

ARTÍCULO DE REVISIÓN

Revision of the butterfly genus *Forsterinaria* Gray, 1973 (Lepidoptera: Nymphalidae, Satyrinae)

Revisión del género de mariposas *Forsterinaria* Gray, 1973 (Lepidoptera: Nymphalidae, Satyrinae)

Carlos Peña^{1,2} & Gerardo Lamas²

Presentado: 11/06/2005

Aceptado: 27/07/2005

Abstract

A taxonomic review of the Neotropical satyrine butterfly genus *Forsterinaria* Gray is presented herein, including a discussion of the classification and geographical distribution of its component species, illustrations of the adults of all taxa and the male genitalia of all species, and descriptions of 12 new species and two new subspecies: *Forsterinaria antje* sp. n., *F. coipa* sp. n., *F. enjuerma* sp. n., *F. falcata* sp. n., *F. guanilo* sp. n., *F. itatiaia* sp. n., *F. pallida* sp. n., *F. pallida aurita* ssp. n., *F. pichita* sp. n., *F. pilosa* sp. n., *F. punctata* sp. n., *F. pyrczi* sp. n., *F. rotunda* sp. n., and *F. rustica glendita* ssp. n. *Euptychia stelligera* Butler, and *E. fabiana* Butler are sunk as synonyms (syn. n.) of *Forsterinaria quantius* (Godart). *Euptychia magdalena* Hayward, and *E. pseudonecys* Strand are sunk as synonyms (syn. n.) of *F. inornata* (C. Felder & R. Felder), and *F. necys* (Godart), respectively. Lectotypes are designated for 14 nominal taxa. A total of 23 species are recognized. A key for the identification of all taxa is presented.

Keywords: Butterflies, Neotropics, taxonomy, new species, new subspecies, nomenclature.

Resumen

Se presenta una revisión taxonómica de las mariposas satírinas neotropicales incluidas en el género *Forsterinaria* Gray, 1973, comprendiendo una discusión de la clasificación y distribución geográfica de sus especies componentes, ilustraciones de los adultos de todos los taxones y de sus genitalias masculinas, así como descripciones de 12 especies y dos subespecies nuevas: *Forsterinaria antje* sp. n., *F. coipa* sp. n., *F. enjuerma* sp. n., *F. falcata* sp. n., *F. guanilo* sp. n., *F. itatiaia* sp. n., *F. pallida* sp. n., *F. pallida aurita* ssp. n., *F. pichita* sp. n., *F. pilosa* sp. n., *F. punctata* sp. n., *F. pyrczi* sp. n., *F. rotunda* sp. n. y *F. rustica glendita* ssp. n. *Euptychia stelligera* Butler y *E. fabiana* Butler son considerados sinónimos (syn. n.) de *Forsterinaria quantius* (Godart). *Euptychia magdalena* Hayward y *E. pseudonecys* Strand son considerados sinónimos (syn. n.) de *F. inornata* (C. Felder & R. Felder) y *F. necys* (Godart), respectivamente. Se designa lectotipos para 14 taxones nominales. Se reconoce un total de 23 especies. Se ofrece una clave para la identificación de todos los taxones.

Palabras clave: Mariposas, Neotrópico, taxonomía, especies nuevas, subespecies nuevas, nomenclatura.

Introduction

Butterflies are some of the taxonomically best known and most studied tropical organisms. The subfamily Satyrinae (Nymphalidae) is one of the most diverse groups of butterflies, including 120 valid gene-

ra for the Neotropics, which contain 1099 known species to date (Lamas *et al.*, 2004); within this subfamily, the subtribe Euptychiina is the most diverse, comprising 41 valid genera (Viloria, 2003; Lamas, 2004). Euptychiina is a group that exhibits perhaps the greatest taxonomic difficulties among Neotropical butterflies, due to its high specific diversity and great morphological resemblance among closely related species, which could explain, in part, why there is poor taxonomic knowledge

¹Current address: Department of Zoology, Stockholm University, S-106 91 Stockholm, Sweden. e-mail: carlos.pena@zoologi.su.se

² Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Apartado 14-0434, Lima-14, Perú. e-mail: glamasm@unmsm.edu.pe

of the group. In addition, because of the fundamentally monotonous color pattern of the wings in adults, these butterflies have been considered as unattractive species for vocational lepidopterists, discouraging their collection and study.

Forsterinaria Gray, 1973, is a genus placed within Euptychiina that has received little taxonomic attention, there being only one publication that investigated a part of the species in the genus (Forster, 1964), and some scattered papers dealing with higher level taxonomy and nomenclature (e.g. Miller, 1968; Gray, 1973; Lamas, 1997, 2004). *Forsterinaria* is a small group of medium-sized butterflies with wide distribution in the Neotropics, occurring from Mexico to Panama, and in South America along the Andes, from Venezuela to Bolivia, and southeastern Brazil, Paraguay and northeastern Argentina.

The species that occur in Peru inhabit montane forests in the northwestern and eastern slopes of the Andes, in habitats where plants of the genus *Chusquea* (Poaceae) occur, the probable hostplants of the larvae. Until recently, 14 valid species had been included in the genus (Gray, 1973), most of them occurring in Peru, but several undescribed species and obvious cases of synonymy are known. As there is no monographic publication that includes all the species in the genus, we present here a taxonomic review which adds 12 new species and two new subspecies.

Material and methods

Morphological characters of dry and mounted specimens were examined. Dissections of genitalia were made using standard techniques. Male abdomens were soaked in hot 10% KOH solution for 10 min and then stored in microvials with glycerol. Drawings were made by employing a camera lucida attached to a stereomicroscope. Genitalic terminology follows Klots (1970). Genitalia drawings are shown in lateral and dorsal views, with the aedeagus detached to show as many

characters as possible. In order to study wing pattern colorations, the use of relatively fresh individuals (i.e. those that have not been stored in collections for too many years) is recommended, because in some cases wing color may change through time.

The terminology used in the descriptions of characters is shown on figure 1 for male genitalia, figure 2 for wing venation, and figure 3 for color pattern.

Lectotypes have been designated for 14 nominal taxa, in order to stabilize application of the names they represent.

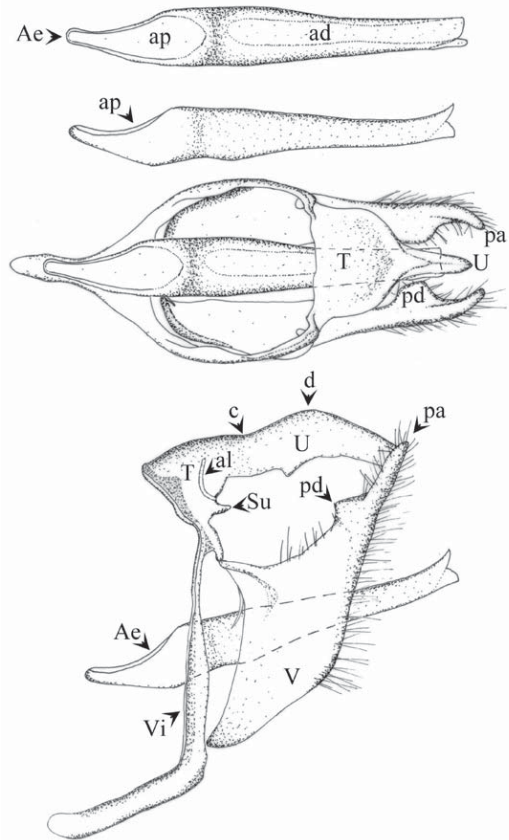


Figure 1. Nomenclature of male genitalia in a hypothetical *Forsterinaria*; Ae: aedeagus; ad: distal opening of aedeagus; al: narrowing of tegumen at union with uncus; ap: proximal opening of aedeagus; c: dorso-ventral constriction at base of uncus; d: dome of uncus; pa: distal process of valva; pd: dorsal process of valva; Su: subuncus; T: tegumen; U: uncus; V: valva; Vi: vinculum.

ZSBS: Zoologische Sammlung des Bayerischen Staates, München, Germany

Review of *Forsterinaria*

Adult morphology

All *Forsterinaria* species exhibit brown colored wings. The dorsal surface presents almost no markings, only a diffuse and difficult to note dark brown maginal line on DFW. On ventral surface, both wings present dark brown lines in several degrees of undulation (Fig. 3). The discal line is often present in VFW and always visible in VHW, while the postdiscal, submarginal and marginal lines are always present, with the only exception of *F. boliviana* males (Fig. 14C) that lack the postdiscal line on VFW.

The male genitalic morphology of the genus is rather conservative, with little interspecific variation in most of the species. This is particularly true within species groups where the members are almost unrecognizable by examination of genitalia alone. Moreover, some

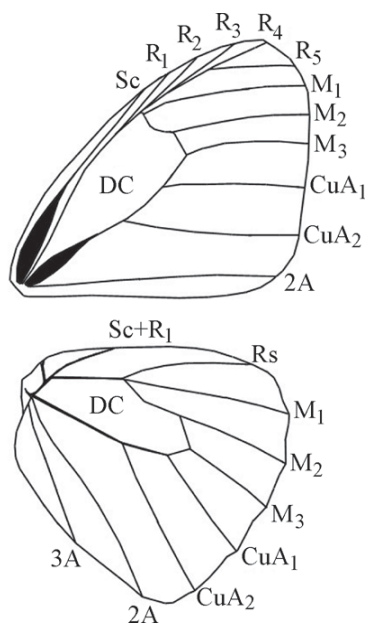


Figure 2. Wing veins and nomenclature of cells in a generalized satyrine: A, anal; DC, discal cell; CuA, cubital; R, radial; M, median; Sc, subcosta.

Adults of *Forsterinaria* were collected in Peru by the authors, and additional material was examined in scientific institutions of Europe, South America and the U.S.A to record collecting localities and analyze type material. The following codens are used throughout the text:

BMNH: Natural History Museum, London, U.K.

DZUP: Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Paraná, Brazil

IML: Instituto «Miguel Lillo», Tucumán, Argentina

KWJH: Keith R. Willmott and Jason P. W. Hall collection, Gainesville, Florida, U.S.A.

MACN: Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina

MLP: Museo de La Plata, Universidad Nacional de La Plata, La Plata, Argentina

MUSM: Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru

MZUJ: Muzeum Zoologiczne Uniwersytetu Jagiellońskiego, Kraków, Poland

USNM: National Museum of Natural History, Smithsonian Institution, Washington, DC, U.S.A.

ZMHU: Zoologisches Museum, Humboldt Universität, Berlin, Germany

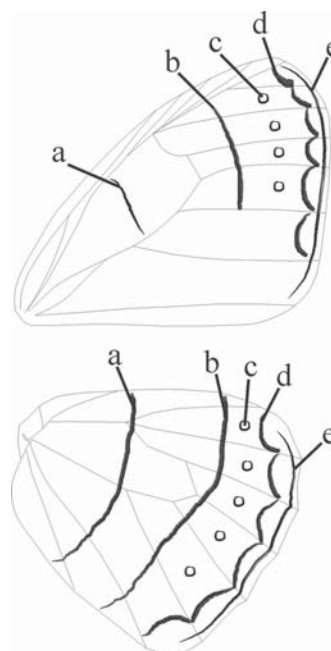


Figure 3. Elements of the *Forsterinaria* wing pattern: a, discal line; b, postdiscal line; c, submarginal ocelli; d, submarginal line; e, marginal line.

species resemble genitalic features of members from other species groups. This is the case of *F. neonympha* (from the *neonympha*-group), which has a very similar genitalia of those in the *boliviana*-group. However, a few species present rather modified genitalic traits, such as *F. stella*, *F. quantius*, *F. rotunda* and *F. pseudinornata*.

Based on morphological similarities of wing pattern coloration and male genitalia morphology, the members of *Forsterinaria* can be assigned to five species groups, the *neonympha*, *pichita*, *boliviana*, *enjuerma* and *brasilian*-group.

The species in the *neonympha*-group include *F. neonympha*, *F. stella*, *F. pyrczi* and *F. proxima*, and differ from all other *Forsterinaria* by having a big black, white-pupilled ocellus in cell CuA_1-CuA_2 on VHW. The genitalia in this group is not homogeneous since *F. neonympha* resembles those in the *boliviana*-group.

Members of the *pichita*-group include *F. rustica*, *F. guaniloi*, *F. pichita*, *F. pilosa*, *F. falcata*, *F. rotunda*, *F. difficilis* and *F. antje*, and can be distinguished from all other *Forsterinaria* by having medium to big white spots on VFW. There is no unique genitalic characteristic to differentiate this group. The uncus is thin and elongated, lacking a dome, but in *F. rotunda* it is somewhat flattened. The valvae in *F. guaniloi*, *F. pichita*, *F. pilosa* and *F. rotunda* are robust and not elongated while in *F. antje* resembles those in *boliviana*-group.

The species in the *boliviana*-group include *F. inornata*, *F. boliviana*, *F. pallida* and *F. coipa*, and are distinguished from all other *Forsterinaria* by the combination of the following features: being medium-sized butterflies; having the ocelli on VFW and VHW as white dots; and light brown color on both wing surfaces. The genitalia is rather homogeneous in the group. It presents elongate valvae with the elongated posterior tip directed upward, the uncus is elongated as a bird beak and has a shallow dome.

The *enjuerma* group includes *F. punctata*, *F. enjuerma*, *F. pseudinornata* and *F. anophthalma*. This is a rather heterogeneous group and their members do not seem to be close relatives within the genus. The only common trait that distinguishes the group from other *Forsterinaria* is the presence of small white spots easily confused with dots on VFW.

The *brasilian* group includes *F. quantius*, *F. necys* and *F. itatiaia*. Members of this group are very heterogeneous in color patterns and genitalia morphology, and are grouped mainly by their endemic distribution restricted to southeastern Brazil, Paraguay and northeastern Argentina.

Generic relationships

Murray & Prowell's (2005) partial phylogenetic study of Euptychiina, based on molecular sequences, recovers *Forsterinaria* as sister to a clade containing *Harjesia* sp., *Parataygetis lineata* (Godman & Salvin) and *Posttaygetis penelea* (Cramer). Because Murray & Prowell's study is not comprehensive (includes 27 Euptychiina genera out of 41 [in Lamas, 2004]) and the sampling did not include the type species for many of the genera, the sister genus of *Forsterinaria* is thus far unknown. Lee Miller's description of *Taygetomorpha* (in Lamas, 2004 p. 285) states that its type species, *Taygetomorpha celia* (Cramer, 1779), is closely related to *Forsterinaria* by both lacking articulated brachia. As a result of a rough morphological survey of type species of Euptychiina genera, we identified that *Forsterinaria* share color patterns and male genitalia similarities with *Harjesia blanda* (Möschler, 1877). In addition, as opposed to Murray & Prowell's (2005) findings, *Forsterinaria* seems more closely related to *Harjesia*, as it exhibits more similarities in color pattern to *H. blanda* (type species of *Harjesia* Forster, 1964) than to the type species of *Parataygetis* Forster, 1964 (*P. albinotata* [Butler, 1867]) and *Posttaygetis* Forster, 1964 (*P. penelea* [Cramer, 1777]).

For these reasons, *Forsterinaria* can be placed in a group of genera containing *Harjesia*, and *Taygetomorpha*. This group can be distinguished by the combination of brown colored wings on both surfaces; lack of markings on dorsal surfaces with exception of a diffuse dark brown line on the margin of DFW; relatively thin dark brown discal, postdiscal submarginal and marginal lines on ventral wing surfaces, as opposed to *P. albinotata* (figured in D'Abbrera, 1988 p. 755 as *T. albinotata*); rather simple ocelli on ventral wing surfaces, consisting in a light color (white or yellowish) dot always present, encircled by up to three concentric rings of different colors, never two light color dots as pupils as in *Megeuptychia antonoe* (Cramer, 1775).

History of classification

Forsterinaria is currently included in the subtribe Euptychiina of the tribe Satyrini *sensu* Harvey, 1991 (Lamas, 2004). The generic classification of the subtribe is characterized by confusion and chaos, mainly due to differences in opinion among authors and lack of detailed taxonomic knowledge of the species in the group.

The genus *Forsterinaria* was originally introduced by Forster (1964), in his monographic paper on Bolivian satyrines, as *Haywardina*, a junior homonym (see below), for several species that were traditionally considered members of *Euptychia* Hübner (e.g. Gaede, 1931) and other satyrine genera. Forster (1964) stated he based his definition of the genus on differential features of external morphology and male genitalia of adult butterflies. However, he only mentioned male genitalia characters in his diagnosis of *Haywardina*, such as «lack of subuncus and strong uncus, having the shape of a bird beak». This generic description is unsatisfactory and, moreover, Forster mainly studied the species that occur in Bolivia. Forster described also two new species, *Haywardina difficilis* and *H. pseudinornata*, and designated *Satyrus necys* Godart, [1824] as the type species of the genus. Although the treatment of

Haywardina by Forster is incomplete because it dealt almost exclusively with Bolivian species, it hypothesized for the first time that those species form a natural group of generic level. However, Forster was unaware that his *Haywardina* was a junior homonym of *Haywardina* Aczél, 1952 (Diptera). This homonymy was resolved by Gray (1973), who proposed *Forsterinaria* as a replacement name for *Haywardina* Forster. As a result of the present study, the character state «lack of subuncus» needs to be excluded from the diagnosis of *Forsterinaria*, since there are subunci in *F. neonympha*, *F. pseudinornata*, *F. anophthalma* and *F. stella*. Also, the «strong uncus» mentioned by Forster, is of relatively little value, since it was not compared to any other structure, though *Forsterinaria* does have a large uncus, as large as or larger than the tegumen.

Some authors have deliberately ignored the taxonomic acts of Forster (1964) (e.g. DeVries, 1987). D'Abbrera (1988) considered, without any substantiating arguments, that many genera proposed by Forster were spurious, and assigned a large number of species distributed by Forster (1964) into many different genera, to the omnibus genus *Euptychia* Hübner, 1818 (*sensu lato*), among them several species currently regarded as belonging properly in *Forsterinaria*.

Godart ([1824]) described the first two species presently included in *Forsterinaria*, *Satyrus necys* and *S. quantius*, citing only «Brazil» as their type localities. In 1867, Cajetan and Rudolf Felder described three new species, *Taygetis anophthalma*, *T. inornata* and *T. neonympha*, all supposedly from Bogotá, Colombia. Butler, also in 1867, described *Euptychia vastata* and *E. polyphemus*. Forster (1964) considered tentatively that *E. polyphemus* Butler and *T. neonympha* Felder & Felder were synonymous, giving priority to the former name. This synonymy was resolved by Lamas ([1997]), who demonstrated the priority of the names proposed by the Felders over those introduced by Butler, by at least five days. Thus, the valid name of the species

is *Forsterinaria neonympha* (C. Felder & R. Felder, [25.iv.] 1867). DeVries (1987), in his book on the butterflies of Costa Rica, included *Euptychia polyphemus* in the genus *Cissia* Doubleday, 1848, but this combination has not gained acceptance. The other species described by Butler in his same 1867 publication, *Euptychia vastata*, was sunk as a synonym of *S. necys* Godart by Butler (1868). During the next few years, Butler described several other taxa, namely *Euptychia rustica* (in 1868), *E. stelligera* (in 1874), and *E. eusebia*, *E. cyclops* and *E. fabiana* (in 1877), whereas Butler & Druce (1872) introduced *Taygetis umbracea*. Weymer (1911) invalidly sunk *umbracea* as a junior synonym of *cyclops*, despite *umbracea* being an older name. This synonymy was followed uncritically by Forster (1964), but Gray (1973) later restored the name *umbracea*. In addition, Weymer (1911) considered *stelligera* as a form of *quantius* Butler, and *rustica* as a form of *necys* (and possible synonym of *anophthalma*). However, Forster (1964) rejected such an arrangement, considering *stelligera*, *quantius* and *rustica* as full species. Dognin (1887) introduced the new species *Lymanopoda villarresi*, from Ecuador. Later, Schaus (1902) described *Euptychia morima*, from Castro, Paraná, Brazil, but Weymer (1911) sunk it as a synonym of *quantius*. Godman (1905) described *Euptychia boliviana* from Cochabamba, Bolivia, and Strand (1916) proposed *E. pseudonecys* for a male from Minas Gerais, Brazil. Hayward (1957, 1962b, 1964b), described *Euptychia howarthi*, *E. proxima*, *E. stella*, *E. weyrauchi* and *E. magdalena* as new species from Bolivia and Peru. In his monograph, Forster (1964) described two new species from Bolivia and Ecuador, *Haywardina difficilis* and *H. pseudinornata*, and included *necys*, *stelligera*, *cyclops*, *polyphemus*, *howarthi*, *proxima*, *boliviana*, *stella*, *quantius*, *inornata*, and *rustica*, in the same genus, considering *vastata*, *fabiana*, and *eusebia* as junior synonyms of *necys*,

stelligera and *inornata*, respectively, and downgrading *magdalena* as a subspecies of *inornata*, though stating the name may represent only an instance of intraspecific variability. Afterwards, as indicated above, Gray (1973) renamed *Haywardina*, since it was a junior homonym, recognizing *necys*, *boliviana*, *difficilis*, *eusebia*, *howarthi*, *inornata*, *polyphemus*, *proxima*, *pseudinornata*, *quantius*, *rustica*, *stella*, *stelligera*, and *umbracea* as valid species of *Forsterinaria*. Finally, some taxonomic and nomenclatural adjustments concerning *Forsterinaria* were made by Lamas (2004), based primarily on unpublished work by Peña (2004), sinking *umbracea* and *cyclops* as synonyms of *neonympha*, downranking *Lymanopoda villarresi* as a subspecies of *rustica*, regarding *Euptychia weyrauchi* and *E. howarthi* as synonyms of, respectively, *villarresi* and *stella*, and transferring *Euptychia pseudonecys* to *Forsterinaria*.

Resolution of the alpha taxonomy of *Forsterinaria*

As a result of the study of 622 specimens of *Forsterinaria*, 23 species and five subspecies are recognized herein, of which 12 species and two subspecies are described for the first time.

Most specimens examined are deposited in the MUSM; in the case of loaned material or those specimens studied from photographs, codens of the institutions where they are or will be deposited are cited within parentheses. Additional information to that indicated on specimen labels is cited within square brackets, whenever collection data were incomplete.

Forsterinaria Gray, 1973

Forsterinaria Gray, 1973: 171. *Nomen novum*.

= *Haywardina* Forster, 1964: 109. Type species: *Satyris necys* Godart, [1824] (by original designation). Junior homonym of *Haywardina* Aczél, 1952 (Diptera).

Forsterina: Lamas, 1977, missp.

Forsterinonia: Brown, 1992, missp.

Forsterinaria: Lamas, 2004: 219.

Table 1. Synonymic checklist of *Forsterinaria* Gray, 1973. The symbol «-» denotes a subspecies and «- -» a synonym.

- anophthalma* (C. Felder & R. Felder, 1867)
- antje* Peña & Lamas, **sp. n.**
- boliviana* (Godman, 1905)
- - *vetula* (Forster, 1964). *Nomen nudum.*
- coipa* Peña & Lamas, **sp. n.**
- difficilis* (Forster, 1964)
- enjuerma* Peña & Lamas, **sp. n.**
- falcata* Peña & Lamas, **sp. n.**
- guaniloi* Peña & Lamas, **sp. n.**
- inornata* (C. Felder & R. Felder, 1867)
- - *eusebia* (Butler, 1877)
- - *magdalena* (Hayward, 1957), **syn. n.**
- itaitaia* Peña & Lamas, **sp. n.**
- necys* (Godart, [1824])
- - *vastata* (Butler, 1867)
- - *pseudonecys* (Strand, 1916), **syn. n.**
- neonympha* (C. Felder & R. Felder, 1867)
- - *polyphemus* (Butler, 1867)
- - *umbracea* (Butler & Druce, 1872)
- - *cyclops* (Butler, 1877)
- pallida* Peña & Lamas, **sp. n.**
- *aurita* Peña & Lamas, **ssp. n.**
- pichita* Peña & Lamas, **sp. n.**
- pilosa* Peña & Lamas, **sp. n.**
- proxima* (Hayward, 1957)
- pseudinornata* (Forster, 1964)
- punctata* Peña & Lamas, **sp. n.**
- pyrczi* Peña & Lamas, **sp. n.**
- quantius* (Godart, [1824])
- - *stelligera* (Butler, 1874), **syn. n.**
- - *fabiana* (Butler, 1877), **syn. n.**
- - *morima* (Schaus, 1902)
- rotunda* Peña & Lamas, **sp. n.**
- rustica* (Butler, 1868)
- *villarresi* (Dognin, 1887)
- - *weyrauchi* (Hayward, 1964)
- *glendita* Peña & Lamas, **ssp. n.**
- stella* (Hayward, 1957)
- - *howarthi* (Hayward, 1962)

Diagnosis.

Forsterinaria can be distinguished from other Euptychiina genera by the combination of common characters that unite *Harjesia blanda*, *Taygetomorpha celia* and *Forsterinaria* species, as stated lines above. Members of *Forsterinaria* exhibit either light colored ocelli (white or yellowish) or white spots on VFW, never black, white pupilled as *H. blanda*, nor light brown ocelli with white pupils as *T. celia*. The ocelli on VHW of

Forsterinaria consist of a white or yellowish dot, in some species encircled by a thick black immediate ring and occasionally a thin yellowish extra ring, never additional or different colored rings as in *H. blanda* (figured in D'Abbrera, 1988 p. 755 as *T. blanda*) and *T. celia* respectively.

According to a preliminar cladistic study of *Forsterinaria* (*F. itaitaia* was not included) using *H. blanda* as outgroup (Peña & Lamas, in prep.), members of *Forsterinaria* can be recognized by the common possession of the following synapomorphies: cell M_1 - M_2 of ventral forewing (VFW) with no black, white-pupilled ocellus; ventral hindwing (VHW) with ocelli lacking the dark brown outer ring in addition to the yellowish ring; discal area of VHW not lighter than remainder of the wing; aedeagus slightly longer than tegumen and uncus together.

Adults of *Forsterinaria* are medium-sized butterflies (FW length 20-28 mm), females being slightly larger than males. Antenna shorter than half the costa, underside usually lighter, tip darkened; eyes brown and hairy. FW triangular, apex usually acute and sometimes slightly falcate, distal margin usually produced near the apex, sometimes convex. HW usually subtriangular, distal margin sometimes scalloped or crenulate. Wing coloration variable, dark brown, reddish brown, light brown, or beige. DFW uniformly colored, distal margin slightly darker; androconial scale patch may be present on discal area; ventral surface with thin, dark brown transverse lines: marginal line not undulated, submarginal may be undulated, postdiscal line of various lengths when present; usually with a discal line; submarginal, postdiscal and discal areas may be lighter in coloration than remainder of wing or dusted with yellowish, whitish, or grayish scales; discal area may be hairy in several degrees; with whitish, or yellowish, simple submarginal ocelli, and usually with white apical spots; no strong, black, white-pupilled ocelli, although white ocelli may be surrounded by a few black scales; DHW with the same appearance of DFW but anal margin paler; ventral surface with dark brown, thin,

transverse lines: marginal without undulation, submarginal often undulated, or with a zig-zag pattern, sometimes better developed in cell M_2 - M_3 , postdiscal variable, always from costal margin to almost anal angle, discal line variable as well; postdiscal, submarginal and inner marginal areas sometimes powdered with gray, yellowish, or whitish scales; with white or yellowish submarginal ocelli, often black, white-pupilled, mainly in cells M_1 - M_2 and CuA_1 - CuA_2 .

Male genitalia: Uncus large and developed, with posterior tip curved ventrally, usually with a dome of variable size; tegumen with no processes, usually with small subunci; valva elongated, with posterior tip continuous, slender and without depressions, usually with a process (subterminal-dorsal or on the inner edge) of variable size, posterior tip may be curved laterally towards inner side, sometimes ornamented with sharp or rounded small teeth; aedeagus of medium size, posterior tip always curved dorsally. Female genitalia is not included in this study since *Forsterinaria* females are very rare in collections, and even unknown for 9 taxa out of 26.

Key to the species of *Forsterinaria*

1. VHW with one to several black, white-pupilled ocelli. (2)
 - VHW without black, white-pupilled ocelli. (5)
- 2(1). VHW with postdiscal line passing through discal cell. *stella* (3)
 - VHW with postdiscal line passing outside discal cell. (3)
- 3(2). VFW with postdiscal line concave between veins M_3 - CuA_2 . *neonympha* (4)
 - VFW with postdiscal line not concave, almost straight. (4)
- 4(3). VHW with only one black, white-pupilled ocellus. *proxima* (6)
 - VHW with two or more black, white-pupilled ocelli. *pyrczi* (13)
- 5(1). VFW apex with compact and conspicuous white spots. (6)
 - VFW apex with small spots easily confused with white dots, or only white or yellowish dots. (13)
- 6(5). Male VFW covered with very conspicuous androconia. *pilosa* (7)
 - Male VFW without androconia. (7)
- 7(6). VHW postdiscal line shallowly undulated, with wider undulations in M_2 - M_3 and CuA_2 -1A than in the rest. *guanilo*
 - VHW postdiscal line sharply undulated, undulations in M_2 - M_3 and CuA_2 -1A are not the widest. (8)
- 8(7). VHW submarginal area of white ocelli, darkened on costal margin, decreasing gradually in intensity of darkness towards the anal angle; VHW postdiscal line slightly undulated. *antje*
 - VHW submarginal area of ocelli generally not darkened; if darkened, postdiscal line is strongly undulated. (9)
- 9(8). VHW postdiscal line very close to submarginal, sometimes touching it, a white dot in VFW R_3 - R_4 , and a white dot in VHW $Sc+R_1$ - Rs . *rotunda*
 - VHW postdiscal line not close to submarginal, white dot in VFW R_3 - R_4 might be absent; without white dot in VHW $Sc+R_1$ - Rs . (10)
- 10(9). VFW white dot in R_3 - R_4 ; VHW postdiscal line concave in CuA_1 - CuA_2 . *difficilis*
 - VFW without white dot in R_3 - R_4 ; VHW postdiscal line convex in CuA_1 - CuA_2 . (11)
- 11(10). VHW postdiscal line strongly undulated, of great amplitude, almost forming a crescent, specially in CuA_1 - CuA_2 . *rustica*
 - VHW postdiscal line shallowly undulated, of small amplitude in CuA_1 - CuA_2 . (12)
- 12(11). VFW with two or more white spots, apex slightly falcate. *falcata*
 - VFW with white dots and a white spot in R_5 - M_1 , apex not falcate. *pichita*
- 13(5). DHW generally with dark submarginal and marginal lines, very conspicuous; VHW mostly with marbled pattern; conspicuous dorsal androconia on both wings. *necys*
 - DHW without conspicuous submarginal line, marginal very inconspicuous; VHW without marbled pattern. (14)
- 14(13). VHW with numerous white or yellowish scales near postdiscal line. (15)
 - VHW without white or yellowish scales near postdiscal line. (17)
- 15(14). VHW postdiscal line in M_1 - M_2 displaced proximally, appearing broken. *coipa*
 - VHW continuous postdiscal line, neither displaced nor appearing broken. (16)
- 16(15). VFW submarginal area, outer margin, tornus and parts of the inner margin densely covered with yellowish scales. *boliviana*
 - VFW without yellowish scales, tornus and inner margin brown or light brown. *pallida*
- 17(14). VHW completely dark brown, whereas VFW conspicuously lighter. *enjuerma*
 - Both wings below concolorous or nearly so. (18)

- 18(17). VHW yellow ocellus in Rs-M₁ very large, larger than remaining ocelli; FW apex falcate. *quantius*
- VHW ocellus in Rs-M₁ small, equal or smaller than remaining ocelli; FW apex not falcate. (19)
- 19(18). VHW with some large, ovate, yellowish ocelli, specially in M₁-M₂. (20)
- VHW white or yellowish ocelli always round, small. (21)
- 20(19). FW tornus obtuse; VHW very conspicuous dark dot at base of M₂. *pseudinornata*
- FW tornus almost straight; VHW without dark dot at base of M₂. *anophthalma*
- 21(19). VFW submarginal line very inconspicuous, almost absent. *itatiaia*
- VFW submarginal line normal, conspicuous. (22)
- 22(21) VHW postdiscal line in CuA₁-CuA₂ concave. *punctata*
- VHW postdiscal line in CuA₁-CuA₂ straight or convex. *inornata*

The order of the species in the following account is based on a phylogenetic study by Peña (2004; Peña & Lamas, in prep.).

brasilian-group

Forsterinaria itatiaia Peña & Lamas, sp. n.

(Figs. 4A-B, 5A)

Forsterinaria [n. sp.] Ebert, MS: Lamas, 2004: 219.

Diagnosis: Can be distinguished from all other *Forsterinaria* species by the very inconspicuous VFW submarginal line, almost absent. It lacks the VHW marbled pattern of *F. necys* (Fig. 4E) and the big yellowish submarginal ocellus on VHW cell Rs-M₁ of *F. quantius* (Figs. 4C-D). The male genitalia is most similar to *F. necys* (Fig. 5C), but the anterior portion of aedeagus is not as strikingly curved and the dorsal opening much shorter.

Male (Fig. 4A): FW length: 20-21 mm (n = 3). **Head:** labial palpi hairy, dark brown, with scattered whitish hairs; antenna dark brown with underside lighter and shaft darkened. **Thorax:** femur light brown covered with scales; tibia and tarsus densely covered with scales slightly lighter than on femur. **Abdomen:** brown, underside lighter; **genitalia** (Fig. 5A), uncus shorter than tegumen, a slight constriction between them, tegumen without

dome; valva elongated, a small dorsal process visible in lateral view, tip very curved towards the inner side; aedeagus straight and tubular. **Forewing:** tornus almost forming a right angle, distal margin convex (but less so than in *F. punctata*); dorsal surface brown, unmarked, light dorsal androconia on discal cell; ventral surface brown, almost invisible submarginal line, three white dots on apex that might be absent, undulated postdiscal line reaching vein CuA₂. **Hindwing:** not scalloped, outer margin rounded; dorsal surface brown, unmarked; ventral surface brown, a noticeable undulated brown submarginal line, five white dots in cells Rs-M₁, M₁-M₂, M₂-M₃, M₃-CuA₁ and CuA₁-CuA₂, undulated brown postdiscal line similar to that in *F. rustica villarresi* but undulation of less amplitude.

Female (Fig. 4B): Essentially similar to the male.

Type material: *Holotype* male, from Brazil, Rio de Janeiro, Itatiaia, with the following labels: «21-I-1969/Agulhas Negras, Itatiaia, RJ./2400m Mielke leg.», «DZ 9.053», «GENITALIA/# CPB-186, MUSM». **Paratypes:** 1 female [Brazil] Itatiaia, RJ. 2300m, O.-C. Mielke leg, 16.ii.1979, genitalia preparation «GENITALIA/#CPB-184, MUSM»; 1 male P.N. Itatiaia – RJ, 22.i.1969 – Brasil, 2400m, Mielke-Brown leg. All currently in the MUSM but the holotype and the female paratype will be returned to DZUP.

Etymology: Named after the type locality, Itatiaia.

Distribution: Only known from the type locality, Itatiaia, in Rio de Janeiro, southeastern Brazil.

Discussion: *F. itatiaia* is endemic to southeastern Brazil, occurring in sympatry with the other members of the brasilian-group, *F. quantius* and *F. necys*. This species seems to be most related to *F. necys* by sharing similarities in shape of tegumen, uncus and valva. Because distinctive color pattern and morphology of genitalia within the brasilian-group, we consider this entity as a new species.

***Forsterinaria quantius* (Godart, [1824])**

(Figs. 4C-D, 5B)

Satyryx quantius Godart, [1824]: 487. Type locality: Brazil. **Holotype**, probably lost.*Neonympha quantius*: Westwood, 1851: 376.*Euptychia quantius*: Butler, 1867a: 488; Butler, 1868: 31; Kirby, 1871: 53; Butler, 1877: 120; Weymer, 1911: 210, pl. 47g, fig. [4]; Gaede, 1931: 462; Biezanko & Pitoñ, 1941: 16; Hayward, 1962a: 30; Hayward, 1967: 247, pl. 4, fig. 21, pl. 19, fig. 9; Hayward, 1973: 254; Lewis, 1973: 233; Benítez, 1988: 16; D'Abreu, 1988: 780, fig.= *Euptychia stelligera* Butler, 1874: 424. Type locality: Brazil, Minas Gerais. **Lectotype** male (designated herein), BMNH [examined]. **New synonym.**= *Euptychia fabiana* Butler, 1877: 126, pl. 12, fig. 5. Type locality: Brazil, [Rio de Janeiro], Macahé. **Lectotype** male (designated herein), ZMHU [examined]. **New synonym.**= *Euptychia morima* Schaus, 1902: 389. Type locality: Brazil, Paraná, Castro. **Lectotype** male (designated herein), USNM [examined].*Euptychia stelligera*: Butler, 1877: 120; Kirby, 1877: 700; Weymer, 1911: 211.*Euptychia fabiana*: Kirby, 1877: 843; Weymer, 1911: 210; Gaede, 1931: 446.*Euptychia necys* var. *fabiana*: Gaede, 1931: 456.*Euptychia quantius* var. *stelligera*: Gaede, 1931: 462.*Haywardina quantius*: Forster, 1964: 110, 113.*Haywardina stelligera*: Forster, 1964: 111, figs. 112-113.*Euptychia quantius* var. *stelliger* [*sic*]: Hayward, 1967: 249, pl. 19, fig. 11.*Euptychia quantius* f. *stelliger* [*sic*]: Hayward, 1973: 254.*Forsterinaria quantius*: Gray, 1973: 172; Teston & Corseuil, 2002: 86, fig. 65; Canals, 2003: 376, fig; Lamas, 2004: 219.*Forsterinaria stelligera*: Gray, 1973: 172; Canals, 2003: 474; Lamas, 2004: 219.

Identification and taxonomy: FW length: 24-26 mm (n = 4). *F. quantius* is the most modified *Forsterinaria* species within the brasilian-group. The FW apex slightly falcate is unique in the species-group, only present in *F. falcata* (Fig. 9F) as homoplasly. *F. quantius* is distinguished from *F. necys* (Fig. 4E) by having on VHW a big yellowish submarginal ocellus in Rs-M₁, larger than the remaining ocelli, and the genitalia having very elongated

uncus and valvae. Sometimes with grayish scales scattered between HW discal and postdiscal lines, VFW distal margin, and VHW distal and inner margins.

The **LECTOTYPE** male of *Euptychia stelligera* is deposited in the BMNH and bears the following labels: «Godman-Salvin/Coll. 1904.-1./Euptychia/ stelligera./Butl.», «B.M. TYPE/No.Rh 3241./Euptychia/stelligera./male Butl.», «Minas Geraes,/Brazil./Druce Coll.», «Type of/Species.», «E. stelligera/Butler type.», «Type/H.T.». The **LECTOTYPE** male of *Euptychia fabiana* is deposited in the ZMHU and bears the following labels: «Origin.», «E.fabiana/Butler type.», «ex collect./Staudinger», «Eigentum/Mus. Berlin», «Macahé /Beske», «Präparat Nr. 159/Zoolog. Staatssammlung/München», «Coll. Sommer», «LECTOTYPE male/Euptychia fabiana/Butler/ designated by:/Lee D. Miller 1989» [this designation was never published]. The **LECTOTYPE** male of *Euptychia morima* is deposited in the USNM and bears the following labels: «Euptychia/morima/Type Schaus», «Type/No. 5874/U.S.N.M.», «Castro./Paraná», «Collection/W.Schaus». There is also a male paralectotype in the USNM, with similar data.

Material examined: **BRAZIL:** Minas Geraes, 1 male (BMNH) [lectotype of *E. stelligera*]; Nova Friburgo, Feb 1884 (P. Germain) 2 males (MUSM); Rio Grande do Sul, Pelotas, 02 May [19]60 (C. M. Biezanko) 1 male (MUSM); Rio de Janeiro, Macahé, 1 male (ZMHU) [lectotype of *E. fabiana*]; Minas Gerais, Mantiqueira Mnts., 2000m, 22 Aug [19]28, (J. F. Zikán), 1 male (MUSM); Parque Teresopolis E. Rio, 1150-1530m, 17-18.viii.1955 (D'Alm., R. Barros, Dalcy, coll.) 1 female; Monteverde, M.G, 1650m, 6.ix.67 (Ebert) 1 male; Serra do Itatiaia (R.J.) Süd-Seite, 1000-1200m, 25.vii.63 (H. Ebert) 1 male; Campos de Jordão (S.P.), 1650m, 10.ix.69 (Ebert) 1 male; Castro, Paraná, 2 males (USNM) [lectotype and paralectotype of *E. morima*].

Distribution: Only known from southeastern Brazil, Paraguay and northeastern Argentina.

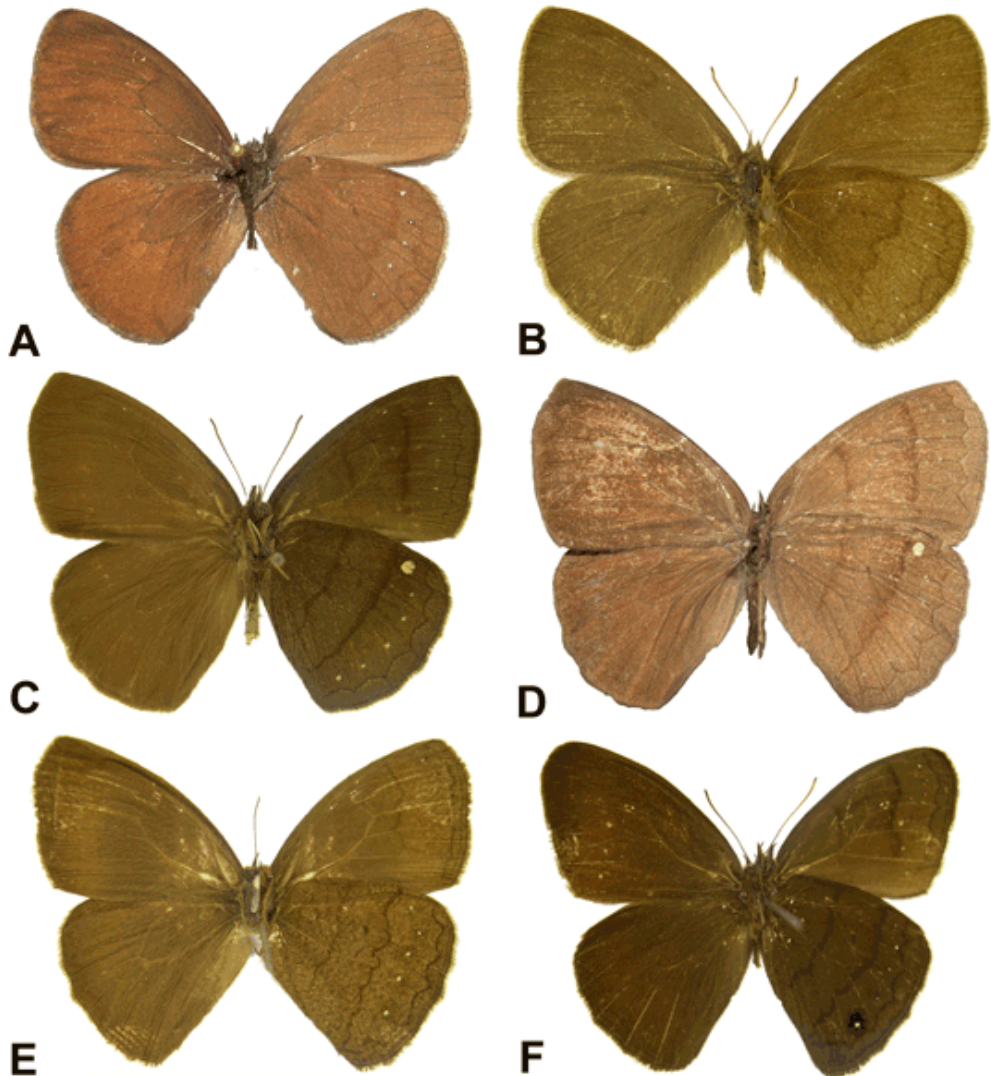


Figure 4. Adults of *Forsterinaria* (dorsal surface on left; ventral surface on right). A, *F. itatiaia* sp. n. (holotype male); B, *F. itatiaia* sp. n. (paratype female); C, *F. quantius* male; D, *F. quantius* female; E, *F. necys* male; F, *F. neonympha* male.

Discussion: Weymer (1911) sunk *Euptychia morima* as junior synonym of *Satyrus quantius*, while Forster (1964) did the same with *Euptychia fabiana* and *Euptychia stelligera*. As a consequence Lamas, 2004 (following Peña, 2004) lists *F. quantius* and *F. stelligera* as valid species. Since Peña (2004) examined a single male specimen with no abdomen, it was not possible to assess the identity of *F. quantius* through examination of the genitalia. After examination of additional specimens of the purportedly *F. quantius* and *F. stelligera*, they present the same unique

genitalia in the genus, and intraspecific variation in color pattern. Since *Satyrus quantius* is the oldest available name, we sunk *Euptychia stelligera*, *Euptychia fabiana* and *Euptychia morima* as junior synonyms.

Forsterinaria necys (Godart, [1824])

(Figs. 4E, 5C)

Satyrus necys Godart, [1824]: 511. Type locality: Brazil. **Syntypes**, probably lost.

Euptychia necys: Westwood, 1851: 373; Butler, 1867a: 471; Butler, 1868: 31; Kirby, 1871: 53; Butler, 1877:

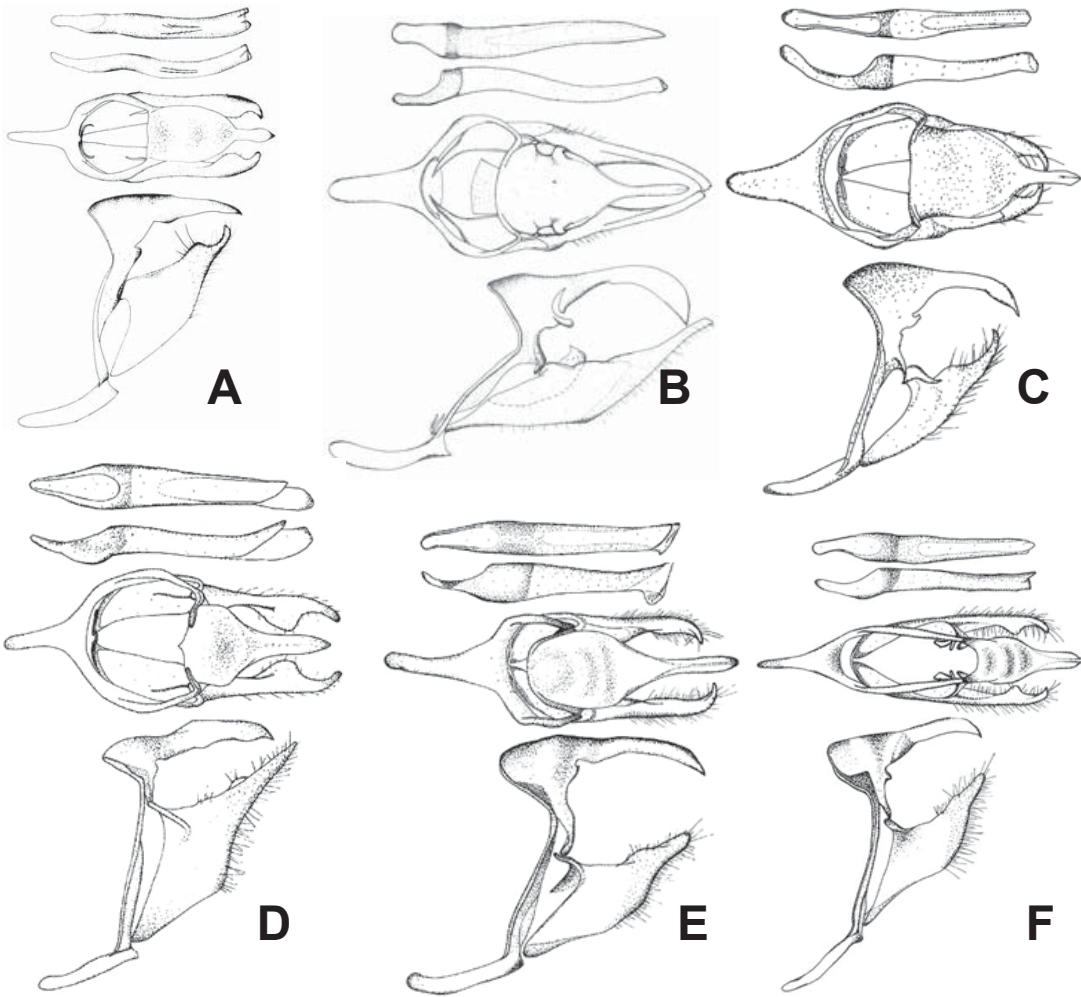


Figure 5. Male genitalia: A, *Forsterinaria itatiaia* sp. n.; B, *F. quantius*; C, *F. necys*; D, *F. neonympha*; E, *F. stella*; F, *F. pyrzi* sp. n.

120; Möschler, 1877: 323; Weymer & Maassen, 1890: 15 [misidentification]; Weymer, 1911: 210, pl. 48d, fig. [1]; Gaede, 1931: 456; Hayward, 1967: 246, pl. 4, fig. 25 [error], pl. 19, fig. 12; Hayward, 1973: 254; Lewis, 1973: 233; D'Abbrera, 1988: 779, fig.; Parra *et al.*, 2000: 110 [error].

= *Euptychia vastata* Butler, 1867a: 487. Type locality: Brazil, Rio Grande [do Sul]. **Lectotype** male (designated herein), BMNH [examined].

= *Euptychia pseudonecys* Strand, 1916: 13, pl. 16, fig. 17. Type locality: Brazil, Minas Gerais. **Holotype** male, BMNH [examined]. **New synonym.**

Haywardina necys: Forster, 1964: 110, 113, fig. 111.

Euptychia «pseudonecys»: Gaede, 1931: 462; D'Abbrera, 1988: 779, fig.

Forsterinaria necys: Kochalka *et al.*, 1996: 213; Canals, 2003: 377, fig; Lamas, 2004: 219.

Forsterinaria pseudonecys: Lamas, 2004: 219.

Identification and taxonomy: FW length: 22-23 mm (n = 5). Exhibits high intraspecific variability in external morphology. Can be distinguished from the other species by the conspicuous DFW male androconia. *F. necys* is most similar to *F. itatiaia* (Figs. 4A-B), in color pattern and genitalia, but can be distinguished by the characters mentioned under *F. itatiaia* account. Additionally, the outer margin of *F. necys* HW is triangular while in *F. itatiaia* is rounded. The VHW is variously marbled, with variable intensity of coloration. The postdiscal line with variable undulation; discal, postdiscal and submarginal lines on VFW and VHW of different degrees of intensity, a discal spot may be present on both

pairs of wings; DHW submarginal and marginal lines mostly present and conspicuous.

The **LECTOTYPE** male of *Euptychia vastata* is deposited in the BMNH and bears the following labels: «Rio Grande, Brazil/Bates Coll.», «Godman-Salvin/ Coll. 1904.-1./Euptychia/necys./Godt.», «Type of/Species.», «B.M. TYPE/No. Rh 3238 /Euptychia/vastata./male Butl.», «Type/H. T.», «male», «male/R. Grande/do Sul/vastata/Butl. Type».

Material examined: **BRAZIL:** Rio Grande do Sul, 1 male (BMNH) [lectotype of *E. vastata*]; Paraná, Castro, 2 males (MUSM); Rio Grande do Sul, Pelotas, 26 Apr [19]60, 1 male (MUSM); Minas Gerais, Mantiqueira Mts., 2000m, 1915 (J. F. Zikán), 1 male (MUSM); Alto da Serra, Morretes, PR. 800m, 16.ii.1975 (Mielke leg.) 1 male; S. José dos Pinhais, PR. 850m, 19.iii.1979 (Mielke leg.) 1 male; Serra do Itatiaia (R.J.), 1100m, 21.iii.67 (Ebert) 1 male; S. Bento do Sul (Sa. Cat.), 850m, 6.xii.69 (Ebert) 1 female; Minas Gerais (R. Haensch S.), 1 male (BMNH) [holotype of *E. pseudonecys*]; Minas Gerais (Fruhstorfer), 1 male (BMNH); Matto Grosso, Tombador, 16 miles S of Diamantino, 1500 ft. 24-31 Jul [19]27 (C.L. Collenette), 1 male (BMNH); 1 male (MUSM) no data, probably from Brazil.

Distribution: Known from southern and southeastern Brazil, Paraguay and northern Argentina.

Discussion: *Euptychia pseudonecys* appears as *Forsterinaria pseudonecys* in Lamas (2004) following Peña (2004), who states that this species exhibits the synapomorphies for the genus. The supposed *F. pseudonecys* specimens present more marked dark brown lines on VFW and VHW than those of *F. necys*, but actually a close examination of additional samples with intermediate phenotypes lead us to conclude that these differences are due to intraspecific variation, and that *E. pseudonecys* is best regarded as a junior subjective synonym of *F. necys*.

neonympha-group

Forsterinaria neonympha (C. Felder & R. Felder, 1867)

(Figs. 4F, 6A, 5D)

Taygetis neonympha C. Felder & R. Felder, [25 April] 1867: 467. Type locality: Colombia, «Bogotá» [error]. **Lectotype** male (designated herein), BMNH [examined].

= *Euptychia polyphemus* Butler, [30 April] 1867: 488, pl. 12, fig. 5. Type locality: Colombia, «Bogotá» [error]. **Lectotype** male (designated herein), BMNH [examined].

= *Taygetis umbracea* Butler & Druce, 1872: 98. Type locality: Costa Rica, Cartago. **Lectotype** female (designated herein), BMNH [examined].

= *Euptychia cyclops* Butler, 1877: 126, pl. 12, fig. 2. Type locality: Panamá, Chiriquí. **Lectotype** male (designated herein), ZMHU [examined].

Euptychia polyphemus: Butler, 1867b: pl. 2, fig. 5; Butler, 1868: 32; Kirby, 1871: 53; Godman & Salvin, 1880: 85, pl. 8, fig. 22; Weymer, 1911: 210, pl. 47g, fig. [2]; Gaede, 1931: 462; D'Abbrera, 1988: 779, fig.; Parra *et al.*, 2000: 110.

Taygetis neonympha: Butler, 1868: 13; Kirby, 1871: 110.

Euptychia cyclops: Kirby, 1877: 843.

Haywardina cyclops: Forster, 1964: 111.

Haywardina polyphemus: Forster, 1964: 111, 113-114, fig. 120.

Forsterinaria polyphemus: Gray, 1973: 171.

Forsterinaria umbracea: Gray, 1973: 172.

Cissia polyphemus: DeVries, 1987: 277, pl. 41, fig. 4.

Satyrotaygetis polyphemus cyclops: Maza & Maza, 1993: 182.

Forsterinaria neonympha: Lamas, [1997]: 53; Racheli & Racheli, 2001: 327; Lamas, 2004: 219.

Identification and taxonomy: FW length: Male 22-25 mm (n = 9); Female 25-28 mm (n = 4). Most similar to *F. stella* (Fig. 6B), but VHW postdiscal line less undulated and separated from the discal cell. The black, white-pupilled ocellus in CuA₁-CuA₂ is large in Panamanian populations, becoming smaller in populations to the south (Colombia towards Peru), with an obvious north-south clinal variation. Postdiscal lines on underside of both wings somewhat variable, resembling the pattern in *F. stella* (Fig. 6B) but always positioned distal to the discal cell. In addition,

the male genitalia shows slight variability, the distal process of valva may be curved dorsally in side view and resembles those in the distantly related *boliviana*-group, being the only species in the group having the uncus with a shallow dome (Figs. 13B-E).

The **LECTOTYPE** male of *Taygetis neonympha* is deposited in the BMNH and bears the following labels: «T./Neonym/pha/Feld», «Nova/Granada/Lindig/Type», «Type of Tay. neonympha./Feld = Eup. polyphemus. Btlr./comp. w. Type. 7 xii.12. M&R», «Rothschild/Bequest/B.M. 1939-1.», «Type», «FELDER/ COLLN.», «neonympha n.». The **LECTOTYPE** male of *Euptychia polyphemus* is deposited in the BMNH and bears the following labels: «B.M. TYPE/No.Rh 6215/Euptychia/polyphemus/male Butl», «Type», «Bogota./Pur from/Stevens./56-142», «Bogota». The **LECTOTYPE** female of *Taygetis umbracea* is deposited in the BMNH and bears the following labels: «Godman-Salvin/Coll. 1904.-1./ B.C.A.Lep. Rhop./Euptychia/polyphemus./Butl.», «Type/H.T.», «B.M. TYPE/No.Rh. 3226./Euptychia/umbracea/female Butl.», «Costa Rica./Van Patten./Druce Coll.», «T. Umbracea/Butl type», «Taygetis/umbracea./Type. Butl. & Dr.». The **LECTOTYPE** male of *Euptychia cyclops* is deposited in the ZMHU and bears the following labels: «Origin», «E. cyclops male/Butler type», «ex collect/Staudinger», «Präparat Nr. 153/Zoolog. Staatssammlung/München», «Chiriqui/Ribbe», «Eigentum/Mus. Berlin», «LECTO-/PARATYPE female/Euptychia cyclops/Butler, desig./Lee D. Miller 1989» [this designation was never published].

Material examined: **COSTA RICA**: Cartago, 1 female (BMNH) [lectotype of *T. umbracea*]; Costa Rica, (Van Patten) 1 female (BMNH) [paralectotype of *E. cyclops*]; **PANAMA**: Chiriquí, 1 male (ZMHU) [lectotype of *E. cyclops*]; Coclé, El Valle, 08°36'N, 80°08'W, 950m, Jun 1982 (G. B. Small, Jr.), 1 female (MUSM); Chiriquí, Cerro Colorado, 08°32'N, 81°47'W, 1450m, 13 Aug 1977, 08 Oct 1978 (G. B. Small, Jr.), 2

males (MUSM); Darién, Cana, Cerro Pirre, 07°56'N, 77°43'W, 1000m, 27 Aug 1982 (G. B. Small, Jr.), 1 male (MUSM); Darién, Cana, Cerro Pirre, 07°56'N, 77°43'W, 1500m, 14 Jan 1984 (G. B. Small, Jr.), 1 male (MUSM); Darién, Cana, Cerro Pirre, 07°56'N, 77°43'W, 1400m, 21 Apr 1983 (G. B. Small, Jr.), 1 male (MUSM); Darién, Cana, Cerro Pirre, 07°56'N, 77°43'W, 1200m, 01-22 Apr 1983 (G. B. Small, Jr.), 2 females (MUSM); Darién, Cana, Cerro Pirre, 07°56'N, 77°43'W, 1550m, 28 Mar 1983 (G. B. Small, Jr.), 1 female (MUSM); **COLOMBIA**: «Bogotá», 2 males (BMNH) [lectotypes of *T. neonympha* and *E. polyphemus*]; Cundinamarca, La Mesa, Vereda Guayabal, 04°39'N, 74°26'W, 1350m, 28 Jul 2000 (G. Lamas), 1 male (MUSM); Manizales (A. M. Patino), 1 male (MUSM); **PERU**: Huánuco, Chinchao, 09°38'S, 76°04'W, 2000m, 26 Sep 1996 (J. Grados), 1 male (MUSM); Cordillera del Sira, ca. 09°25'S, 74°45'W, 800m, Sep 1987–Aug 1988 (Exp. Universidad Viena), 1 male (MUSM); **BOLIVIA**: La Paz, R[ío] Songo to R[ío] Suapi, 1100m, Mar-Jun [18]96 (leg. Garlepp), 1 male (BMNH).

Distribution: Occurs from Mexico south to Panama, and from Colombia south to Bolivia, along the Andes. We have not examined specimens from Mexico, however Maza & Maza (1993) reported this species for Chiapas as *Satyrotaygetis polyphemus cyclops* [sic].

Discussion: Forster (1964) left open the possibility that *Taygetis neonympha* and *Euptychia polyphemus* might be considered synonymous, regarding *Haywardina polyphemus* as the valid name. Examination of the type specimens of both reveals they are indeed synonyms, but *E. polyphemus* being junior to *T. neonympha*, as demonstrated by Lamas ([1997]). *E. cyclops* Butler, 1877 has been considered a junior subjective synonym of *T. umbracea* Butler & Druce, 1872, although Forster (1964) erroneously cited *H. cyclops* as valid. Gray (1973) listed *Forsterinaria polyphemus* (junior synonym of *T. neonympha*) and *F. umbracea* as

separate species. As a result of examination of the type material of all those names, and according to the north-south clinal variation observed in the size of the black, white-pupilled ocellus, and the degree of undulation of the HW postdiscal line, referred to above, *T. umbracea* and *E. cyclops* are confirmed here as synonyms of *T. neonympha* (Peña, 2004; Lamas, 2004).

Forsterinaria stella (Hayward, 1957)

(Figs. 6B, 5E)

Euptychia stella Hayward, 1957: 118, fig. 7. Type locality: Bolivia, [Cochabamba], Chaparé. **Holotype** male, MACN [not examined].

= *Euptychia howarthi* Hayward, 1962b: 105, fig. 1. Type locality: Bolivia, [Cochabamba], Chaparé (Yungas). **Holotype** male, IML [examined].

Haywardina stella: Forster, 1964: 111, 113, 115, fig. 121.

Haywardina howarthi: Forster, 1964: 115.

Euptychia howarthi: Hayward, [1964]a: 332.

Forsterinaria howarthi: Gray, 1973: 171; Lamas, 2003: 203.

Forsterinaria stella: Gray, 1973: 172; Racheli & Racheli, 2001: 327; Lamas, 2004: 219.

Identification and taxonomy: FW length: Male 23-27 mm (n = 28). *Forsterinaria stella* can be distinguished from all related species by having the HW postdiscal line either inside the discal cell or on its distal border. The HW postdiscal line is slightly undulated, which is not the case in *F. proxima* (Figs. 6E-F). Light brown scales scattered on VHW may be present, especially on anal area. The black, white-pupilled ocellus in VHW cell CuA₁-CuA₂ is smaller than in *F. neonympha* (Figs. 4F, 6A). The genitalia of *F. stella* is unique within the genus, having the tegumen dorso-ventrally elongated, and uncus very thin and stylized. Valval shape is closest to *F. pyrczi* (Fig. 5F), but posterior tip is shorter lacking the dorsal process.

Female: Unknown.

Material examined: **COLOMBIA:** «Nova Granada, de Bogotá à Buenaventura», 14 Dec 1877 - 22 Feb 1878 (O. Thieme), 1 male (MUSM); **ECUADOR:** Rosario, 6 Apr 99, 1 male (ZSBS); Carchi, Res. Forest. Go-

londrinas, [00°50'N, 78°10'W], 1600-1900m, 23 Jun - 04 Jul 1999 (Wojtusiak & Pyrcz), 6 males (MZUJ); **PERU:** AMAZONAS: Alto Río Nieva, 05°40'S, 77°47'W, 2300m, Feb 2003 (B. Calderón), 1 male (MUSM); Cordillera del Cóndor, Q[uebra]da Kegkem, 03°38'S, 78°18'W, 700m, 19-20 Nov 2003 (J. Grados & A. Asenjo), 5 males (MUSM); **SAN MAR-TÍN:** Jorge Chávez, near [Abra] Pardo Miguel, ca. 05°42'S, 77°44'W, 2200-2400m, Feb 2003 (B. Calderón), 3 males (MUSM); **JUNÍN:** Quebrada Malambo, 11°15'S, 75°35'W, 2700m, 26 Jan 2003 (T. Pyrcz), 1 male (MUSM); **CUZCO:** Campamento Mangoriari, 12°21'S, 73°02'W, 1500m, 07 Dec 2002 (J. Grados), 2 males (MUSM); San Pedro, 13°03'S, 71°33-4'W, 1400-1650m, 17-18 Aug 2001 (G. Lamas), 3 males (MUSM); San Pedro, 13°03'S, 71°33-4'W, 1400-1650m, 05-08 Nov 2001 (G. Lamas), 3 males (MUSM); Cerca de Santa Isabel, Río Cosñipata, 1200-1500m, 05-11 Feb 1975 (G. Lamas), 1 male (MUSM); Río Cosñipata, San Pedro, 1400m, 30 Aug - 1 Sep 1989 (G. Lamas), 3 males (MUSM); Río Cosñipata, Qbda. Quitacalzón, [13°01'S, 71°30'W], 1050m, 01-03 Nov 1989 (G. Lamas), 1 male (MUSM); Marcapata, 4500 ft., 1 male (BMNH); **BOLIVIA:** Cochabamba, Chaparé, Jan 1949 (leg. Bridarolli S.J.), 1 male (IML) [holotype of *E. howarthi*]; Prov. Cochabamba, Vía Cochabamba, Río Limatambo, 1150-1200m, 14 Aug 2000 (T. Pyrcz), 1 male (MZUJ); Cochabamba, (Yungas del Espíritu Santo) [17°06'S, 65°40'W, 1400-1650m], 1888-89 (P. Germain), 2 males (MUSM); Yungas del Palmar, 1000m, 06 Aug [19]48 (R. Schönfelder), 1 male (ZSBS); Yungas del Palmar, 1000m, 10 May [19]49 (R. Zischka), 1 male (ZSBS); Yungas del Palmar, 1250m, 17 Oct 1953 (W. Forster), 1 male (ZSBS).

Distribution: Known from Colombia and Ecuador south to eastern Peru and Bolivia, along the east Andean slopes.

Discussion: In the original description of *Euptychia howarthi*, Hayward (1962b) did not mention details of the HW lines, which are very important and useful characters for

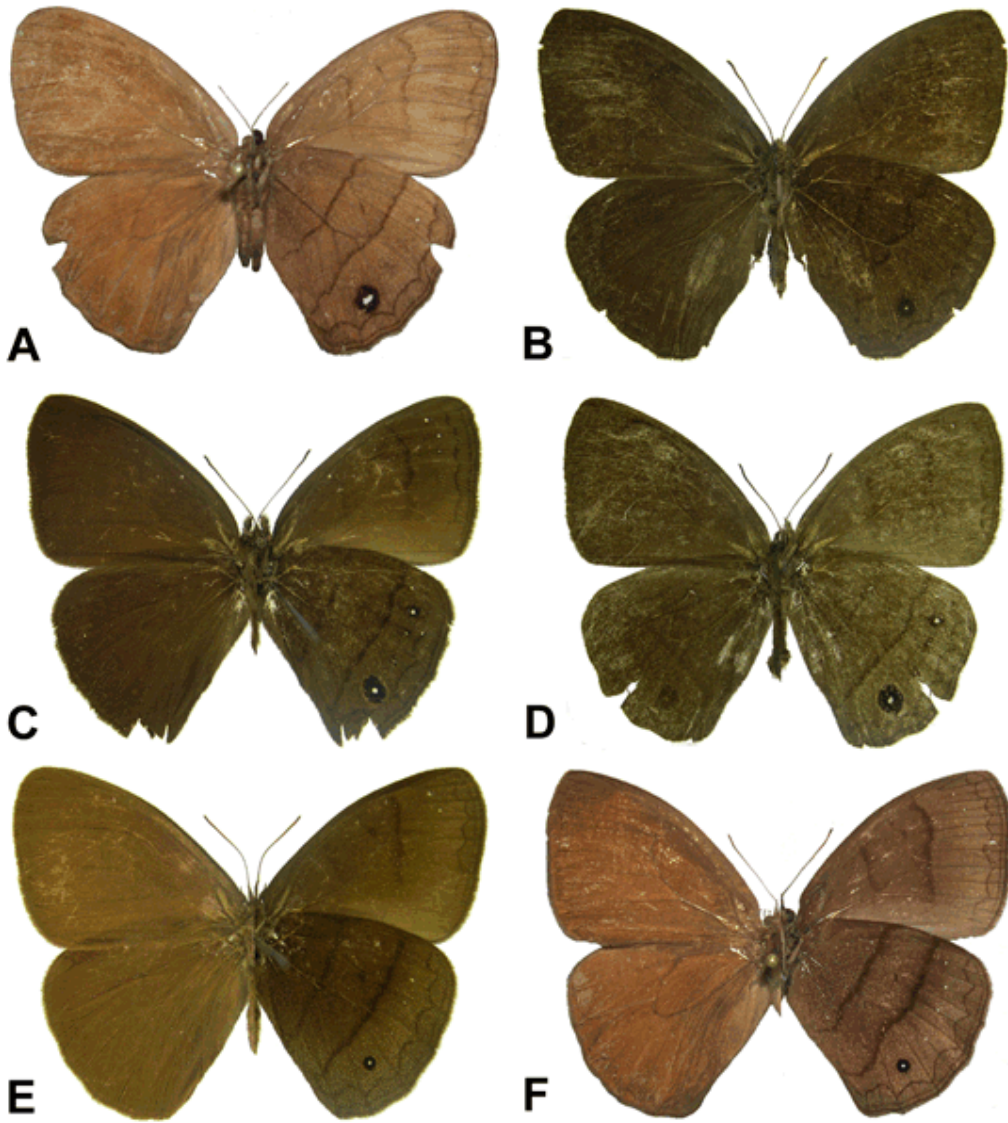


Figure 6. Adults of *Forsterinaria* (dorsal surface on left; ventral surface on right). A, *F. neonympha* female; B, *F. stella* male; C, *F. pyrctzi* sp. n. holotype male; D, *F. pyrctzi* sp. n. paratype female; E, *F. proxima* male; F, *F. proxima* female.

taxonomic identification. In addition, his drawing of the male genitalia is poorly detailed and useless for identification of the species. However, this taxon can be easily distinguished through examination of the holotype. Forster (1964), in his revision of Bolivian satyrines, stated that he did not have any material of *E. howarthi* at his disposal, but did have access to the holotype of *F. stella*, and was able to publish a drawing of its male genitalia. He also mentioned that *F. stella* and *E. howarthi* are closely related and can be distinguished by

characters of the valva which, according to him, could be noticed by comparing the genitalic drawings published by Hayward (1957, 1962b). Hayward's drawings of *F. stella* and *E. howarthi* are very poor and we do not consider them of any use to identify those taxa. However, Forster's drawings of *F. stella* match very well the male genitalia of individuals undoubtedly belonging to *E. howarthi*. Therefore, Peña (2004) regarded *E. howarthi* as a junior subjective synonym of *F. stella*, as cited in Lamas (2004). In addition, the original

description of *F. stella* is more detailed, and the characters mentioned therein leave no doubt about this synonymy, despite the fact that the holotype of *F. stella* has not been examined yet. This species exhibits a remarkable altitudinal distribution, between 700 and 2700m. *F. neonympha* is another species with a wide altitudinal range (800-2000m).

***Forsterinaria pyrczi* Peña & Lamas, sp. n.**

(Figs. 6C-D, 5F)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: This species can be readily distinguished from others in the genus by the four black, white-pupilled ocelli on VHW, one medium-sized ocellus in M_1-M_2 , one very small in M_2-M_3 and a similar one in M_3-CuA_1 , and one very large, much larger than the others, in CuA_1-CuA_2 . The ocellus in CuA_1-CuA_2 often exhibits a thin yellowish outer ring as some specimens of *F. proxima* (Fig. 6E). The postdiscal line is not undulated resembling *F. proxima* (Fig. 6E). Although *F. proxima* and *F. pyrczi* share the most similar genitalic features, both species are readily differentiated by the latter having extra black, white pupilled ocelli on VHW.

Male (Fig. 6C): FW length: 25-26 mm (n = 7). **Head:** Outer surface of labial palpi dark brown, inner surface light brown, very hairy. **Thorax:** Femur covered with dark brown scales, tibia and tarsus densely covered with scales lighter brown than on femur. **Abdomen:** ventral surface brown; **genitalia** (Fig. 5F) with a slight constriction between tegumen and uncus, tegumen somewhat straight, uncus elongated and thin, valva elongated with a small dorsal process slightly larger than in *F. antje*, and distal process curved laterally towards the inner side; aedeagus straight and tubular. **Forewing:** Tornus almost forming a right angle, distal margin straight; dorsal surface dark brown, unmarked; ventral surface with a slightly and irregularly undulated submarginal line, thinner than the remaining lines, reaching CuA_2 . **Hindwing:** slightly scalloped; dorsal surface dark brown, unmarked, inner margin

lighter; ventral surface dark brown, uniformly colored, an almost straight postdiscal line, narrower than in *F. proxima*, submarginal line more undulated than on FW, made up of crescents, a marginal line without undulation runs parallel to the distal margin, a small white ocellus in $Rs-M_1$, one medium-sized black, white-pupilled ocellus in M_1-M_2 , two black ocelli smaller than the latter in M_2-M_3 and M_3-CuA_1 , and a black ocellus, much larger than the remainder (even larger than in *F. proxima* and *F. stella*), with a small white central pupil, in CuA_1-CuA_2 .

Female (Fig. 6D): FW length: 26 mm (n = 1). Differs from the male by being lighter, ventral surface of antenna lighter than dorsal, the tip darkened, labial palpi lighter, femur, tibia and tarsus light brown, overall wing color lighter.

Type material: *Holotype* male, **ECUADOR:** Carchi, Res. Forest. Golondrinas [00°50'N, 78°10'W], 1900m, 30 Jun 1999 (Wojtusiak & Pyrcz), male genitalia preparation, #CPB-141, in the MUSM. *Paratypes:* 6 males, 1 female same data as holotype, but dates between 23 and 30 Jun, and altitudes between 1900m and 2000m, currently in the MUSM but will be returned to the MZUJ.

Etymology: This species is named after Tomasz W. Pyrcz, in recognition of his kind donation of material from his personal collection for the present research.

Distribution: This species has thus far been recorded only from the type locality in western Ecuador, but may also occur towards the north, in Colombia, and the south, along the west Andean slopes of northernmost Peru.

Discussion: The unique character black, white pupilled ocelli on cells M_1-M_2 , M_2-M_3 , M_3-CuA_1 , and CuA_1-CuA_2 of VHW not seen in other taxa within the genus lead us to describe *F. pyrczi* as a new species.

***Forsterinaria proxima* (Hayward, 1957)**

(Figs. 6E-F, 7A)

Euptychia proxima Hayward, 1957: 118, fig. 5. Type locality: Bolivia, [La Paz], Sur Yungas, Chulumani.

Holotype male, MACN [not examined].

Haywardina proxima: Forster, 1964: 113, 115, fig. 119.

Euptychia polyphemus: Lewis, 1973: 233, pl. 58, fig. 6 [misidentification].

Euptychia «proxima»: D'Abbrera, 1988: 779, fig.

Forsterinaria proxima: Gray, 1973: 171; Lamas, 2004: 219.

Identification and taxonomy: *Male* (Fig. 6E): FW length: 24-28 mm (n = 22). Very similar to *F. stella* (Fig. 6B), but VHW postdiscal line wider, not undulated, and does not reach the discal cell. This postdiscal line may be straight or somewhat curved. In contrast with *F. pyrczi* (Figs. 6C-D), *F. proxima* does not present black, white-pupilled ocelli in HW cells M_1 - M_2 , M_2 - M_3 and M_3 - CuA_1 . The genitalia is very similar to *F. pyrczi* (Fig. 5F) with no differential traits. The population from central Peru exhibits intrapopulational variability in wing coloration, some individuals being dark brown, and others lighter.

Female (Fig. 6F): Essentially similar to the male, but slightly lighter in coloration.

Material examined: **PERU:** CAJAMARCA: 12km W La Coipa, [05°23'S, 78°57'W], 1800m, 18 Apr 1985 (G. Lamas), 1 male (MUSM); AMAZONAS: 5km W Pomacochas, [05°50'S, 78°00'W], 2000m, 18 Feb 1978 (G. Lamas), 2 males (MUSM); SAN MARTÍN: Jorge Chávez, near [Abra] Pardo Miguel, ca. 05°42'S, 77°44'W, 2200-2400m Feb 2003 (B. Calderón), 4 males (MUSM); JUNÍN: 1km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 08-11 Sep 2002 (C. Peña, J. Grados), 7 males (MUSM); 1km S Mina Pichita, 11°05'S, 75°25'W, 2100 m, 14-15 May 2002 (J. Llorente), 1 male, 1 female (MUSM); 0-1km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 12 Sep 2001 (G. Lamas), 1 male (MUSM); 1-3km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 02 Aug 1996 (G. Lamas), 1 female (MUSM); 1 km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 12 Aug 2002, 12 Nov 2003 (C. Peña), 3 males (MUSM); CUZCO: Marcapata, [13°26'S, 70°55'W], 4500ft, 1 male (BMNH); PUNO: Uruhuasi, [13°42'S, 70°28'W], 7000ft, Mar and Apr [19]10, 1 male (BMNH); **BOLIVIA:** Cochabamba, (Yungas

del Espíritu Santo), [17°06'S, 65°40'W], 1888-89 (P. Germain), 1 male, 1 female (MUSM); Cochabamba, Vía Cochabamba, 1750m, Aug 2000 (T. Pyrcz), 1 male (MZUJ).

Distribution: Known from northern Peru to Bolivia, along the east Andean slopes.

Discussion: Some individuals may present a slightly darker coloration on both wings, perhaps due to melanism. This difference is apparently not a result of either the age of the adult butterflies at the moment of collection, or how long they have spent preserved in museum collections, since a fresh specimen showing lighter color (i.e. less pigmented) was collected simultaneously with a series of dark brown individuals.

enjuerma-group

Forsterinaria pseudinornata (Forster, 1964)

(Figs. 8A-B, 7B)

Haywardina pseudinornata Forster, 1964: 113, fig. 117, pl. 32, figs. 7-8. Type locality: Ecuador, [Bolívar], Santa Lucía. **Holotype** male, ZSBS [examined].

Forsterinaria pseudoinornata [sic]: Racheli & Racheli, 2001: 327

Forsterinaria pseudinornata: Gray, 1973: 171; Lamas, 2004: 219.

Identification and taxonomy: FW length: Male 22-25 mm (n = 38); Female 23-24 mm (n = 3). It differs from *F. punctata* (Fig. 8C) and *F. enjuerma* (Fig. 8E) by having, on VHW, the submarginal ocellus in M_1 - M_2 larger than remainder ocelli, and of similar size to the ocellus in Rs - M_1 in the distantly related *F. quantius* (Fig. 4C-D). *F. pseudinornata* is very similar to *Forsterinaria anophthalma* (Fig. 8D), being difficult to differentiate based on coloration. However, in *F. pseudinornata*, the VHW postdiscal line is undulated at the costal margin, while in *F. anophthalma* (Fig. 8D) it lacks undulation at that area. Moreover, genitalic characteristics between *F. anophthalma* (Fig. 7D) and *F. pseudinornata* are very different, the constriction between tegumen and uncus is more marked in *F.*

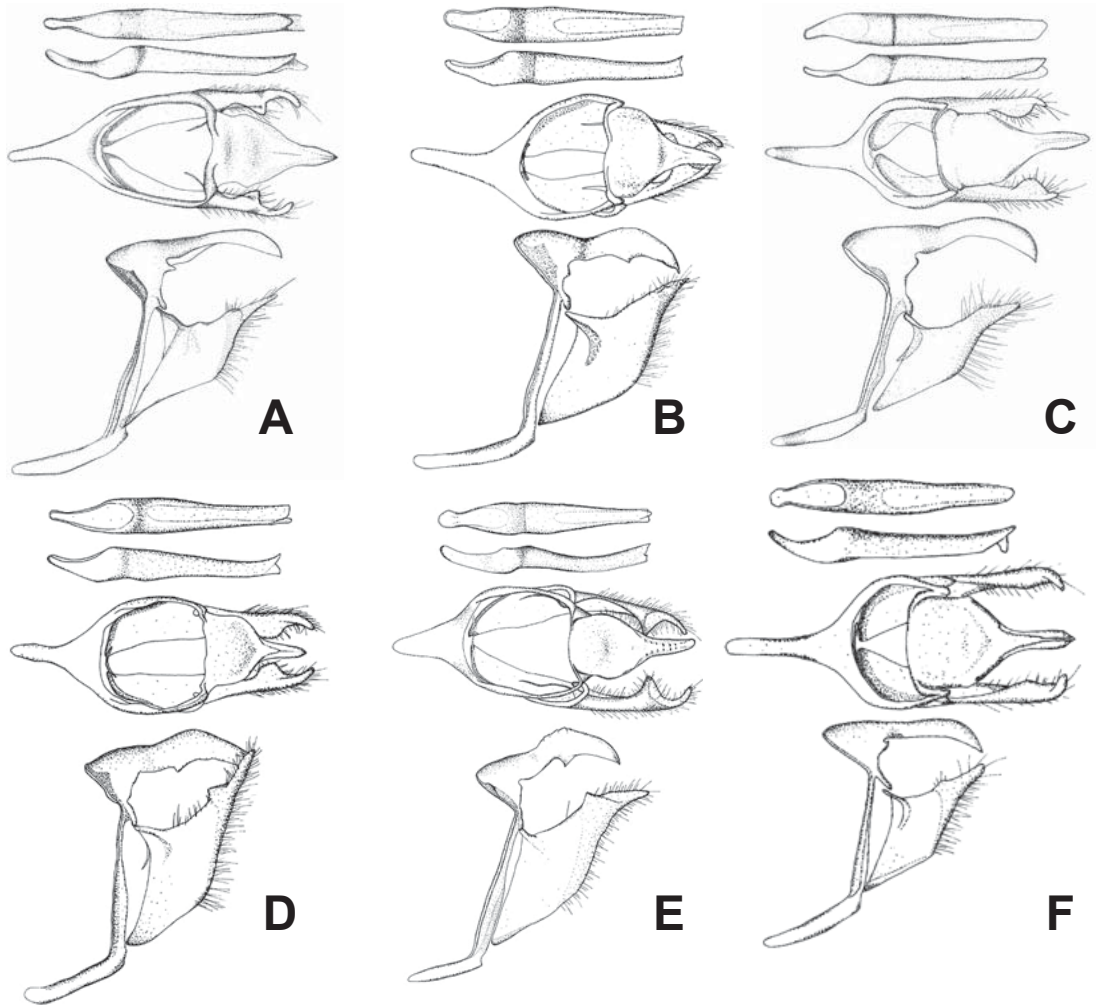


Figure 7. Male genitalia: A, *F. proxima*; B, *F. pseudinornata*; C, *F. punctata* sp. n.; D, *F. anophthalma*; E, *F. enjuerma* sp. n.; F, *F. pichita* sp. n.

pseudinornata and the posterior tip of valva is acute in lateral view. Usually, some individuals exhibit gray scales scattered on VHW. The female shows the ventral surface of wings lighter than in males.

Material examined: **ECUADOR:** Bolívar, Santa Lucía, 26 Jun [18]99, 1 male (ZSBS) [holotype of *H. pseudinornata*]; Balzapamba [sic], Route de Quito, Prov. de Bolivar, 7bre-8bre 1893 (M. de Mathan), 1 male; Bolívar, Balzapamba, 01°47'S, 79°13'W, 1700m, 05 Feb 2002 (T. Pyrcz), 2 males; Bolívar, Balzapamba, Santa Lucía, [01°46'S, 79°09'W], 1700m, 05 Feb 2002 (T. Pyrcz), 2 males; **PERU:** PIURA: Pacaipampa, San Juan, 04°57'S, 79°31'W,

2020-2100m, 23-25 Jun 2003 (W. Zelada), 1 male, 1 female; km 30 Olmos-Chamaya, 05°54'S, 79°32'W, 1300m, 17 Jun 1995 (G. Lamas), 2 males; Canchaque, [05°22'S, 79°37'W], 1200-1300m, 13-17 Apr 1981 (G. Lamas), 6 males; Canchaque, [05°22'S, 79°37'W], 1200m, 18 May 1982 (G. Lamas & E. Pérez), 1 male; 3km W Canchaque, 05°22'S, 79°37'W, 1300m, 03 Jun 2000 (G. Lamas), 1 males; 1km W Abra de Porculla, 05°51'S, 79°31'W, 2050m, 18 Aug 1998 (G. Lamas, J. Grados), 2 males, 2 females; CAJAMARCA: Hacienda Montesecco, [06°51'S, 79°06'W], 1200-1400m, 17 May 1982 (G. Lamas & E. Pérez), 9 males; 2-8km NE H[aciencia]da Montesecco, 1200-1400m, 12-22

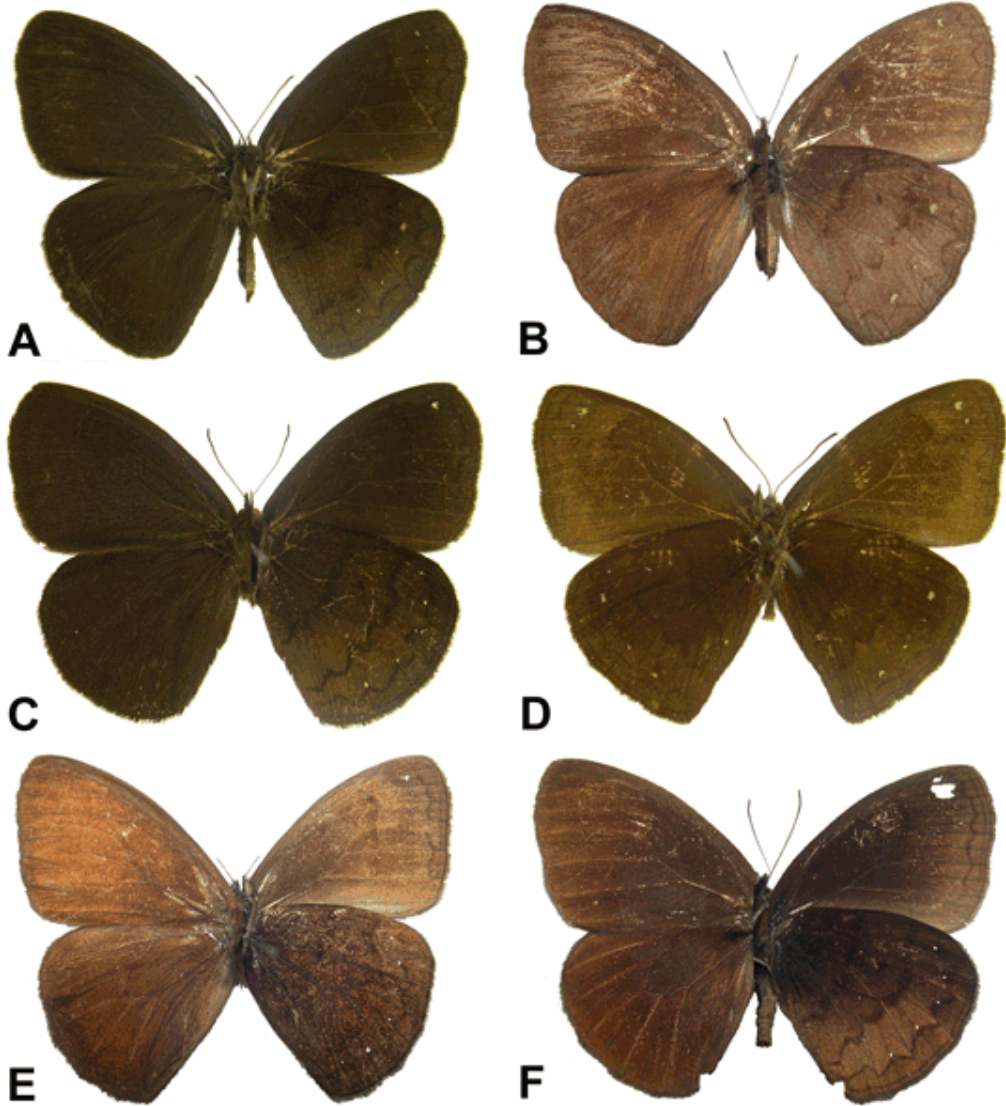


Figure 8. Adults of *Forsterinaria* (dorsal surface on left; ventral surface on right). A, *F. pseudinornata* male; B, *F. pseudinornata* female; C, *F. punctata* sp. n. holotype male; D, *F. anophthalma* male; E, *F. enjuerma* sp. n. holotype male; F, *F. pichita* sp. n. holotype male.

Nov 1978 (G. Lamas), 2 males; near Hacienda Udima, 06°50'S, 79°06'W, 1800m, 21 Apr 2003 (T. Pyrcz), 2 males, 1 female; 5km S Udima, 06°50'S, 79°05'W, 1800-2200m, 01 Nov 2002 (T. Pyrcz), 2 males; La Florida, 06°52'S, 79°08'W, 1200-1700m, 31 Oct 2002, Mar 2003, (T. Pyrcz) 8 males, 1 female; La Florida, [06°52'S, 79°08'W], 950m, 11 Nov 1978 (G. Lamas), 1 male; all in the MUSM.

Distribution: Known from western Ecua-

dor and northwestern Peru (western slopes of the Andes in Piura and Cajamarca).

***Forsterinaria punctata* Peña & Lamas, sp. n.**

(Figs. 8C, 7C)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: Can be separated from other species by the following combination of characters: very small VFW white submarginal dots, that in R_5 - M_1 larger (like *F. anophthalma* [Fig. 8D] and *F. enjuerma* [Fig.

8E]); VFW submarginal line slightly undulated; wing coloration very dark brown (almost black), *F. enjuerma* (Fig. 8E) is dark only on VHW; valvae of genitalia, with posterior tip not directed upward in lateral view, similar to *F. enjuerma* (Fig. 7E); uncus thin and smooth differs from remainder species in the group by lacking the dome present in *F. enjuerma* (Fig. 7E), *F. pseudinornata* (Fig. 7B) and *F. anophthalma* (Fig. 7D).

Male (Fig. 8C): FW length: 24-27 mm (n = 7). **Head:** Antenna black; eyes black; labial palpi black with gray lateral scales, forming an external line laterally. **Thorax:** femur covered with black hairs, tibia and tarsus with lighter scales. **Abdomen:** dorsal surface hairy, very dark brown, ventral surface with lighter brown scales; **genitalia** (Fig. 7C), tegumen stylized, without dome as present in *F. boliviana*, somewhat curved ventrally; uncus as long as tegumen, slightly curved ventrally; valva with small dorsal process close to rounded distal tip, which is curved ventrally; saccus tubular; aedeagus tubular, with no torsion, with slight constriction between dorsal and ventral openings. **Forewing:** apex rounded, distal margin convex, slightly excavate at CuA_1 , becoming truncated near the apex and joining the costal margin, forming a right angle, cilia very dark brown; dorsal surface dark brown, almost black, with a diffuse marginal line darker than the ground color and parallel to the distal margin; moderate dorsal androconial patch covers posterior half of discal cell, at base of M_3 , CuA_1 and CuA_2 , invading M_3-CuA_1 , CuA_1-CuA_2 and CuA_2-2A , and delimited by the submarginal area; ventral surface same as above, but distal and inner margins slightly lighter brown, a thick postdiscal line, dark and poorly developed between costal margin and M_3 ; submarginal line dark, better defined and very slightly undulated from costal margin to CuA_2 ; generally with four small whitish submarginal dots in R_5-M_1 , M_1-M_2 , M_2-M_3 and M_3-CuA_1 , largest in R_5-M_1 (as in *F. anophthalma*), although some dots may be missing. **Hindwing:** Costal margin convex, distal margin rounded, cilia dark brown; dorsal surface very dark brown, inner margin paler,

a diffuse marginal line darker than the ground color and parallel to the distal margin; basal part of discal and costal areas below of the same color as above, remainder of wing lighter brown, with broad discal line, reaching the inner margin; postdiscal line with complex undulation pattern, similar to *F. difficilis*, but with broader undulation, submarginal line with a zig-zag pattern, segment in M_2-M_3 more developed than the rest, a thin non-undulated line parallel to distal margin; five small, whitish submarginal dots in $Rs-M_1$ to CuA_1-CuA_2 .

Female: Unknown.

Type material: *Holotype* male, **PERU:** AMAZONAS: Pomacochas, 05°49'S, 77°58'W, 2500m, Jun 2002 (B. Calderón), male genitalia preparation, #CPB-147, in the MUSM. **Paratypes:** **PERU:** AMAZONAS: Molinopampa, Vía Granada, 3000-3200m, Sep 2002 (B. Calderón leg.), 5 males; Pomacochas, 05°49'S, 77°58'W, 2500m, Jun 2002 (B. Calderón), 1 male. All in the MUSM.

Etymology: This species is named *punctata*, derived from the Latin *punctum*, meaning a dot, in reference to the VHW whitish ocelli, which are very conspicuous against the dark brown ground color.

Distribution: Known only from the northeastern Peruvian Andes, in Amazonas.

Discussion: The color pattern and genitalic features of *F. punctata* stated in the diagnosis is not shared with remainder members of the *enjuerma*-group. Within the genus, *F. punctata* genitalia is most similar to the distantly related *F. difficilis* (Fig. 10E), and because of evident differences in wing coloration and the lack of white spots in the former, we describe *F. punctata* as a new species.

Forsterinaria anophthalma (C. Felder & R. Felder, 1867)

(Figs. 8D, 7D)

Taygetis anophthalma C. Felder & R. Felder, 1867: 467. Type locality: Colombia, Bogotá. **Lectotype** male

(designated herein), BMNH [examined].

Taygetis anophthalma: Butler, 1868: 14; Kirby, 1871: 110.

Euptychia anothalma [sic]: Hayward, 1962c: 254, fig. 83.

«*Forsterinaria*» *anophthalma*: Racheli & Racheli, 2001: 327.

Forsterinaria anophthalma: Lamas, 2004: 219.

Identification and taxonomy: FW length: Male 24-26 mm (n = 2). *F. anophthalma* color pattern is most similar to *F. pseudinornata* (Fig. 8A-B), but can be separated by genitalic traits as stated in the diagnosis of *F. pseudinornata* (Fig. 7B).

Female: Unknown.

The **LECTOTYPE** male of *Taygetis anophthalma* is deposited in the BMNH and bears the following labels: «Type», «FELDER/COLLN.», «Nova/ Granada/Lindig/Type», «anoph/thalma/Feld», «Type of T. anophthalma Feld/= Eup. rustica Btlr./Comp.w.type. 7.xii.12. M&R», «Rothschild/Bequest/B.M.1939-1».

Material examined: **COLOMBIA:** «Bogotá», 1 male (BMNH) [lectotype of *T. anophthalma*]; **PERU:** AMAZONAS: Chachapoyas, [06°14'S, 77°53'W], 1889 (M. de Mathan), 1 male (MUSM); SAN MARTÍN: P.N. Abiseo, Huicungo, Macedonio, 2400-2660m, 01 Aug 1990 (M. Medina), 1 male (MUSM). **BOLIVIA:** Yungas del Palmar, 2000m, 25 Mar [19]49 (R. Zischka), 1 male (ZSBS); Bolivia (Garlepp), 1 male (BMNH).

Distribution: Known from Peru (east Andean slopes) and Bolivia, but should occur also in eastern Ecuador. The only record for Colombia is based on the type locality, which might be mislabelled, additional samples from Colombia are necessary to expand its distributional range.

***Forsterinaria enjuerma* Peña & Lamas, sp. n.**

(Figs. 8E, 7E)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: No VHW black, white-pupilled ocellus, three small, white subapical ocelli from R_5-M_1 to M_2-M_3 on VFW, that in R_5-M_1 slightly larger than the remainder. Can be distinguished

from similar species in the group by the dark brown VHW, much darker than in FW, and by the less evident VHW postdiscal line, somewhat diffuse and slightly undulated (less than in *F. anophthalma* [Fig. 8D]). Genitalia is most similar to *F. pseudinornata* (Fig. 7B), but distinguished by having bigger and stronger valvae.

Male (Fig. 8E): FW length: 24-26 mm (n = 7). **Head:** labial palpi dark brown on the outer side and light brown inwardly. **Thorax:** ventral surface densely covered with very dark hairs; femur densely covered with dark brown scales, tibia and tarsus with light brown and gray interspersed scales. **Abdomen: genitalia** (Fig. 7E) with reduced tegumen, uncus large with shallow dome and dorsal rugosity as in *F. rustica*; large rhomboidal valva with broad tip, broader than in *F. rustica* and slightly curved ventrally, with large dorsal process somewhat curved dorsally, tip gradually curved towards inner side as in *F. rustica*; aedeagus long and tubular. **Forewing:** distal margin straight; dorsal surface brown, unmarked; ventral surface lighter brown than above, portion between basal area and postdiscal line darker, brown postdiscal line diffuse and straight, may be very slightly undulated; three white submarginal dots from R_5-M_1 to M_2-M_3 , that in R_5-M_1 larger than the remainder; postdiscal line almost straight from R_s to CuA_2 , slightly undulated; submarginal line slightly undulated from apex to CuA_2 . **Hindwing:** very slightly scalloped; dorsal surface uniform light brown (somewhat darker than on FW), inner margin lighter brown; ventral surface dark brown (darker than on FW), with a sixth white ocellus that may occur in CuA_2-2A , with four dark transverse lines: discal straight and very diffuse; postdiscal somewhat diffuse, curved, scarcely undulated; submarginal scalloped; and marginal non-undulated, parallel to distal margin, reaching anal angle.

Female: Unknown.

Type material: *Holotype* male, **ECUADOR:** Carchi, Res. Forest. Golondrinas, [00°50'N, 78°10'W], 1900m, 30 Jun 1999

(Wojtusiak & Pyrcz), male genitalia preparation #CPB-132, in the MUSM. *Paratypes*: same data as holotype, but dates between 21 and 26 Jun, elevation between 1600m and 2200 m, 6 males (MZUJ); Pichincha, Reserva El Pahuma, km 13 Nanegalito-Quito, 1900m, 31 Aug 1996 (K. R. Willmott), 1 male (KWJH). Specimens from the MZUJ are currently deposited in the MUSM but will be returned.

Etymology: The name *enjuerma* is treated as a feminine noun in apposition, dedicated to CP's friends from the Tropical Ecology course at Río Los Amigos, Madre de Dios, Peru.

Distribution: To date, known only from western Ecuador, in the Pichincha and Carchi areas, but probably occurs further south, along the western Andean slopes in Ecuador, and may reach the departments of Piura and Cajamarca in northern Peru.

Discussion: In addition to genitalic differences with related species, the character very dark VHW, contrasting with remainder lighter wing surfaces is unique in the genus, leading us to describe *F. enjuerma* as new species.

***pichita*-group**

***Forsterinaria pichita* Peña & Lamas, sp. n.**

(Figs. 8F-9A, 7F)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: *Forsterinaria pichita* is very similar to *F. falcata*, but the latter can be distinguished from *F. pichita* males by the DFW compact androconial patch. In addition, *F. falcata* generally exhibits two white medium-sized apical spots of equal size on VFW, whereas *F. pichita* always has one very small spot plus a medium-sized one. The genitalia resembles *F. pilosa* (Fig. 10B), but the aedeagus is narrower at its medial part; valva is slightly longer than in *F. pilosa*; tegumen more rounded than in *F. pilosa*.

Male (Fig. 8F): FW length: 24-26 mm (n = 53). **Head**: basally, covered on the sides with white scales; labial palpi dark brown, with la-

teral light brown scales on the last segment, forming a line on both sides, outer side densely covered with dark brown hairs, with some scattered light brown hairs, more frequent inwards. **Thorax**: femur covered with dark brown hairs, tibia and tarsus densely covered with scales lighter than those on femur. **Abdomen: genitalia** (Fig. 7F) constriction between tegumen and uncus not very marked; uncus thin without dome and no rugosity, tegumen somewhat rounded; valvae slightly elongated, posterior tip slightly curved to the inner side, with incipient dorsal process; aedeagus straight, tubular and narrow at medial part. **Forewing**: apex acute and truncated, tornus slightly obtuse (more obtuse than in *F. antje*), distal margin bilobed; dorsal surface dark brown, unmarked, a large and compact androconial patch on discal area, invading cells M_3 - CuA_1 , CuA_1 - CuA_2 and CuA_2 -2A; ventral surface the same color as above but marginal and submarginal areas, tornus, parts of neighbouring cells and inner margin lighter brown, with a scarcely noticeable dark postdiscal line on $Rs-M_1$, M_1-M_2 and M_2-M_3 , a transverse, slightly undulated submarginal line between R_4 and CuA_2 , cell R_4-R_5 with a small white spot, a larger white spot in R_5-M_1 , and usually three small, white submarginal dots in M_1-M_2 , M_2-M_3 and M_3-CuA_1 , although the latter may be absent. **Hindwing**: distal margin slightly scalloped and almost rounded; dorsal surface dark brown, with a non-undulated reddish-brown line parallel to the distal margin, inner margin slightly lighter brown; ventral surface of the same color as dorsally but distal margin, subapical area, anal angle and inner margin lighter brown, with some light brown scales scattered along the inner margin and anal angle, four dark brown transverse lines: a discal one almost without undulation, reaching the inner margin; a somewhat thick postdiscal, with variable undulation pattern, usually curved between the costal margin and M_3 , with four curved segments in M_3-CuA_1 , CuA_1-CuA_2 , CuA_2-2A and 2A-inner margin; a submarginal undulated in a zig-zag pattern,

although somewhat variable; and a non-undulated marginal parallel to the distal margin.

Female (Fig. 9A): FW length: 24-25 mm ($n = 3$). Essentially similar to the male, but the ventral surface of the wings is lighter brown; without dorsal androconial patch.

Type material: *Holotype* male, **PERU**: JUNÍN, 1km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 09 Sep 2002 (C. Peña), in the MUSM. *Paratypes*: **PERU**: AMAZONAS: Cedro, near Mendoza, 06°24'S, 77°29'W, 1500m, Feb 2002 (B. Calderón), 1 male; Mendoza, Quebrada Piruro, El Cedro, 06°23'S, 77°26'W, 2100-2200m, Aug 1998 (B. Calderón), 1 male; Abra Pardo Miguel, 05°42'S, 77°48'W, 2200m, 18-19 Nov 1996 (F. Chang, J. Grados, M. Joron), 4 males; PASCO: Palcamayo, 10°25'S, 75°25'W, 2000-2200m, 20 Aug 2003 (J. Boettger), 6 males; P. N. Yanachaga-Chemillén, Refugio El Cedro, 10°33'S, 75°21'W, 2380-ca. 2800m, 12-13 Oct 2002, 31 Jan-06 Feb 2003 (C. Peña, J. Wojtusiak), 26 males; La Antena, 10°38'S, 75°17'W, 2875m, Dec 2002 (J. Boettger), 1 female; JUNÍN: 1-3km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 02 Oct 1996 (G. Lamas), 3 males; Mina San Vicente, 11°13'S, 75°23'W, 2000m, 05 Oct 1996 (F. Chang), 1 male; Mina Pichita, Hacienda Naranjal, 2000m, 20 Aug 1988 (G. Lamas), 1 male; 1km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 14-15 May, 11-13 Aug, 08-10 Sep 2002, 12 Nov 2003 (G. Lamas, C. Peña, J. Grados, A. Guanilo), 19 males, 2 females; CUZCO: San Pedro, 13°03'S, 71°33-4'W, 1400-1650m, 05 Nov 2001 (G. Lamas), 1 male. All in the MUSM.

Etymology: This species is named after its type locality, Mina Pichita.

Distribution: Known from the east Andean slopes in Peru, from Amazonas south to Cuzco. Also recorded in eastern Ecuador from 2000-2800m from Napo to Loja provinces (Willmott & Hall, pers. comm.).

Discussion: Due to the diagnostic characters of the species and its occurrence in

sympatry together with the similar species *F. guaniloi*, *F. pilosa*, *F. falcata*, *F. rotunda*, *F. rustica* and *F. antje*, we describe *F. pichita* as new species.

***Forsterinaria guaniloi* Peña & Lamas, sp. n.**

(Figs. 9B-C, 10A)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: Similar to *F. pichita* (Figs. 8F-9A), but distinguished by the VHW postdiscal line, much less undulated, though somewhat curved in cells M_2 - M_3 and CuA_2 -2A, and the more rounded white spot on VFW apex. The genitalia shares similarities with *F. pichita* (Fig. 7F), but the subunci of *F. guaniloi* are more conspicuous.

Male (Fig. 9B): FW length: 23-26 mm ($n = 14$). **Abdomen**: **genitalia** (Fig. 10A) with slight constriction between tegumen and uncus, somewhat less marked than in *F. pyrzi*, subunci may be scarcely developed but present, valva tip similar to that of *F. pilosa*, with a small dorsal process as in *F. antje* and the distal process gradually curved towards the inner side. **Forewing**: dorsal surface dark brown, without markings, moderate androconial patch on discal part; ventral surface similar to dorsal, distal margin lighter and inner margin even lighter, with a scarcely noticeable discal line, an inconspicuous postdiscal line from costal margin to CuA_1 , a very slightly undulated submarginal line, a subapical white ocellus in R_4 - R_5 , and a small white spot, almost circular, in R_5 - M_1 . **Hindwing**: dorsal surface dark brown, without obvious markings; ventral surface the same color but distal and anal areas slightly lighter, with an almost straight discal line, and a somewhat curved postdiscal, with slight undulation in M_2 - M_3 and CuA_2 -2A, though less undulated than in *F. pichita* and *F. antje*.

Female (Fig. 9C): FW length: 24-27 mm ($n = 6$). Similar to the male, but wing coloration lighter, without DFW androconial patch.

Type material: *Holotype* male, **PERU**: JUNÍN, 1 km S Mina Pichita, 11°05'S, 75°25'W,

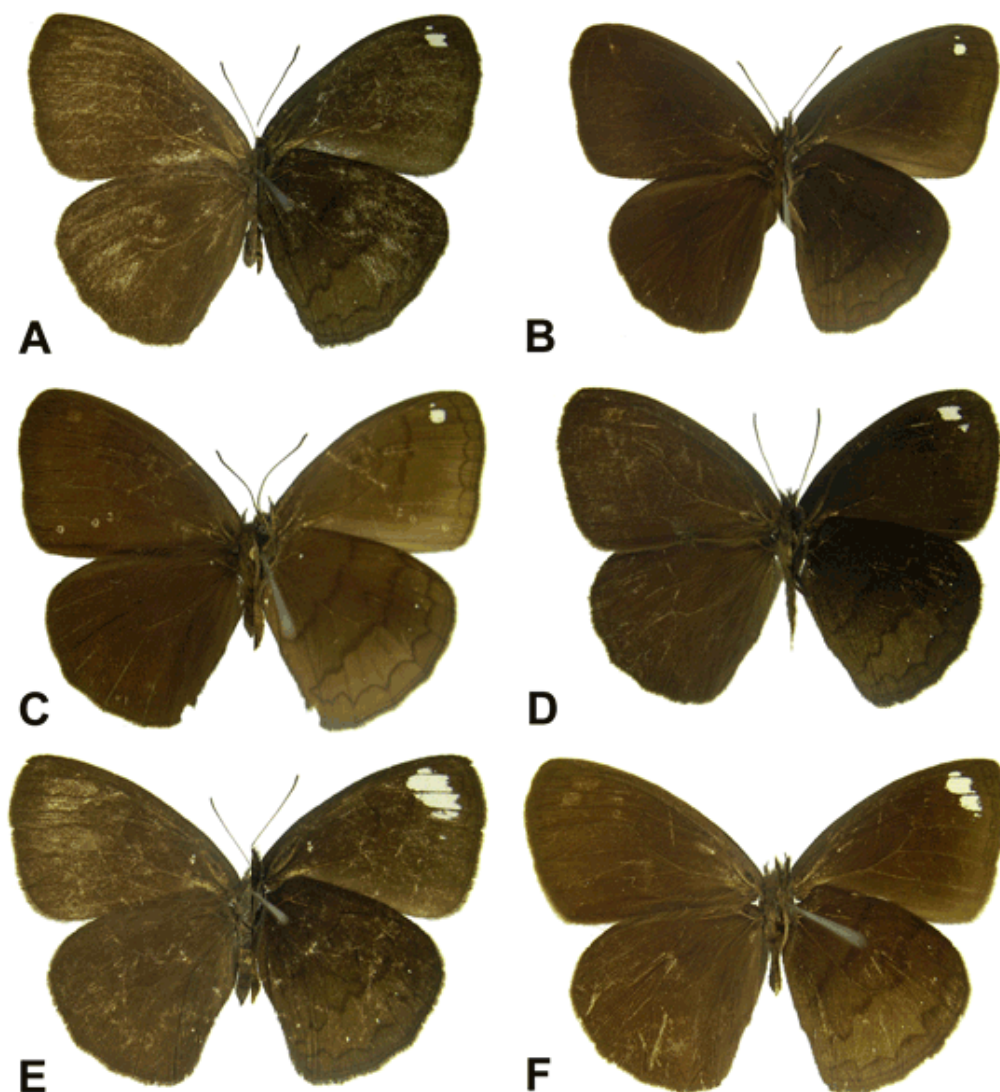


Figure 9. Adults of *Forsterinaria* (dorsal surface on left; ventral surface on right). A, *F. pichita* **sp. n.** paratype female; B, *F. guaniloi* **sp. n.** holotype male; C, *F. guaniloi* **sp. n.** paratype female; D, *F. pilosa* **sp. n.** holotype male; E, *F. pilosa* **sp. n.** paratype female; F, *F. falcata* **sp. n.** holotype male.

2100m, 12 Aug 2002 (C. Peña), male genitalia preparation, #CPB-134, in the MUSM.
Paratypes: **PERU:** AMAZONAS: Abra Pardo Miguel, 05°42'S, 77°48'W, 2200m, Aug 2002, Feb 2003 (B. Calderón), 2 males, 1 female; JUNÍN: Mina Pichita, 11°05'S, 75°25'W, 2150-2200m, 06 Jul 2003 (T. Pyrcz), 1 male; Mina Pichita, Hda. Naranjal, 2000m, 2 Aug 1988 (G. Lamas) 1 female; 1km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 11-13 Aug, 08-11 Sep, 18 Oct 2002, 12 Nov 2003 (C. Peña; A. Guanilo), 14 males, 4 females. All in the MUSM.

Etymology: Named after Alberto Guanilo, in recognition of his priceless help during field work.

Distribution: Only known from the east Andean slopes in Peru, from Amazonas south to Junín.

Discussion: Although *F. guaniloi* might be confused with *F. pichita* (Figs. 8F-9A), adequate examination of the postdiscal line on VHW and differences in male genitalia (conspicuous albeit small subunci), as well as sympatry with many species in the *pichita*-group, permit recognize *F. guaniloi* as full species.

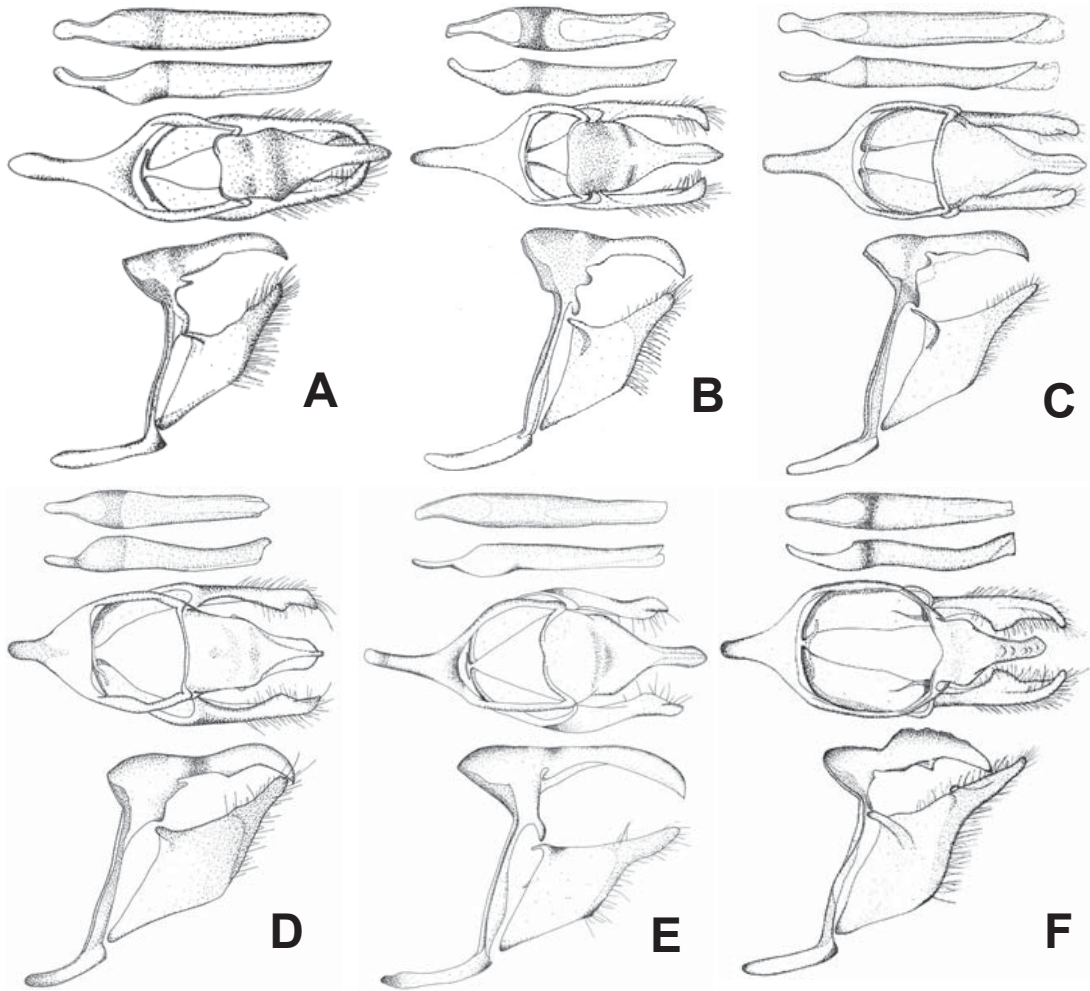


Figure 10. Male genitalia: A, *F. guaniloi* sp. n.; B, *F. pilosa* sp. n.; C, *F. falcata* sp. n.; D, *F. rotunda* sp. n.; E, *F. difficilis*; F, *F. rustica glendita* ssp. n.

***Forsterinaria pilosa* Peña & Lamas, sp. n.**

(Figs. 9D-E, 10B)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: This species can be separated immediately from all others in the genus by the conspicuous VFW androconial patch in males; no other species in the genus exhibit this character, considered herein as an autapomorphy. When compared with *F. falcata* (Fig. 9F), the VFW postdiscal line is thinner, the segment in M_2 - M_3 better developed, and tornus more obtuse. The valva in genitalia is shortened, having the posterior tip shorter than in *F. guaniloi* (Fig. 10A), and the tegumen bigger and stronger than in

other species within the *pichita*-group. Aedeagus is widened at medial part, wider than in *F. falcata* (Fig. 10C).

Male (Fig. 9D): FW length: 23-27 mm (n = 29). **Head:** Antenna very dark brown on dorsal and ventral sides; labial palpi dark brown, some light yellowish scales on last segment, ventral surface densely covered with dark brown scales, a few lighter hairs among them, inner side with more numerous light brown hairs. **Thorax:** femur covered with dark brown hairs, tibia and tarsus densely covered with scales lighter brown than on femur. **Abdomen: genitalia** (Fig. 10B) similar to *F. pyrcei*, but uncus, tegumen and tip of valva shorter, no

dorsal process, distal process curved as in *F. pyrcei*; aedeagus rather short, almost as long as in *F. rotunda*. **Forewing:** tornus slightly obtuse (more so than in *F. falcata*); dorsal surface uniform dark brown, unmarked, androconial patch on discal area; ventral surface with most of the wing disc covered with dense, very dark brown androconia, except in the apical, marginal and submarginal areas, reaching CuA_1 , remainder of the same color as above, a moderately undulate, brown submarginal line reaching CuA_2 , and a series of very variable white dots and spots on apical and submarginal areas; usually a large spot in R_5-M_1 , the other spots may be present or not. **Hindwing:** dorsal surface dark brown, unmarked, inner margin slightly lighter; ventral surface with darker costal margin, a sinuous brown discal line, an undulated postdiscal line that may be slightly variable, usually similar to that in *F. falcata* but not as thick, and a strongly undulated submarginal line, also slightly variable, undulation more pronounced in M_2-M_3 .

Female (Fig. 9E): FW length: 24-28 mm ($n=6$). Essentially similar to the male, the ocelli and spots showing the same degree of variation on FW, but the ventral surface is lighter brown, without FW dorsal or ventral androconia. VHW postdiscal line with segment in M_2-M_3 better developed than in males.

Type material: *Holotype* male, **PERU:** PASCO: P.N. Yanachaga-Chemillén, Refugio El Cedro, $10^{\circ}33'S$, $75^{\circ}21'W$, 2525m, 01 Feb 2003 (C. Peña), in the MUSM. *Paratypes:* **PERU:** LA LIBERTAD: Cumpang, between Tayabamba and Ongón, [$08^{\circ}12'S$, $77^{\circ}10'W$], 2400-2700m, 20 Oct 1979 (T. Parker), 1 male; AMAZONAS: Abra Pardo Miguel, $05^{\circ}42'S$, $77^{\circ}48'W$, 2200m, 10 Nov 1998 (G. Lamas), 1 female; Alva (near Chachapoyas) [$06^{\circ}13'S$, $77^{\circ}52'W$], 03 May 1974 (R. A. Mittermeier), 1 male; Alto Río Nieva, $05^{\circ}40'S$, $77^{\circ}47'W$, 2300m, Feb 2002 (B. Calderón), 2 males; SAN MARTÍN: P.N. Abiseo, Huicungo, Macedonio, [$07^{\circ}40'S$, $77^{\circ}26'W$], 2400-2660m, 01-2 Aug 1990 (M. Medina), 2 males; P.N.

Abiseo, Huicungo, La Playa, [$07^{\circ}40'S$, $77^{\circ}26'W$], 2480-2680m, 23-26 Jul 1990 (M. Medina), 4 males, 1 female; HUÁNUCO: Carpish, túnel, $09^{\circ}43'S$, $76^{\circ}05'W$, ca. 2800m, 25 Jan 2003 (C. Peña), 1 female; Carpish, $09^{\circ}43'S$, $76^{\circ}06'W$, 2700-2800m, 08 Jun 1995 (G. Lamas), 1 female; PASCO: Palcamayo, $10^{\circ}25'S$, $75^{\circ}35'W$, 2000-2200m, 20 Jul 2003 (J. Boettger), 1 male; La Antena, $10^{\circ}38'S$, $75^{\circ}17'W$, 2875m, Jul 2003 (J. Boettger), 1 male; near Oxapampa, ca. $10^{\circ}35'S$, $75^{\circ}24'W$, 2500m, May 2003 (J. Boettger), 9 males, 1 female; Oxapampa, Quebrada San Alberto (P.N. Yanachaga-Chemillén) $10^{\circ}32'42.3''S$, $75^{\circ}21'18.9''W$, 2450m, 18 Jun 2000 (J. Santisteban), 1 male; P.N. Yanachaga-Chemillén, Cumbre San Alberto, 2600m, 28 Oct 1994 (J. Icochea *et al.*), 1 male; PNYCH Refugio El Cedro, $10^{\circ}33'S$, $75^{\circ}21'W$, 2390-2850m, 11 Oct 2002, 01-06 Feb 2003 (C. Peña, J. Wojtusiak, B. Benedek), 13 males, 2 females; JUNÍN: Chukisynca, $11^{\circ}14'S$, $75^{\circ}32'W$, 2-2400m, 05 Oct 1967 (P. Hocking), 3 males. All in the MUSM.

Etymology: The Latin word *pilosa* means «hairy» and denotes the conspicuous male androconia on VFW.

Distribution: Known from northern (Amazonas) to central Peru (Junín), along the east Andean slopes, but should occur farther south, in Bolivia.

Discussion: The proper identification of some very worn males, and females, of *F. pilosa* can be difficult, being easily confused with *F. falcata*, but both species can be distinguished by their diagnostic characters. The number and size of the white spots on the VFW apex is a very variable and unreliable character. The autapomorphy male androconia on VFW and sympatric distribution with the most related species lead to its recognition as a new species.

Forsterinaria falcata Peña & Lamas, sp. n.

(Figs. 9F, 10C)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: Within the *pichita*-group, *F. falcata* has the distinctive character FW apex slightly falcate, but less so than in the distantly

related *F. quantius* (Figs. 4C-D), easily distinguished from the latter by the absence of the large yellowish dot in VHW Rs-M₁. The VFW postdiscal line is thicker than in *F. rustica* and *F. pilosa*, but thinner when crossing the veins, giving the appearance of being discontinuous, broken at the veins. In genitalia, the valvae are elongated, specially the posterior tip that is longer than in *F. pilosa* (Fig. 10B); aedeagus tubular and straight, almost not widened at medial part as it is in *F. pilosa*.

Male (Fig. 9F): FW length: 24-26 mm (n = 11). **Head:** ventral surface of labial palpi densely covered with hairs, with many scattered gray scales. **Thorax:** femur covered with brown scales, tibia and tarsus with light brown and gray scales. **Abdomen:** ventral surface densely covered with brown scales; **genitalia** (Fig. 10C), valva similar to *F. punctata*, but not curved ventrally in lateral view, distal process slightly curved towards the inner side, tip thicker than in *F. punctata*, a rudimentary dorsal process; aedeagus with no constriction between the dorsal and ventral openings. **Forewing:** apex acute and slightly truncated and falcate (less so than in *F. quantius*), distal margin convex; dorsal surface uniformly brown, with an inconspicuous darker line running parallel to the distal margin, and very slight androconia on the discal area; ventral surface same as above, but inner and distal marginal areas pale, usually with three medium-sized and subrectangular white apical spots, that in R₄-R₅ smaller than those in R₅-M₁ and M₁-M₂; M₂-M₃ with a light sprinkling of white scales; postdiscal line inconspicuous, running from costal margin to M₃, submarginal line almost non-undulated, reaching CuA₁. **Hindwing:** costal margin almost straight until discal cell, distal margin rounded; dorsal surface brown, with inner margin paler, an inconspicuous darker line runs parallel to the distal margin; ventral surface brown with distal, inner, submarginal, and marginal areas lighter brown, five very small submarginal white dots in Rs-M₁, M₁-M₂, M₂-M₃, M₃-CuA₁ and CuA₁-

CuA₂, and four brown transverse lines: discal thick, broken at discal cell, touching the inner margin; postdiscal with undulation pattern very similar to that in *F. pilosa*, but less undulated than in *F. falcata*, becoming thin when crossing the veins, giving the appearance of being discontinuous and broken by them, segment between Rs and M₃ not undulated but sinuous; submarginal slightly narrower than the others, with undulation formed by crescents, segment in M₂-M₃ more pronounced proximally; and marginal very thin, without undulations, parallel to distal margin.

Female: Unknown. Probably similar to the male, somewhat lighter in color and slightly larger.

Type material: *Holotype* male, **PERU:** AMAZONAS: 2km NW Ocol, 06°15'S, 77°35'W, 2550m, 19 Aug 1998 (J. Grados), male genitalia preparation, #CPB-076, in the MUSM. *Paratypes:* **PERU:** AMAZONAS: Pomacochas, 05°49'S, 77°58'W, 2500m, Jun 2002 (B. Calderón), 1 male; Molinopampa, 06°12'S, 77°40'W, 2400-2500m, Feb 2002, Jan 2003 (B. Calderón), 4 males; Molinopampa, vía Granada, [06°12'S, 77°40'W], 3000-3200m, Sep 2002 (B. Calderón), 2 males; Chachapoyas [06°14'S, 77°53'W, 2343m], 1889 (M. de Mathan), 1 male; Abra Pardo Miguel, 05°42'S, 77°48'W, 2200m, Aug 2002 (B. Calderón), 1 male; **LA LIBERTAD:** Cumpang, between Tayabamba and Ongón, [08°12'S, 77°10'W], 2400-2700m, 20 Oct 1979 (T. Parker), 1 male. All in the MUSM.

Etymology: The Latin word *falcata*, is a feminine adjective in the nominative singular, meaning «having the form of a sickle», in reference to the FW apex shape.

Distribution: Only known from the eastern slopes of the Andes, in the departments of Amazonas and La Libertad, Peru.

Discussion: The VFW apical spots represent a variable character, and may be reduced in number to just one (as in the individual from La Libertad). The VHW white dots may be larger in some individuals, resembling those found in *F. pseudinornata*. The presence of the homoplastic character FW apex falcate, and

differences en genitalia supports the recognition of *F. falcata* as new species.

Forsterinaria rotunda Peña & Lamas, sp. n.

(Figs. 11A-B, 10D)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: Similar to *F. falcata* (Fig. 9F), but may be distinguished by the HW postdiscal line, which shows homogeneous undulation; and a white dot in HW cell Sc+R₁-Rs; presents a DFW compact androconial patch, like in *F. pichita* (Figs. 8F-9A). HW outer marginal shape is almost rounded, when compared with remainder species in the *pichita*-group. The genitalia presents a particular characteristic in the genus -a depressed and robust tegumen. The valvae are similar to *F. guanilo* (Fig. 10A), and exhibits an aedeagus having the anterior tip somewhat shortened, shorter than *F. guanilo* in lateral view.

Male (Fig. 11A): FW length: 23-26 mm (n = 26). **Head:** labial palpi brown, densely hairy, the inner side bears lighter hairs than outside. **Thorax:** femur covered with dark brown hairs, tibia and tarsus densely covered with scales, lighter brown than on femur. **Abdomen: genitalia** (Fig. 10D) with broad (in dorsal view) and depressed tegumen, uncus slightly elongated and broad, valva rhomboidal, tip slightly elongated (like in *F. pilosa*), with a weak dorsal process slightly smaller than in *F. pyrzi*; aedeagus shorter than in *F. guanilo*. **Forewing:** distal margin slightly convex; dorsal surface dark brown, unmarked, compact androconia on discal area, invading cells M₃-CuA₁, CuA₁-CuA₂, CuA₂-2A; ventral surface of the same color as above but distal margin, tornus and inner margin lighter brown, with inconspicuous postdiscal brown line from costal margin to M₃; conspicuous submarginal line made up of crescents, reaching 2A; non-undulated marginal line, parallel to distal margin; a series of apical and submarginal white spots and dots, somewhat varying in number and size; besides a white dot in R₃-R₄, the holotype has two uneven small spots in R₄-R₅ and R₅-M₁,

but other individuals have 1-2 dots in R₄-R₅, and a medium spot in R₅-M₁; the holotype has a series of white dots in M₁-M₂, M₂-M₃, M₃-CuA₁, and CuA₁-CuA₂, whereas other individuals present a medium spot in M₁-M₂ and dots in M₂-M₃ and M₃-CuA₁, that may be absent. **Hindwing:** rounded; dark brown dorsal surface unmarked, inner margin slightly lighter brown; ventral surface same as above, but distal margin, submarginal area, anal angle and inner margin lighter, with four brown transverse lines: distal almost straight, running from costal to inner margins; postdiscal with homogeneous undulations along its entire length; submarginal thinner than the latter, with similar undulations in a zig-zag pattern; non-undulated marginal, parallel to the distal margin; six submarginal white dots in Sc+R₁-Rs to CuA₁-CuA₂, usually an extra one in 2A-3A.

Female (Fig. 11B): FW length: 25 mm (n = 2). Similar to the male, but FW distal margin not so convex, VFW lighter brown, with a white dot in R₃-R₄ and R₄-R₅, a medium white spot in R₅-M₁, and white dots in M₁-M₂, M₂-M₃ and M₃-CuA₁; HW postdiscal line less undulated.

Type material: *Holotype* male, **PERU:** AMAZONAS: Molinopampa, vía Granada, [06°12'S, 77°40'W], 3000-3200m, Sep 2002 (B. Calderón), male genitalia preparation, #CPB-096, in the MUSM. *Paratypes:* **PERU:** AMAZONAS: Molinopampa, vía Granada, [06°12'S, 77°40'W], 3000-3200m, Sep 2002 (B. Calderón), 6 males; Alto Río Nieva, 05°40'S, 77°47'W, 2300m, Feb 2002 (B. Calderón), 1 male, 2 females; 5km N Molinopampa, 06°10'S, 77°39'W, 3000m, 20 Aug 1998 (J. Grados), 1 male; Molinopampa, 06°10'S, 77°39'W, 3000m, 20 Aug 1998 (G. Lamas), 1 male; **LA LIBERTAD:** Cumpang, between Tayabamba and Ongón, [08°12'S, 77°10'W], 2400-2700m, 12 Oct 1979 (T. Parker), 1 male; **SAN MARTÍN:** P.N. Abiseo, Huicungo, La Playa, [07°40'S, 77°26'W], 2480-2680m, 23-27 Jul 1990 (M. Medina), 6 males; P.N. Abiseo, Huicungo, Las Palmas, [07°40'S, 77°26'W], 2100-2680m, 23 Aug 1990 (M. Medina), 1

male; P.N. Abiseo, Huicungo, Macedonio, [07°40'S, 77°26'W], 2400-2660m, 01 Aug 1990 (M. Medina), 1 male; P.N. Abiseo, Huicungo, La Playa, [07°40'S, 77°26'W], 2650m, Jul 1988 (M. Romo), 1 male; PASCO: Palcamayo, 10°25'S, 75°35'W, 2000-2200m, 20 Jul 2003 (J. Boettger), 4 males; La Antena, 10°38'S, 75°17'W, 2875m, Jul 2003 (J. Boettger), 1 male; P.N. Yanachaga-Chemillén, Refugio El Cedro, 10°33'S, 75°21'W, 2400m, 03-05 Feb 2003 (J. Wojtusiak or A. Kun), 6 males. All in the MUSM.

Etymology: The Latin word *rotunda* means «round-shaped», indicating the rounded shape of the HW.

Discussion: There is variation in the series of FW white dots and spots, the Amazonas populations exhibiting medium-sized spots in R_5 - M_1 and M_1 - M_2 , while the populations of La Libertad and San Martín have only two smaller spots in R_4 - R_5 and R_5 - M_1 . Due to the fact that the size and number of white spots and dots are variable in other *Forsterinaria* species, the geographic variation of this character, as shown by *F. rotunda*, should not be regarded as representing subspecific differentiation. *F. rotunda* presents a white dot in HW cell 2A-3A, which is a constant feature found both in males and females, being difficult to notice in worn individuals. Because other *Forsterinaria* species do not present this trait, we regard it as a diagnostic character (autapomorphy) for the species. There are individuals of *F. rotunda* which are markedly darker than others from the same locality, implying that this could represent an instance of melanism. The occurrence of melanism in *F. rotunda* and other species (e.g. *F. proxima*) suggests this is a common phenomenon within the genus.

Forsterinaria difficilis (Forster, 1964)

(Figs. 11C, 10E)

Haywardina difficilis Forster, 1964: 114, fig. 118, pl. 32, figs. 9-10. Type locality: «Bolivia» [error?].

Holotype male, ZSBS [examined].

Forsterinaria difficilis: Gray, 1973: 171.

Euptychia anophthalma: D'Abrera, 1988: 779, fig. [misidentification].

«*Forsterinaria*» [*Paryphthimoides*??] *difficilis*: Racheli & Racheli, 2001: 327.

Forsterinaria difficilis: Lamas, 2004: 219.

Identification and taxonomy: FW length: 24-28 mm (n = 8). Lacks VHW black, white-pupilled ocelli; the postdiscal line presents a peculiar pattern of undulation different to that in *F. rustica rustica* (Fig. 11D-E). FW and HW are brown, much lighter than in *F. rotunda* (Figs. 11A-B) and *F. pichita* (Figs. 8F-9A). The segment of the postdiscal line between CuA_1 and CuA_2 on VHW is concave, a character shared with *F. punctata* (Fig. 8C), but the latter has a more undulated postdiscal line. Genitalia similar to distantly related *F. punctata* (Fig. 7C), but in lateral view the upper border of the valva is straight; dorsal process of valva much smaller than in *F. rustica* (Fig. 10F); uncus thin without the dome and rugosity present in *F. rustica*. The population of San Martín, Peru, has the VFW white apical spots somewhat larger and more diffuse than in the holotype. As this character is very variable in *Forsterinaria*, this difference is not regarded as of subspecific value.

Material examined: **COLOMBIA**: Cañón del Tolima, 2500m, Dec 1909 (A.H. Fassl), 1 male (BMNH); **ECUADOR**: Ambato (I. Blanc), 1 male (MUSM); Loja, 1 male (BMNH); **PERU**: CAJAMARCA: Tabaconas, 05°19'S, 79°17'W, 2100m, Jul 2003 (M. Tafur), 3 males (MUSM); SAN MARTÍN: P.N. Abiseo, Huicungo, Macedonio, 2400-2660m, 01 Aug 1990 (M. Medina), 2 males (MUSM); P.N. Abiseo, Huicungo, Las Palmas, 2100-2680m, 07 Aug 1990 (M. Medina), 1 male (MUSM); P.N. Abiseo, Huicungo, La Playa, 2480-2680m, 24 Jul 1990 (M. Medina), 2 males (MUSM); P.N. Abiseo, Huicungo, La Playa, 2650m, Jul 1988 (M. Romo), 1 male (MUSM); P.N. Abiseo, Huicungo, Quebrada El Peligro, 2045m, 11, 14 Aug 1990 (M. Medina), 2 males (MUSM); «**BOLIVIA**»: 1 male, no additional data (ZSBS) [holotype of *difficilis*].

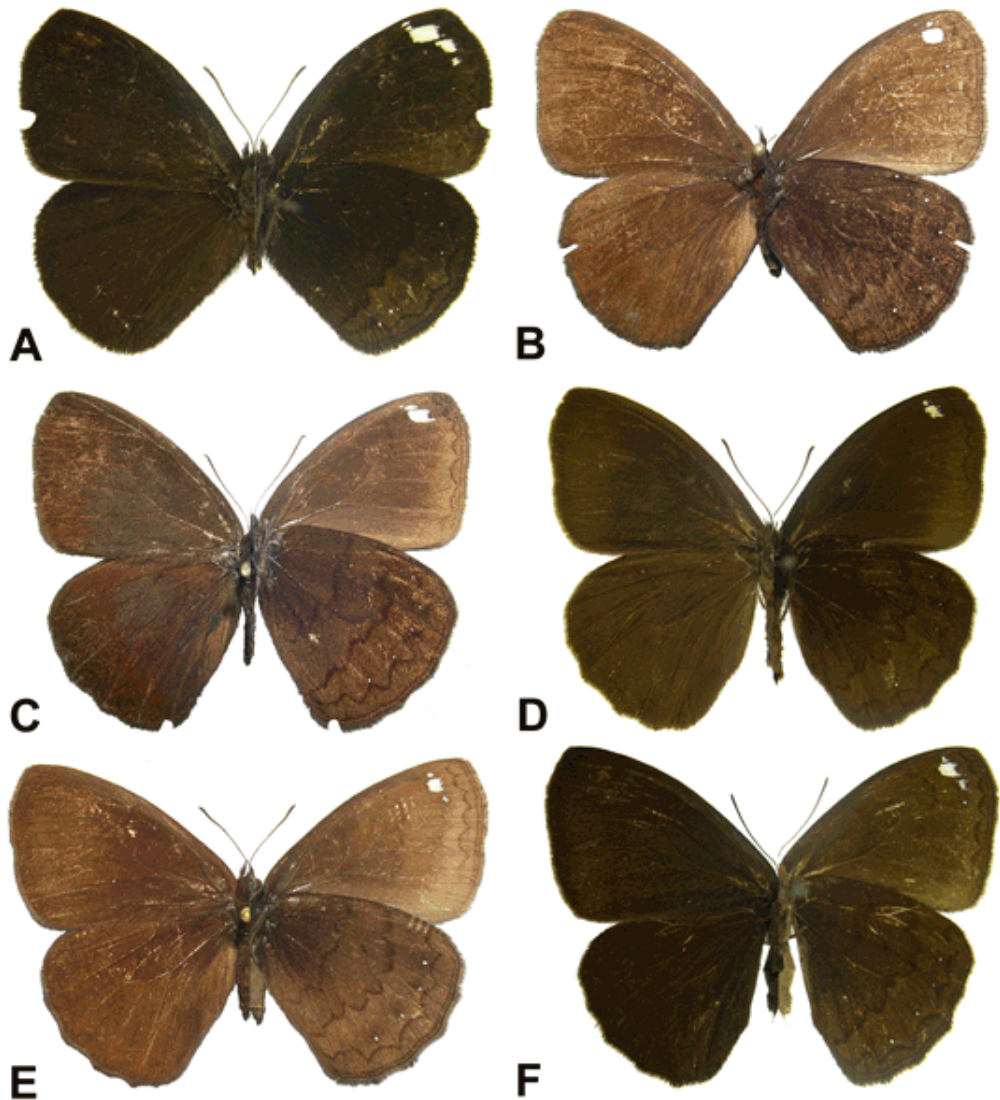


Figure 11. Adults of *Forsterinaria* (dorsal surface on left; ventral surface on right). A, *F. rotunda* sp. n. holotype male; B, *F. rotunda* sp. n. paratype female; C, *F. difficilis* male; D, *F. rustica rustica* male; E, *F. rustica rustica* female; F, *F. rustica villarresi* male.

Distribution: Known from the eastern slopes of the Andes from Colombia south to northern Peru (departments of Cajamarca and San Martín).

Discussion: Forster (1964) based his description of *Haywardina difficilis* on a single specimen supposedly collected in Bolivia (the holotype). In addition, he examined one male and two females from Cajamarca, Peru, which he regarded as potential members of his new species. Because all specimens of *F. difficilis* we have examined, matching the holotype

precisely, have been collected in northern Peru, Ecuador and Colombia, it is possible that the type locality of Bolivia is erroneous. However, we do not discard the possibility that *F. difficilis* might occur in Bolivia as well. Further survey work should clarify this situation.

***Forsterinaria rustica rustica* (Butler, 1868)**

(Fig. 11D-E)

Euptychia rustica Butler, 1868: 32, pl. 1, fig. 4. Type locality: Bolivia. **Lectotype** male (designated herein),

BMNH [examined].

Euptychia russica [sic]: Kirby, 1871: 53.

Euptychia rustica: Butler, 1873: 219; Butler, 1877: 120; Weymer & Maassen, 1890: 61; Weymer, 1911: 210, pl. 47g, fig. [1]; Racheli & Racheli, 2001: 325.

Euptychia necys var. *rustica*: Gaede, 1931: 456.

Haywardina rustica: Forster, 1964: 111, 116, fig. 114.

Forsterinaria rustica: Gray, 1973: 172; Lamas, 2003: 69, 203, fig. 272.

Forsterinaria rustica rustica: Lamas, 2004: 219.

Identification and taxonomy: FW length: Male 23-26 mm (n = 45); female 25-26 mm (n = 2). Can be distinguished from all other species presenting FW white spots and apical dots, by the very undulated HW postdiscal line, composed by almost semicircular segments, that in CuA_1 - CuA_2 with larger amplitude than in *F. rotunda*; in the remaining species this line has shallower undulation and/or pointed segments. Genitalia with reduced tegumen, and well-developed uncus, with dorsal surface rugous as in *F. enjuerma*, large valva with well-developed tip, curved inwardly as in *F. boliviana*, with a strong dorsal process as in *F. enjuerma*; aedeagus elongated and tubular.

The **LECTOTYPE** male of *Euptychia rustica* is deposited in the BMNH and bears the following labels: «B.M.(N.H.)/Rhopalocera/Slide No./13,234», «Slide No. M-1177/Lee D. Miller», «E. Rustica/Butler type», «Bolivia./Pur from/Bridges/46 – 76», «B.M. TYPE/No. Rh 3234/Euptychia/rustica/male Butl.», «Bolivia», «Type».

Material examined: **PERU:** JUNÍN: Cor-dillera de Vilcabamba, 11°33'S, 73°38'W, 2015-2050m, 21-30 Jun 1997 (A. Sánchez), 1 female (MUSM); AYACUCHO: 2km E Jano, 12°46'S, 74°00'W, 2550m, 23 Jan 1999 (G. Lamas), 3 males (MUSM); CUZCO: 0-7km E Buenos Aires, Río Cosñipata, 2-2300m, 5 Jul 1979 (G. Lamas), 1 male (MUSM); Ccasapata, 13°24'S, 73°10'W, 2400m, 06-08 May 1998 (P. Hocking, P. Parrillo), 4 males (MUSM); Quebrada Chaupimayo, 12°57'S, 72°40'W, 1200-1500m, 23 Feb 1996 (G. Lamas), 1 male (MUSM); Quebrada San Luis, 13°05'S, 72°23'W, 2700-3000m, 25 Feb 1996,

14, 18 May 2003 (A. Brower; T. Pyrcz), 4 males, 1 female (MUSM); Río Cosñipata, Quebrada Morro Leguía [13°08'S, 71°35'W], 2150m, 28-30 Aug 1989 (G. Lamas), 1 male (MUSM); Río Santa María, Alfamayo, 2500m, 7 Oct 1981 (G. Lamas), 1 male (MUSM); Yanamayo, Río Cosñipata, [13°09'S, 71°35'W], 2000m, 4-11 Feb 1975 (G. Lamas), 14 males (MUSM); Pillahuata [13°08'S, 71°25'W], 2500m, 15 Aug 1982 (M. Matthews), 1 male (MUSM); Pillahuata [13°08'S, 71°25'W], 2500m, 19 May 1984 (G. Lamas), 1 male (MUSM); S.H. Machu Picchu, Mándor, 13°09'S, 72°33'W, 1950m, 20-22 May 1997 (G. Lamas, J. Grados, G. Valencia), 4 males (MUSM); S.H. Machu Picchu, Mándor, 13°09'S, 72°33'W, 1950m, 30 Oct 2001 (G. Lamas), 1 male (MUSM); S.H. Machu Picchu, between Intipunco and Wiñaywayna, 13°10-1'S, 72°32'W, 2700m, 22 Oct 2001 (G. Lamas), 3 males (MUSM); Acjanaco, 13°12'S, 71°37'W, 2200m, 22, 27 May 2003 (T. Pyrcz), 2 males, 1 female (MUSM); PUNO: Agualani, [14°06'S, 69°41'W], 10 000 ft. (G. Ockendern), 1 male (BMNH); **BOLIVIA:** 1 male, no additional data (BMNH) [lectotype of *rustica*]; Yungas de la Paz, Unduavi, [16°19'S, 67°54'W], 2300m, 08 Sep 2002 (T. Pyrcz), 2 males, 1 female (MUSM); Cochabamba, Yungas del Espíritu Santo, [17°06'S, 65°40'W], 1888-89 (P. Germain), 3 males (MUSM); Prov. Cochabamba, Aug 2000 (T. Pyrcz), 1 male (MZUJ); Cochabamba, Paracito, 2400m, 15 Aug 2000 (T. Pyrcz), 1 male (MZUJ); Cochabamba, Via Cochabamba, Sillar Alto, ca. 2000m, 12 Aug 2000 (T. Pyrcz), 1 male (MZUJ); Cochabamba, Aug 2000 (T. Pyrcz), 1 male (MZUJ).

Distribution: Occurs on the eastern slopes of the Andes, from the southern part of the department of Junín, south to Bolivia.

Discussion: The populations of *Forsterinaria rustica* are separated herein into three subspecies, *F. r. rustica*, *F. r. glendita* **ssp. n.** (described below) and *F. r. villarresi*. The criterion for the recognition of these entities is based on three distinctive co-

lor pattern phenotypes present in three groups of populations that may be or have been isolated geographically during the history of the species. The putative barriers that may have promoted subspeciation in *F. rustica* are hypothesized according to the current known distributions of the subspecies. The deep valley of the Río Marañón in northern Peru may have separated the populations of *F. r. villarresi* and *F. r. glendita*, while the valleys of the Ene and Apurímac rivers, in central-southern Peru, would have isolated *F. r. glendita* and *F. r. rustica*.

The morphological differences observed pertain only to the color pattern while the genitalia is the same in all subspecies. Even though we have no evidence of sympatry, parapatry, or gene flow between the three sets of populations, we regard the degree of dissimilarity observed, discussed under each subspecies, as not significant enough to recognize them as separate species.

***Forsterinaria rustica villarresi* (Dognin, 1887)**

(Fig. 11F-12A)

Lymanopoda villarresi Dognin, 1887: 173, fig. 1. Type locality: Ecuador, [Zamora-Chinchipe], «vallée de la Zamora». **Lectotype** male (designated herein), BMNH [examined].

= *Euptychia weyrauchi* Hayward, 1964b: 169, fig. Type locality: Perú, [Cajamarca], between Súcota and San Andrés, 2750m. **Holotype** male, IML [examined].

Lymanopoda villarresi: Weymer 1912: 249; Gaede, 1931: 488.

Euptychia umbracea: D'Abbrera, 1988: 779, fig. [misidentification].

«*Forsterinaria*» *anophtalma villarresi* [sic]: Racheli & Racheli, 2001: 327.

Forsterinaria rustica villarresi: Lamas, 2004: 219.

Identification and taxonomy: FW length: Male 24-26 mm (n = 13); female 27 mm (n = 1). Can be distinguished from the nominotypic subspecies by the VHW postdiscal line running close to the distal tip of the discal cell, while in *F. r. rustica* is more distal; 2-4 VFW white apical spots, from R₄-R₅, to M₂-M₃, some of them may be absent, usually with only two small spots in R₄-R₅ and R₅-M₁, that in R₅-M₁ always larger than in *F. r. rustica*.

The **LECTOTYPE** male of *Lymanopoda villarresi* is deposited in the BMNH and bears the following labels: «Type/HT», «Zamora/ÉQUATEUR/1885/ Abbé Gaujon», «Presented by/J.J.Joicey Esq./Brit.Mus.1931-291.», «32. 21./Ex. Coll./ Dognin./1921.», «Lymanopoda/Villarresi [sic] Dog./type qui a servi à la description/et à la figure».

Material examined: **COLOMBIA:** Antioquia, Los Llanos, vía Andres km 10-14, 2600-2750m, 14 Sep 2003 (T. Pyrcz), 1 male (MZUJ); de Bogotá à Buenaventura, 14 Dec [18]77 - 22 Feb [18]79 (O. Thieme), 1 male (BMNH); **ECUADOR:** Zamora, 1 male (BMNH) [lectotype of *F. villarresi*]; Chimborazo, 1 male (BMNH); Env. d'Ambato (R. P. Irenée Blanc), 1 male (MUSM); Zamora, 03°57'S, 79°05'W, 2300m, 4 Feb 2002 (I. Aldas), 4 males (MUSM); Carchi, Res. Forest. Golondrinas, [00°50'N, 78°10'W], 2350-2600m, 22-27 Jun 1999 (Wojtusiak & Pyrcz), 5 males (MZUJ); Imbabura, Buenos Aires, 00°35'N, 78°17'W, 2800m, Jul 2002 (I. Aldas), 1 male, 1 female (MUSM); **PERU:** PIURA: Cerro Chinguela, 5km NE Sapalache, [05°40'S, 77°47'W], 7500-8500', Dec 1979 (T. Parker), 1 male (MUSM); CAJAMARCA: between Súcota and San Andrés, 2750m, 23 Jan 1959 (W. Weyrauch), 1 male (IML) [holotype of *E. weyrauchi*]; Naranja, 06°16'S, 78°51'W, 2300m, 6 Nov 1998 (G. Lamas), 1 male (MUSM).

Distribution: *Forsterinaria rustica villarresi* is known from Colombia, Ecuador, and the departments of Piura and Cajamarca in northern Peru.

***Forsterinaria rustica glendita* Peña & Lamas, ssp. n.**

(Figs. 12B-C, 10F)

Euptychia rustica: Druce, 1876: 213.

Forsterinaria rustica [n. ssp.]: Lamas, 2004: 219.

Diagnosis: *F. r. glendita* is distinguished from the other *F. rustica* subspecies by having several big white spots on VFW apex; and the postdiscal line well separated from the discal cell on VHW.

Male (Fig. 12B): FW length: 23-27 mm (n = 41). The white spots on the VFW apex usually well developed, larger than in *F. r. rustica*. VHW postdiscal line very undulated, segment in M_3 - CuA_1 separate from the discal cell, more distal than in *F. r. villarresi*; genitalia (Fig. 10F) essentially similar to the other *F. rustica* subspecies.

Female (Fig. 12C): FW length: 25 mm (n = 1). Similar to the male, but slightly lighter brown on both pairs of wings, dorsally and ventrally.

Type material: Holotype male, **PERU**: P.N. Yanachaga-Chemillén, Refugio El Cedro, 10°33'S, 75°21'W, 2390m, 11 Oct 2002 (C. Peña), male genitalia preparation, #CPB-088, in the MUSM. *Paratypes*: **PERU**: LA LIBERTAD: Cumpang, between Tayabamba and Ongón, [08°12'S, 77°10'W], 2400-2700m, 12 Oct 1979 (T. Parker), 1 male; AMAZONAS: Alto Río Nieva, 05°40'S, 77°47'W, 2300m, Feb 2002, Feb 2003 (B. Calderón), 7 males; Chachapoyas [06°14'S, 77°53'W, 2343m], 1889 (M. de Mathan), 1 male; Mendoza, Quebrada Piruro 06°23'S, 77°26'W, 1800-2000m, Aug 1998 (B. Calderón), 1 male; Abra Pardo Miguel, 05°42'S, 77°48'W, 2200m, 11 Jun 2000 (G. Lamas), 1 male; SAN MARTÍN: P.N. Abiseo, Huicungo, La Playa, [07°40'S, 77°26'W], 2480-2680m, 26 Jul 1990 (M. Medina), 1 male; HUÁNUCO: Carpish, [09°43'S, 76°06'W], 2700m, 2 May 1978 (G. Lamas), 1 male; 5km N Carpish, 09°42'S, 76°05'W, 2500m, 26 Sep 1996 (J. Grados), 1 male; Carpish, 09°43'S, 76°06'W, 2700-2800m, 8 Jun 1995 (G. Lamas), 1 female; PASCO: near Oxapampa, ca. 2500m, May 2003 (J. Boettger), 5 males; P.N. Yanachaga-Chemillén, Refugio El Cedro, 10°33'S, 75°21'W, 2340-ca.2800m, 11-13 Oct 2002, 31 Jan-06 Feb 2003 (C. Peña; J. Wojtusiak), 20 males; Palcamayo, 10°25'S, 75°35'W, 2000-2200m, 20 Jul 2003 (J. Boettger), 2 males; La Antena, 10°38'S, 75°17'W, 2875m, Jul 2003 (J. Boettger), 2 males; JUNÍN: Quebrada Malambo, 11°15'S, 75°35'W, 2700m, 23-26 Jan 2003, 10 Nov 2003 (T. Pyrcz, G. Lamas, C.

Peña), 4 males; 1km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 9 Sep 2002 (J. Grados), 1 male; Quebrada Siete Jeringas 11°12'S, 75°24'W, 1800m, 4 Oct 1996 (F. Chang), 1 male; Chukisyunca [11°14'S, 75°32'W, 2400m], 5 Oct 1967 (P. Hocking), 2 males. All in the MUSM.

Etymology: This species is named after a good friend of one of us (CP), Glenda Mendieta.

Distribution: Known from the eastern slopes of the Peruvian Andes, from Amazonas south to Junín.

Forsterinaria antje Peña & Lamas, sp. n.

(Figs. 12D-E, 13A)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: Very similar to *F. pichita* (Figs. 8F-9A), but may be separated by having the FW tornus less obtuse, and VFW submarginal area light brown, thinner and better defined; HW with the submarginal sector, where the white dots are located, darkened, decreasing in intensity from the costal margin to CuA_1 - CuA_2 . The genitalia is different from *F. pichita* (Fig. 7F), by having elongated valvae, longer posterior tip, a more developed dorsal process of valva; and a very shallow dome on uncus, absent in *F. pichita*.

Male (Fig. 12D): FW length: 24-26 mm (n = 30). **Head**: very dark brown; labial palpi dark brown, densely covered with hair-like scales ventrally, with a few light brown hairs scattered outwardly, more numerous inwardly. **Thorax**: femur covered with dark brown scales, tibia and tarsus densely covered with grayish scales. **Abdomen: genitalia** (Fig. 13A), uncus with small dome, a strong constriction between tegumen and uncus; valva elongated, with conspicuous dorsal process, distal process in lateral view curved towards the inner side, similar to valva in *F. boliviana*, but distal tip and dorsal process smaller; aedeagus tubular. **Forewing**: apex slightly truncate, tornus very slightly obtuse (less than in *F. pichita*), distal margin very slightly bilobed; dorsal surface dark brown, unmarked,

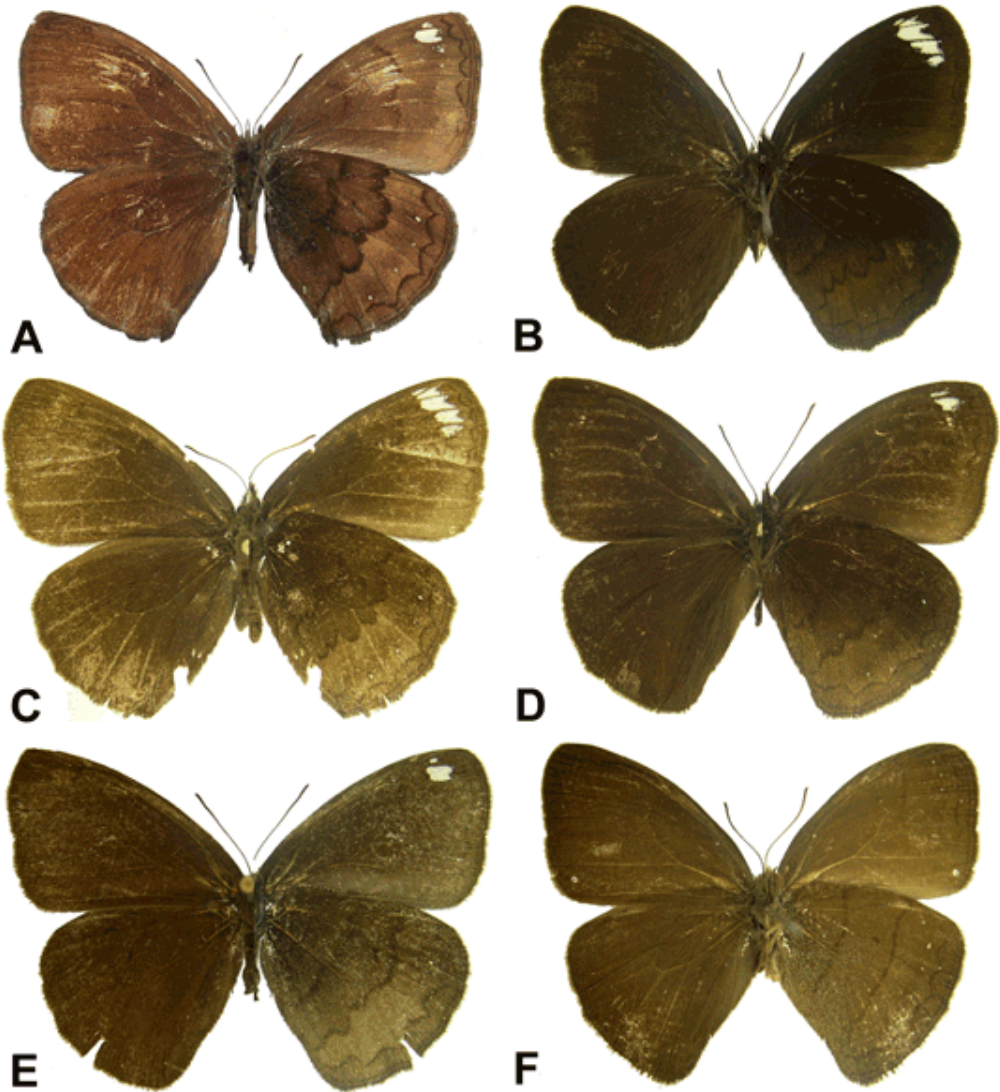


Figure 12. Adults of *Forsterinaria* (dorsal surface on left; ventral surface on right). A, *F. rustica villarresi* female; B, *F. rustica glendita* **ssp. n.** holotype male; C, *F. rustica glendita* **ssp. n.** paratype female; D, *F. antje* **sp. n.** holotype male; E, *F. antje* **sp. n.** paratype female; F, *F. inornata* male.

slightly developed androconial patch covering proximal sector of M_3 - CuA_1 , CuA_1 - CuA_2 and CuA_2 - $2A$, barely entering the discal cell; ventral surface same color as above, but marginal, outer and submarginal areas up to CuA_2 - $2A$ and inner margin lighter brown, the light submarginal area narrower than in *F. pichita*, with an inconspicuous dark, curved postdiscal line, from costal margin to M_3 , a dark, undulated submarginal line, usually with one small, elongated white spot in R_4 - R_5 , and a

large white spot in R_5 - M_1 . **Hindwing:** Costal margin slightly convex, distal margin less rounded than in *F. pichita*; dorsal surface dark brown, unmarked, inner margin lighter brown; ventral surface same color as above, but distal margin, submarginal area, anal angle and inner margin lighter brown, an inconspicuous, somewhat irregular, dark discal line; dark postdiscal, convex between costal margin and M_1 , with large convex undulation between M_1 and M_3 , four small undulated segments in M_3 -

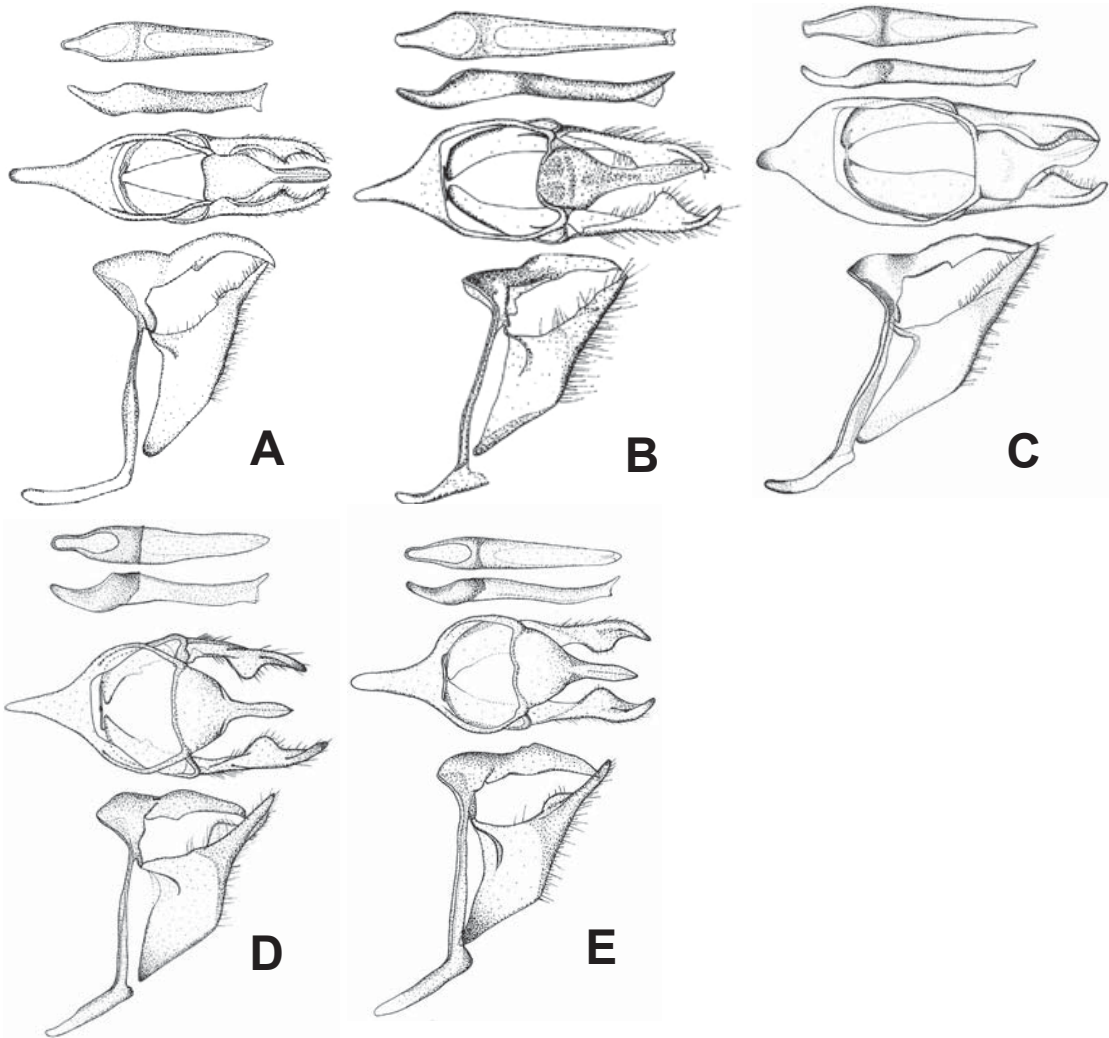


Figure 13. Male genitalia: A, *F. antje* sp. n.; B, *F. inornata*; C, *F. pallida* sp. n.; D, *F. boliviana*; E, *F. coipa* sp. n.

CuA₁, CuA₁-CuA₂, CuA₂-2A and 2A-inner margin; dark submarginal with moderate undulation (less than in *F. pichita*), and a non-undulated dark line parallel to the distal margin; some of the small white dots may be absent, submarginal sector slightly darkened becoming less obvious from costal margin to CuA₁-CuA₂.

Female (Fig. 12E): Very similar to the male, but lighter brown and slightly larger.

Type material: *Holotype* male, **PERU**: PASCO: P. N. Yanachaga-Chemillén, Refugio El Cedro, 10°33'S, 75°21'W, 2380m, 04 Feb 2003 (C. Peña), male genitalia preparation #CPB-123, in the MUSM. *Paratypes*: **PERU**:

PASCO: P. N. Yanachaga-Chemillén, Refugio El Cedro, 10°33'S, 75°21'W, 2290-2800m, 31 Jan-06 Feb 2003 (C. Peña, J. Wojtusiak, B. Benedek), 22 males, 1 female; Palcamayo, 10°25'S, 75°35'W, 2000-2200m, 20 Jul 2003 (J. Boettger), 20 males; PNYCH, Refugio El Cedro, 10°33'S, 75°21'W, 2350-2390m, 11-13 Oct 2002 (C. Peña), 5 males; Oxapampa-V[illa] Rica, Q[uebra]da Santa Cruz, 2000-2100m, 06 Oct 2002 (T. & J. Pyrcz), 1 male; JUNÍN: 1km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 12 Aug 2002 (C. Peña), 1 male. All in the MUSM.

Etymology: One of us (CP) dedicates with affection this pretty species to Antje Chiu.

Distribution: Only known from montane forests in the eastern Andes of central Peru.

Discussion: The darkened submarginal sector on VHW, and light brown submarginal area on VFW seem to be autapomorphies for the species, which combined with differential genitalic characters support the designation of *F. antje* as new species.

boliviana-group

Forsterinaria inornata (C. Felder & R. Felder, 1867)

(Figs. 12F, 13B)

Taygetis inornata C. Felder & R. Felder, 1867: 466. Type locality: Colombia, Bogotá. **Lectotype** female (designated herein), BMNH [examined].

= *Euptychia eusebia* Butler, 1877: 126, pl. 12, fig. 13. Type locality: Colombia, Bogotá. **Lectotype** male (designated herein), ZMHU [examined].

= *Euptychia magdalena* Hayward, 1957: 120, fig. 8. Type locality: Bolivia, [Cochabamba], Yungas de Palmar, 1000m. **Holotype** male, MLP [not examined].

New synonym.

Taygetis inornata: Butler, 1868: 13; Kirby, 1871: 110; Weymer, 1910: 192, pl. 46c, fig. [5]; Gaede, 1931: 432.

Euptychia eusebia: Kirby, 1877: 843; Weymer, 1911: 211, pl. 47g, fig. [5]; Gaede, 1931: 446.

Haywardina inornata: Forster, 1964: 111, 113, fig. 115.

Haywardina inornata magdalena: Forster, 1964: 114.

Euptychia inornata: D'Abbrera, 1988: 779, fig.; Parra *et al.*, 2000: 110.

Forsterinaria inornata: Gray, 1973: 171; Racheli & Racheli, 2001: 327.

Forsterinaria inornata inornata: Lamas, 2004: 219.

Forsterinaria inornata magdalena: Lamas, 2004: 219.

Identification and taxonomy: FW length: 24-28 mm (n = 9). Resembles *F. coipa* (Fig. 14E), but VHW yellowish scales less obvious, and postdiscal line much less undulated, very slightly undulated in Venezuelan populations, the degree of undulation decreasing towards the south, the line becoming almost straight in Peruvian populations (Pasco); discal line scarcely undulated. The genitalia is very conservative, being essentially similar to the other species in the group.

The **LECTOTYPE** female of *Taygetis inornata* is deposited in the BMNH and bears

the following labels: «inornata n.», «Type of Tay. inornata./Feld./= Eup. eusebia. Butl. female.», «Bogota/Lindig/Type», «inorna/ta/Feld», «Rothschild/Bequest/ B.M.1939-1.», «FELDER/COLLN.», «Type». The **LECTOTYPE** male of *Euptychia eusebia* is deposited in the ZMHU and bears the following labels: «Origin», «E. eusebia/Butler Type», «ex collect/Staudinger», «Präparat Nr.160/Zoolog. Staatssammlung/München», «Bogota/Nolcken», «Eigentum/Mus Berlin», «LECTOTYPE male/Euptychia eusebia/Butler/designated by: Lee D. Miller 1989».

Material examined: **COLOMBIA**: «Bogotá», 1 female (BMNH) [lectotype of *inornata*]; «Bogotá», 1 male (ZMHU) [lectotype of *E. eusebia*]; **ECUADOR**: Carchi, Res. Forest. Golondrinas, [00°50'N, 78°10'W], 1600-1850m, 21-30 Jun 1999 (Wojtusiak & Pycrz), 7 males (MZUJ); **PERU**: PASCO: 15km W Oxapampa, [10°37'S, 75°30'W], 2000m, 25 May 1978 (G. Lamas), 1 male (MUSM); Oxapampa, 1 male (BMNH); **BOLIVIA**: Cochabamba, Yungas del Espíritu Santo, [17°06'S, 65°40'W, 1400-1650m], 1888-89 (P. Germain), 1 male (MUSM).

Distribution: Known from the mountains («tepuyes») in southern Venezuela (photographs examined; Vilorio, pers. comm.), and along the Andes, from the Cordillera de Mérida in Venezuela south to Bolivia.

Discussion: Forster (1964) treated *E. magdalena* as a subspecies of *F. inornata* due to similarities in external morphology and male genitalia, stating it might even be synonymous with *F. inornata*, though he could not establish this for lack of enough material. The single Bolivian *F. inornata* specimen we have examined, collected by P. Germain in Cochabamba, should belong to *E. magdalena*. However, this specimen is undistinguishable from other *F. inornata* individuals we have studied, and thus we regard *E. magdalena* as a junior subjective synonym of *F. inornata*.

Forsterinaria pallida Peña & Lamas, sp. n.

(Figs. 14A, 13C)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: May be confused with *F. coipa* (Figs. 14E) but differs by having the postdiscal line on VFW invaginated at CuA₁, while it is straight in *F. coipa*; the postdiscal line on VHW is undulated but somewhat straight, while in *F. coipa*, the line is displaced proximally on sector M₁ to M₃.

Male (Fig. 14A): FW length: 26-27 mm (n = 5). **Head:** labial palpi densely covered with gray and brown hairs. **Thorax:** femur covered with yellowish-cream scales, and light brown, whitish and yellowish hairs; tibia and tarsus densely covered with yellowish and brown scales. **Abdomen: genitalia** (Fig. 13C), similar to *F. boliviana* but with more elongated valva, with smaller dorsal process, not curved dorsally, and inconspicuous in lateral view; uncus with shallow dome, smaller than in *F. boliviana*; aedeagus tubular. **Forewing:** apex less truncated than in *F. punctata*, tornus slightly obtuse, distal margin almost straight, weak dorsal androconia; ventral surface ground color same as above, inner margin lighter brown, distal margin and submarginal areas darkened, costal margin covered with yellowish scales, with a scarcely marked discal line inside discal cell; postdiscal line slightly undulated, may be excavate in CuA₁, reaching CuA₂, with four white submarginal dots in R₅-M₁ to M₃-CuA₁ (some of them may be absent); area between postdiscal line and the white dots slightly dusted with yellowish scales. **Hindwing:** dorsal surface with inner margin pale, distal margin and anal angle darkened; ventral surface with a straight discal line, irregularly undulated from costa towards inner margin; postdiscal line with similar undulation to that of *F. boliviana*, but segment between M₁ and M₃ almost without undulation, sector between costal margin and M₁ less undulated; submarginal line with undulation pattern similar to that in FW; non-undulated marginal line, parallel to distal margin; almost the entire wing

disc, except submarginal and external marginal areas, moderately dusted with yellowish scales.

Female: Unknown. Probably similar to the male and slightly larger.

Type material: *Holotype* male, **PERU:** SAN MARTÍN, Jorge Chávez, near [Abra] Pardo Miguel, ca. 05°42'S, 77°44'W, 2200-2400m, Feb 2003 (B. Calderón), male genitalia preparation, #CPB-138, in the MUSM. **Paratypes:** same data as holotype, 4 males. All in the MUSM.

Etymology: A feminine adjective in the nominative singular, meaning «uncolored» in Latin, in reference to the almost uniformly brown appearance of *F. pallida* in contrast to *F. boliviana*.

Distribution: Only known from the type locality, in the Andes of northeast Peru.

Discussion: There is some variation in the shape of the postdiscal line on VHW, the segment between costal margin and M₃ may be slightly more undulated than described in some specimens, but never as much as in *F. boliviana*.

Forsterinaria pallida aurita Peña & Lamas, ssp. n.

(Fig. 14B)

Euptychia ? *inornata*: D'Abbrera, 1988: 779, fig. [misidentification].

Forsterinaria [n. sp.] [n. ssp.]: Lamas, 2004: 219.

Diagnosis: *Forsterinaria pallida aurita* may be separated from the nominotypical subspecies by having the VHW area distad of the postdiscal line more heavily dusted with cream scales. Might be confused with *F. boliviana* (Figs. 14C-D), but is easily distinguished by not having the VHW tornal area densely covered with yellowish scales.

Male (Fig. 14B): FW length: 23-25 mm (n = 4). Similar to *F. p. pallida* but wings above and below lighter brown, VFW postdiscal line proximally excavate in CuA₁, and segment between postdiscal line and submarginal dots

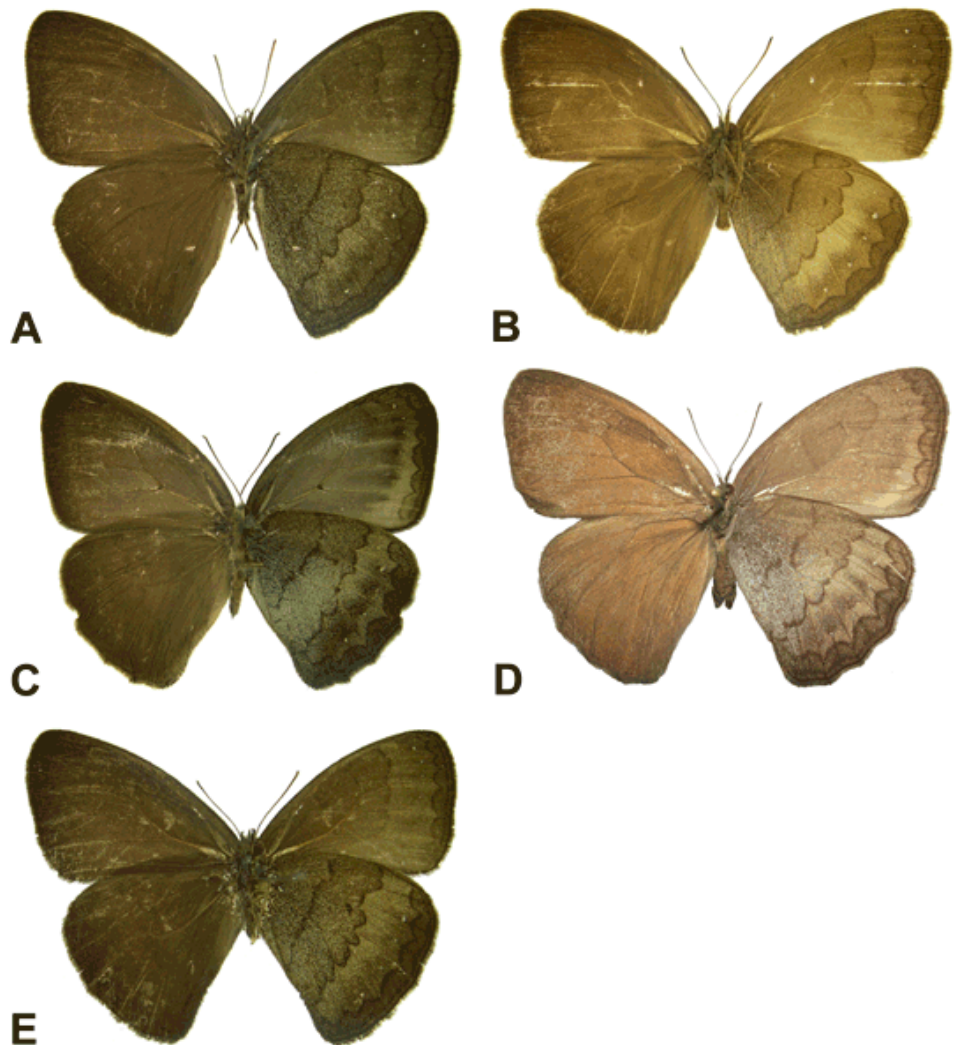


Figure 14. Adults of *Forsterinaria* (dorsal surface on left; ventral surface on right). A, *F. pallida* sp. n. holotype male; B, *F. pallida aurita* ssp. n. holotype male; C, *F. boliviana* male; D, *F. boliviana* female; E, *F. coipa* sp. n. holotype male.

dusted with more numerous cream scales; VHW covered with denser cream scales (similar to those in *F. boliviana*), from area behind the discal cell towards the inner margin, and area between the submarginal line and the white dots usually dusted with numerous cream scales. Genitalia as in *F. pallida pallida*.

Female: Unknown. Probably very similar to the male but slightly larger.

Type material: Holotype male, **ECUADOR:** Pichincha, Las Palmas, [0°09'N, 78°47'W], 1000m, 26 Jun 1989 (C. Callegari),

male genitalia preparation, #CPB-026, in the MUSM. *Paratypes:* **ECUADOR:** Bolívar, Balzapamba, [01°47'S, 79°13'W, 1700m], Sep 1893-Apr 1894 (M. de Mathan), 3 males (MUSM); Cañar, Manta Real nr. La Troncal, 500m, 14 Aug 1996 (J.P.W. Hall & K.R. Willmott), 1 male (BMNH).

Etymology: A feminine adjective in the nominative singular, derived from the Latin «auris», meaning «ear», in reference to the VFW postdiscal line, resembling in shape a stylized human ear.

Distribution: Known only from the western slopes of the Andes in Ecuador.

Discussion: Apparently, the valleys of the Marañón and Utcubamba in northern Peru act as a geographical barrier, separating the populations of *F. pallida* and *F. pallida aurita*.

Forsterinaria boliviana (Godman, 1905)

(Figs. 14C-D, 13D)

Euptychia boliviana Godman, 1905: 187, pl. 10, fig. 7. Type locality: Bolivia, [Cochabamba], San Jacinto, 6-8000'. **Lectotype** male (designated herein), BMNH [examined].

= *Haywardina vetula* Forster, 1964: 114. *Nomen nudum* in synonymy.

Euptychia boliviana: Weymer, 1911: 211, pl. 47g, fig. [6]; Gaede, 1931: 440; D'Abbrera, 1988: 779, fig.

Haywardina boliviana: Forster, 1964: 114, fig. 116.

?*Forsterinaria boliviana*: Racheli & Racheli, 2001: 327.

Forsterinaria boliviana boliviana: Lamas, 2003: 203.

Forsterinaria boliviana: Gray, 1973: 171; 2004: 219.

Identification and taxonomy: FW length: Male 24-26 mm (n = 20); female 24-27 mm (n = 4). Easily recognizable by the VFW costal, apical, outer and inner areas dusted with yellowish scales, and the VHW central and inner areas covered with whitish scales, more abundant than in *F. coipa* (Fig. 14E). Female very similar to the male, but wings lighter brown below, with two additional lines present on VFW, a discal brown one, tenuous and inconspicuous, and another postdiscal.

This species was described by Godman based on two male syntypes collected by one of the Garlepp brothers in San Jacinto, Cochabamba, Bolivia at 6000-8000 feet (1800-2400m) of elevation. We select the male syntype labeled «type», as the **LECTOTYPE** male of *Euptychia boliviana*, deposited in the BMNH and bearing the following labels: «Type H.T.», «male», «Godman-Salvin/Coll. 1904.-1./Euptychia/boliviana./Godm.», «B.M. TYPE/No.Rh 3237/Euptychia boliviana./male Godm.», «Type of Species.», «San Jacinto, / Bolivia,/6-8000ft./Garlepp.»

Material examined: **ECUADOR**: Napo,

km 49 Tena-Loreto, [00°41'S, 77°35'W], 1350m, 14-15 Mar 1995 (J.P.W. Hall & K.R. Willmott), 1 male (BMNH); **PERU**: AMAZONAS: Mendoza, Quebrada Yanahuayco, 06°24'S, 77°26'W, 1600-1800m, Aug 1998 (B. Calderón), 1 female (MUSM); **SAN MARTÍN**: Jorge Chávez, near [Abra] Pardo Miguel, ca. 05°42'S, 77°44'W, 2200-2400m, Feb 2003 (B. Calderón), 4 males, 2 females (MUSM); **PASCO**: Oxapampa, 10°35'S, 75°24'W, 1800m, Jun 1999 (I. Callegari), 1 male (MUSM); Oxapampa-V[illa] Rica, Quebrada Santa Cruz, [10°45'S, 75°22'W], 2000-2100m, 06 Oct 2002 (T. & J. Pyrcz), 1 male (MUSM); near Oxapampa, ca. 2500m May 2003 (J. Boettger), 2 males (MUSM); **JUNÍN**: Mina Pichita, Hda. Naranjal, [11°05'S, 75°25'W], 2000m, 12 Aug 1988 (G. Lamas), 1 male (MUSM); 1-3km SW Mina Pichita, [11°05'S, 75°25'W], 2100m, 25-26 Aug 1988 (G. Lamas), 2 males (MUSM); 1-3km S Mina Pichita, [11°05'S, 75°25'W], 2100m, 24 Aug 1988 (G. Lamas), 1 male (MUSM); 1-3km S Mina Pichita, Hda. Naranjal, [11°05'S, 75°25'W], 2100m, 17 Oct 1989 (G. Lamas), 2 males (MUSM); 1-3km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 02 Oct 1996 (G. Lamas), 1 male (MUSM); 1km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 14 May 2002 (G. Lamas), 1 male (MUSM); 1km S Mina Pichita, 11°05'S, 75°25'W, 2100m, 08-11 Sep 2002 (C. Peña), 5 males (MUSM); Mina Pichita, 2150-2200, 06 Jul 2003 (T. Pyrcz), 1 male (MUSM); Quebrada Siete Jeringas, 11°12'S, 75°24'W, 1700-1800m, 04 Oct 1996, 15 Nov 2003 (F. Chang), 2 males, 1 female (MUSM); **CUZCO**: San Pedro, 13°03'S, 71°33'-4'W, 1400-1650m, 18 Aug 2001 (G. Lamas), 1 female (MUSM); **BOLIVIA**: Cochabamba, San Jacinto, 6-8000' (Garlepp), 1 male (BMNH) [lectotype of *F. boliviana*].

Distribution: Along the eastern slopes of the Andes, from Ecuador to Bolivia.

Forsterinaria coipa Peña & Lamas, sp. n.

(Figs. 14E, 13E)

Forsterinaria [n. sp.]: Lamas, 2004: 219.

Diagnosis: May be confused with *F.*

pallida (Fig. 14A) and *F. boliviana* (Figs. 14C-D), but is easily distinguished by having the segment of the VHW postdiscal line between M_1 and M_3 displaced proximally. On VFW, males of *F. boliviana* differ from *F. coipa* by always lacking the discal and postdiscal lines, and exhibiting the submarginal area and tornus densely covered by yellowish scales.

Male (Fig. 14E): FW length 25-26 mm (n = 5). **Head:** Antenna dark brown, ventrally slightly lighter brown, with dark tip, basal half of pedicel covered with some white scales; eyes dark brown; labial palpi hairy, brown, covered laterally with cream scales, forming a line on both sides, some cream hairs scattered among the brown ones, the cream hairs more numerous on inner side. **Thorax:** dorsal surface covered with light brown, greenish-blue and reddish-brown hairs, giving the appearance of a golden shine; femur covered with brown and beige scales, and beige hairs; tibia and tarsus spiny, densely covered with dark cinnamon scales. **Abdomen:** dorsal surface brown, with greenish-blue hairs, reddish-brown at the base, giving the appearance of a golden shine, ventral surface lighter brown; **genitalia** (Fig. 13E), similar to *F. pallida* but uncus dome slightly more pronounced, valva less elongated, dorsal process curved dorsally, as conspicuous in lateral view as in *F. boliviana*, tip pronounced laterally outwards, at the level of the dorsal process; aedeagus tubular. **Forewing:** triangular, apex acute, less truncated than in *F. punctata*, tornus slightly obtuse, distal margin almost straight, cilia brown; dorsal surface light brown, unmarked, apex and distal margin darkened, with very subtle androconia; ventral surface slightly lighter than above, distal margin darkened, paler than inner margin, four brown transverse lines: discal inconspicuous, almost straight; postdiscal slightly undulated, reaching CuA_2 ; submarginal undulated, formed by crescents; marginal non-undulated, parallel to distal margin; three white subapical dots in R_5-M_1 to M_2-M_3 , some yellowish scales scattered on costal margin and between

postdiscal line and distal margin. **Hindwing:** subtriangular, distal margin slightly scalloped, costa convex, cilia brown; dorsal surface light brown, unmarked, distal margin darkened; ventral surface same as above, distal margin darkened, with four brown transverse lines: discal from costal margin towards inner margin, broken at discal cell; postdiscal similar to that found in *F. pallida* but sector between M_1 and M_3 slightly displaced proximally; submarginal more undulated than on FW; marginal slightly undulated, due to the scalloped distal margin; five submarginal white dots from $Rs-M_1$ to CuA_1-CuA_2 ; area between postdiscal line and submarginal dots slightly dusted with yellowish scales, less than in *F. pallida*; discal and marginal areas covered with some whitish scales (not as dense as in *F. boliviana*).

Female: Essentially similar to the male, but slightly larger.

Type material: *Holotype* male, **PERU:** CAJAMARCA, 12 km W La Coipa, [5°23'S, 78°57'W], 1800m, 18 Mar 1985 (G. Lamas), male genitalia preparation, #CPB-028, in the MUSM. *Paratypes:* same data as holotype, 1 male (MUSM); **COLOMBIA:** Manizales (A.M. Patiño), 1 male (MUSM), 1 male (BMNH); Alto de las Cruces, 18 Dec [19]08, 1 female (BMNH); Antioquia, Frontino (T.K. Salmon), 1 female (BMNH); **ECUADOR:** Zamora, San Francisco, 03°57'S, 79°05'W, 2200m, Feb 2002 (I. Aldas), 2 males (MUSM).

Etymology: This taxon is named after the type locality, La Coipa.

Distribution: From the western slopes of the central cordillera in central Colombia through Ecuador to extreme northern Peru.

Discussion: As evidenced by diagnostic characters, and the sympatric occurrence of *Forsterinaria coipa* and *F. boliviana* in Ecuador, the recognition of *F. coipa* as a new species is well supported.

Acknowledgements

We are indebted to Juan Grados, Alberto Guanilo and Angélico Asenjo for invaluable help during fieldwork. To Balász Benedek, Christopher Dietrich, Andrés Kun, Jorge Llorente, Armando Luis, Roman Rakitov, Daniela Takiya, and Janusz Wojtusiak for inviting CP to participate in the expeditions to the Chanchamayo valley and Parque Nacional Yanachaga-Chemillén (PNYCH). To Tomasz Pyrcz for providing important specimens from his personal collection. We thank Janusz Wojtusiak, Tomasz Pyrcz and Rafal Garlarcz for the loan of specimens from the collections in the MZUJ. Keith R. Willmott kindly dissected and made drawings of the genitalia of the lectotype of *F. rustica villarresi*. We thank INRENA for collection permits for the PNYCH. IDEA WILD (Colorado, USA) provided funds to CP for laboratory materials. We acknowledge an anonymous reviewer for valuable criticism and comments on the manuscript.

Literature cited

- Benítez, E.A. 1988. Catálogo de lepidópteros coleccionados en el Departamento de Entomología de la Facultad de Ingeniería Agronómica. San Lorenzo, Universidad Nacional de Asunción. i + 23 pp.
- Biezanko, C.M. & J. Pitoñ. 1941. Breves apontamentos sobre alguns lepidópteros encontrados nos arredores de Itaiópolis (Contribuição ao conhecimento da fisiografia de Santa Catarina). Boletim. Escola de Agronomia e Veterinária «Eliseu Maciel» (Pelotas) 28: 1-21.
- Brown, K.S., Jr. 1992. Borboletas da Serra do Japi: Diversidade, habitats, recursos alimentares e variação temporal, pp. 142-187. In: Morellato, L. P. C. (Ed.), História natural da Serra do Japi. Ecologia e preservação de uma área florestal no Sudeste do Brasil. Campinas, Editora da Unicamp/Fapesp.
- Butler, A.G. 1867a. A monograph of the genus *Euptychia*, a numerous race of butterflies belonging to the family Satyridae; with descriptions of sixty species new to science, and notes to their affinities, etc. Proceedings of the zoological Society of London 1866(3): 458-504, pls. 39-40.
- Butler, A.G. 1867b. Descriptions of some new species of Satyridae belonging to the genus *Euptychia*. Proceedings of the zoological Society of London 1867(1): 104-110, pls. 11-12.
- Butler, A.G. 1868. Catalogue of diurnal Lepidoptera of the family Satyridae in the collection of the British Museum. London, Taylor and Francis. vi + 211 pp., 5 pls.
- Butler, A.G. 1873. List of Lepidoptera in a small collection sent from Peru by Mr. Whitely, with descriptions of the new species. Annals and Magazine of natural History (4)12(69): 218-230.
- Butler, A.G. 1874. Descriptions of some new species and a new genus of diurnal Lepidoptera, in the collection of Herbert Druce, Esq. Transactions of the entomological Society of London 1874(4): 423-436, pl. 6.
- Butler, A.G. 1877. On new species of the genus *Euptychia*, with a tabular view of those hitherto recorded. Journal of the Linnean Society of London (Zoology) 13(67): 116-128, pl. 12.
- Butler, A.G. & H. Druce. 1872. Descriptions of new genera and species of Lepidoptera from Costa Rica. Cistula entomologica 1(5): 95-118.
- Canals, G.R. 2003. Mariposas de Misiones. Buenos Aires, Edición L.O.L.A. (Literature of Latin America). 476 pp.
- D'Abrera, B. 1988. Butterflies of the Neotropical Region. Part V. Nymphalidae (Conc.) & Satyridae. Victoria, Black Rock, Hill House, pp. [viii] + 679-877.
- DeVries, P.J. 1987. The butterflies of Costa Rica and their natural history. Papilionidae, Pieridae, Nymphalidae. Princeton, Princeton University Press. xxii + 327 pp., 50 pls.
- Dognin, P. 1887. Notice sur la faune des Lépidoptères de Loja et environs (Équateur) et descriptions d'espèces nouvelles. Le Naturaliste (2)1(15): 173-175, 7 figs.
- Druce, H. 1876. List of the butterflies of Peru, with descriptions of new species. With some notes by Edward Bartlett. Proceedings of the zoological Society of London 1876(1): 205-250, pls. 17-18.
- Felder, C. & R. Felder. 1867. Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorff-Urbair. Zoologischer Theil. Zweiter Band. Zweite Abtheilung: Lepidoptera. Wien, Carl Gerold's Sohn. (3): pp.[2] + 379-536, pls. 48-74.
- Forster, W. 1964. Beiträge zur Kenntnis der Insektenfauna Boliviens XIX. Lepidoptera III. Satyridae. Veröffentlichungen der zoologischen Staatssammlung München 8: 51-188, pls. 27-35.
- Gaede, M. 1931. Family Satyridae. Lepidopterorum Catalogus 43: 1-320, 46: 321-544, 48: 545-759.

- Godart, J.B. [1824]. In: Latreille, P.A. & J.B. Godart, Encyclopédie Méthodique. Histoire Naturelle. Entomologie, ou histoire naturelle des crustacés, des arachnides et des insectes. Paris, veuve Agasse. 9(2): 329-828.
- Godman, F.D. 1905. Description of some new species of Satyridae from South America. Transactions of the entomological Society of London 1905(1): 185-190, pl. 10.
- Godman, F.D. & O. Salvin. 1880. Biologia Centrali-Americana. Insecta. Lepidoptera-Rhopalocera. London, Dulau & Co., Bernard Quaritch. 1: 73-88, pl. 8.
- Gray, R.E. 1973. Replacement name for Haywardina Forster, 1964 (Lepidoptera: Satyridae). Entomological News 84(5): 171-172.
- Harvey, D.J. 1991. Higher Classification of the Nymphalidae, pp. 255-273. In: H.F. Nijhout (Ed.), The Development and Evolution of Butterfly Wing Patterns. Washington, DC, Smithsonian Institution Press.
- Hayward, K.J. 1957. Nuevas Euptychia de Bolivia (Lepidoptera Satyridae). Revista chilena de Entomología 5: 107-121, 8 figs.
- Hayward, K.J. 1962a. Catálogo sinonímico de ropalóceros argentinos excluyendo Hesperidae. (Tercer suplemento). Acta zoologica Lilloana 18: 19-30.
- Hayward, K.J. 1962b. Satíridos Sudamericanos nuevos (Lep. Rhop. Satyridae). Acta zoologica Lilloana 18: 105-109, 4 figs.
- Hayward, K.J. 1962c. Dibujos de genitales masculinos de algunos satíridos neotropicales (Lep. Rhop. Satyridae) II. Acta zoologica Lilloana 18: 251-257, figs. 73-95.
- Hayward, K.J. [1964]a. Lista de los tipos de Insecta (exceptuando Diptera) conservados en el Instituto Miguel Lillo. Acta zoologica Lilloana 19: 297-334.
- Hayward, K.J. 1964b. Euptychia weyrauchi sp. nov. (Lep. Rhop. Satyridae). Acta zoologica Lilloana 20: 169-170.
- Hayward, K.J. 1967. Insecta, Lepidoptera (Rhopalocera). Familiae Papilionidarum et Satyridarum. In: Descole, H.R. (Ed.), Genera et species animalium argentinorum. Buenos Aires, Guillermo Kraft. 4: [16] + 447 + [4] pp., 25 pls.
- Hayward, K.J. 1973. Catálogo de los ropalóceros argentinos. Opera Lilloana 23: 1-318.
- Kirby, W.F. 1871. A Synonymic Catalogue of Diurnal Lepidoptera. London. John Van Voorst. vii + 690 pp.
- Kirby, W.F. 1877. A Synonymic Catalogue of Diurnal Lepidoptera. Supplement. London. John Van Voorst. pp. i-vii, 691-883.
- Klots, A.B. 1970. Lepidoptera, pp. 115-130. In: Tuxen, S.L. (ed.), Taxonomists's Glossary of Genitalia in Insects. Ed. 2. Copenhagen, Munksgaard.
- Kochalka, J.A., Torres, D., Garcete, B. & C. Aguilar. 1996. Lista de invertebrados de Paraguay pertenecientes a las colecciones del Museo Nacional de Historia Natural del Paraguay, pp. 69-283. In: Romero, M. (Ed.), Colecciones de Flora y Fauna del Museo Nacional de Historia Natural del Paraguay. San Lorenzo, Museo Nacional de Historia Natural del Paraguay.
- Lamas, G. 1977. A preliminary check-list of the butterflies (Lepidoptera) of Perú west of the Andes. Revista de Ciencias, UNMSM 70(1): 59-77.
- Lamas, G. [1997]. Diez notas sinonímicas sobre Satyrinae neotropicales, con la descripción de dos subespecies nuevas de Perú y Ecuador (Lepidoptera: Nymphalidae). Revista peruana de Entomología 39: 49-54.
- Lamas, G. 2003. Las Mariposas de Machu Picchu. Lima, PROFONANPE. viii + 221 pp.
- Lamas, G. 2004. Nymphalidae. Satyrinae. Tribe Satyrini. Subtribu Euptychiina, pp. 217-223. In: Lamas, G. (Ed.), Checklist: Part 4A. Hesperioidea - Papilionoidea. In: Heppner, J.B. (Ed.), Atlas of Neotropical Lepidoptera. Volume 5A. Gainesville, Association for Tropical Lepidoptera/Scientific Publishers.
- Lamas, G., A.L. Vilorio & T.W. Pycrz. 2004. Nymphalidae. Satyrinae, pp. 205-224. In: Lamas, G. (Ed.), Checklist: Part 4A. Hesperioidea-Papilionoidea. In: Heppner, J.B. (Ed.), Atlas of Neotropical Lepidoptera. Volume 5A. Gainesville, Association for Tropical Lepidoptera/Scientific Publishers.
- Lewis, H.L. 1973. Butterflies of the World. Chicago, Follett. xvi + 312 pp., 208 pls.
- Maza, R.G. de la & J. de la Maza. 1993. Mariposas de Chiapas. México, Gobierno del Estado de Chiapas. 224 pp., figs.
- Miller, L.D. 1968. The higher classification, phylogeny and zoogeography of the Satyridae (Lepidoptera). Memoirs of the american entomological Society 24: [vi] + iv + 1-174.
- Möschler, H.B. 1877. Beiträge zur Schmetterlings-Fauna von Surinam. Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien 26: 293-352, pls. 3-4.
- Parra, M.L., J.I. Vargas & M. Tabares. 2000. Mariposas de Manizales. Manizales, Instituto para la Ciencia. [i] + 118 pp., figs.
- Peña, C. 2004. Sistemática del Género *Forsterinaria* Gray, 1973 (Lepidoptera: Nymphalidae, Satyrinae). Lima, Universidad Nacional Mayor de San Marcos. Bachelor's thesis. In Spanish, with English abstract.
- Racheli, T. & L. Racheli. 2001. An annotated list of Ecuadorian Butterflies (Lepidoptera:

- Papilionidae, Pieridae, Nymphalidae). *Fragmenta entomologica* 33(2): 213-380.
- Schaus, W. 1902. Descriptions of new American butterflies. *Proceedings of the United States national Museum* 24(1262): 383-460.
- Strand, E. 1916. [Notes]. In: *Lepidoptera Niepeltiana*. 2. Teil. Zirlau, Wilhelm Niepelt. [6] + 26 pp., pls. 13-17.
- Teston, J.A. & E. Corseuil. 2002. Borboletas (Lepidoptera, Rhopalocera) ocorrentes no centro de Pesquisas e Conservação da Natureza Pró-Mata. 3: Nymphalidae. *Divulgações do Museu de Ciência e Tecnologia (Porto Alegre)* 7: 79-125.
- Viloria, A.L. 2003. Historical biogeography and the origins of the satyrine butterflies of the tropical Andes (Lepidoptera: Rhopalocera), pp. 247-261. In: Morrone J.J. & J. Llorente (Eds.), *Una perspectiva latinoamericana de la biogeografía*. México, Universidad Nacional Autónoma de México.
- Westwood, J.O. 1851. In: Doubleday, E., *The genera of diurnal Lepidoptera: comprising their generic characters, a notice of their habits and transformations, and a catalogue of the species of each genus*. London, Longman, Brown, Green & Longmans. 2: 375-386, pl. 67.
- Weymer, G. 1910-1912. 4. Familie: Satyridae, pp. 173-280. In: Seitz, A. (Ed.), *Die Gross-Schmetterlinge der Erde*. Stuttgart, A. Kernen. 5.
- Weymer, G. & J.P. Maassen. 1890. *Lepidopteren gesammelt auf einer Reise durch Colombia, Ecuador, Perú, Brasilien, Argentinien und Bolivien in den Jahren 1868-1877 von Alphons Stübel*. Berlin, A. Asher & Co. [1] + xi + 182 pp., 9 pls.