARD, BMNH; 3 males: 2450–2550 m, 9.VIII.[19]77, leg. M. J. ADAMS & G. BERNARD, BMNH; 2 males: 2450–2550 m, 19.VIII.[19]77, leg. M. J. ADAMS & G. BERNARD, BMNH; 14 males and 3 females: La Mucuy near Tabay, 2400–2700 m, 16.IV.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 2 males: same data but 2100–2300 m, 24.IV.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 3 males: Río Albarregas, 2800 m, 17.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 4 males: same data but 2900–3050 m, 18.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 2 males: same data but 2400–2600 m, 18.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 1 male: same data but 2800 m, 19.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 1 male, same data but 3000 m, 20.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 4 males: same data but 2850 m, 21.VI.[19]75, leg. M. J. ADAMS & G. BERNARD, BMNH; 1 male: 3150 m, 13.VIII.[19]77, leg. M. J. ADAMS & G. BERNARD, BMNH; 6 males: same data but 3050–3150 m, 14.VIII.[19]77, leg. M. J. ADAMS & G. BERNARD, BMNH; 2 males: same data but 2700 m, 16.VIII.[19]77, leg. M. J. ADAMS & G. BERNARD, BMNH; 2 males: same data but 2350 m & 2600 m, 17.VIII.[19]77, leg. M. J. ADAMS & G. BERNARD, BMNH; Venezuela, 2 males: ex coll. FRUHSTORFER, BM 1933–131 & 1937–285, BMNH; 7 males: Mérida, Joicey Bequest BM 1934–120, leg. BRICEÑO, BMNH; 1 male: El Valle, Mérida, leg. BRICEÑO, BMNH; 1 male: Joicey Bequest, leg. BRICEÑO, BMNH (all paratypes); 8 males: La Culata National Park, Monte Zerpa, 2200–3000 m, 1–28.II.1996, T. PYRCZ leg., MZUJ; 4 males: same data but 4–08.IV.1996; 1 male: same data but 14.II.1996; 6 males: same data but 20.II.1996; 1 female: same data but 23.II.1996; 5 males: same data but 25.II.1996; 1 male: same data but 2700 m, 22.III.1992; 1 male: same data but 2800 m, 31.V.1992; 1 male:

same data 2800 m, 31.V.1992; 1 male: same data but 2700 m; 1 male: same data but 2600 m; 1 male: same data but 2500 m; 2 males: same data but no altitude; 1 female: same data but 2800 m, 13.III.1992; 1 male: Parque Nacional La Culata, Sector Monterrey, 2800–2850 m, 6.IV.2006; 1 male: Parque Nacional La Culata, Alto Río Mucujún, 3050–3100 m, 3.IV.2006; 2 males: Parque Nacional La Culata, La Culata, Quebrada La Cuesta, 2400 m, 1.X.1991; 1 male: no data, (all MZUJ); 2 males: La Culata NP, Monte Zerpa, 2200–3000 m, 1–28.II.1996, T. PYRCZ leg., PBF; 1 male: La Culata NP, Monte Zerpa, 2200–3000 m, 1–31.III.1996, T. PYRCZ leg., PBF.

Diagnosis – The nominate subspecies of *L. dietzi* closely resembles *L. obsoleta*, *L. lecromi* and *L. maletera* from which it differs in having a golden patch on basal third of both wings, from *L. obsoleta* it also differs in the russet brown shade of the FWV and larger black ocelli in cells M3-Cu1 and Cu1-Cu2.

Redescription – Male (Fig. 31). Head: eyes chocolate brown, hairy; labial palpi twice the length of head covered with grey-brown hair; antennae slender, club twice as thick as shaft, dorsally dark brown, ventrally slightly lighter brown with sparse silver scales, except for the club. Thorax: dark brown, dorsally hairy, legs brown, tibia and tarsus covered with yellow hair. Abdomen: dorsally and laterally dark brown, ventrally lighter, dull brown. Wings: FW triangular, tornus relatively obtuse, outer margin slightly excavated near apex. HW sub-rhomboidal, with external angle formed by extension of vein M3. FWD (length: 22–26 mm, mean: 23.7 mm, n = 39) dark brown, lustrous; a golden patch on basal third extending to mid discal cell and mid costa along inner margin. HWD dark brown, lustrous, hairy and with a golden green sheen in basal third. FWV chocolate brown; olive brown in postmedian to submarginal area surrounding two, small black ocelli, in most individuals with a minute white pupil, in cells M3-Cu1 and Cu1-Cu2, and spreading towards tornus; apical area crimson red brown; subapical area with a whitish patch with a magenta overcast and two minute white posts in M1-M2 and M2-M3; basal area dusted with orange red; in some individuals a faint, yellowish patch along distal edge of discal cell. HWV ground colour somewhat variable, between russet brown and crimson red dusted with magenta; two lighter, pinkish bands with, one of them defined by a sharp inner edge extending from mid costa to mid inner margin of discal cell and a diffuse outer edge spreading gradually from discal cell end to apex; the second with a sharp basal edge from mid anal margin to vein M3, then gradually fading out yet continuing to vein M2, and a diffuse outer margin running at roughly straight line from tornus to vein M2 gradually converging with inner edge, this area encloses a series of 2–4 minute white submarginal dots arched basally, with two more white apparent in subapical area in cells Rs-M1 and M1-M2 on the darker, russet brown area of the wing; in most individuals a faint yellowish postbasal patch on costal margin and in discal cell. Genitalia: (Fig. 45) As illustrated.

Female (Fig. 32). Sexual dimorphism slight marked by the lighter and paler colour of the female on both the upper and underside. Female genitalia: not examined.

Comments – *Lymanopoda dietzi* was described from the northern slopes of the Sierra Nevada range (ADAMS & BERNARD 1981). It later was found also on the southern slopes of La Culata range. All known localities are situated in the upper Chama valley, which

indicates that this taxon is effectively endemic of this area of central Cordillera de Mérida. Several taxa apparently, as indicated by wing shapes and colour pattern, related to *L. dietzi* were discovered by the authors of his paper in various localities of the Cordillera de Mérida. They all differ from *L. dietzi* most of all in the colour of the upperside basal area of the wings, which in *L. dietzi* is characterized by a conspicuous golden patch. Otherwise, they are closely similar, especially in the diagnostic HWV russet brown overcast, and nearly identical male genitalia, in particular massif dorsal processes on the valves thickened in the middle and covered with numerous spines on both the dorsal and ventral surface. A molecular study demonstrated the close phyletic affinities of all these taxa and the allied *L. lecromi* found in the Tamá range. Accordingly, they are all treated here as subspecies of *L. dietzi* rather than species on their right, even though the phenotypic differences, particularly between several taxa are marked enough as to justify their separate specific status. The specific status of *L. lecromi* should be evaluated and this taxon should probably be attributed the rank of another subspecies of *L. dietzi*. Also, several other species of Pro-nophilini Satyrinae occurring in the Cordillera de Mérida present similar subspeciation pattern, namely the recently studied *Lymanopoda marianna* (PYRCZ *et al.* 2009). The altitudinal distribution of *L. dietzi dietzi* was discussed by PYRCZ & WOJTUSIAK (2002), and the position in the phylogeny of *Lymanopoda* by CASNER & PYRCZ (2010).

***Lymanopoda dietzi rosanna* VILORIA et PYRCZ, ssp. n.
(Figs 25, 26, 27, 28, 50)**

Types – VENEZUELA: Holotype (male): *Lara*: Parque Nacional Dinira, El Almorzadero, 2600 m, 14–16.I.1994, leg. A. VILORIA & J. CAMACHO, MIZA; Paratypes (82 males and 4 females): 5 males: same data as the holotype, MALUZ; *Trujillo*: 2 males: Páramo de Guaramacal, 2800 m, 22–25.VIII.1995, J. CAMACHO & M. GARCÍA leg., MIZA; 10 males: Estado Trujillo, Boconó–Trujillo Old Road, Sector Pico Tonojo 26 km, 2450–2500 m, 18.IV.2006, T. PYRCZ leg.; 11 males: same data but 17.IV.2006; 9 males: Estado Trujillo, Boconó–Burbusay, Cabimbú de San Miguel, 2900–2950 m, 19.II.2007, T. PYRCZ leg.; 3 males: Estado Trujillo, Parque Nacional Dinira, Agua de Obispos, 2600–2625 m, 14.VIII.2003, T. PYRCZ leg.; 6 males: Estado Trujillo, Parque Nacional Guaramacal, via La Vega, 2800–2850 m, 22.XII.2004, M. COSTA leg.; 1 male: same data but 2300 m, 25.XII.2004; 2 males: Estado Trujillo, Parque Nacional Guaramacal, Paso–La Vega, 2900–2950 m, 15–16.II.2007, T. PYRCZ leg.; 8 males and 1 female: Estado Trujillo, Parque Nacional Guaramacal, Quebrada El Caote, 2700–2750 m, 15.II.2007, T. PYRCZ leg.; 1 male: same data but 16.II.2007; 1 female: same data but 2.XII.2005; 5 males: same data but 2700–2750 m, 26.VII.2007; 1 male: Estado Trujillo, Páramo Las Moras, 2950–3050 m, 21.II.2007, T. PYRCZ leg.; 6 males: Estado Trujillo, Massif du Guaramacal, Quebrada El Caote, 2600 m, 26.VII.2009, P. BOYER leg., PBF; 1 female: Estado Trujillo, Quebrada El Caote, Boconó–La Vega, Guaramacal, 2600m, 17.II.2007, T. PYRCZ leg., PBF; 10 males: Estado Trujillo, Carretera vieja a Trujillo km 8, El Rucio, Pie del Pico Tonojo, 30 km de Boconó, 2500 m, 16.IV.2006, P. BOYER leg., PBF; 1 male: Estado Trujillo, El Rucio, via antigua de Boconó a Trujillo km 8,

2400 m, 28.VII.2009, P. BOYER leg., PBF; 1 male and 1 female: Estado Trujillo, Páramo de Ortiz, 2900 m, 5.II.2008, P. BOYER leg., PBF.

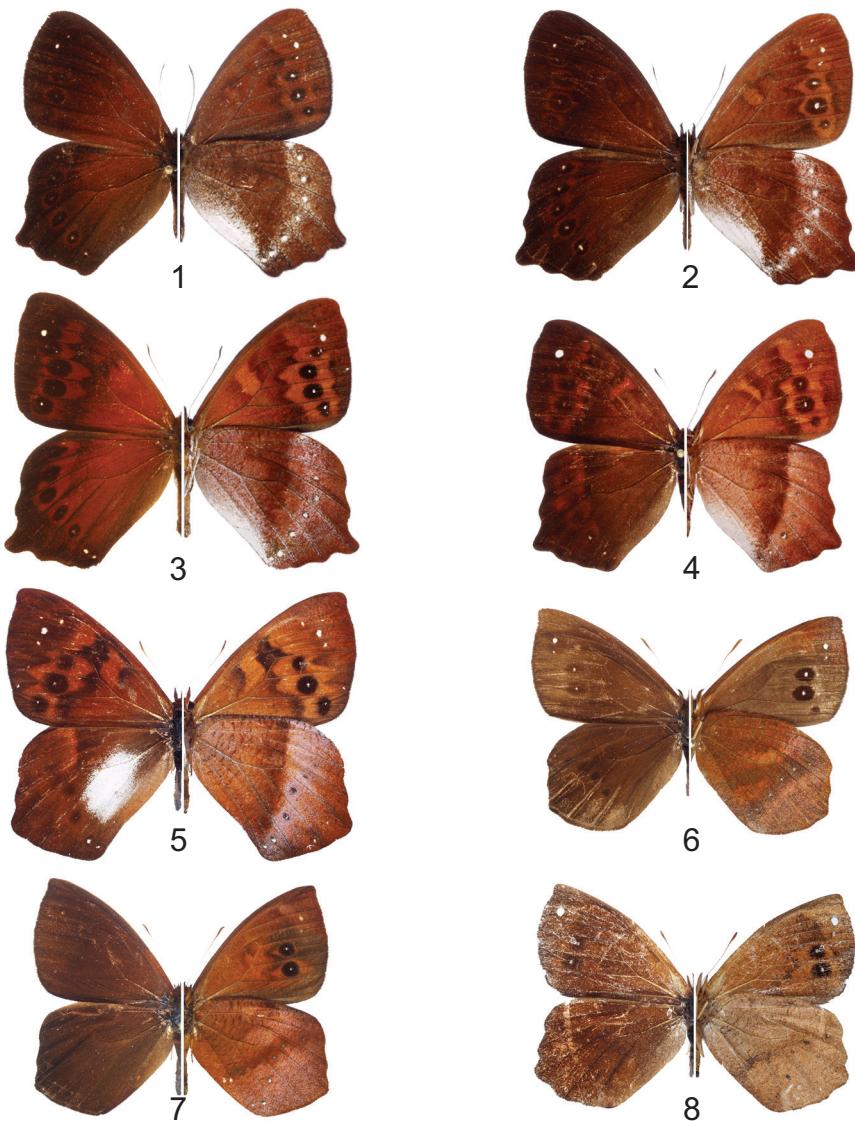
Diagnosis – *L. dietzi rosanna* differs immediately from other subspecies in having a blue patch on the FWD and HWD basal and postbasal area. The most similar subspecies is *argentata* with a similarly shaped, silver patch.

Description – Male (Figs 25, 27). Head, thorax and abdomen do not differ from the nominate subspecies. Forewing length: (20–26 mm, 22.8 mm, n = 55). Wings: Shaped same as in the nominate subspecies. FWD blackish brown; a shining blue patch in basal and postbasal area, with diffuse outer margin. HWD blackish brown with a shining blue patch extending from wing base to distal edge of discal cell, to mid costal margin and into basal part of cell Cu1-Cu2, without extending beyond vein Cu1 towards inner margin. FWV and HWV do not differ noticeably from the nominate subspecies, except in the larger FW black ocelli in M3-Cu1 and Cu1-Cu2, in having in most examined individuals a faint, reddish or orange FW discal cell suffusion, and in the generally more contrasting HW pattern due to brighter pinkish and crimson overcast. Male genitalia (Fig. 50): Do not differ noticeably from the nominate subspecies.

Female (Figs 26, 28). Differs from the male in the same way as the female of the nominate subspecies, namely in the slightly larger size (FW length: 25–26 mm, mean: 25.3 mm, n = 3), the presence of one or two FWD subapical white dots, and the lighter FWD and HWD brown ground colour; and additionally in a HWD reddish anal suffusion. Female genitalia: not examined.

Etymology – This subspecies is dedicated to ROSANNA CALCHI, a biologist from the La Universidad del Zulia in Maracaibo, who participated in several entomological expeditions to the Venezuelan Andes.

Comments – There are some differences between the populations of *L. dietzi rosanna*. In particular, the average size of the Pico Tonojo population is smaller than the Guaramacal population (21.8 mm and 23.8 mm). Also, the HWV ground colour of the Pico Tonojo individuals is generally darker, crimson, than the orange brown in Guaramacal. However, the Cabimbú de San Miguel individuals are intermediate in size (22.4 mm) but their HWV colour is similar in shade to the Guaramacal specimens. The individuals from Páramo de Las Moras, the southernmost known locality show a tendency towards the reduction in size of the blue patch. In fact, in two of the four examined specimens it reaches only to the middle of HW discal cell. The status of this population has to be re-evaluated when more specimens are available for study. The observed morphological differences between other populations are slight and not stable enough as to allow the identification of more than one subspecies.



Figs 1–8. Adults. 1 = *Lymanopoda caudalis raymondae* PYRCZ et BOYER, sp. n., male, holotype (Huanacaure), 2 = *Lymanopoda caudalis caudalis* ROSENBERG et TALBOT, 1914, male (Cueva Blanca), 3 = *Lymanopoda balintiana* PYRCZ et BOYER, sp. n., male, holotype (Mariposa), 4 = *Lymanopoda necalba* PYRCZ et BOYER, sp. n., male, holotype (Milpo), 5 = *Lymanopoda inaudita* PYRCZ, sp. n., male, paratype (Carrizales), 6 = *Lymanopoda confusiana* PYRCZ et BOYER, sp. n., male, holotype (Milpo), 7 = *Lymanopoda magna* PYRCZ, 2004, male, paratype (Molinopampa), 8 = *Lymanopoda magna* PYRCZ, 2004, female, paratype (Molinopampa)



Figs 9–16. Adults. 9 = *Lymanopoda confusa* BROWN, 1943, male (Loja-Zamora), 10 = *Lymanopoda confusa* BROWN, 1943, female (Loja-Zamora), 11 = *Lymanopoda altis* WEYMER, 1890, male (Llanos de San Andrés), 12 = *Lymanopoda confusa* BROWN, 1943, female, form (Loja-Zamora), 13 = *Lymanopoda maletera* ADAMS et BERNARD, 1981, male, paratype (Manaure), 14 = *Lymanopoda maletera* ADAMS et BERNARD, 1981, female, paratype (Manaure), 15 = *Lymanopoda obsoleta* (WESTWOOD, [1851]), male (Mérida), 16 = *Lymanopoda obsoleta* (WESTWOOD, [1851]), female (Mérida)



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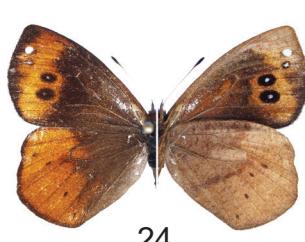
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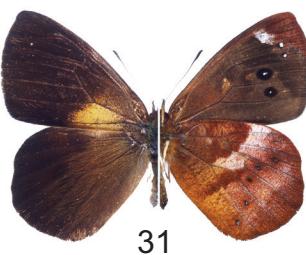
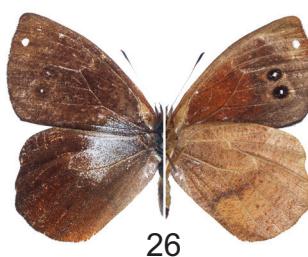


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Figs 17–24. Adults. 17 = *Lymanopoda lecromi* PYRCZ et VILORIA, 2007, male (Betania), 18 = *Lymanopoda lecromi* PYRCZ et VILORIA, 2007, female (Betania), 19 = *Lymanopoda dietzi vetula* VILORIA et PYRCZ, sp. n., male, holotype (Batallón), 20 = *Lymanopoda dietzi vetula* VILORIA et PYRCZ, sp. n., female, paratype (above Jají), 21 = *Lymanopoda dietzi oliva* PYRCZ et BOYER, sp. n., male, holotype (El Bahó), 22 = *Lymanopoda dietzi oliva* PYRCZ et BOYER, sp. n., female, paratype (El Bahó), 23 = *Lymanopoda dietzi neildi* PYRCZ, sp. n., male, paratype (no locality), 24 = *Lymanopoda dietzi vetula* VILORIA et PYRCZ, sp. n., female form, paratype (Páramo de San José)



Figs 25–32. Adults. 25 = *Lymanopoda dietzi rosanna* VILORIA et PYRCZ, sp. n., male, holotype (Tonojo), 26 = *Lymanopoda dietzi rosanna* VILORIA et PYRCZ, sp. n., female, paratype (Tonojo), 27 = *Lymanopoda dietzi rosanna* VILORIA et PYRCZ, sp. n., male, paratype (Las Moras), 28 = *Lymanopoda dietzi rosanna* VILORIA et PYRCZ, sp. n., female, paratype (Las Moras), 29 = *Lymanopoda dietzi argentata* PYRCZ, sp. n., male, holotype (Timotes), 30 = *Lymanopoda dietzi argentata* PYRCZ, sp. n., female, paratype (Timotes), 31 = *Lymanopoda dietzi dietzi* ADAMS et BERNARD, 1981, male (Monte Zerpa), 32 = *Lymanopoda dietzi dietzi* ADAMS et BERNARD, 1981, female (Monte Zerpa)

Lymanopoda dietzi argentata PYRCZ, ssp. n.
(Figs 29, 30, 49)

Types – VENEZUELA: Holotype (male): *Mérida*: Timotes, Alto de Tafayés, 2650–2700 m, 30.VII.2009, T. PYRCZ leg., MZUJ (to be deposited in MIZA); Paratypes (11 males and 2 females): 1 male: same data as the holotype, TWP; 2 males: same data but 11.IV. 2006, prep. genit. 4/10.01.2010 J. LORENC, MZUJ; 2 males: same data 13.II.2007, MZUJ; 2 males and 1 female: same data but 26.II.2006, M. COSTA leg., MZUJ; 2 males: Timotes a Piñango km 7–8, Alto de Tafayés, 2700 m, 11.IV.2006, P. BOYER leg., PBF; 2 males and 1 female: Alto de Tafayés, Timotes vers Tafayés, 2700 m, 30.VII.2009, P. BOYER leg., PBF.

Diagnosis – *L. dietzi argentata* differs immediately from other subspecies in the silver patch on the FWD and HWD basal and postbasal area. The most similar subspecies is *rosanna* with a similarly shaped, blue patch.

Description – Male (Fig. 29). Head, thorax and abdomen do not differ from the nominate subspecies. Wings: FW length: (21–23 mm, mean: 22 mm, n=6). Wing shape same as in the nominate subspecies. FWD blackish brown; a shining silver patch in basal and postbasal area, with diffuse outer margin. HWD blackish brown with a shining silver patch extending from wing base to median area, in some specimens covering two-thirds, in other the entire discal cell, to mid costal margin and into basal part of cell Cu1-Cu2, without extending beyond vein Cu1 towards inner margin. FWV and HWV similar to the nominate subspecies, in particular the FW black ocelli in M3-Cu1 and Cu1-Cu2 are similar in size, and smaller than in *rosanna*, in some individuals there is a faint, brick red FW basal suffusion. HW ground colour is fairly variable, between crimson red with a magenta sheen to light brown with an orange overcast. Male genitalia (Fig. 49): Do not differ noticeably from the nominate subspecies.

Female (Fig. 30). Differs from the male in the same way as the female of the nominate subspecies, namely in the slightly larger size, lighter and duller FWD and HWD brown ground colour and the presence of one or two FWD subapical dots. Female genitalia: not examined.

Etymology – The epithet of this subspecies, *argentata*, refers to the silver colour of its upperside patch.

Comments – This subspecies is known so far exclusively from a small area in Alto de Tafayés above the locality of Timotes.

***Lymanopoda dietzi vetula* VILORIA et PYRCZ, ssp. n.**
(Figs 19, 20, 24, 46)

Types – VENEZUELA: Holotype (male): Mérida: Qda. de Los Píos, 2900 m, 4–5.III.1996, T. PYRCZ & J. WOJTUSIAK leg., MZUJ (to be deposited in MIZA); Paratypes (33 males and 2 females): 6 males: Mérida, Qda. de Los Píos, 2900 m, 4–5.III.1996, T. PYRCZ & J. WOJTUSIAK leg., MZUJ; 5 males: same data but 3.XII.2005, T. PYRCZ leg., MZUJ; 1 male: Mesa Alta, 2900–2950 m, 3.XII.2005, T. PYRCZ leg., TWP; 2 males and 1 female: Tovar-Guaraque km 22, La Cumbre, 2400–2450 m, 26.XI.2005, T. PYRCZ leg., TWP; 3 males: Páramo de San José, 2900–3050 m, 11–12.II.2007, T. PYRCZ leg., MZUJ; 1 male: Páramo de San José 3100 m, 20.II.2008, P. BOYER leg., PBF; 1 male: Las Antenas, Tovar vers Guaraque km 22, 2550 m, 4.XII.2005, P. BOYER leg., PBF; 1 male: San José vers Mucutuy km 11, 3000 m, 5.XII.2005, P. BOYER leg., PBF; 3 males: Bailadores vers Pregonero km 28, 2.2 km après jonction de la Grita, 2900 m, 2.XII.2005, P. BOYER leg., PBF; 3 males: Mesa Alta, La Grita-Pregonero km 33.5, bifurcation Bailadores vers Pregonero km 5.6, 29.XI. 2005, P. BOYER leg., PBF; 1 female: above Jají, vía Páramo de Los Conejos, 2200 m, 05.VII. 2009, T. PYRCZ leg.; Táchira: 7 males: Páramo El Rosal, 2950–3050 m, 1–2.III.1996, T. PYRCZ & J. WOJTUSIAK leg., MZUJ.

Diagnosis – *L. dietzi vetula* differs from other subspecies, except from *oliva*, in lacking any conspicuous FWD and HWD patch. It differs from the most similar subspecies *oliva* in the smaller size, less acute FW apex, smaller FWV black ocelli in M3-Cu1 and Cu1-Cu2, and a much more restricted basally or no FWV basal reddish suffusion.

Description – Male (Fig. 19): Head, thorax and abdomen do not differ from the nominate subspecies. Forewing length: (20–24 mm, mean: 22 mm, n=22). Wing shape differs from the nominate and all other subspecies in the less acute FW apex, in this respect *vetula* is similar to *L. obsoleta*. FWD varying between dark and blackish brown; a shade lighter, shining, velvety basal and postbasal area. HWD dark or blackish brown with a similar shining, velvety area roughly to distal edge of discal cell. FWV and HWV do not differ noticeably from the nominate subspecies. Male genitalia (Fig. 46): Do not differ noticeably from the nominate subspecies.

Female (Figs 20, 24). Differs from the male in the same way as the female of the nominate subspecies. There is a rare individual form with large orange markings on the FW and HWD.

Etymology – The epithet of this subspecies, *vetula*, means “old” in Latin. This name refers to the general brown pattern of the wing design of this butterfly, which gives the butterfly an aspect of old wood.

Comments – This subspecies is distributed between the Batallón massif in southern to the Páramo de San José in the south-central part of the Cordillera de Mérida on the eastern slopes of the range.

***Lymanopoda dietzi oliva* PYRCZ et BOYER, ssp. n.
(Figs 21, 22, 47)**

Types – VENEZUELA: Holotype (male): *Mérida*: El Bahó, vía El Páramo, 3100 m, 25.XI.2005, T. PYRCZ leg., MZUJ (to be deposited in MIZA); Paratypes (43 males and 1 female): 12 males: same data but 2650 m; 1 male: same data but 3050–3100 m; 1 male: same data but 2300–2350 m, 19.XI.2005; 1 male: same data but 2400 m, 20.XI.2005; 1 male: same data but 2900–2950 m, 21.XI.2005; 1 female: same data but 2600–2650 m; 1 male: same data but 2700 m; 1 male: same data but 2800–2850 m; 1 male: same data but 2950 m; 1 male: same data but 2950 m, 22.XI.2005; 1 male: same data but 2700–2750 m; 1 male: same data but 2450–2500 m, 24.XI.2005; 1 male: same data but 2650 m, 26.XI.2005; 1 male: same data but 2400–2450 m; 2 males: same data but 2600 m; 1 male: same data but 2850 m; 2 males: same data but 2900–2950 m; 1 male: same data but 2900 m; 2 males: same data but 2400–2450 m, 27.XI.2005; 1 male: same data but 2700–2750 m; 1 male: same data but 2400–2450 m, 14.II.2007; 1 male: same data but 2400–2460 m, 6.VII.2006; 1 male: Pueblo Llano-Tuñame, Qda. Ranchería, 2900–2950 m, 27.XI.2005, T. PYRCZ leg.; 2 males: Pueblo Llano, Cañotal, 2750–2800 m, 29.XII.2004, M. COSTA leg., all MZUJ; 2 males: El Bahó, 2300–3500 m, 8°50' N 70°42'W, 28.I.2008, No. 2. BIOPHOT Expedition, Zs. BÁLINT & B. BENEDEK leg., HNHM; 3 males: El Bahó, Santo Domingo vers Apartaderos km 4, 2600–2850 m, 21.XI.2005, P. BOYER leg., PBF; 3 males: El Bahó, Santo Domingo vers Apartaderos km 4, 2400–2600 m, 26.XI.2005, P. BOYER leg., PBF; 1 male: El Bahó, Santo Domingo vers Apartaderos km 4, 2400–2600 m, 21.XI.2005, P. BOYER leg., PBF; 2 males: El Bahó, Santo Domingo vers Apartaderos km 4, 2850–3100 m, 26.XI.2005, P. BOYER leg., PBF; 1 male: Mérida, El Bahó, Santo Domingo vers Apartaderos km 4, 2850–3100 m, 21.XI.2005, P. BOYER leg., PBF; 1 male: El Bahó, Santo Domingo vers Apartaderos km 4, 2400–2600 m, 19.XI.2005, P. BOYER leg., PBF; *Barinas*: 1 male: Los Morritos, 3000 m, 5.I.2006, M. COSTA leg., TWP; 1 male: Los Morritos, 3000 m, 5.I.2006, M. COSTA leg.

Diagnosis – *L. dietzi oliva* differs from other subspecies, except *vetula*, in lacking any conspicuous FWD and HWD patch. It differs from the most similar subspecies *vetula* in the larger size, more acute FW apex, smaller velvety area on the FWD restricted to basal area, larger FWV black ocelli in M3-Cu1 and Cu1-Cu2, the size of the nominate subspecies, and a FWV basal reddish suffusion more apparent in most examined individuals.

Description – Male (Fig. 21). Head, thorax and abdomen do not differ from the nominate subspecies. Forewing length: (22–26 mm, mean: 23.8 mm, n=27). Wings: Shaped same as in the nominate subspecies. FWD dark brown; a shade lighter, shining, velvety, usually with an olive sheen, basal area. HWD dark or blackish brown with a similar shining, velvety, olive area roughly to distal edge of discal cell or slightly beyond towards inner margin and tornus. FWV does not differ noticeably from the nominate subspecies, except for the presence of a crimson red postbasal suffusion. HWV does not differ consistently from the nominate subspecies. Male genitalia (Fig. 47): Do not differ noticeably from the nominate subspecies.

Female (Fig. 22). Differs from the male in the same way as the female of the nominate subspecies.

Etymology – The epithet, *oliva*, refers to the diagnostic olive sheen on the forewing and hindwing upperside of this subspecies.

Comments – This subspecies is distributed between the area of Los Morritos on the eastern slopes of the Sierra Nevada to the valley of Santo Domingo and Pueblo Llano in north-central part of the Cordillera de Mérida.

***Lymanopoda dietzi neildi* PYRCZ, ssp. n.**
(Figs 23, 48)

Types – VENEZUELA: Holotype (male): *Trujillo*: est de Niquitao, El Paramito, chemin partant de la cascade, 2550 m, 7.XII.2005, P. BOYER leg., PBF (to be deposited in MIZA); Paratype (male): no data, J. MESA, ex coll. A. NEILD, TWP.

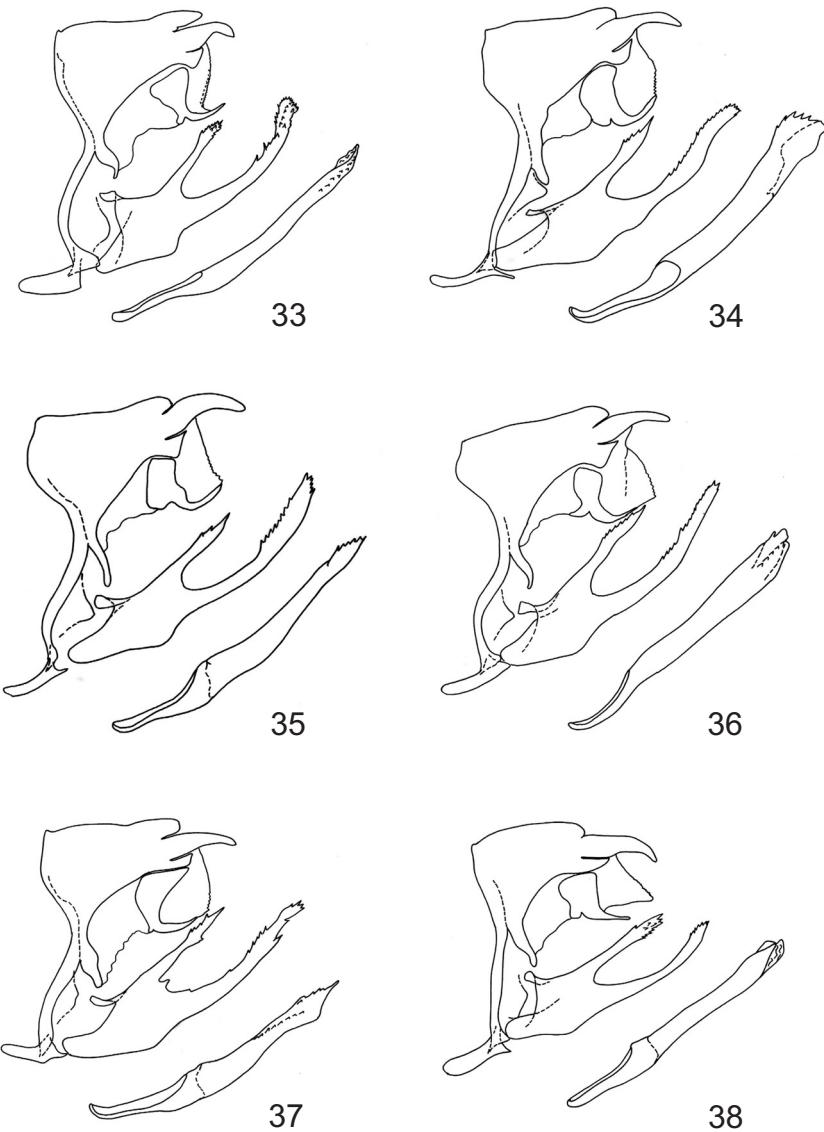
Diagnosis – *L. dietzi neildi* has a basal patch only on the FWD, similarly to the nominate subspecies, but more restricted basally and light green with a yellowish sheen, instead of golden.

Description – Male (Fig. 23). Head, thorax and abdomen do not differ from the nominate subspecies. Forewing length: (22 mm). Wings: Shaped same as in the nominate subspecies. FWD dark brown; a greenish yellow patch restricted to basal area. HWD dark or blackish brown with basal and postbasal area suffused with greenish yellow scales to distal edge of discal cell. FWV does not differ noticeably from the nominate subspecies, except for larger M3-Cu1, Cu1-Cu2 black ocelli, similar as in *rosanna* and *oliva*, and the presence of a faint, reddish patch along distal edge of FWV discal cell. HWV does not differ consistently from the nominate subspecies. Male genitalia (Fig. 48): Do not differ noticeably from the nominate subspecies.

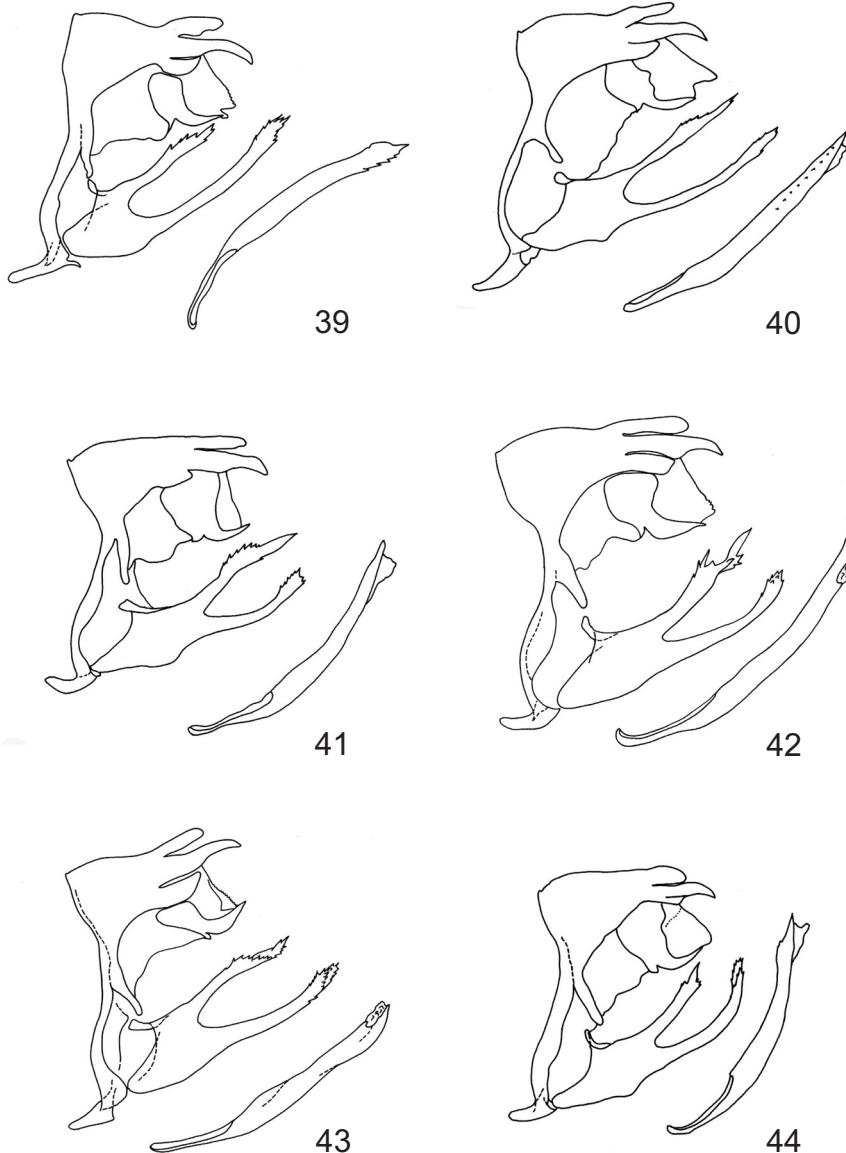
Female. So far unknown.

Etymology – This subspecies is dedicated to ANDREW NEILD, author of excellent books on the butterflies of Venezuela.

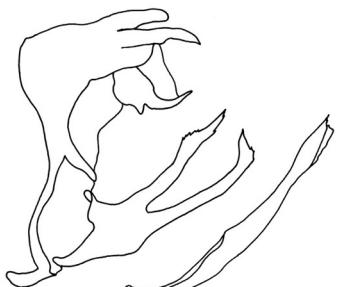
Comments – This subspecies is found in the upper valley of the Río Niquitao. It is described based on two specimens, including one of unknown origin. However, a series of four individuals were collected and examined in the type locality by the senior author. They represented the same morphotype as the holotype. They were subsequently lost in mail package.



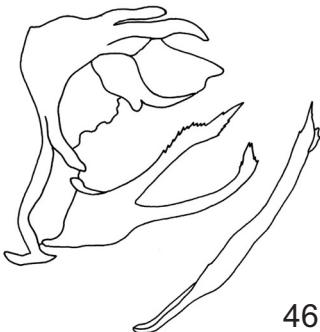
Figs 33–38. Male genitalia. 33 = *L. inaudita* PYRCZ, sp. n., paratype, 34 = *L. balintiana* PYRCZ et BOYER, sp. n., paratype, 35 = *L. caudalis caudalis* ROSENBERG et TALBOT, 1914 (Milpo), 36 = *L. caudalis raymondae* PYRCZ et BOYER, sp. n., paratype, 37 = *L. necalba* PYRCZ et BOYER, sp. n., paratype, 38 = *L. confusiana* PYRCZ et BOYER, sp. n., paratype



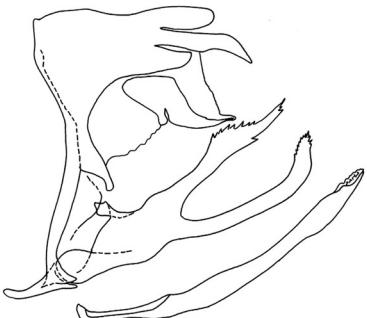
Figs 39–44. Male genitalia. 39 = *L. magna* PYRCZ, 2004, paratype, 40 = *L. confusa* BROWN, 1943 (Loja-Zamora), 41 = *L. altis* WEYMER, 1890, (Llanos de San Andrés), 42 = *L. maletera* ADAMS et BERNARD, 1979, paratype, 43 = *L. lecromi* PYRCZ et VILORIA, 2007, paratype, 44 = *L. obsoleta* (WESTWOOD, [1851]) (Monte Zerpa)



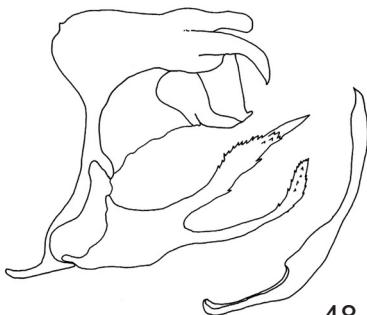
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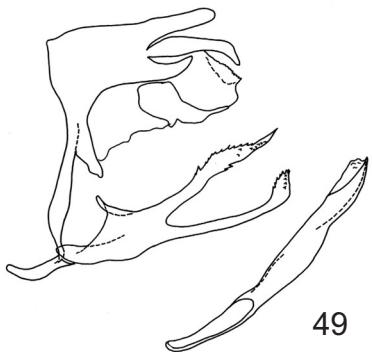
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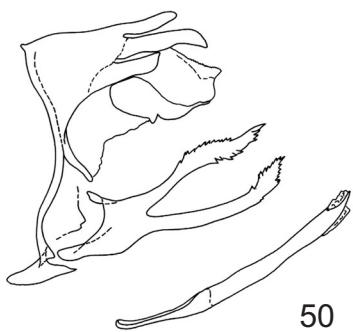
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Figs 45–50. Male genitalia. 45 = *L. dietzi dietzi* ADAMS et BERNARD, 1981 (Monte Zerpa), 46 = *L. dietzi vetula* VILORIA et PYRCZ, sp. n., paratype, 47 = *L. dietzi oliva* PYRCZ et BOYER, sp. n., paratype, 48 = *L. dietzi neildi* PYRCZ, sp. n., paratype, 49 = *L. dietzi argentata* PYRCZ, sp. n., paratype, 50 = *L. dietzi rosanna* VILORIA et PYRCZ, sp. n., paratype

Lymanopoda lecromi PYRCZ et VILORIA, 2007
(Figs 17, 18, 43)

Lymanopoda lecromi PYRCZ & VILORIA, 2007: 32–33, fig. 7 (male), fig. 8 (female), fig. 35 (male genitalia).

Material examined – VENEZUELA: Holotype (male): Táchira: Este de Betania, 2750–2810 m, 16–19.II.1992, A. VILORIA, J. CAMACHO & R. CALCHI leg., MALUZ; Allotype (female): same data but 2520–2620 m, 19.II.1992, MALUZ; 1 male: same data as the holotype, MALUZ; 2 males: same data as the allotype, MALUZ; 3 males: vía La Línea, 2600–2900 m, 30.V.1994, leg. A. VILORIA, J. CAMACHO & M. GARCÍA, MALUZ; 1 same: data but 2400–2600 m, 28–29.V.1994, MALUZ; 1 male: Cerro La Banderola, 3000–3200 m, 20.VIII.1996, leg. A. VILORIA, MALUZ; 5 males and 1 female: Betania, 2200–2300 m, 15–16.IV.1996, leg. T. PYRCZ & F. REY, TWP; 3 females: vía La Línea, 2300–2700 m, 17.IV.1996, leg. T. PYRCZ & F. REY leg., 2 TWP, 1 JLC (all paratypes); 1 male: Sierra del Tamá, vía a Páramo La Línea, 2900 m, 16.II.2008, P. BOYER leg., PBF; 2 males: same data but 2900–3000 m, P. BOYER leg., PBF. COLOMBIA: Cundinamarca, La Calera, 3000 m, H. WARREN-GASH leg., TWP.

Comments – Male (Fig. 17): *L. lecromi* is closely similar to the allopatric *L. dietzi vetula* from which it differs in the larger FWV ocelli, and lighter, chocolate brown ground colour. It is also similar to the parapatric *L. obsoleta* from which it can be separated by the larger ocelli and the orange brown, instead of crimson or violet red HWV. Female (Fig. 18): Differs from the female of *L. dietzi vetula* and *L. obsoleta* in the similar way as the male. Male genitalia (Fig. 43): As illustrated. Its position in the phylogeny of *Lymanopoda* was studied by CASNER & PYRCZ (2010).

L. lecromi was described from the Tamá National Park in the northern part of the Colombian Eastern Cordillera (PYRCZ & VILORIA 2007). Recently specimens of *L. lecromi* were found in the department of Cundinamarca, which extends considerably the range of this species.

Lymanopoda maletera ADAMS et BERNARD, 1979
(Fig. 13, 14, 42)

Lymanopoda maletera ADAMS & BERNARD, 1979: 106–107, figs 24 (male), 25 (female), 5 (male genitalia).

Material examined – Holotype (male): Adams Collection, 1971–72, BMNH; 1 male and 1 female: no data, Bernard Collection, Colombia 1978–370, BMNH; 1 male: East above Manaure, 2800 m, Adams Collection, 1977–1978–370, BMNH; 4 males: East above Manaure, 2750 m; 1 male: same data, MZUJ.

Comments – Male (Fig. 13): Differs from the most similar *L. lecromi* and *L. obsoleta* by the lighter, chestnut upperside, and more particularly by the conspicuous HWV pattern, which however contrary to *L. altis* does not form a well defined median band but rather a diffused patch with a distinctive notch on the discal cell. Female (Fig. 14): Differs from the related taxa in the similar manner as the male. There is also an individual form which has a wide FWD orange band, similar to the one occurring in *L. confusa* (Fig. 12). Male genitalia (Fig. 42): As illustrated.

This species is endemic to the Perijá range on the Colombia-Venezuela border.

Lymanopoda altis WEYMER, 1890
(Figs 11, 41)

Lymanopoda altis WEYMER, 1890: 109, pl. III, fig. 8 (male, dorsal, ventral) (in WEYMER & MAASEN 1890)

Lymanopoda altis WEYMER: WEYMER 1912: 248, pl. 52, row f; BROWN 1943: 99, fig. 1683 (male genitalia); ADAMS & BERNARD 1979: 107; 1981: 358; ADAMS 1986: 263; D'ABRERA 1988: 819 fig.; LAMAS *et al.* 2004: 209.

Material examined – COLOMBIA: 5 males: Boyacá, Arcabuco, 2650 m, 1982, M. ADAMS; 3 males: Huila, above San José Isnos, 2900 m, A & H, 1979; 1 male: Cauca, Puracé, 2650 m; 1 male: Cauca, Leticia, 2950 m, A & H, 1979, 1 male: Cauca, Leticia 2650–2700 m, 1 male: Valle, Leticia, 2650–2700 m, BERNARD, 1977, 1 male: Boyacá, Arcabuco, 2500 m; 1 male: Antioquia, Frontino, T. K. SALMON; 2 males: Cundinamarca, Bogota, BOWMAN; 1 male: Cundinamarca, Bogota, ex coll. GROSE-SMITH, 1910; 4 males: Tungurahua, Baños, Río Pastaza, 5–7000 f., M. G. PALMER; 1 male: Quindiu Pass, 3500 m, 1911, A. H. FASSL, MNHN; ECUADOR: 1 male: Granadillas, Eastern Ecuador, Buckley; 3 males: Ecuador, GROSE-SMITH, 1910; 2 males: environs D'AMBATO, R. P. IRENÉE BLANC; 2 males: Saraya-cu, eastern slopes, BUCKLEY, 1879, BM(NH); 1 male: Baños, Río Pastaza, Eastern Ecuador, 6100 f., XII, W. ROSENBERG; 1 male: Ecuador, 1912, H. DONKIER; 1 male: Ecuador, 1889, B. GERHARD; 1 male: Sucumbíos, La Bonita, IX.1997, leg. I. ALDAS, TWP; 3 males: Sucumbíos, La Bonita, X.1997, leg. I. ALDAS, TWP; 2 males: Tungurahua, XII.1997, leg. I. ALDAS, TWP; 1 male: Ecuador, no data, TWP; 4 males: Tungurahua, Runtun, 2600–3000 m, 6.VIII.1998, leg. T. PYRCZ, TWP; 1 male: Morona-Santiago, Via Macas-Atillo, 2500–2700 m, VIII.1996, leg. I. ALDAS, TWP; 2 males: Tungurahua, Runtun, Baños, 3000 m, VIII.1998, E. ALDAS leg., PBF; 1 male: Sucumbíos, La Bonita–Tulcan km 9 à 25, 2900–3100 m, 26.XI.1999, P. BOYER leg., PBF; 1 male: Tungurahua, El Tablón, El Triunfo- Patate, 26 km de Baños, 3000 m, 21.XI.1998, P. BOYER leg., PBF; 1 male: Tungurahua, Vizcaya, 2600 m, IV.1995, E. ALDAZ leg., PBF; 1 male: Chimborazo, Atillo, 3000 m, VIII. 1996, P. BOYER leg., PBF; 1 male: Tungurahua, Topo, 1400 m (unreliable), VI.1995, E. ALDAZ leg., PBF; 1 male: Colombia, coll. Ch. J. Piatard, MHNG.

Comments – This species differs from all other all brown upperside species of the *obsoleta* clade by the HWV white, oblique median band. Male genitalia (Fig. 41): As illustrated.

L. altis occurs on the western slopes of the Eastern Cordillera in Colombia, throughout Western and Central Cordillera and in northern and central Ecuador on the eastern slopes of the Andes as far south as the Sangay National Park (Morona-Santiago). Its male genital morphology was discussed or illustrated in several papers (ADAMS 1986, BROWN 1943). There is considerable geographic variation in the colour patterns and male genital morphology and further studies would possibly justify the separation of *L. altis* into several subspecies.

DISCUSSION

The species described here possess all the synapomorphies of male genitalia of the *obsoleta* clade, which as for now comprises twelve species. The internal phylogeny of this clade has been only partially resolved based on molecular data because DNA data for several species, including *L. balintiana*, *L. confusiana*, *L. maletera* and *L. inaudita* were not available (CASNER & PYRCZ 2010). Male genitalia alone present however valuable characters for the analysis of phylogenetic relations within this clade. All the species occurring in the northern Andes (*L. confusa*, *L. altis*, *L. lecromi*, *L. maletera* and *L. dietzi*) form a monophyletic group defined by the dorsal process of the valva as long or longer than main process, thickened in the middle and bearing numerous spines around its surface; and a very prominent superuncus, over a half or even two-thirds the length of uncus. The Peruvian species (*L. caudalis*, *L. balintiana*, *L. necalba* and *L. inaudita*) form a clade characterised by a shorter superuncus, less than half the length of uncus; and the presence of several spines on the aedeagus. The grouping of the species into these two clades is corroborated by molecular data from different markers and concatenated data from nuclear and mtDNA, which show invariably *L. caudalis* as the sister-clade to all north Andean species (CASNER & PYRCZ 2010). In *L. magna* the superuncus is as prominent and dorsal process is equally spiny as in the north Andean species, but considerably shorter. *L. confusiana* has all the characters of male genitalia of the Peruvian clade but adults are morphologically similar to *L. magna* and *L. confusa* therefore their position is unclear.

Most of this clade, except the nearly Panandean *L. obsoleta* and the widespread north Andean *L. altis*, are narrow endemics. In most of the Andes

L. obsoleta is replaced parapatrically at higher altitudes in each area by one closely related species, such as *L. dietzi* in the Cordillera de Mérida, *L. altis* throughout Colombia to central Ecuador, *L. confusa* in southern Ecuador, *L. magna* in northern Peru, *L. caudalis* in Huánuco, *L. balintiana* in Junín and *L. inaudita* in southern Peru (Figs 51–52). The situation is exceptional in Pasco in central Peru, where the *obsoleta* clade is represented by four species (*L. obsoleta*, *L. confusiana*, *L. caudalis* and *L. necalba*). Overall, 14 species of *Lymanopoda* can be found in the department Pasco, occurring sympatrically/parapatrically along a potential altitudinal transect in Oxapampa, the capital of Pasco (for the definition of potential altitudinal transects (*pat*) as a measure of diversity see PYRCZ 2004).

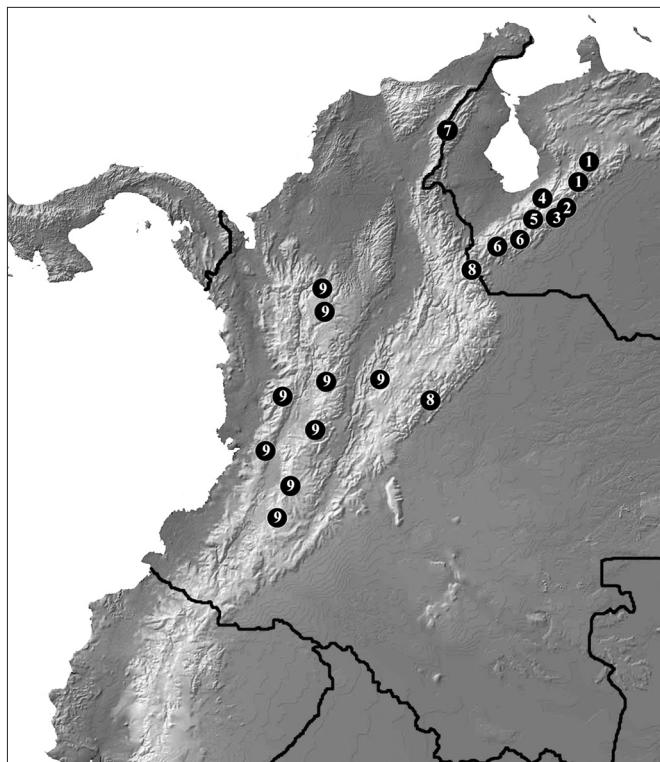


Fig. 51. Distribution map. 1: *Lymanopoda dietzi rosanna* VILORIA et PYRCZ, sp. n., 2: *Lymanopoda dietzi neildi* PYRCZ, sp. n., 3: *Lymanopoda dietzi oliva* PYRCZ et BOYER, sp. n., 4: *Lymanopoda dietzi argentata* PYRCZ, sp. n., 5: *Lymanopoda dietzi dietzi* ADAMS et BERNARD, 1981, 6: *Lymanopoda dietzi vetula* VILORIA et PYRCZ, sp. n., 7: *Lymanopoda malletera* ADAMS et BERNARD, 1981, 8: *Lymanopoda lecromi* PYRCZ et VILORIA, 2007, 9: *Lymanopoda altis* WEYMER, 1890

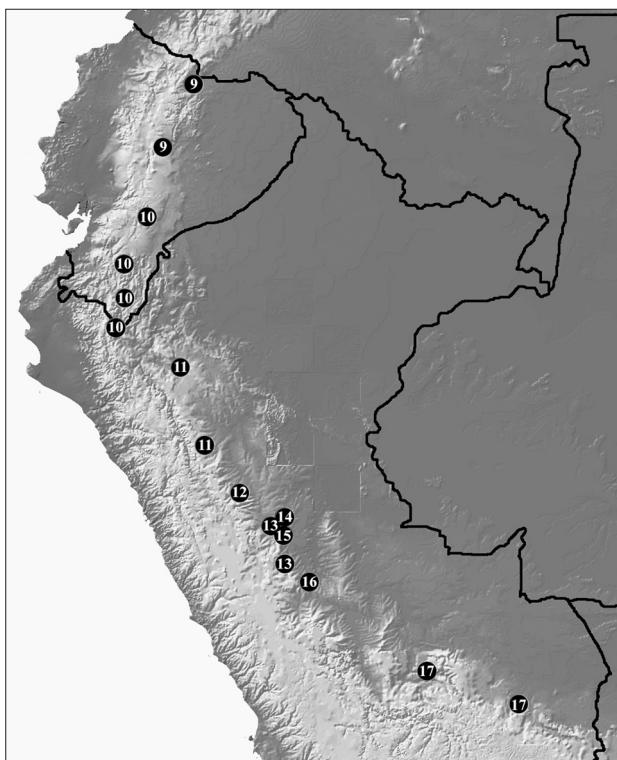


Fig. 52. Distribution map. 9: *Lymanopoda altis* WEYMER, 1890, 10: *Lymanopoda confusa* BROWN, 1943, 11: *Lymanopoda magna* PYRCZ, 2004, 12: *Lymanopoda caudalis raymondae* PYRCZ et BOYER, sp. n., 13: *Lymanopoda caudalis caudalis* ROSENBERG et TALBOT, 1914, 14: *Lymanopoda confusiana* PYRCZ et BOYER, sp. n., 15: *Lymanopoda necalba* PYRCZ et BOYER, sp. n., 16: *Lymanopoda balintiana* PYRCZ et BOYER, sp. n., 17: *Lymanopoda inaudita* PYRCZ, sp. n.

This is the highest reported diversity within the genus, compared to 12 species in southern Peru (Cusco, Acjanaco *pat*), and 11 in northern Peru (Amazonas, Molinopampa *pat*) (PYRCZ 2004 and unpubl.). The highest diversity for the entire tribe Pronophilini is also found in Pasco. A total of 121 species are found along the Oxapampa altitudinal transect (*pat*), compared to 105 in Acjanaco and 102 in Molinopampa (PYRCZ 2004 and unpubl.). Data from another group of Lepidoptera, Geometridae moths, also point out to Pasco as maximum spot of diversity of montane taxa, not only for the Neotropical region but at a global scale (FILIPIAK unpubl.).

*

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