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Taxonomic notes on *Napeogenes* from Ecuador and Colombia, with the description of ten new subspecies (Lepidoptera: Numphalidae: Ithomiinae)

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Abstract. The taxonomy and identification of a number of rare and problematic *Napeogenes* taxa from Ecuador and Colombia are discussed. The historically confused species *N. apulia* (Hewitson), *N. lycora* (Hewitson) and *N. sulphureophila* Bryk are compared and diagnosed, and three new Ecuadorian subspecies are described: *Napeogenes apulia ocnita* Willmott et Vitale, n. ssp. (TL: Ecuador, Napo, Río Hollín), *Napeogenes apulia sangay* Vitale et Willmott, n. ssp. (TL: Ecuador, Morona-Santiago, Río Abanico), and *Napeogenes lycora attali* Vitale et Willmott, n. ssp. (TL: Ecuador, Zamora-Chinchipe, Río San Francisco). The Colombian *Napeogenes benigna* is raised to species status (rev. stat.), and a new subspecies, *N. benigna sandra* Vitale et Willmott, n. ssp., is described (TL: Colombia, Caldas, El Águila). The geographic distribution of *N. larilla* (Hewitson) taxa within Ecuador is discussed and a lectotype is designated for the nominate subspecies. Two new subspecies are described: *N. larilla reventador* Willmott et Vitale, n. ssp. (TL: Ecuador, Sucumbíos, El Higuerón), and *N. larilla pastazana* Vitale et Willmott, n. ssp. (TL: Ecuador, Tungurahua, Río Ulba). The distribution of *N. harbona* (Hewitson) is discussed and two new Ecuadorian subspecies are described: *N. harbona chiguinda* Willmott et Vitale, n. ssp. (TL: Ecuador, Morona-Santiago, km 9.5 Chigüinda-Gualaquiza rd.), and *N. harbona podocarpus* Vitale et Willmott, n. ssp. (TL: Ecuador, Zamora-Chinchipe, Río San Francisco). The distribution of *N. duessa* (Hewitson) is discussed and all known taxa are figured. Two new subspecies from Ecuador are described: *N. duessa orellana* Vitale et Willmott, n. ssp. (TL: Ecuador, Napo, Puerto Misahuallí) and *N. duessa cunza* Vitale et Willmott, n. ssp. (TL: Ecuador, Morona-Santiago, Cunza). Finally, a replacement name, *N. cranto chocoana* Vitale et Bollino, is proposed for the preoccupied name *Napeogenes cranto browni* Vitale et Bollino, 2001, and a checklist of Ecuadorian *Napeogenes*, with their broad distributions, is presented.

Abstract. Viene discussa la tassonomia e l'identificazione di un certo numero di taxa di *Napeogenes* rari e problematici dell'Ecuador e della Colombia. Specie storicamente confuse come *N. apulia* (Hewitson), *N. lycora* (Hewitson) and *N. sulphureophila* Strand sono esaminate e comparate. Vengono descritte tre nuove sottospecie dell'Ecuador: *Napeogenes apulia ocnita* Willmott et Vitale, n. ssp. (TL: Ecuador, Napo, Río Hollin), *Napeogenes apulia sangay* Vitale et Willmott, n. ssp. (TL: Ecuador, Morona-Santiago, Río Abanico) e

Napeogenes lycora attali Vitale et Willmott, n. ssp. (TL: Ecuador, Zamora-Chinchipe, Río San Francisco). La colombiana *Napeogenes benigna* viene elevata allo status di specie (rev. stat.), ed è descritta una nuova sottospecie *N. benigna sandra* Vitale et Willmott, n. ssp. (TL: Colombia, Caldas, El Águila). Viene discussa la distribuzione geografica dei taxa ecuadoriani di *N. larilla* (Hewitson) e viene designato un lectotipo per la sottospecie nominale. Vengono descritte due nuove sottospecie: *N. larilla reventador* Willmott et Vitale, n. ssp. (TL: Ecuador, Sucumbíos, El Higuerón), e *N. larilla pastazana* Vitale et Willmott, n. ssp. (TL: Ecuador, Tungurahua, Río Ulba). Viene discussa la distribuzione di *N. harbona* (Hewitson) e vengono descritte due nuove sottospecie ecuadoriane: *N. harbona chiguinda* Willmott et Vitale, n. ssp. (TL: Ecuador, Morona-Santiago, km 9.5 Chigüinda-Gualaquiza rd.), e *N. harbona podocarpus* Vitale & Willmott, n. ssp. (TL: Ecuador, Zamora-Chinchipe, Río San Francisco). Viene discussa la distribuzione di *N. duessa* (Hewitson) e vengono raffigurati tutti i taxa conosciuti. Sono descritte due nuove sottospecie dell'Ecuador: *N. duessa orellana* Vitale et Willmott, n. ssp. (TL: Ecuador, Napo, Puerto Misahuallí) e *N. duessa cunza* Vitale et Willmott, n. ssp. (TL: Ecuador, Morona-Santiago, Cunza). Infine, una ridenominazione di una sottospecie, *N. cranto chocoana* Vitale et Bollino, viene proposta al posto di *Napeogenes cranto browni* Vitale et Bollino, 2001, il cui nome era precedentemente occupato.

Key words: entomology, taxonomy, butterfly, Andes, South America.

INTRODUCTION

The genus *Napeogenes* Bates, 1862 is remarkable among the Ithomiinae for containing the greatest variety of mimetic, warning colour patterns (Fox & Real 1971). Marked phenotypic changes from one area to another, the rarity of many species and the general lack of useful genitalic characters for associating allopatric taxa have resulted in a taxonomy that has seen great changes. Fox & Real (1971) provided the only modern revision of the genus, reviewing the taxonomy and distribution of all taxa and recognising 45 species, a number that rose to 84 in the checklist of D'Almeida (1978). However, since these two papers were published much new information has become available, suggesting that many of their allopatric "species" should be regarded as subspecies, and the number of species in the genus was reduced to 17 by Mielke & Brown (1979) and revised to 23 by Lamas (2004). Recent molecular studies suggest that the classification of the genus will evolve further and that the species total will rise slightly (Elias *et al*. 2007), but unfortunately the rarity of many taxa precludes the universal application of such methods, at present. Distributional data, including those of elevation, thus still often provide the best clues for associating allopatric taxa, and recent collections in previously unexplored areas throughout the neotropics have resulted in the discovery of a number of new taxa (e.g., Brévignon 2007).

The purpose of this paper is to describe new subspecies of *Napeogenes* from the northern Andean region, discovered during our recent field work, through examination of public and private collections and through taxonomic research on Ecuadorian Ithomiinae. We also provide new distributional and behavioural data and discuss the systematics of several species, including *Napeogenes apulia* (Hewitson, 1858), *Napeogenes lycora* (Hewitson, 1870), *Napeogenes sulphureophila* Bryk, 1937 and *Napeogenes harbona* (Hewitson, 1869).

METHODS

Specimens were examined in major public and private collections in Europe, North and South America to record distributional data, study morphological variation, assess taxonomic diversity and examine type specimens. The following collection codens and abbreviations are used in the text:

BMNH - The Natural History Museum, London, UK;
FLMNH - McGuire Center for Lepidoptera, Florida Museum of Natural History, University of Florida, Gainesville, USA;
FVLI - Fabio VITALE collection, Lecce, Italy;
KWJH - Keith R. WILLMOTT & Jason P. W. HALL collection, Gainesville, USA;
MECN - Museo Ecuatoriano de Ciencias Naturales, Quito, Ecuador;
MUSM - Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru;
PB - Pierre BOYER collection, Le Puy Sainte Réparade, France;
SMM - Sandra MURIEL collection, Medellín, Colombia;
SMTD - Staatliches Museum für Tierkunde, Dresden, Germany;
(D)FW - (dorsal) forewing;
(V)HW - (ventral) hindwing.

Morphology was studied using standard techniques, with adult abdomens being soaked in hot 10% KOH for 10-15 minutes, dissected and subsequently stored in glycerol. Dissections were studied using a binocular microscope at up to 50x magnification. Collections of *Napeogenes* have been made by both authors in numerous localities throughout Ecuador over the past 15 years as part of long-term surveys of the butterflies of Ecuador (see www.butterfliesofecuador.com for localities visited by KRW and Jason HALL).

SYSTEMATICS

Napeogenes apulia (HEWITSON, 1858), its mimics and relatives

Three very similar species, *Napeogenes apulia*, *N. lycora* and *N. sulphureophila* have historically been highly confused. *Napeogenes apulia* (Figs. 1A, B, 4A) was described by HEWITSON from "New Granada" (Colombia), and museum specimen label data indicate that it occurs on both slopes of the Colombian Cordillera Oriental in Tolima and from Meta to Putumayo (FOX & REAL 1971). However, we have seen modern, reliable data only from the eastern slopes, and its presence in the Magdalena valley requires confirmation. Reliable elevational data are also few, but indicate that it occurs from 300m in Andean foothills to at least 1300m.

A somewhat similar, small transparent Andean *Napeogenes*, *N. lycora* (Figs. 1G, H, 4B), was subsequently described from Ecuador (Mapoto, Tungurahua), also by HEWITSON (1870), and a syntype male is in the BMNH. HEWITSON did not even mention

N. apulia in the original description of *N. lycora*, perhaps believing that the lack of reddish coloring along the HW anal margin, in the HW tornus and the basal area of the VHW costa, rendered the taxon sufficiently distinct that a comparison was unwarranted. *Napeogenes lycora* was also maintained as a distinct species by Fox & Real (1971), who presumably believed it to be sympatric with *N. apulia apulia* throughout eastern Ecuador, since they listed specimens of *N. a. apulia* from both Colombia and Peru. In fact, the two females of *N. a. apulia* listed by Fox & Real from "N.E. Peru" are part of a large series of specimens in the AMNH and several other American museums, of numerous ithomiine species, that are of undoubted Colombian origin and were mislabelled by their collector H. Bassler. Given the phenotypic similarity, similar elevational range and apparent allopatry of *N. a. apulia* and *N. lycora*, Mielke & Brown (1979) therefore considered them conspecific.

The name *sulphureophila* (Figs. 2A, B, 4B) was described by Strand (1916) as an aberration of *N. apulia*, bearing a yellow costal stripe on the VHW, without indication of the type locality. Bryk (1937) subsequently made the name available by treating it, somewhat ambiguously, as a form of *N. apulia*. Perhaps due to the rarity of this taxon in collections, it was also considered by Fox & Real (1971) as an aberration, and by Mielke & Brown (1979) as a subspecies of *N. apulia.*

More extensive collections from recent years in eastern Ecuador have demonstrated the existence there of three broadly sympatric species (Fig. 4A, B), corresponding to the three names *N. apulia*, *N. lycora* and *N. sulphureophila*, as reflected in the latest classification by Lamas (2004). Molecular characters indicate that the three species do not even form a monophyletic group (Elias *et al*. in prep), with *N. apulia* occurring in a different clade from *N. lycora* and *N. sulphureophila*. In eastern Ecuador and eastern Colombia (whence comes nominate *N. apulia*) the three species can be distinguished from one another, and reliably united with their name-bearing types, as follows (Table 3; characters unique among these three species in bold):

Table 1. Distinguishing features of *N. apulia*, *N. lycora* and *N. sulphureophila*.

Species	HW discal cell (males)	FW apical area, basal portion of cell R_4-R_5	VHW costa at base	VFW cubital vein
N. apulia	**anterior edge elongate, discocellular vein 1d near apex**	**translucent**	black or orange	black
N. lycora	anterior edge less elongate, discocellular vein 1d further from apex	black	black or orange	black
N. sulphureophila	anterior edge less elongate, discocellular vein 1d further from apex	black	**yellow**	**yellow**

We use the above characters as the basis for associating several new taxa from eastern Ecuador, which we describe below. While there are three distinct species in Ecuador and it is reasonably certain to which species the published names refer, the situation becomes much more complex in Colombia and Peru. Associating described and undescribed taxa from those countries with any of these three species is difficult, since the characters that serve to distinguish the species in Ecuador may not do so elsewhere. For example, it is by no means certain that the two Peruvian taxa *palmasensis* Fox & Real, 1971, (Huánuco) and *woytkowskii* Fox & Real, 1971 (Ayacucho) (Fig. 4A), currently treated as subspecies of *N. apulia* (Lamas, 2004), are actually closely related to *N. apulia*. An additional three undescribed taxa, that may also be related to *N. apulia* and/or *palmasensis* and *woytkowskii*, are known from Amazonas, Junín and Pasco in Peru (Lamas 2004; Vitale unpub.) (Fig. 4A). The status of *N. sulphureophila* is further discussed under the description of *N. benigna sandra* n. ssp., below. Resolution of the relationships of all of these taxa will require more field data and specimens, careful morphological, and, most likely, molecular study.

Napeogenes apulia ocnita Willmott et Vitale, n. ssp.

Fig. 1C, D, 4A

Napeogenes apulia n. ssp. 1 Vitale (Lamas 2004).

Description and diagnosis

This subspecies differs from the nominate subspecies (Fig. 1A, B) as follows. In *N. a. ocnita* (Fig. 1C, D), the FW has reduced yellowish translucent colouring, especially in the base of cell 2A-Cu2. The reddish brown colouring in the HW tornus is typically less extensive, though this is variable. The yellowish translucence in the HW transparent area is less extensive. Most significantly, the reddish brown stripe extending along the basal half of the VHW costa in *N. a. apulia* is absent in the new subspecies. As in the nominate subspecies, the base of cell R4-R5 in the FW apex is transparent, and there is a prominent, white apical spot in the same cell, with less prominent spots in the cells either side. The taxon is also similar to *N. sulphureophila*, but differs in lacking a yellow stripe along the basal half of the VHW costa, among other differences described in Table 1.

Types

Holotype ♂, ECUADOR, *Napo*, Río Hollín, 900 m, [c. 0°58'S, 77°45'W], 7 Dec. 1996, (FVLI, to be deposited in MECN).

Paratypes: ECUADOR, *Sucumbíos*: 1♀, La Bonita, [c. 0°28.70'N, 77°32.70'W], xi.1997, I. Aldas *leg.*, (FVLI); 1♀, Río Palmar, km.16.5 La Bonita-Lumbaqui rd., 1450m, [0°25.4'N, 77°32.4'W], 14.xii.2001, K. Willmott *leg.*, (KWJH); 1♀, same data as previous except 18.xii.2001 (KWJH, to be deposited in MECN); 1♀, same data as previous except 17.xii.2001 (KWJH); 1♀, Quebrada El Copal, 1100m, [0°23.4'N, 77°31.3'W], 9.xi.1997, K. Willmott *leg.*, (KWJH). *Pastaza*: 2 ♀ Arajuno, 800 m, iii-iv.1961, (FVLI); 1♀, Alpayacu, 2003, (FVLI). *Tungurahua*: 1♀, Río Topo, 1310m, [1°25'S, 78°10'W], 24.vi.1980, M. Stevens *leg.*, (FLMNH).

Etymology

This subspecies is named for its close resemblance to its slightly larger co-mimic *Hyalyris ocna* (Herrich-Schäffer, 1865).

Discussion

Little variation is apparent among the specimens examined. This taxon is known from far northeastern Ecuador (Sucumbíos) to the valley of the Río Pastaza (Pastaza, Tungurahua), from 800-1550m in lower montane and cloud forest habitats.

Napeogenes apulia sangay Vitale et Willmott, n. ssp.

Fig. 1E, F, 4A

Napeogenes apulia n. ssp. 2 Vitale (Lamas 2004).

Description and diagnosis

This subspecies (Fig. 1E, F) differs from the neighbouring and most similar subspecies *N. a. ocnita* (Fig. 1C, D) by the absence, or near absence (e.g., the holotype), of any rufous coloring along the HW anal margin and in the HW tornus. The HW yellow translucence is also slightly reduced in extent and intensity. As in *N. a. apulia* and *N. a. ocnita*, the base of cell R4-R5 in the FW apex is transparent, and there is a prominent, white apical spot in the same cell, with less prominent spots in the cells either side. The male has the base of cell M1-Rs transparent. These characters of the FW apex are the best means of identifying females of the taxon from the extremely similar *N. lycora lycora*, described below. Males of *N. lycora lycora* may also have the base of FW cell R4-R5 slightly transparent (though less pronounced than in *N. apulia sangay*), but differ in the absence of white DFW apical spots and in configuration of the hindwing venation (as described in Table 1).

Types

Holotype ♂, Río Abanico, km 20 Macas-Nueve de Octubre rd., 1600m, [2°15.3'S, 78°12.13'W], 12-13.xi.1996, K. Willmott *leg.*, (FLMNH).

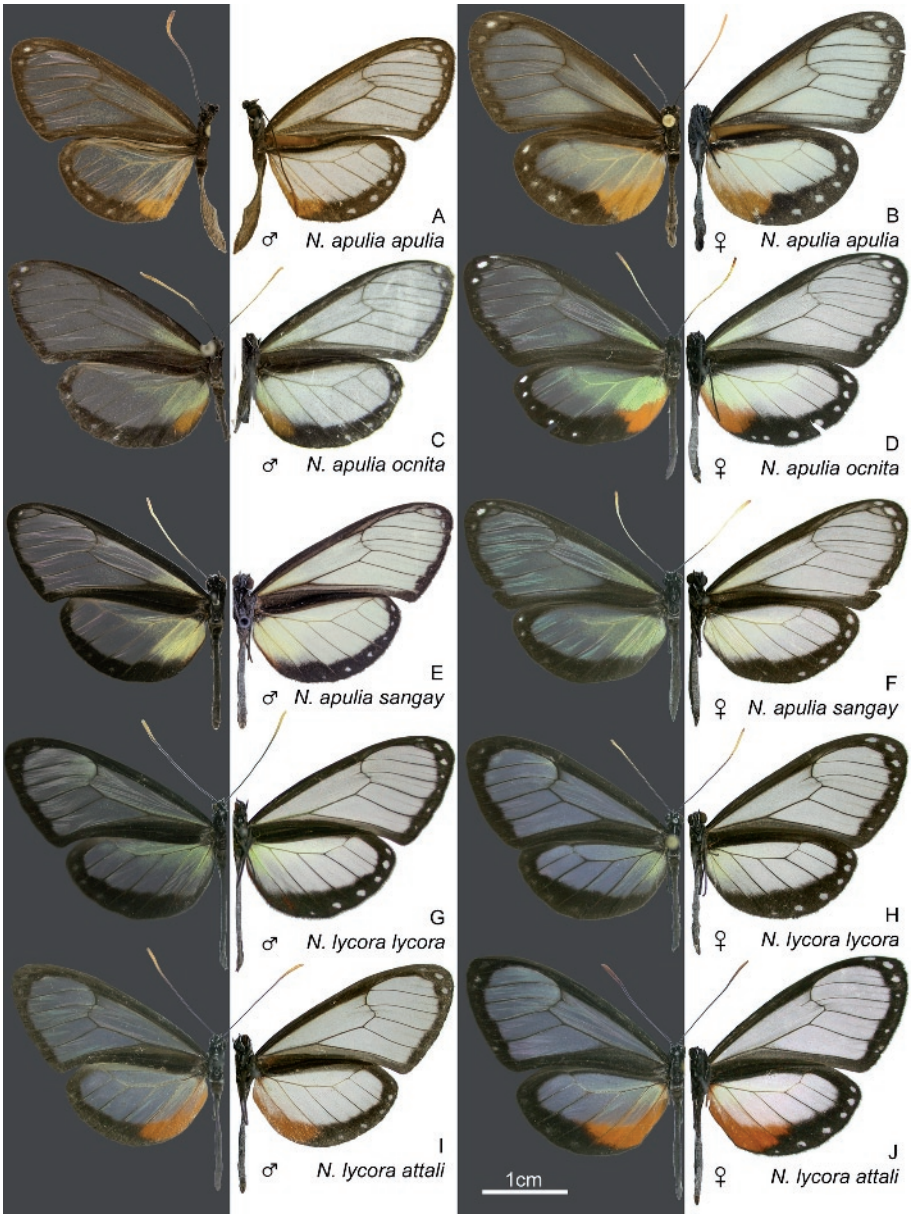
Paratypes: ECUADOR, *Morona-Santiago*: 1♀, same data as HT (KWJH); 2♀, same locality as HT (FVLI, 1♀ to be deposited in MECN); 1♂, Nueve de Octubre, 1600m, [c. 2°12.2'S, 78°31.1'W], viii.2000, (FVLI); 1♀, "Macas" [probably Río Abanico area], 1700m, xi.2000, (FVLI); 1♀, Macas, 1000m, 3.xii.1996, P. Boyer *leg.*, (PB).

Etymology

The name derives from that of Volcán Sangay, which overlooks much of the range of this new subspecies, and is treated as a noun in apposition.

Discussion

There is variation in the opacity of the yellow translucent HW area. A single female from Macas has a small orange spot in the HW tornus. The taxon is known from northern Morona-Santiago to Zamora-Chinchipe provinces in eastern Ecuador, where it occurs in lower montane and cloud forest habitats from approximately 1000-1700 m.



1. *Napeogenes apulia* and *N. lycora*, left wings dorsal, right wings ventral. A. *N. a. apulia*, ♂, Colombia, Boyacá, "Muzo". B. *N. a. apulia*, ♀, Colombia, Meta, Bogotá-Villavicencio km 91. C. *N. a. ocnita* n. ssp., HT♂, Ecuador, Napo, Río Hollín. D. *N. a. ocnita* n. ssp., PT♀, Ecuador, Sucumbíos, Río Palmar. E. *N. a. sangay* n. ssp., HT♂, Ecuador, Morona-Santiago, Río Abanico. F. *N. a. sangay* n. ssp., PT♀, same as HT. G. *N. l. lycora*, ♂, Ecuador, Morona-Santiago, Río Abanico. H. *N. l. lycora*, ♀, Ecuador, Tungurahua, Río Machay. I. *N. l. attali* n. ssp., HT♂, Ecuador, Zamora-Chinchipe, Río San Francisco. J. *N. l. attali* n. ssp., PT♀, Ecuador, Zamora-Chinchipe, canal subterráneo

Napeogenes lycora lycora (Hewitson, 1870)

Fig. 1G, H, 4B

All the specimens we have examined of the nominate subspecies have been from eastern Ecuador, from the extreme north (La Bonita area, Sucumbíos), from several localities along the upper Río Pastaza (Ecuador, Tungurahua) and from northern Morona-Santiago (upper Río Upano and tributaries). Like *N. apulia*, this is a cloud forest taxon occurring from 1300-1800 m. There is little variation among the specimens examined throughout this range. This taxon is extremely similar to *N. apulia sangay*, and the characters that distinguish it are discussed under the latter taxon.

Napeogenes lycora attali Vitale et Willmott, n. ssp.

Fig. 1I, J, 4B

Napeogenes lycora n. ssp. 1 Vitale (Lamas 2004).

Description and diagnosis

This subspecies is distinguished from the nominate subspecies (Fig. 1G,H) by the reddish brown coloring extending along the HW anal margin into the tornus, as far as vein Cu2, and lining veins 2A and part of Cu2 in the discal area (Fig. 1I,J). The translucent coloring of the hindwing transparent areas is more whitish than yellow, and the antennal clubs are usually black or dark brown, instead of yellow. A reddish brown spot may be present at the base of the VHW costa. The subspecies is similar to *N. apulia ocnita*, but lacks the distinguishing characters of *N. apulia* (transparent base to cell R4-R5 in FW apex and white FW apical spots).

Types

Holotype ♂, ECUADOR, *Zamora-Chinchipe*, Río San Francisco, Zamora-Loja rd, 1900m, [3°58.7'S, 79°06.1'W], 28.x.1997, K.R. Willmott *leg.*, (FLMNH).

Paratypes: ECUADOR, *Zamora-Chinchipe*: 1♀, Loja-Zamora rd., 1500m, 8.xi.1986, S. Attal *leg.*, (FVLI); 1♂, km 40 Loja-Zamora rd., 1500m, xi.2001, I. Aldas *leg.*, (FVLI); 2♂, 1♀ Santa Cruz-Nambija, Cordillera de Nanguipa, 1600-2000m, 30.xi.1998, P. Boyer *leg.*, (PB); 1♂, Río Bombuscara, Parque Nacional Podocarpus, 1000m, [4°6.80'S,78°57.90'W], 31.viii.1992, G. W. Beccaloni *leg.*, (KWJH, to be deposited in BMNH), 1♀, San Francisco, canal subterráneo, Zamora-Loja rd., 1800m, [3°58.74'S,79°5.13'W], 27.i.2002, K. Willmott *leg.*, (KWJH). *Morona-Santiago*: 1♂, 2♀, km 8 Chigüinda-Gualaquiza rd., [3°15.84'S,78°39.80'W], 1800m, 15.i.2004, F. Vitale *leg.*, (FVLI); 2♀, km. 9.5 Chigüinda-Gualaquiza rd., 1750m, [3°14.63'S,78°40.11'W], 12.x.2007, K. Willmott *leg.*, FLMNH-112025 (FLMNH), FLMNH-112026, (FLMNH, to be deposited in MECN). PERU, *San Martín*: 2♀, Jorge Chávez, 1400m, [6°41'S, 77°40'W], xi.2003, (FVLI, 1♀ to be deposited in MUSM); 1♂, 1♀, Jorge Chávez, 1000-1400m, Meléndez *leg.*, (PB).

Etymology

This new subspecies is named after our friend Stéphan Attal, Paris (France), who collected one of the paratypes in southern Ecuador.

Discussion

There is some variation in the colour of the antennal clubs, which may be yellow but are more usually black or dark brown. One female specimen from the Chigüinda area (excluded from the type series) has reddish brown colouring extending from the VHW tornus through the black marginal area as far as the apex, forming a small wedge at the base of the VHW costa, and occurring in the VFW black marginal area in cells 2A-Cu2 to Cu1-M3. The taxon is known from east Andean slopes in Ecuador (southern Morona-Santiago, Chigüinda area) as far south as northern Peru (San Martín), from cloud forest habitats between 1000-1900 m elevation.

Napeogenes sulphureophila Bryk, 1937

Fig. 2A, B, 4B

As discussed above, the name *sulphureophila* clearly applies to a distinct species that is most easily distinguished from similar taxa (*N. apulia ocnita*, *N. lycora attali*) by possessing a yellow stripe at the base of the VHW costa. The species also has darker and narrower margins, especially on the FW, and the cubital vein on the VFW is lined with yellow. The antenna is almost entirely yellow with the exception of a few darker basal segments. Although very rare and undoubtedly more widespread, the species is now known to be sympatric along east Andean slopes with *N. apulia* and *N. lycora* throughout central and southern Ecuador, and to occur as far south as Huánuco, Peru. The species is thus apparently sympatric with its possible sister species *Napeogenes sodalis* Haensch, 1905 (Elias et al., unpub.) in northern Peru, from Amazonas to Huánuco. Limited specimen locality data indicate that it occurs from 750-1300 m elevation in cloud forest habitats.

Napeogenes benigna benigna Weymer, 1899 stat. rev.

Fig. 2C, D, 4A

Weymer (1899) described this species based on two females from "Colombia". Although we have not examined the two syntypes, the black and white original illustration permits the name to be confidently applied to a rare taxon known apparently from the Magdalena valley, Colombia (Fig. 2C, D, 4A). Lamas (2004) treated it as a subspecies of *N. harbona*, but the warning colour pattern, which matches that of predominantly lowland species, argues against a relationship with other *N. harbona*, which mimic montane *Oleria* Hübner and *Hyalyris* Boisduval. Distinctive characters such as the slightly bifid white VHW marginal spots and the yellow streak at the base of the VHW costa also suggest that the taxon is not closely related to *N. harbona*. Finally, mtDNA sequence data from a new taxon in western Colombia, which we believe to be a subspecies of *N. benigna*, suggest the species is most closely related to *N. sulphureophila* and *N. sodalis* (Elias et al., unpub.). Although *N. benigna* is not known to be sympatric with either of these species, the paucity of distributional data, markedly different warning colour patterns, and existence of other ithomiine species with similarly restricted ranges, suggest *N. benigna* should be maintained as a distinct species at present.

Napeogenes benigna sandra Vitale et Willmott, n. ssp.

Fig. 2E, F, 4A

Description and diagnosis

This new taxon (Fig. 2E, F) differs from the nominate subspecies (Fig. 2C, D) as follows. On the dorsal surface, the black wing margins are narrower (approximately 2/3 width), there is no white/yellow postdiscal spot on the DFW costa, the FW discocellular bar is reduced to a short triangular wedge terminating at base Cu1 (male) or reduced to approximately half width (female), the FW cubital vein is yellow (not orange), the FW anal margin posterior of the discal cell is yellow (not orange). The transparent wing areas are colourless except for a pale yellowish white translucence in the basal third of the hindwing. On the ventral surface, the margins are reddish brown (not black), with the FW white apical spots slightly reduced in size and the HW white marginal spots much thinner, but still bifid in each cell. Like the nominate subspecies, the antennae are black, the FW cubital vein is lined with yellow scales, and the ventral abdomen surface is white. The sexes are similar except for slightly broader black marginal and discocellular markings in the female.

Types

Holotype ♂, COLOMBIA, *Caldas*, [Quebrada] El Águila, Manizales, 1800m, 19.ix.1999, J. E. Salazar *leg.*, (FVLI, to be deposited in BMNH).

Paratypes: COLOMBIA, *Antioquia*: 3♂, Mcpio. Amagá, Finca El Socorro, [6°15.14'N, 75°41.31'W], 5.iii.2004, S. Muriel *leg.*, (SMM); 1♀, Mcpio. Fredonia, San Cayetano, [5°53.72'N, 75°40.07'W], 5.iv.2004, S. Muriel *leg.*, (SMM).

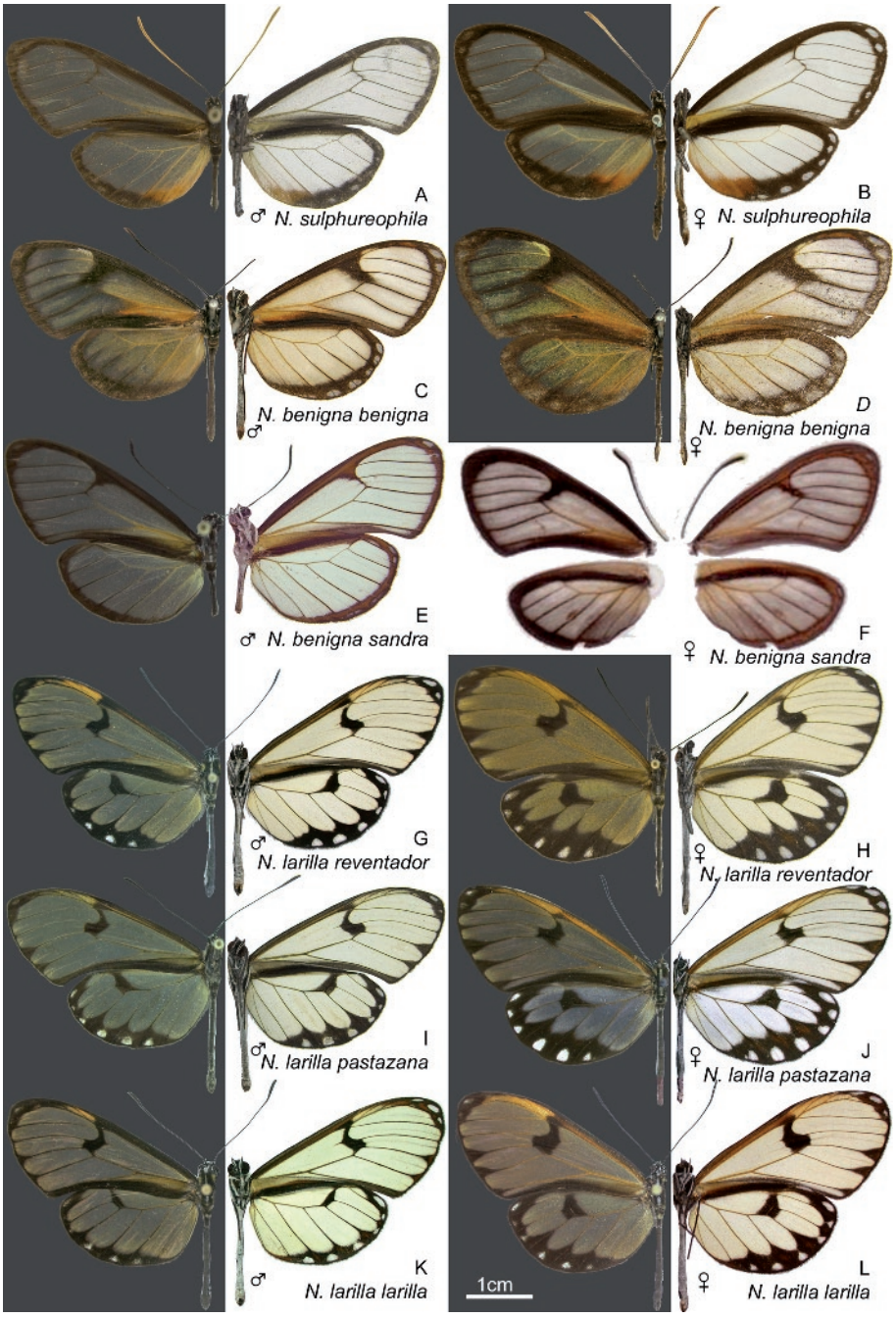
Etymology

This subspecies is named for Sandra Muriel, in recognition for her contributions to the knowledge of ithomiine ecology and distribution, and for her continuing and vital work to train new Colombian lepidopterists.

Discussion

This taxon is known reliably to date only from Caldas and Antioquia, in the northern part of the Colombian Cordillera Central, from 1550-1800 m (Fig. 4A). We treat this taxon and *N. benigna benigna* as conspecific based on their shared possession of a yellow VHW humeral stripe and bifid white VHW marginal spots. We have also examined one female in the SMTD labelled "Pacho, Colombia", a site within the

2 (see next page). *Napeogenes sulphureophila*, *N. benigna* and *N. larilla*, left wings dorsal, right wings ventral. A. *N. sulphureophila*, ♂, Ecuador, Morona-Santiago, 9 de Octubre. B. *N. sulphureophila*, ♀, Ecuador, Tungurahua, Santa Inéz. C. *N. b. benigna*, ♂, Colombia, Boyacá, Muzo. D. *N. b. benigna*, ♂, Colombia, Tolima, Río Chili. E. *N. benigna sandra* n. ssp., HT♂, Colombia, Caldas, El Águila. F. *N. benigna sandra* n. ssp., PT♀, Colombia, Antioquia, San Cayetano. G. *N. l. reventador* n. ssp., HT♂, Ecuador, Sucumbíos, El Higuerón. H. *N. l. reventador* n. ssp., PT♀, Ecuador, Napo, Yanayacu. I. *N. l. pastazana* n. ssp., PT♂, Ecuador, Tungurahua, Viscaya. J. *N. l. pastazana* n. ssp., HT♀, Ecuador, Tungurahua, Río Ulba. K. *N. l. larilla*, ♂, Ecuador, Zamora-Chinchipe, San Francisco, casa de Arcoiris. L. *N. l. larilla*, ♀, Ecuador, Zamora-Chinchipe, San Francisco, casa de Arcoiris



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Magdalena valley, where we believe *N. b. benigna* occurs. This female differs from the illustrated female of *N. b. sandra* in having a slightly narrower FW discocellular bar, but is otherwise similar. If the label data of this specimen and the few specimens we have examined of *N. b. benigna* are reliable, then they suggest that *N. b. benigna* and *N. b. sandra* are not conspecific. However, in the absence of further information, we continue with the conservative course adopted here of regarding *sandra* as a subspecies of *N. benigna.*

Napeogenes b. sandra is also superficially very similar to *N. flossina* Butler, 1873, being most easily distinguished by the black FW discocellular triangle or bar (rather than a thin line) and the broader HW margins. *Napeogenes flossina* is presumably present in the vicinity of the type locality, but at higher elevations, as *N. f. hypsaea* Staudinger, 1885, since the quite different mimicry complex of which *N. f. hypsaea* is a member has been recorded in the Manizales area. In addition, molecular sequence data suggest *N. b. sandra* is closely related to the allopatric *N. sulphureophila* (Elias et al., unpub.), of which it may eventually prove to be a subspecies, as discussed above under *N. benigna benigna*.

Napeogenes larilla larilla (Hewitson, 1877)

Fig. 2K, L, 3A, B, 4C

Napeogenes larilla is one of the rarer species in collections, and flies at the highest altitudes of any species in the genus, typically occurring only above 2000m in undisturbed cloud forest habitats (Willmott & Hall, unpub.). In Ecuador, whence the species was described, *N. larilla* is involved in mimicry with a compact group of species that includes the ithomiines *Veladyris pardalis* (Salvin, 1869), *Greta theudelinda* (Hewitson, [1861]), *Greta hermana* (Haensch, 1903), *Greta oneidodes* (Kaye, 1918), *Velamysta pupilla* (Hewitson, 1874) and *Pteronymia serrata* Haensch, 1903. All of these species are also poorly represented in collections.

These species form three geographically allopatric mimicry rings in Ecuador, and thus each species occurs as three distinct subspecies (Fig. 4C). In *N. larilla*, these subspecies are more easily identified in the female sex: from Sucumbíos to Napo, individuals have both wings an intense, translucent yellow with broad black margins and prominent white marginal spots (Fig. 2H). In the Pastaza valley, Tungurahua, the hindwing is translucent white (Fig. 2J), while in Zamora-Chinchipe the hindwing is yellow once more (Fig. 2L), but the margins tend to be slightly narrower, the white marginal spots smaller, and the overall intensity of the yellow coloration is reduced (Vitale & Bollino 2003). Males have these distinguishing characteristics to a lesser extent, although some specimens of the northern or central subspecies are impossible to identify without locality data, while the lectotype of *N. larilla* presents special problems, as discussed below.

Napeogenes larilla was described by Hewitson (1877) from a male specimen or specimens from "Jima" [= Gima], a small village in the dry highlands of Azuay province in southern Ecuador. Unfortunately, this village is clearly not where the type specimen(s) originated, but represented a base for their collector, Clarence Buckley.

Most taxa described in the same publication (e.g. *Hyalenna perasippa* (Hewitson, 1877), see Willmott & Lamas 2006) appear to have been collected along the old trail from Gima to the village of Chigüinda, which lies on the east Andean slopes in Morona-Santiago at 1600 m. However, some taxa described by Hewitson (1877) from the same type locality (e.g. *Ithomia* [=*Pteronymia*] *granica*, *Ithomia* [=*Pteronymia veia*] *melanoptera*) were almost certainly collected in the southwestern Ecuadorian Andes, being known today in Ecuador only from Loja province (Willmott & Hall, unpub.). Specimens in the BMNH from Godman & Salvin's collection, collected by Buckley and labelled "Chigüinda", also come from both east and southwestern Andes, an undescribed subspecies of *Oleria padilla*, known in Ecuador only from Loja, being a particularly good example. There are no modern *N. larilla* records from Loja province, but the high elevation ithomiine fauna there is similar to that of southeastern Ecuador; *Pteronymia granica* and *P. veia melanoptera* occur today with other taxa that fly with and mimic the southern subspecies of *N. larilla*, such as *Greta theudelinda zalmunna* (Hewitson, 1869).

Thus, the type specimen(s) of *Napeogenes larilla* could have come from either eastern or southwestern Ecuador, and represent either of two *N. larilla* subspecies. Six of 8 male specimens of *Napeogenes larilla* collected by Buckley and labelled "Chigüinda", from Godman & Salvin's collection, now in the BMNH and FLMNH, are similar to northern and central Ecuadorian specimens, and were presumably collected on the Gima-Chigüinda trail. The presence of co-mimic *Veladyris pardalis pardalis* in the Chigüinda area (Buckley specimens in the BMNH, and a female collected by KRW in 2007), confirm the supposition that the subspecies of *N. larilla* in the Chigüinda area should be the same as in Tungurahua. The remaining 2 specimens represent the southern subspecies of *N. larilla*, and were presumably collected in southwestern Ecuador.

We have examined three potential syntype males from Hewitson's collection, two in the BMNH and one in the FLMNH. Hewitson's (1877: 85) description states that the DHW margin is "marked by two or three scarcely seen white spots", and indeed one of the potential syntypes (Fig. 3A, B) has barely visible DHW white marginal spots, and thus appears to be the specimen described. Unfortunately, this specimen is somewhat intermediate in wing pattern between the central subspecies and the southern subspecies. It resembles the central subspecies in the HW marginal band being a little broader than is typical of the southern subspecies, and in the translucent FW costal-apical markings extending into the base of cell R5-R4, rather than terminating in cell R3-R2. In common with the southern subspecies, the white DHW marginal spots are almost invisible, and the ventral margins are marked with reddish brown scaling at the HW distal margin between the white spots, along the HW costa posterior of the yellow streak, and along the FW costa as far as cell R5-R4. All of these characters are subject to some variation, but nevertheless, among 35 males from the Pastaza valley and the additional Chigüinda specimens representing the central subspecies, not a single specimen is similar in having the DHW white marginal spots virtually absent. We therefore regard the Hewitson syntype that matches the original description as representing the southern Ecuadorian subspecies, and we designate it as **lectotype** of *Ithomia larilla*. The lectotype (Fig. 3A,B) bears the following label data: "SYN-TYPE//Type//Holo-

type// Ecuador. Hewitson Coll. 79. 69. Ithomia Larilla. 3.//B.M. Type No. Rh. 7247 Ithomia larilla, ♂ Hew.//SYNTYPE *Ithomia larilla* Hewitson, 1877 det. W.J. Reynolds, 1993//Genitalia Slide No. 1300 R. Fox 1-65".

Finally, we note that the remaining two Hewitson males of *N. larilla* represent either the central or perhaps the northern subspecies, since the only Hewitson female, in the BMNH from "Ecuador", certainly represents the latter, perhaps having been collected by Buckley at Yanayacu, Napo. The northern and central Ecuadorian subspecies thus lack names and are described below. *Napeogenes larilla* ranges south at least as far as central Peru (Pasco), being represented by a number of additional undescribed subspecies.

Napeogenes larilla reventador Willmott et Vitale, n. ssp.

Fig. 2G, H, 4C

Napeogenes larilla n. ssp. Lamas (Lamas 2004).

Description and diagnosis

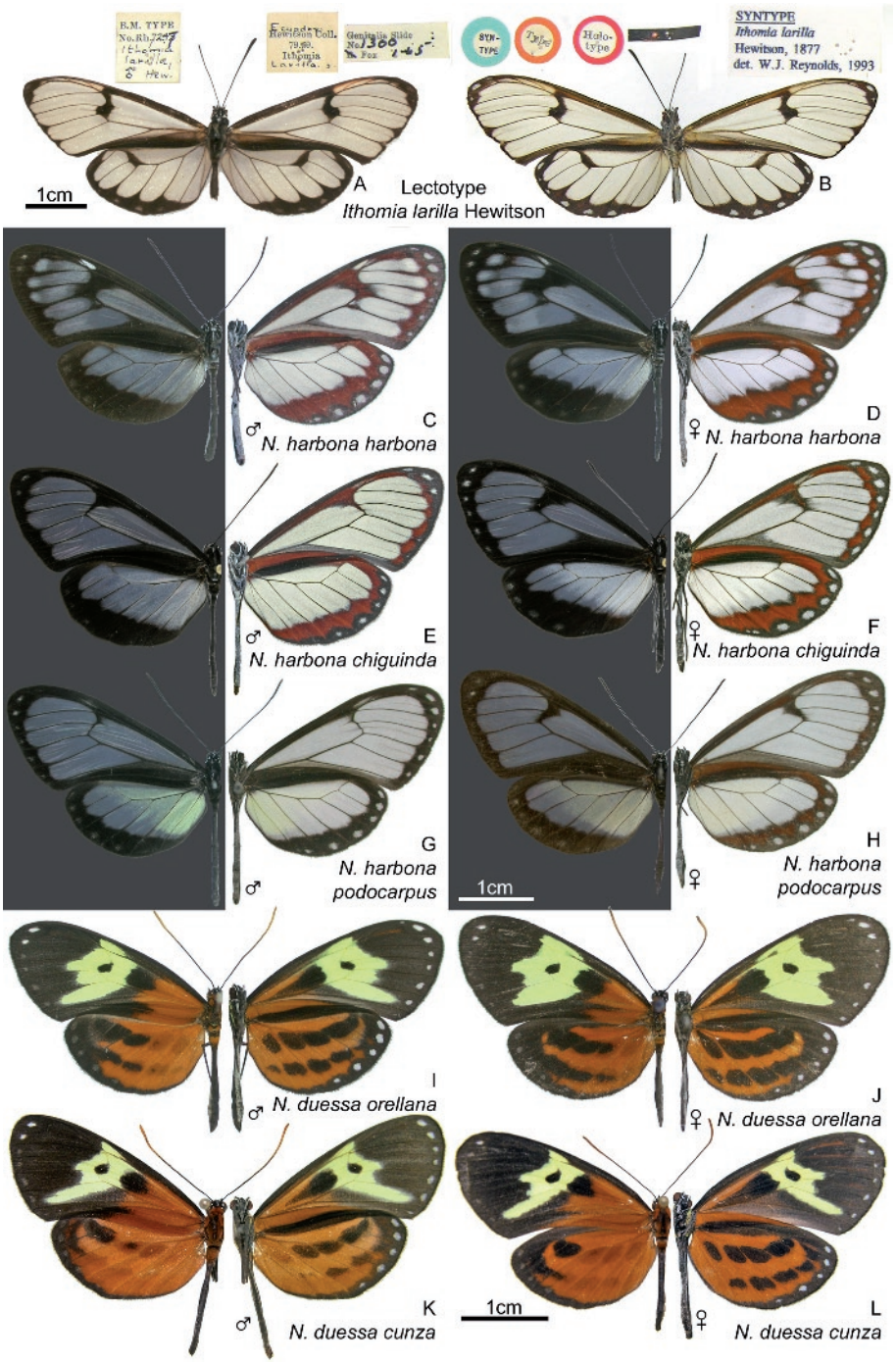
Females of this subspecies (Fig. 2H) differ from those of *N. l. pastazana* (Fig. 2J) in having the HW translucent yellow, rather than white, and in having slightly more intense orange colouring in the FW. Males of these two taxa (Fig. 2G, I) can be extremely similar, if not indistinguishable, but a more intense orange coloring in the DFW costal apex of *N. l. reventador* may prove to be a useful character for those that can't be identified by hindwing colour (see description of *N. l. pastazana*). Both sexes of *Napeogenes l. reventador* may be distinguished from *N. l. larilla* (Fig. 2K, L) by the broader black HW marginal border and larger white VHW marginal spots.

Types

Holotype ♂, ECUADOR, *Sucumbíos*, km 9 La Bonita-Tulcán rd., Quebrada El Morro, El Higuerón, 2200m, [0°30.9'N, 77°32.2'W], 21.xii.2001, K. Willmott *leg.*, (KWJH, to be deposited in MECN).

Paratypes: ECUADOR, *Sucumbíos*, 1♂, km 19 La Bonita-Tulcán rd., old rd. to La Alegría, 2400m, [0°33.7'N, 77°31.7'W], 22.xii.2001, K. Willmott *leg.*, (KWJH); 2♂, nr. La Bonita, Quebrada El Garrapatal, 2100-2200m, [0°29.3'N, 77°33.2'W], 21.xii.2001, K. Willmott *leg.*, (KWJH, BMNH); *Napo*, 2♂, 2♀, nr. Cosanga, Estación Científica Yanayacu, 2000m, [0°35.4'S, 77°53'W], 24.xi.2006, K. Willmott *leg.*, FLMNH-111218, 111219, 111220, 111221, (FLMNH); 1♀, Yanayacu Biological Station, 7085', [0°35.949'S, 77°53.403'W], i.2002, H. Greeney *leg.*, (FVLI); 1♂, 1♀, same data as preceding except 17.i.2004, F. Vitale & M. Bollino *leg.*, (FVLI).

3 (see next page). A,B, Lectotype ♂ *Ithomia larilla* Hewitson, with labels. A. Dorsal surface. B. Ventral surface. C-L, *Napeogenes harbona* and *N. duessa*, left wings dorsal, right wings ventral. C. *N. h. harbona*, ♂, Ecuador, Napo, El Arrayán. D. *N. h. harbona*, ♀, same as previous. E. *N. h. chiguinda* n. ssp., HT♂, Ecuador, Morona-Santiago, km 9.5 Chigüinda-Gualaquiza rd.. F. *N. h. chiguinda* n. ssp., PT♀, same as HT. G. *N. h. podocarpus*, n. ssp., HT♂, Ecuador, Zamora-Chinchipe, San Francisco. H. *N. h. podocarpus*, n. ssp., PT♀, same as HT. I. *N. d. orellana* n. ssp., PT♂, Ecuador, Orellana, Estación Científica Yasuní. J. *N. d. orellana* n. ssp., PT♀, Ecuador, Sucumbíos, Pañacocha. K. *N. d. cunza* n. ssp., HT♂, Ecuador, Morona-Santiago, Cunza. L. *N. d. cunza* n. ssp., PT♀, same as HT



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Etymology

The subspecies is named after Volcán Reventador, whose isolated summit lies near the middle of the known range of this taxon.

Discussion

This taxon is known to date from Napo and Sucumbíos provinces in northeastern Ecuador, where it occurs from approximately 1900-2400 m in undisturbed cloud forest.

Napeogenes larilla pastazana Vitale et Willmott, n. ssp.

Fig. 2I, J, 4C

Napeogenes larilla n. ssp. Lamas (Lamas 2004).

Description and diagnosis

Females of this subspecies (Fig. 2J) differ from those of both the nominate subspecies (Fig. 2L) and *N. l. reventador* (Fig. 2H) in having the HW translucent white, rather than yellow. The black HW marginal border is usually broader than in the nominate subspecies, especially along vein M3, as in *N. l. reventador*, and the white HW marginal spots are usually larger than in either of the other Ecuadorian subspecies. Males have variable hindwing colour, with some specimens being whitish, like the female, while others are yellow, with the latter being indistinguishable from those of *N. l. reventador*. Some males are also difficult to distinguish from *N. l. larilla*, but in all examined specimens with reliable locality data the white DHW marginal spots are larger in the former. Males also usually differ from *N. l. larilla* in lacking any reddish brown scaling in the black ventral margins, and in the translucent area in the FW costal apex being broader, extending into cell R5-R4, rather than terminating in cell R3-R2.

Types

Holotype ♀, ECUADOR, *Tungurahua*, Río Ulba, near Baños, 2400m, [c. 1°26.50'S, 78°23.50'W], 18.xi.1997, K. Willmott *leg.*, (FLMNH).

Paratypes: ECUADOR, *Tungurahua*: 1♀, same data as HT (KWJH, to be deposited in MECN); 1♀, La Conquista, 1800m, 9.iv.1990, G. Velástegui *leg.*, (FVLI); 1♂, Viscaya, near Baños, vii.1998, I. Aldaz *leg.*, (FVLI); 1♂, 2♀, "environs de Ambato", I. Blanc *leg.*, (BMNH); 1♂, Baños, [c. 1°24'S, 78°25'W], iv.1912, M.G. Palmer *leg.*, (BMNH).

Etymology

The subspecies is named after the Río Pastaza, where the great majority of known specimens have been collected.

Discussion

Most specimens of this taxon have been collected in the upper Río Pastaza valley, in the vicinity of the town of Baños, where the taxon occurs from approximately 2000-2400 m in remnant cloud forest fragments. Buckley also collected several male

specimens in the Chigüinda area, Morona-Santiago, which appear to represent *N. l. pastazana*, though female specimens from this area would be of great interest. The extension of the range of *N. l. pastazana* as far south as Chigüinda is also expected based on the distribution of its co-mimic *Veladyris pardalis pardalis*.

Napeogenes cranto chocoana Vitale et Bollino, replacement name

Napeogenes cranto chocoana is proposed as a replacement name for ***Napeogenes cranto browni*** Vitale et Bollino, 2001, as ***browni*** is a junior homonym of *Napeogenes stella browni* T. Racheli et L. Racheli, 1998. The name is derived from that of the Chocó region of western Colombia and northwestern Ecuador, where this subspecies occurs.

Types (as originally designated in Vitale & Bollino 2001): *Holotype* ♂, ECUADOR, *Imbabura*, Paramba, 3500', [c. 0°49.0'N, 78°21.0'W], iv.1897, Rosenberg *leg.*, (BMNH).

Paratypes: 1♂, 1♀ same data as HT, (BMNH); 1♂, same data as HT except no elevation, (BMNH); 1♀, same data as HT except no collector, (BMNH); 1♂, ECUADOR, *Cotopaxi*, Angamarca, [c. 1°7.0'S, 78°55.60'W], (BMNH); 2♂, 2♀, ECUADOR, *Imbabura*, Lita, [c. 0°49.60'N, 78°28.0'W], vi.1998; 2♀, same locality as previous, iii.1999; 1♂, COLOMBIA, *Nariño*, Ricaurte, [c. 1°13.0'N, 77°59.0'W], (FVLI).

Napeogenes harbona (Hewitson, 1869)

The taxon *benigna* Weymer, 1899 (Fig. 2C, D), from the Magdalena valley and eastern slopes of the Cordillera Oriental in Colombia, was treated as a subspecies of *N. harbona* by Lamas (2004), and formerly as a subspecies of *N.* "*cyrianassa*" (Doubleday, [1847]) (= *N. rhezia* (Geyer, [1834])) (Mielke & Brown, 1979). However, for reasons discussed elsewhere in this paper, we believe that *N. benigna* should be regarded as a species. *Napeogenes harbona* occurs from northern Ecuador to Bolivia, with several additional undescribed subspecies in Peru (Fig. 5A).

Napeogenes harbona harbona (Hewitson, 1869)

Fig. 3C, D, 5A

Hewitson (1869) described this species based on an unspecified number of specimens collected by Clarence Buckley at Mapoto, in the Río Pastaza valley, Tungurahua, central Ecuador [c. 1°24.20'S, 78°15.20'W], and the syntype is in the BMNH. We have examined specimens from the east Andean slopes of Ecuador, from 1300-2200 m in Napo and Tungurahua. Distinguishing features are discussed in relation to new taxa in the descriptions of the latter.

Napeogenes harbona chiguinda Willmott et Vitale, n. ssp.

Fig. 3E, F, 5A

Description and diagnosis

This subspecies (Fig. 3E, F) differs from the nominate subspecies (Fig. 3C, D) in having the forewing transparent area a uniform pale grey, without translucent white subapical spots in cells Cu1-M1 and a broad translucent white postdiscal band from costa to anal margin. The white postdiscal costal spot of *N. h. harbona* is less bright or absent. The black FW discocellular bar is often reduced to a triangular wedge terminating at the base of vein Cu1, though some specimens have this similar in form to the nominate subspecies. This taxon is perhaps even more similar to *N. h. podocarpus* n. ssp. (Fig. 3G, H), but differs consistently in having the hindwing translucent white, rather than yellow.

Types

Holotype ♂, ECUADOR, *Morona-Santiago*, km 9.5 Chigüinda-Gualaquiza rd., 1750m, [3°14.63'S, 78°40.11'W], 12.x.2007, K. Willmott *leg.*, FLMNH-112018 (FLMNH).

Paratypes: ECUADOR, *Morona-Santiago*: same collection data as holotype, 3♂ [FLMNH-112017,112019,112020] (FLMNH), 2♀ [FLMNH-112021,112023] (FLMNH), 1♀ [FLMNH-112022] (FLMNH, to be deposited in MECN); 3♂, 2♀, km 8 Chigüinda-Gualaquiza rd., 1800m, [3°15.84'S,78°39.80'W], 15.i.2004, F. Vitale *leg.*, (FVLI); 2♂, 2♀ Chigüinda, 1600m, xi.1999, I. Aldas *leg.*, (FVLI).

Etymology

This subspecies is named for the town of Chigüinda, an important historical collecting locality near the type locality.

Discussion

This subspecies is known to date from two localities, approximately 100 km apart, in Morona-Santiago. We encountered both sexes flying during the middle of the day in sunlight from 3-4 m in the interior of tall, undisturbed cloud forest, now a rare habitat in the vicinity of the type locality.

Napeogenes harbona podocarpus Vitale et Willmott, n. ssp.

Fig. 3G, H, 5A

Napeogenes harbona n. ssp. 1 Lamas (Lamas 2004).

Description and diagnosis

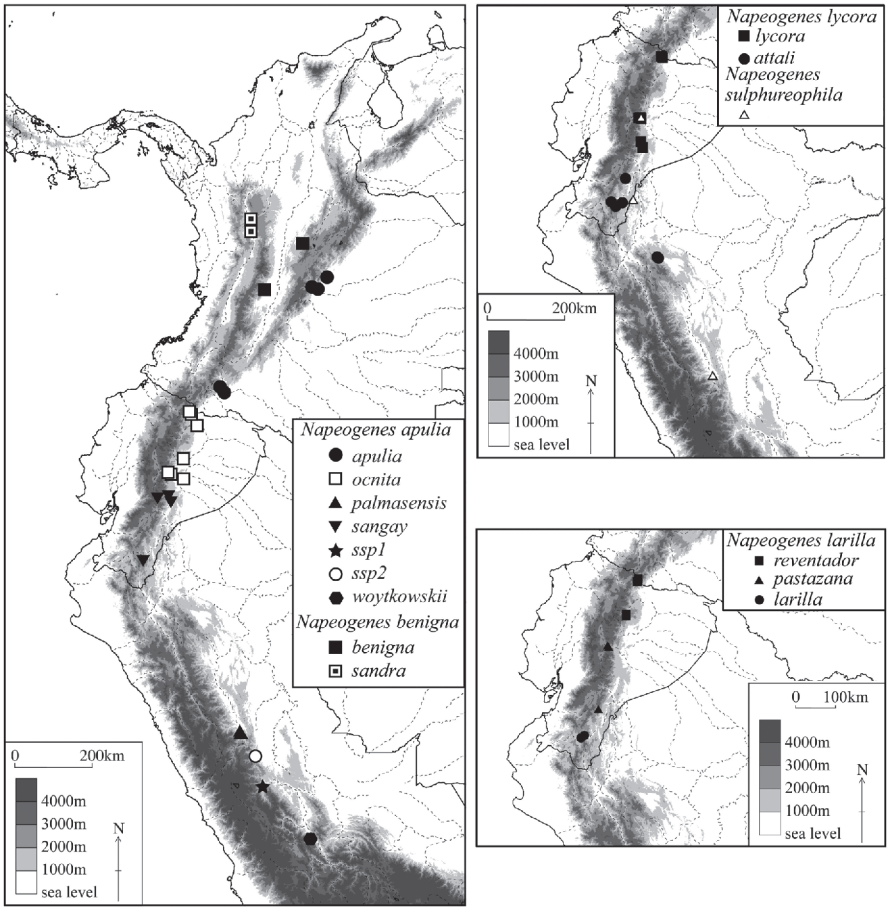
This subspecies (Fig. 3G,H) is most similar to *N. h. chiguinda* n. ssp. (Fig. 3E,F), but differs in having the hindwing discal area colored translucent yellow, rather than white. Specimens typically also have the ventral borders black (with white marginal spots), rather than with reddish-brown shading throughout. The subspecies differs from

the nominate subspecies in having the dark marginal border of the FW of more uniform width, the FW subapical area transparent (rather than marked with a translucent white postdiscal band, subapical and submarginal spots), the FW discocellular bar narrower or (more usually) absent, the HW with a translucent yellow triangle in the basal half of the transparent area, and the ventral margins (usually) black. The sexes are similar.

TYPES

Holotype ♂, ECUADOR, *Zamora-Chinchipe*, Río San Francisco, [c. km 26 Loja-Zamora rd.], 1900m, [3°58.7'S, 79°06.1'W], 28.x.1997, K. Willmott *leg.*, (KWJH, to be deposited in MECN).

Paratypes: ECUADOR, *Zamora-Chinchipe*: 3♂, 1♀, same collection data as holotype, (FLMNH, KWJH); 2♂, Valladolid, 1700m, [4°32.60'S,79°7.60'W], xii.1998, I. Aldas *leg.*, (FVLI); 1♀, Valladolid, 1700m, [4°32.60'S,79°7.60'W], xi.2000, I. Aldas



4. Locality records for *Napeogenes apulia*, *N. benigna*, *N. lycora*, *N. sulphureophila* and *N. larilla* (only Ecuadorian records are shown for the last species)

leg., (FVLI); 1♀, Loja-Zamora rd., 2050m, [3°58.92'S, 79°06.08'W], 22.iv.1998, F. Vitale & M. Bollino *leg.*, (FVLI); 1♀, km 40 Loja-Zamora rd, 1500m, xi.2001, I. Aldas *leg.*, (FVLI).

Etymology

The name is derived from that of Parque Nacional Podocarpus, in southeastern Ecuador, which protects the montane rain forest habitats where this taxon and members of the conifer genus *Podocarpus* occur.

Discussion

This taxon ranges from southern Ecuador (Zamora-Chinchipe, Loja) on both slopes of the Andes to extreme northern Peru (N. Cajamarca, Amazonas). In eastern Ecuador it has been recorded from 1700-2100 m in relatively undisturbed cloud forest habitats, where it may be common. In western Ecuador, we encountered it in remnant dry forest pockets, comprising only a few trees, along the Río Chiriguaña near the town of Yangana. In southeastern Ecuador, whence the type series comes, this subspecies shows variability in both sexes. The DFW discocellular bar varies from being totally absent to crossing the discal cell into the base of cell Cu1-M3 The ventral margin ground colour varies from black to reddish-brown (except for black surrounding the white marginal spots), as in the other two Ecuadorian subspecies, with some forms having only the veins outlined in reddish-brown. The extremes of these two types of variation approach the nominate subspecies phenotype and support the association of this subspecies with *N. harbona*.

Napeogenes duessa orellana Vitale et Willmott, n. ssp.

Fig. 3I, J, 5B

Napeogenes duessa n. ssp. 1 Lamas (Lamas 2004)

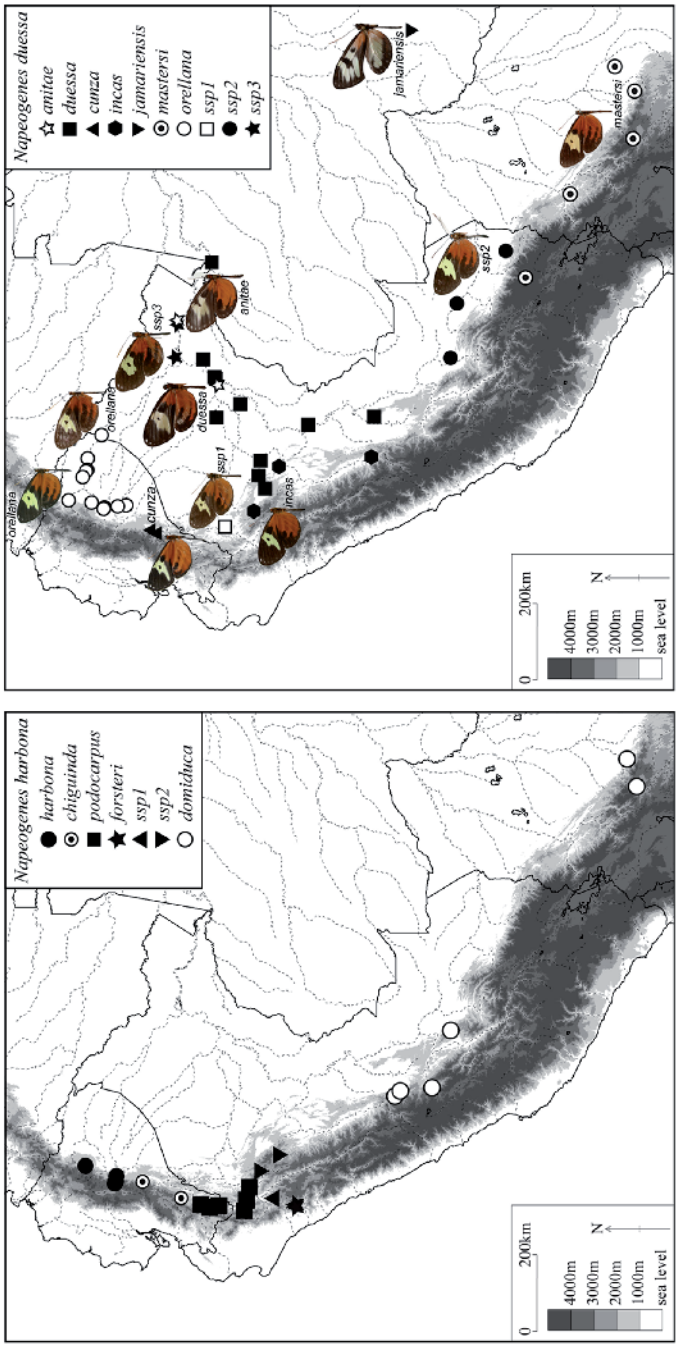
Description and diagnosis

This subspecies (Fig. 3I, J) differs from *N. duessa incas* Bryk, 1953, *N. d. ssp1* (Fig. 5B) and *N. d. cunza* n. ssp. (Fig. 3K, L) in having a broader, squarer FW yellow patch and the black submarginal band on the DHW extending nearer to the anal margin. From *N. d. anitae* Fox et Real, 1971 and *N. d. duessa* (Hewitson, [1859]) it may be distinguished by the forewing being entirely opaque, among other differences apparent in Fig. 5B. It is perhaps more similar to the geographically isolated *N. d. ssp2* and *N. d. mastersi* Fox et Real, 1971, from southern Peru and Bolivia (Fig. 5B), which both have a smaller black spot within the FW yellow area.

Types

Holotype ♂, ECUADOR, *Napo*, Puerto Misahuallí, [400m], [c. 1°1.60'S, 77°40.0'W], 6.xi.1983, D. & J. Jenkins *leg.*, (FLMNH).

Paratypes: ECUADOR, *Orellana*, 1♂, Estación Científica Yasuní, Río Tiputini, vía Auca, Parque Nacional Yasuní, 300m, [c. 0°38.0'S, 76°25.0'W], 16-18.viii.1999, K.



5. Locality records for *Napeogenes harbona* and *N. duessa*

Willmott & J. Hall, *leg.*, (KWJH, to be deposited in MECN); *Sucumbíos*, 1♀, Pañacocha, Río Napo, 250m, [c. 0°26.18'S, 76°4.62'W], 20.x.1997, K. Willmott *leg.*, (FLMNH); 1♂, 1♀, same data as preceding except 15-16.x.1997, (KWJH, FLMNH).

Etymology

The name is derived from that of Orellana province, the lowland province of eastern Ecuador where the species is particularly common.

Discussion

This taxon occurs in lowland rainforest throughout eastern Ecuador and into northern Peru (Loreto), with the exception of the valleys of the Río Upano and Río Zamora, where occurs *N. d. cunza*. No specimens are yet known from eastern Morona-Santiago and Pastaza provinces. It occurs up to 950 m, but is much more frequently encountered in flat forest below 400m, without ever being common. There is variation in the extent of orange on the DHW, which in some specimens does not extend beyond vein M3, and in the shape of the FW yellow patch, with one specimen from Cerro Lumbaquí (Sucumbíos) having almost no yellow in cell Cu2-Cu1, thus resembling the figured "*ssp3*" (Fig. 5B). We have insufficient material available to determine whether this last variant represents a different taxon, at present.

Napeogenes duessa cunza Vitale et Willmott, n. ssp.

Fig. 3K, L, 5B

Description and diagnosis

The most similar named subspecies to this new subspecies is *N. duessa incas*, from Huánuco and San Martín, Peru (Fig. 5B), which differs most notably in having reduced orange on the DHW and at the base of the DFW. Individuals from northern Peru (Amazonas) listed by Lamas (2004) as a further new subspecies are very similar and may prove to represent the same taxon, but the few specimens we have examined are similar to *N. d. incas* in having a broader black HW apex. From the neighbouring *N. d. orellana*, *N. d. cunza* differs in the yellow FW band appearing narrower overall, an effect caused partly by a narrowing of the yellow marking near the costa, partly by its slight extension in cell Cu2-Cu1.

Types

Holotype ♂, ECUADOR, *Morona-Santiago*, Santiago de Méndez, Cunza, 800-1200m, ix-x.2003, E. Aldas l*eg*., (FVLI, to be deposited in MECN).

Paratypes: ECUADOR, *Morona-Santiago*, 13♂, 9♀, same data as HT (FVLI, 1♀ to be deposited in MECN, 1♂, 1♀ to be deposited in FLMNH); 2♀, Huambi, [c. 2°31.6'S,78°10.0'W], x.1994, I. Aldas *leg*. (FVLI).

Etymology

The name is derived from that of the type locality.

Discussion

There is variation among the type specimens listed above in a number of wing pattern characters. The yellow FW band may be almost as broad as the figured *N. d. ssp2* (Fig. 5B), or reduced in width similar to the figured *N. d. ssp1*, but remains always rectangular in shape, rather than square as in *N. d. orellana*. The DHW is usually almost entirely orange, encircling an isolated black postdiscal spot in cell M3-M2 (Fig. 3L), but in some specimens this black spot is absent, while in others it continues posteriorly as a postdiscal line of spots (e.g. Fig. 3K). We have also examined a male and female in the BMNH from Gualaquiza [3°25'S, 78°36'W], south of the type locality but in the same valley, which differ from the type series in having the orange on the DHW not extending anteriorly beyond vein M3, in this respect differing also from all other described *N. duessa* taxa. More specimens are needed to determine whether these specimens represent a distinct taxon. The wing pattern of *N. d. cunza* is similar to that of its presumed co-mimic *Hypothyris euclea pyrippe* (Hopffer, 1874), with a relatively narrow FW yellow band and a broad, more uniformly orange hindwing patch (rather than a patch divided by a black line, as seen in *N. d. orellana* and its co-mimic *H. euclea intermedia* (Butler, 1873)). It therefore seems likely that *N. d. cunza* occupies a similar geographical range, namely lowland rainforest in the valleys of the Río Upano and Río Zamora, at least as far south as Gualaquiza.

CHECKLIST OF ECUADORIAN *NAPEOGENES* [ECUADORIAN RANGE]

Napeogenes achaea achaea (Hewitson, 1869) [lowland E. Ecuador]
Napeogenes aethra aethra (Hewitson, 1869) [lowland E. Ecuador]
Napeogenes apulia ocnita Willmott et Vitale, **n. ssp.** [montane E. Ecuador: Sucumbíos-Tungurahua, Pastaza]
Napeogenes apulia sangay Vitale et Willmott, **n. ssp.** [montane E. Ecuador: Morona-Santiago, Zamora-Chinchipe]
Napeogenes cranto chocoana Vitale et Bollino, **repl. name** [montane W. Ecuador, Carchi-Pichincha]
Napeogenes duessa orellana Vitale et Willmott**, n. ssp.** [lowland E. Ecuador: Napo, Orellana]
Napeogenes duessa cunza Vitale et Willmott, **n. ssp.** [lowland E. Ecuador: Morona-Santiago]
Napeogenes flossina flossina Butler, 1873 [montane E. Ecuador]
Napeogenes glycera glycera Godman, 1899 [montane E. Ecuador: Sucumbíos-Morona-Santiago]
Napeogenes glycera nausica Weymer, 1899 [montane E. Ecuador: Morona-Santiago?]
Napeogenes glycera eunomia Godman, 1899 [montane E. Ecuador: Zamora-Chinchipe]
Napeogenes harbona harbona (Hewitson, 1869) [montane E. Ecuador: Napo-Tungurahua]

Napeogenes harbona chiguinda Willmott et Vitale, **n. ssp.** [montane E. Ecuador: Morona-Santiago]
Napeogenes harbona podocarpus Vitale et Willmott, **n. ssp.** [montane S. Ecuador: Zamora-Chinchipe, Loja]
Napeogenes inachia pozziana (Oberthür, 1879) [lowland E. Ecuador]
Napeogenes larilla reventador Willmott et Vitale, **n. ssp.** [montane E. Ecuador: Sucumbíos-Napo]
Napeogenes larilla pastazana Vitale et Willmott, **n. ssp.** [montane E. Ecuador: Tungurahua-Morona-Santiago]
Napeogenes larilla larilla (Hewitson, 1877) [montane S. Ecuador: Zamora-Chinchipe, Loja?]
Napeogenes larina quadrilis Haensch, 1903 [lowland E. Ecuador: Orellana, Sucumbíos]
Napeogenes lycora lycora (Hewitson, 1870) [montane E. Ecuador: Sucumbíos-Tungurahua]
Napeogenes lycora attali Vitale et Willmott, **n. ssp**. [montane E. Ecuador: Morona-Santiago, Zamora-Chinchipe]
Napeogenes peridia decora Godman, 1899 [lowland W. Ecuador: Pichincha southwards]
Napeogenes peridia hoppi Hering, 1925 [lowland W. Ecuador: Esmeraldas]
Napeogenes pharo lamia (Hewitson, 1869) [lowland E. Ecuador: Morona-Santiago, Pastaza]
Napeogenes pharo pharo (C. et R. Felder, 1862) [lowland E. Ecuador: Napo, Orellana]
Napeogenes stella aster Godman, 1899 [lowland W. Ecuador: Pichincha southwards]
Napeogenes stella opacella Kaye, 1918 [lowland W. Ecuador: Imbabura northwards]
Napeogenes sulphureophila Bryk, 1937 [montane E. Ecuador: Tungurahua-Zamora-Chinchipe]
Napeogenes sylphis corena (Hewitson, [1861]) [lowland E. Ecuador]
Napeogenes tolosa crispina (Hewitson, 1874) [montane W. Ecuador: Esmeraldas-Pichincha]
Napeogenes verticilla (Hewitson, 1874) [montane E. Ecuador: Zamora-Chinchipe]

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