

# NOTES ON THE GENUS *ARGYROGRAMMANA*, WITH DESCRIPTIONS OF FIVE NEW SPECIES (LEPIDOPTERA: RIODINIDAE)

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**ABSTRACT.**— Type specimens of the extremely rare and/or poorly known species in the *Argyrogrammana amalfreda* (Staudinger, [1887]) complex (group "Bariniformes" of Stichel, 1911, 1930) are illustrated, with notes on taxonomy and distribution. In addition, five new species are described from eastern Ecuador.

**KEY WORDS:** Amazon, *Argyrogrammana aparamilla* n. sp., *Argyrogrammana bonita* n. sp., *Argyrogrammana caelestina* n. sp., *Argyrogrammana celata* n. sp., *Argyrogrammana natalita* n. sp., behavior, Bolivia, Brazil, Central America, cloudforest, Colombia, Costa Rica, Ecuador, French Guiana, Guyana, hilltopping, Neotropical, Peru, perching behavior, South America, taxonomy, Trinidad.

The genus *Argyrogrammana* Strand, 1932, contains some of the most exquisite and rare species of riodinids to be found in the Neotropics, and, for the lepidopterist, encountering these butterflies in the field is always a memorable experience. Several species are still only known from the type specimen. The genus includes approximately 24 described species distributed throughout tropical Central and South America, the majority of which are confined to lowland rainforest in the Amazon Basin.

Taxonomic studies in this strongly sexually dimorphic genus have been hampered greatly by a lack of knowledge of which females are associated with which males, and by a poor understanding of the extent of intraspecific variation in males due to their great rarity in collections. The recent work of Brévignon and Gallard (1995) must be considered as the most important work by far on the taxonomy and behavior of *Argyrogrammana*, illustrating many hitherto unknown females and new species, and documenting species diversity at a single site (French Guiana). This provides a superb example of how much there is still to discover about the distribution and ecology of rare riodinid species, and how important field work is even today in cataloging riodinid diversity.

The purpose of this paper is to assist researchers in the identification of the rare and poorly known species in this genus which are mostly phenotypically characterised by an orange and blue pattern on the recto surface. These species were grouped by Stichel (1911, 1930) into his "Bariniformes" (*A. amalfreda* (Staudinger, [1877]) complex). Although these do not necessarily form a monophyletic group, it is convenient here to treat them together. Reviews of the two remaining groups are in preparation; these are Stichel's "Stilbeformes" (*A. stilbe* (Godart, [1824]) complex), characterised by an orange/yellow recto surface mottled with black spots, and the "Trochiliiformes" (*A. trochilia* (Westwood, [1851]) complex), characterised by banded females and often blue banded males.

Our studies of *Argyrogrammana* have been prompted by the discovery of several new species in the "amalfreda complex" during the course of our field work in Ecuador. Here we present notes on the known distribution and taxonomy of the hitherto known species, with illustrations of type specimens, followed by descriptions of five new species from eastern Ecuador.

## *ARGYROGRAMMANA* Strand, 1932

*Argyrogramma* Stichel, 1910, preoccupied (Hübner, [1823])

### *Argyrogrammana praestigiosa* (Stichel, 1929) (Fig. 1a,b)

Male, type, no locality data (Zoologische Museum Humboldt Universität, Berlin, Germany, ZMHU).

Distribution: French Guiana.

The male verso surface, and the female of *A. praestigiosa* (see Brévignon and Gallard, 1995) both indicate that this species is closely related to the more widespread *A. glaucopsis* (Bates, [1868]), figured by D'Abrera (1994: 1052), and by Lewis (1987: 70, misidentified as female *A. saphirina* (Staudinger, [1887])). Therefore, *A. praestigiosa* seems to be better grouped with *A. glaucopsis* in the "trochilia complex."

### *A. barine* (Staudinger, [1887]) (Fig. 2a,b ♂; 2c,d ♀)

Male, type, Río San Juan, W. Colombia (ZMHU).

Female, type, Río San Juan, W. Colombia (ZMHU).

Distribution: Costa Rica to W. Ecuador.

This species is not represented in the Natural History Museum, London, England (BMNH), and the specimen figured as this species by D'Abrera (1994) is probably a form of *A. glaucopsis*.

### *A. physis* (Stichel, 1911)

ssp. *physis* (Stichel, 1911) (Fig. 3a,b; 19)

Male, type, Río San Juan, W. Colombia (ZMHU).

Distribution: W. Ecuador to French Guiana.

ssp. *phyton* (Stichel, 1911) (Fig. 3c,d)



Fig. 1-6. Type specimens: 1. *Argyrogrammana praestigiosa*, type male: a) recto; b) verso. 2. *A. barine*, type male: a) recto; b) verso. Type female: c) recto; d) verso. 3. *A. physis physis*, type male: a) recto; b) verso. *A. physis phyton*, type male: c) recto; d) verso. 4. *A. amalfreda*, type male: a) recto; b) verso. 5. *A. nurtia*, type male: a) recto; b) verso. Type female: c) recto; d) verso. 6. *A. alstonii*, type male: a) recto; b) verso.

Male, type, São Paulo de Olivença, Brazil (ZMHU).  
Distribution: E. Colombia to Peru, Brazil.

There are three specimens of this species in the BMNH, one of which is figured by D'Abrera (1994: 1051). This specimen, from Cananche, Cundinamarca, N. Colombia, appears to be phenotypically intermediate between the two subspecies. A specimen from Bahia, E. Brazil, has reduced orange and an elongated subapical blue patch on the recto surface. This may represent a valid subspecies, but more material is needed before it can be described. The female of *A. physis physis* is figured by Brévignon and Gallard (1995) but the female of *A. physis phyton* remains unknown.

***A. amalfreda* (Staudinger, [1887])** (Fig. 4a,b; 20)

Male, type, Pebas, Peru (ZMHU).  
Distribution: Only known to us from the type specimen.

The male specimen figured by Brévignon and Gallard (1995) as this species, differs from the type of *A. amalfreda* in the verso pattern and forewing recto subapical blue patch, and is probably not conspecific. Similarly, the female specimen figured by them is also unlikely to represent *A. amalfreda*. The poor condition of the male specimen makes a definite identification difficult, but it appears to be similar to *A. celata* n. sp.

***A. nurtia* (Stichel, 1911)**

ssp. *nurtia* (Stichel, 1911) (Fig. 5a,b, 21 ♂; 5c,d ♀)  
Male, type, Pachitea, Peru (ZMHU).  
Female, type, Río Songo [1200m], Bolivia (ZMHU).  
Distribution: Peru.

ssp. *ludibunda* Brévignon & Gallard, 1995 (not figured)  
Male, holotype, Maripasoula, French Guiana.  
Female, allotype, Matoury, French Guiana. Both in coll. L. & C. Brévignon, (LCB).  
Distribution: French Guiana.

The recently described subspecies *A. n. ludibunda* differs from the nominate by having reduced orange on the recto surface and a slightly more elongate forewing recto subapical patch (figured by D'Abrera, 1994: 1051). The female type ascribed to *A. nurtia nurtia* does not belong to this species (see note under *Argyrogrammana natalita* n. sp.). Brévignon and Gallard (1995) figure the true female of *A. nurtia ludibunda*, while the female of the nominate subspecies is unknown to us.

***A. alstonii* (Smart, 1979)** (Fig. 6a,b)

Male, type, St. Annes, Trinidad (BMNH).  
Distribution: French Guiana, Trinidad.

This rare species was recently recorded from French Guiana by Brévignon and Gallard (1995), and the female appears to be unknown. Guianan males are darker orange and have more reduced blue markings on the recto surface than the type, thus resembling *A. nurtia ludibunda*.

***A. pulchra* (Talbot, 1929)** (Fig. 7a,b ♂; 7c,d ♀)

Male, type, Sta. Fé de Bogotá, Colombia (BMNH).  
Female, type, Sta. Fé de Bogotá, Colombia (BMNH).

Only known to us from the two types. It is noteworthy that in a genus where it is difficult to match males with females, the pattern of the verso surface and apical blue spot of these two specimens correlate remarkably well.

***A. sticheli* (Talbot, 1929)** (Fig. 8a,b ♂; 8c,d ♀)

Male, type, St. Laurent, Río Maroni, French Guiana (BMNH).

Female, type, French Guiana (BMNH).  
Distribution: French Guiana.

This species is very similar in the pattern of the verso surface and the blue maculae of the forewing recto to *A. pulchra*, and the two species are clearly related. The female type of *A. sticheli* is not conspecific with the male type and its corresponding male appears to be unknown. Brévignon and Gallard (1995) illustrate the true female of *A. sticheli*, which resembles the female of *A. pulchra* but has a larger blue subapical spot and darker recto coloration.

***A. caesarion* Rebillard, 1958** (not figured)

Male, type, Gavea, Brazil (Musée Nationale d'Histoire Naturelle, Paris, France, MNHN).  
Distribution: S. E. Brazil.

This species is figured by D'Abrera (1994: 1051, second column, third row) as *Argyrogrammana?* sp., and by Rebillard (1958), and is impossible to confuse with any other species in the genus. The recto surface is entirely red/orange with faint black speckling.

***A. venilia* (Bates, [1868])** (not figured)

Female, type, Pará, Brazil (BMNH).  
Distribution: E. Ecuador, Brazil, Guianas.

The correct male of this species has only recently been recognised by Brévignon and Gallard (1995), and had been considered as a separate species, *A. boyi* (Röber, 1926) (type male from Tefé, Brazil (BMNH)). Although Stichel (1911, 1930) included "*A. boyi*" in his group "Trochiliiformes", and "*A. venilia*" in his "Stilbeiformes", *A. venilia* has a male verso, and female characteristic of his group "Bariniformes."

***A. denisi* Gallard, 1995** (not figured)

Male holotype, female allotype, both Galion, Roura, French Guiana. Both to be deposited in the MNHN.  
Distribution: French Guiana.

The male of this species is very similar to *A. nurtia ludibunda* and *A. alstonii*, but is smaller, and the verso surface lacks any blue markings, more closely resembling that of *A. physis*.

***A. sebastiani* Brévignon, 1995** (not figured)

Male, holotype, Galion, Roura, French Guiana (LCB).  
Female, allotype, locality as for holotype (in coll. J.-Y. Gallard, JYG).  
Distribution: French Guiana.

The male of this species resembles *A. physis phyton* on the recto surface, but has a more curved blue subapical patch, while the verso surface is similar to that of *A. pulchra*, but lacks any blue coloration.

***A. chicomendesi* Gallard, 1995** (not figured)

Male, holotype, Galion, Roura, French Guiana (to be deposited in the MNHN).  
Female, allotype, locality as for holotype (JYG).  
Distribution: French Guiana.

This species closely resembles *A. bonita* n. sp., and is discussed in the diagnosis for that species.

***Argyrogrammana natalita* Hall & Willmott, new sp.**

(Fig. 9a,b; 14)

**Description.**— MALE: forewing length 14mm. *Recto*: forewing ground color black; very thin silver-blue submarginal line; outer margin fringe black, white in 1A, Cu<sub>1</sub>, M<sub>2</sub> and M<sub>1</sub>; ovoid shining blue subapical patch



Fig. 7-13. Type specimens: 7. *A. pulchra*, type male: a) recto; b) verso. Type female: c) recto; d) verso. 8. *A. sticheli*, type male: a) recto; b) verso. Type female: c) recto; d) verso. 9. *A. natalita* n. sp., holotype male: a) recto; b) verso. 10. *A. caelestina* n. sp., holotype male: a) recto; b) verso. 11. *A. aparamilla* n. sp., holotype male: a) recto; b) verso. 12. *A. celata* n. sp., holotype male: a) recto; b) verso. 13. *A. bonita* n. sp., holotype male: a) recto; b) verso.

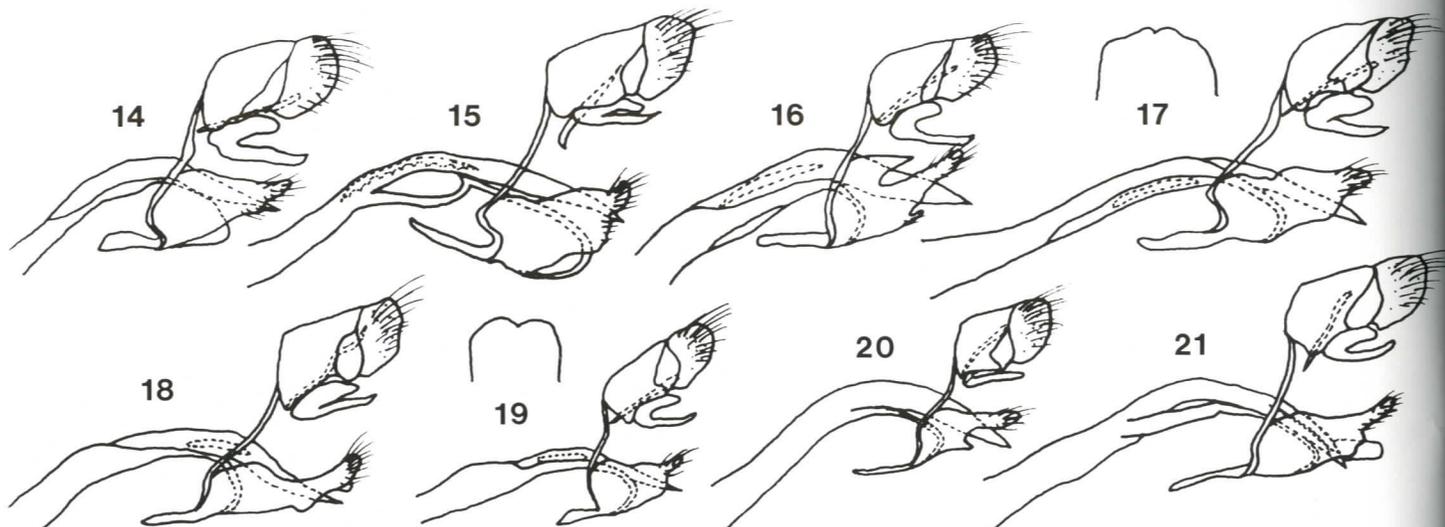


Fig. 14-21. Male genitalia, lateral view: 14. *A. natalita* n. sp.; 15. *A. caelestina* n. sp.; 16. *A. aparamilla* n. sp.; 17. *A. celata* n. sp., with ventral view of uncus; 18. *A. bonita* n. sp.; 19. *A. physis phyton*, Finca San Carlo, Ecuador, with ventral view of uncus; 20. *A. amalfreda*, type specimen, Pebas, Peru; 21. *A. nurtia*, type specimen, Pachitea, Peru. (Note: abdomens of type specimens in the BMNH were not available for dissection).

between  $Cu_1$  and  $M_1$ ; basal half of wing orange from anal margin to costal vein; numerous small black dashes intruding from costa into cell. Hindwing ground color orange with thin black margin, fringe black, white in 1A,  $Cu_1$  and  $M_2$ ; very thin silver-blue submarginal line, bordered distally by a thin orange submarginal line. *Verso*: forewing ground color black, shining blue in the cell; very thin silver-blue submarginal line, bordered proximally by a thin lilac-grey line; disjointed postdiscal band of oblong, lilac-grey spots; black dash at cell end; four black spots within cell. Hindwing ground color shining turquoise; black margin split by very thin silver-blue submarginal line, bordered proximally by a lilac-grey line, and then a disjointed line of black spots; zigzagging postdiscal line of black spots; cell end black, two black spots within cell. Labial palpi striped cream and black, tip black. Eyes brown with a black medial stripe and bare. Antennae black and banded with cream, black clubs. Thorax and abdomen recto orange, verso pale grey. Legs black and banded with cream, except femur black with long white hairs. Genitalia (Fig. 14): valvae roughly triangular and blunt, saccus short and deep.

FEMALE: unknown (but see discussion below).

**Types.**— *Holotype* ♂: ECUADOR.— Sucumbíos Prov., Río Chingual, km 12 La Bonita - Rosa Florida, 1550m, 18 Mar 95 (J. P. W. Hall). To be deposited in the BMNH.

**Etymology.**— This species is named for my dear friend Natalia Arango, whose beautiful home country of Colombia was in sight across the Río Chingual during the capture of this specimen (JPWH).

**Diagnosis.**— This species is closest in the appearance of the verso surface to *A. pulchra*, from which it differs in the configuration of black markings in the forewing cell and the submarginal area of both wings. The recto surface of *A. natalita* n. sp. is at once distinguishable from *A. pulchra* by the solitary blue forewing subapical patch.

**Discussion.**— A single male specimen was spotted resting beneath a leaf at approximately 1500h a few meters off the small path on vegetation clinging to the hillside which dropped steeply away down to the Río Chingual several hundred meters below. Nothing further can be said about its behavior as it was rapidly captured from a precarious position on the path.

It seems likely that the female type of *A. nurtia nurtia* is in fact the female of *A. natalita* n. sp., due both to the great similarity of the verso surfaces and altitude of their capture

localities. *A. nurtia* is thought to be a lowland species, while the female type is from 1200m in the Yungas province of the Bolivian Andes, a similar altitude to the type locality (1550m) of *A. natalita*. This conclusion suggests that this species may be widespread throughout the Andes in appropriate mid-altitude localities but extremely rare. The apparent rarity of this species can probably be explained by its limited ecological niche in the relatively poorly collected mid-altitude cloudforests (Hall and Willmott, 1995), and the fact that it spends most of its time in the canopy, fortunately accessible in the type locality due to the steepness of the terrain.

#### *Argyrogrammana caelestina* Hall & Willmott, new sp.

(Fig. 10a,b; 15)

**Description.**— MALE: forewing length 15mm. *Recto*: forewing ground color black; outer margin fringe black, white in 1A,  $Cu_1$ ,  $M_2$  and  $M_1$ ; thin silver-blue submarginal line; large postdiscal shining turquoise patch extending from near tornus to mid-costa; basal and postbasal area rufous brown. Hindwing ground color black; outer margin fringe black, faint white in 1A,  $Cu_1$  and  $M_2$ ; thin silver-blue submarginal line bordered distally by one, and proximally by two rufous brown lines; basal two thirds of wing rufous brown. *Verso*: forewing ground color dark grey; thin silver-blue submarginal line, bordered distally at apex by faint orange line; proximally bordered by a broken line of blue chevrons; postdiscal area between  $Cu_2$  and costa shining blue, bordered proximally by a black line; cell shining blue, cell end black, five black spots in cell; two discal black dashes in 1A. Hindwing ground color shining blue, margin black, very faint silver-blue submarginal line; two submarginal lines of black chevrons; disjointed postdiscal line of black dashes; cell end black, two lines each of three black spots in discal area. Labial palpi striped cream and black, tip black. Eyes brown with a black medial stripe and bare. Antennae rufous and banded with cream, black clubs. Thorax and abdomen recto rufous brown, verso pale grey. Legs cream and banded with black, except femur black with long white hairs. Genitalia (Fig. 15): valvae roughly oblong, saccus long, pedicel "kinked" above saccus and supporting the aedeagus, a unique structure among the species studied here.

FEMALE: unknown.

**Types.**— *Holotype* ♂: ECUADOR.— Napo Prov., km. 49 Tena - Loreto rd., 1350m, 14 Mar 95 (J. P. W. Hall). To be deposited in the BMNH.

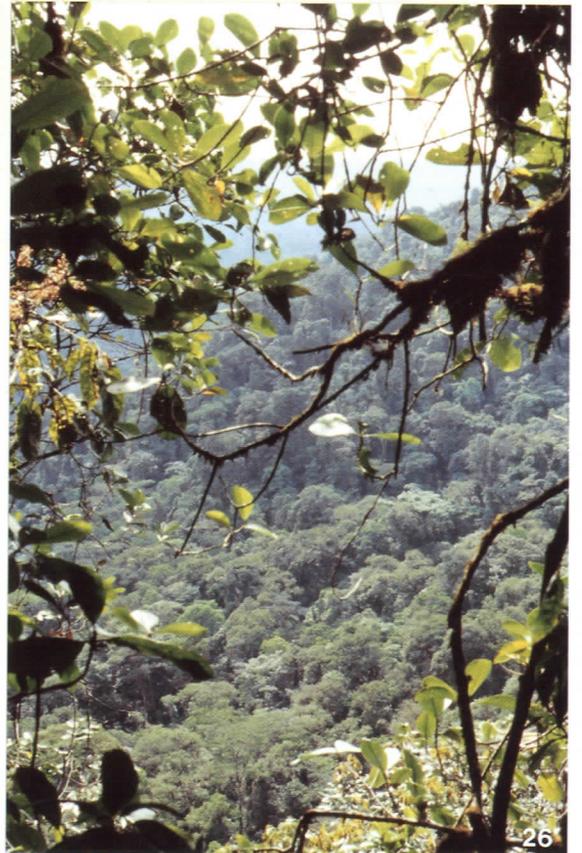


Fig. 22-26. Type localities: **22.** A view of the hilltop site (center) at Finca San Carlo. **23.** The steep Río Chingual valley near La Bonita, which forms the border between Ecuador (left of picture) and Colombia (right of picture). **24.** An early morning view of Mt. Sumaco (3732m). The Tena-Loreto road passes over its southern flank (right of picture) and reaches its peak altitude of 1300m at km. 49. **25.** The sun-dappled lightgap along the ridgetop path at km. 49 where males of *A. caelestina* congregated. **26.** A view out over the cloudforest canopy from the ridgetop path at km. 49.

*Paratypes*: 4 ♂, same data as above (1 ♂ to be deposited in the National Museum of Natural History, Washington, USA (USNM), 3 ♂ deposited in the collection of the authors).

**Etymology.**— This beautiful and distinctive species is named after the Latin for "heavenly".

**Diagnosis.**— This species is unlike any other in the genus and can be readily distinguished by the brilliant blue of the verso surface combined with the large subapical turquoise patch and rufous brown colouration on the recto surface.

**Discussion.**— Males of this species were only ever observed perching in a single small lightgap along a ridgetop path at the type locality, in the afternoon from 1330-1430h. Up to 6 individuals were seen simultaneously, perching in close proximity to each other on the under surfaces of leaves around 4m above the ground. Individuals became active only in the brief instances when the sun shone, swirling together in small groups up towards the canopy. This appears to be another species, like *A. natalita* n. sp., which has remained undiscovered due to the inaccessibility of its preferred habitat, very wet cloudforest on steep terrain.

*Argyrogrammana aparamilla* Hall & Willmott, new sp.

(Fig. 11a,b; 16)

**Description.**— MALE: forewing length 13.5mm. *Recto*: forewing ground color pale orange; postdiscal area to outer margin black between  $Cu_1$  and costa; margin black; outer margin fringe black, white in 1A,  $Cu_1$ ,  $M_2$  and  $M_1$ ; thin silver-blue submarginal line, distal orange line and proximal broken line of orange spots; three subapical, pale blue spots in  $M_3$ ,  $M_2$  and  $M_1$ ; several black flecks in discal area intruding in from costa; five small black spots in cell. Hindwing ground color pale orange with black fringe at outer margin, white in 1A,  $Cu_1$ , and  $M_2$ ; thin silver-blue submarginal line; several small black spots in basal to discal area, at tornus and apex. *Verso*: ground colour yellow-orange; silver-blue submarginal line only present in apex; outer and costal margin black; yellow submarginal line extending from tornus to  $M_3$ ; four pale yellow subapical spots between  $Cu_1$  and  $R_4$ , each bordered proximally by a black spot; cell end black, four black spots in cell; three lines of black spots in discal and postdiscal area between anal margin and  $Cu_1$ . Hindwing ground color yellow-orange; outer margin black with thin orange submarginal line; four lines of disjointed black spots. Labial palpi yellow and striped with black. Eyes brown with a black medial stripe and bare. Antennae black and banded with cream, black clubs, orange tip. Thorax and abdomen recto orange, verso pale yellow. Legs yellow and banded with black, except femur yellow. Genitalia (Fig. 16): valvae trifurcate, lower projections setose, upper bare.

FEMALE: unknown (but see diagnosis below).

**Types.**— *Holotype* ♂: ECUADOR.— Napo Prov., km 12 Tena - Puyo, Finca San Carlo, 550m, 14 Apr 95 (J. P. W. Hall). To be deposited in the BMNH.

**Etymology.**— This unique species is named after the Greek for "incomparable, peerless."

**Diagnosis.**— As the name suggests, this species is quite unlike any other in the genus and is instantly recognizable by the large amount of orange on the recto surface with the black subapical patch containing three blue spots. Interestingly, the underside patterning and coloration places this species near the "*stilbe* complex" and *A. aparamilla* n. sp. would seem to be an intriguing intermediate between two of the three main phenotypic groups of the genus.

**Discussion.**— The type locality is also the same for the two new species below, so it is worth briefly describing. One path at this locality leads up from the forest understorey along a short and narrow ridgetop which was partially cleared by the authors at the

highest point. In this small open clearing, but particularly in the natural light dappled treefall on the steep backside of the ridge, can be found an incredible assemblage of riodinids. In a single afternoon, 7 species in the genus *Argyrogrammana* can be observed in this one lightgap. It seems to be a general phenomenon that *Argyrogrammana* species prefer hills and ridgetops for perching, and in fact we have never observed any species other than the common *A. trochilia* (Westwood, [1851]) at any other type of site. The single male specimen of *A. aparamilla* was seen at about 1500h to fly in and land under an epiphytic leaf with its wings outspread at the edge of the clearing, where specks of sunlight penetrated through the trees above.

*Argyrogrammana celata* Hall & Willmott, new sp.

(Fig. 12a,b; 17)

**Description.**— MALE: forewing length 12.5mm. *Recto*: forewing ground color black; outer margin fringe white in 1A,  $Cu_1$ ,  $M_2$  and  $M_1$ ; thin silver-blue submarginal line, bordered distally and proximally by thin orange lines in the tornus; shining blue subapical patch in  $Cu_1$ ,  $M_3$ ,  $M_2$  and  $M_1$ , tapering to a point at vein  $Cu_1$ ; orange line extending from anal margin to  $Cu_1$ , meeting the blue subapical patch; basal half of wing orange with black flecks along costa; five small black spots in cell and discal area of 1A. Hindwing ground color orange; outer margin fringe black; thin silver-blue submarginal line, bordered proximally by a broken line of black dashes; additional small black spot in apex; three tiny black spots in discal area and one at base of wing. *Verso*: forewing ground color steel grey, yellow-orange along anal margin; broken submarginal line of silver-grey spots, bordered proximally by a wavy line of black spots; disjointed postdiscal line of small black spots, bordered proximally with orange in 1A and  $Cu_2$ ; one postbasal, one discal black dash in 1A; cell end black, with four black spots in cell. Hindwing ground color steel grey, margin brown; black marginal spots in 1A,  $Cu_2$ ,  $M_3$  and  $M_4$ ; disjointed submarginal and postdiscal lines of black spots; one basal and two discal lines each of three black spots. Labial palpi yellow with faint black banding and black tips. Eyes brown with a black medial stripe and bare. Antennae black and banded with cream, black clubs. Thorax and abdomen recto orange, verso pale grey. Legs cream and banded with black, except femur cream. Genitalia (Fig. 17): valvae broad and blunt.

FEMALE: unknown.

**Types.**— *Holotype* ♂: ECUADOR.— Napo Prov., km 12 Tena - Puyo, Finca San Carlo, 550m, 20 Feb 95 (K. R. Willmott). To be deposited in the BMNH.

*Paratypes*: 1 ♂, same data as above. Deposited in the collection of the authors.

**Etymology.**— This species is named after the Latin for "hidden," due to its great similarity to *A. physis phyton*.

**Diagnosis.**— This species is very similar to *A. physis phyton* but shows constant differences both in the genitalia and color pattern. Apart from the size difference in the genitalia, the shape of the uncus when viewed ventrally is a good diagnostic character for this species (see Fig. 17, 19). Externally, *A. celata* n. sp. can be distinguished from *A. physis phyton* on the recto surface forewing by the increased amount of orange and the slightly larger subapical blue patch (the spot in  $M_1$  is considerably larger). On the recto hindwing, there is only one line of black dashes proximal to the silver-blue submarginal line, whereas *A. physis phyton* always has two lines. On both the forewing and hindwing recto there is also more black spotting basally in *A. celata*. On the verso surface forewing there is virtually no orange surrounding the submarginal silver-blue line, and at the mid-point of 1A and  $Cu_2$  are three small disjointed dots instead of the two large squares atop each other as observed in *A. physis phyton*. Subtle

differences can also be seen on the verso hindwing, particularly in the configuration of the postdiscal black line of spots. All of these small differences are found to be consistent within a pair of each species collected in the same light gap in the same couple of days, and *A. physis phyton* from Ecuador is identical to the type specimen from São Paulo de Olivença, Brazil. It is worth pointing out that the verso pattern of *A. physis* is remarkably stable from W. Ecuador to E. Brazil, despite the fact that the orange and blue pattern differs above. This illustrates the general point that the verso surface is diagnostic for a species while the recto pattern may vary geographically.

This species is also similar to *A. sebastiani* Brévignon (1995), but may be distinguished by having a more vertical forewing recto blue subapical patch, and smaller black spots on the verso surface, which has a greyish ground color. In addition the genitalia of *A. sebastiani* have strongly bifurcate valvae, while in *A. celata* the valvae are not bifurcate.

**Discussion.**— Males of this species were encountered in the ridgetop lightgap mentioned in the previous account from 1430-1600h, during intervals of sunlight. They flew quite rapidly at times, occasionally swirling together with males of other orange and blue *Argyrogrammana* species, but always alighting singly beneath leaves at the edge of the clearing with their wings outspread.

***Argyrogrammana bonita* Hall & Willmott, new sp.**

(Fig. 13a,b; 18)

**Description.**— MALE: forewing length 13mm. *Recto*: forewing ground color black; outer margin fringe white in 1A, Cu<sub>1</sub>, M<sub>2</sub> and M<sub>1</sub>; thin silver-blue submarginal line; shining blue subapical patch in Cu<sub>1</sub>, M<sub>3</sub>, M<sub>2</sub> and M<sub>1</sub>; basal to discal area of wing orange except costa and costal half of cell. Hindwing ground color orange; outer margin fringe black; broad black outer margin containing thin silver-blue submarginal line with distal orange line in tornus; proximal thin orange submarginal lines in tornus and apex. *Verso*: forewing ground color dark grey-brown; submarginal line of silver-blue spots, surrounded by orange-brown in apical area; three faint black spots in 1A, Cu<sub>2</sub> and Cu<sub>1</sub>; disjointed postdiscal line of black spots, each bordered proximally with orange; prominent shining blue dash distal to the postdiscal black spot in M<sub>2</sub>; cell end black, three black spots in cell; two black discal dashes in 1A. Hindwing ground color dark grey-brown; margin brown with proximal line of black spots; five disjointed lines of black spots, each bordered distally with pale grey. Labial palpi yellow with black tips. Eyes brown with a black medial stripe and bare. Antennae black and banded with cream, black clubs. Thorax and abdomen recto orange, verso pale grey. Legs cream and banded with black, except femur cream. Genitalia (Fig. 18): valvae long, thin and blunt, saccus short.

FEMALE: unknown.

**Types.**— *Holotype* ♂: ECUADOR.— Napo Prov., km 12 Tena - Puyo, Finca San Carlo, 550m, 20 Feb 95 (K. R. Willmott). To be deposited in the BMNH.

*Paratypes*: 5 ♂ (1 ♂ to be deposited in the USNM (same data as above), 4 ♂ deposited in the collection of the authors (2, same data as above; 2, ECUADOR.— Napo Prov., Río Napo, Chichicorrumi, 450m, 17 Feb 95)).

**Etymology.**— This species is named after the Spanish for "pretty".

**Diagnosis.**— This species is closest in appearance to *A. chicomendes* Gallard (1995), which differs in having a thinner and more sharply angled forewing recto subapical blue patch. The black postdiscal line of spots on the verso surface of *A. chicomendes* is less disjointed, while the forewing verso lacks the diagnostic

blue postdiscal dash possessed by *A. bonita* n. sp. The genitalia of *A. bonita* differs from that of *A. chicomendes* in having thinner valvae which have a definite rounded projection near the middle of the lower edge, and an uncus which is more angular. *A. bonita* is also similar to *A. amalfreda*, but is distinguished on the recto surface by the more elongate forewing subapical blue patch, on the verso surface by the arrangement of the black spots and the forewing postdiscal blue dash, and by the very different shape of the genitalic valvae.

**Discussion.**— This is the most common "orange and blue" *Argyrogrammana* species in Ecuador, and the only one described here which we have collected at more than one locality. Although it is the most abundant species at Finca San Carlo, where several individuals may be present at once, at Chichicorrumi only solitary specimens are encountered along the ridgetop trail. At Finca San Carlo the species was active throughout the day, but most common in the afternoon around 1500h, when pairs of males often flew in circling flights around the hilltop before coming to rest beneath leaves with their wings open.

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