

***Cyrestis acilia* (Godart, 1819) in Papua, Indonesia: its distribution, subspecies and forms (Lepidoptera: Apaturinae, Nymphalidae)**

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Suara Serangga Papua 5(1): 1-16

Abstract: The taxonomic history of *Cyrestis acilia* (Godart, 1819), including all described subspecies is summarised. The distribution and current classification of populations within the Indonesian province of Papua and nearby islands is presented. Two new subspecies are here described and one subspecies is recognised as separate species.

Ikhtisar: Sejarah taksonomis dari *Cyrestis acilia* (Godart, 1819) disajikan dengan semua subspecies yang disebutkan. Distribusi dan klasifikasi aktual dari populasi-populasi di Papua diberikan, termasuk dari pulau-pulau di sekitar tanah besar, dengan semua bentuk dan variasinya. Dua subspecies baru diletakan dan satu subspecies lain diakui sebagai spesies tersendiri.

Keywords: new subspecies, stat. nov., taxonomic history.

Introduction

Cyrestis acilia (Godart, 1819) is one of the most common Nymphalids in the lowlands of Papua, at mid-montane levels of 800-1,200 m it is still frequent, but at higher altitudes, from 1,200 - 1,700 m, it is less common in Papua. Parsons (1999) mentioned a range between 0-2,000 m in Papua New Guinea. Only the nominate race is currently recognised on the New Guinea (NG) mainland, after two subspecies were synonymized by Parsons (1999). However, many subspecies have been described from the surrounding islands. For that reason it is not surprising that the specimens recently captured on Moor and Mambor Islands, north of Nabire, and on the Kumamba Islands, north of Sarmi, exhibit differences from mainland specimens and justify recognition of two new subspecies.

Abbreviations

KEP	Kelompok Entomologi Papua (Entomological workgroup Papua)
KSP	Koleksi Serangga Papua (Collection of KEP., Jayapura)
NG	New Guinea
PNG	Papua New Guinea

- UKiP Universitas Kristen di Papua (Christian University in Papua), Sorong, Papua, Indonesia
UNCEN Universitas Cenderawasih (Cenderawasih University), Waena, Jayapura, Papua, Indonesia
UNIPA Universitas Negeri Papua (Papuan State University), Manokwari, Papua, Indonesia
ZMAN Zoological Museum of Amsterdam, The Netherlands

Taxonomic History

The *Acilia*-group as defined by Martin, quoted by Fruhstorfer (1912) *in* Seitz, inhabits mainly the Papuan region, from the western islands of the Moluccas, the Sula Archipelago, Bangkai and Sulawesi, eastwards to the remote islands of the Solomon Archipelago. In the central part of this region (New Guinea and the adjacent islands), the white median band found on both wings of all species belonging to this group is broadest, decreasing in width towards the east and west.

In 1819 Godart described [in Latreille, P.A. & J.B. Godart, 1819-[1824]: 378] *Nymphalis acilia* from a single specimen 'Pris à la terre des Papous par M. le capitaine Freycinet', without mentioning accurate data about the collection locality or the sex of the type specimen. In 1912 Fruhstorfer mentioned Rawak on Waigeu as type locality of *acilia*, and described *Cyrestis acilia tervisia* from Sorong, Dutch New Guinea. Fruhstorfer (1915) later described *C. acilia gades* from the Aroa River in south east PNG.

Fruhstorfer (1912: 587-591) listed 24 taxa under the *acilia* group; the regional distribution of these are summarised as follows:

From the island west of New Guinea (12 taxa):
ssp. *strigata* Felder & Felder, 1865-1875, from Sulawesi (Celebes)
ssp. *eximia* Oberthür, 1879, from Sangir Islands
ssp. *parthenia* Röber, 1886, from Bangkai
ssp. *bettina* Fruhstorfer, 1899, from Sula Islands
ssp. *laelia* Felder & Felder, 1860 [1859], from Bacan
ssp. *harterti* Martin, 1903, from Halmahera
ssp. *latifascia* Martin, 1903, from Ternate and Obi
ssp. *abisa* Fruhstorfer, 1904, from Obi
ssp. *jordani* Martin, 1903, from Morotai
ssp. *ceramensis* Martin, 1903, from Seram
ssp. *sicca* Fruhstorfer, 1904, from Buru, Miro
ssp. *aruana* Martin, 1903, from the Aru Islands.

From Papua and its surrounding islands (5 taxa):

- ssp. *biaka* Grose Smith, 1894, from Supiori and Biak
- ssp. *acilia* Godart, 1819, from Waigeu Island
- ssp. *misolensis* Marten, 1903, from Misol Island
- ssp. *maforensis* Marten, 1903, from Numfor Island
- ssp. *tervisia* Fruhstorfer, 1912, from the mainland of NG.

From the east side of NG (7 taxa):

- ssp. *fratercula* Godman & Salvin, 1877, from Duke of York Isl.
- ssp. *ribbei* Martin, 1903, from Mioko Isl. Duke of York Isl.
- ssp. *nitida* Mathew, 1887, from Solomon Islands, Guadalcanal, Ysabel, Kunlambangra, Malaite, Florida, Alu, Shortland, Treasury, New Georgia, Facaro
- ssp. *solomonis* Mathew, 1887, from Ugi and San Cristobal
- ssp. *uwalana* Martin, 1903, from the island of Ulawa in the Solomon Archipelago
- ssp. *dola* Fruhstorfer, 1904, from Fergusson Island
- ssp. *bassara* Fruhstorfer, 1912, from Matty Island (now Wuvulu) to the north of Berlinhafen.

Two more subspecies have been described since 1912:

- ssp. *gades* Fruhstorfer, 1915, from the Aroa River, PNG.
- ssp. *russellensis* Tennent, 2001, from the Russell group (Pavuvu).

Thus a total of 26 taxa have been described within the *acilia* group.

D'Abrera (1971, 1977 & 1990 – Australian Region) and (1985 – Oriental Region) listed sixteen subspecies of *C. acilia*:

- ssp. *fratercula* Godman & Salvin, 1877 (syn. *ribbei* Martin, 1903),
- ssp. *harterti* Martin, 1903
- ssp. *jordani* Martin, 1903
- ssp. *latifascia* Martin, 1903
- ssp. *abisa* Fruhstorfer, 1904
- ssp. *sicca* Fruhstorfer, 1904
- ssp. *ceramensis* Martin, 1903
- ssp. *dola* Fruhstorfer, 1904
- ssp. *nitida* Mathew, 1887
- ssp. *salomonis* [sic!], Mathew, 1887
- ssp. *ulawana* Martin, 1903
- ssp. *parthenia* Röber, 1886, from Bangkai
- ssp. *strigata* Felder & Felder, 1865-1875, from Sulawesi
- ssp. *bettina* Fruhstorfer, 1899, from Sula Islands
- ssp. *tervisia* Fruhstorfer, 1912
- ssp. *gades* Fruhstorfer, 1915.

He omits to mention or to synonymize the following taxa; ssp. *biaka* Grose Smith, 1894, from Supiori and Biak, ssp. *acilia* Godart, 1819, from Waigeu, ssp. *misolensis* Marten, 1903, from Misol Island and ssp. *maforensis* Marten, 1903, from Numfor Island, all listed by Fruhstorfer.

Parsons (1999) listed four subspecies of *C. acilia* occurring in PNG, as follows: ssp. *acilia* Godart, 1819, TL Waigeu

syn.: *tervisia* Fruhstorfer, 1912, from Papua and PNG, except south-eastern area *gades* Fruhstorfer, 1915, from Aroa R. and Yules Isl.
(both synonymized by Parsons, 1999)

ssp. *dola* Fruhstorfer, 1904, from Fergusson Island

ssp. *fratercula* Salvin & Godman, 1877, from the Duke of York Islands

syn.: *ribbei* Martin, 1903 from Mioko Island (synonymized by D'Abbrera, 1971) *bassara* Fruhstorfer, 1912, from Wuvulu Island (synonymized by Holloway, 1973)

ssp. *nitida* Mathew, 1887, from Treasury I., Solomon Is.

Tennent (2002) recognised the occurrence of four subspecies of *Cyrestis acilia* on the Solomon Islands:

ssp. *nitida* Mathew, 1887 from the islands The Shortlands, Treasury, Choiseul, Vella Lavella, Ranongga, Ghizo, Kolombangara, New Georgia, Rendova, Santa Isabel, Guadalcanal, Savo Florida and Malaita

ssp. *russellensis* Tennent, 2001 from the Russell group

ssp. *solomonis* Mathew, 1887 from San Cristobal and Ugi

ssp. *ulawana* Martin, 1903 from Ulawa.

Subspecies of *Cyrestis acilia* in Papua

The taxonomic history leads to the current arrangement of *Cyrestis acilia* with twenty one subspecies, including four subspecies in the Indonesian province of Papua and its nearby islands, as follows:

ssp. *acilia* Godart, 1819, from Waigeu and the mainland of NG

(syn. *tervisia* Fruhstorfer, 1912,
gades Fruhstorfer, 1915)

ssp. *biaka* Grose Smith, 1894, from Supiori and Biak

ssp. *misolensis* Martin, 1903, from Misol Island

ssp. *maforensis* Martin, 1903, from Numfor Island.

Some important notes of authors

- > Fruhstorfer (1912) mentioned Rawak on Waigeu as type locality of *acilia* which he characterized by a very broad white median band tapering both to the costa of forewing and the anal margin of the hindwing, by the

uncommonly vivid and extensive orange colouring of the anal area on the hindwing and by the ocelli in the submarginal band of the forewing, where only 3-4 ocelli are distinctly developed instead of 6 on all other ssp.

- > Fruhstorfer (1912) described ssp. *tervisia* from material collected at Sorong, on the western mainland of NG. The description states that the race is distinguished from ssp. *acilia* by a distinctly narrower white median band on upperside of both wings and on the hind wing the yellow anal area much wider, encroaching upon the white median area.
- > Fruhstorfer (1912) quotes Martin saying that in the central part of this region (New Guinea and the adjacent islands), the white median band found on both wings of all species belonging to this group is broadest, decreasing towards the east and west.
- > Fruhstorfer (1912: 589) states that *biaka*, although closely allied to *acilia*, possesses also certain characteristics of *laelia*, for which reason it cannot be treated as a subspecies of either, but should be given a place by itself until further data, especially regarding earlier stages, may be obtained.
- > The presentation of the five species within the *acilia* group by Fruhstorfer (1912) is confused. The text is divided into five paragraphs, corresponding to his proposed species, however some other taxa are commented on as being full species (e.g. *biaka*) and yet other subspecies can not be placed with the species mentioned first in the paragraph (e.g. *tervisia* after *eximia*).
- > D'Abrera (1971, 1977, 1990) noted that "this species was previously divided into five species under the collective heading of '*acilia* group'. Current thinking is that the five species in fact resolve into one species only, which is represented by a large number of races over a very wide range extending from the Celebes to the Solomons (excluding Australia)."
- > D'Abrera (1985) listed three subspecies, however, *eximia*, included by Fruhstorfer in the *acilia* group, is treated as a separate species.
- > One of the important diagnostic features for a new (sub)species is the shape and the width of the white median band on both wings. (Fruhstorfer)

Notes on material in KSP

Over the last thirty years –besides records of other collectors– large series of *Cyrestis acilia* have been stored in KSP, collected at various spots in Papua, Indonesia, not only on the mainland, but also on various surrounding islands. In total 246 specimens, 176 males and 70 females are held with the following distribution: 106 (79 ♂♂ + 27 ♀♀) specimens from various localities on the mainland of Papua and 140 (97 ♂♂ + 43 ♀♀) specimens from various surrounding islands: Raja Ampat Islands (5 ♂♂ + 1 ♀) [Batanta (5 ♂♂), Salawati (1 ♀)], Mioswar (3 ♂♂ + 7 ♀♀), Moor-Mambor Islands (27 ♂♂ + 13 ♀♀), Kumamba Islands (14 ♂♂ + 10 ♀♀), Pantai Timur Islands (11 ♂♂ + 3 ♀♀), Numfor (9 ♂♂ + 4 ♀♀), Supiori (10 ♂♂ + 2 ♀♀), Biak (12 ♂♂ + 3 ♀♀), Japen (6 ♂♂ + 1 ♀). The collecting locations are shown on Map 1.

Study of the above mentioned material, especially measurement of the width of the white band along vein R and at the inner margin at the forewing, and along vein CuA₂ at the hindwing, is presented in table 1 (for males) and table 2 (for females).

The width of the white median band of the specimens from the mainland does not show a significant variety. However, from west to east the band becomes slightly broader, particularly in specimens from the interior (Baliem Valley, Langda, Borne).

The white median band on the specimens from the surrounding islands is narrower, in comparison with those from the mainland, although not so obvious in the specimens from Mioswar and from the small Pantai Timur Islands, which look similar to the mainland form.

The specimens from Supiori and Biak (ssp. *biaka*), from Numfor (ssp. *maforensis*) and from Misol (ssp. *misolensis*) all have a much narrower white median band than the mainland form, and are recognised as separate subspecies.

The material in KSP –especially from Raja Ampat (Batanta and Salawati) and from the Sorong area– shows exactly the opposite of Fruhstorfer's description (1912), as the Sorong specimens have a more reduced yellow anal area on the hindwing, a slightly wider white median band on both wings, and only 3-4 distinctly developed ocelli in the submarginal band on the forewing, instead of six. Our findings support the opinion of Parsons that material from the mainland of Papua, Waigeu and Raja Ampat islands belong to a single form *Cyrestis acilia acilia* which, according to Fruhstorfer (1912), has as a type locality of Waigeu.

Recently collected material from the Moor & Mambor Islands (Moor, Ratewi, Nuta Uti, Hariti, Mambor, Ahee and Mowirin) and from the Kumamba Islands are clearly differentiated from the nearest mainland populations of *C. a. acilia* and subspecies on adjacent islands and therefore justify description as distinct subspecies.

The hitherto undescribed population on Japen Island is included in *C. a. acilia*, because of its apparent close relationship.

New subspecies

Cyrestis acilia moorensis subsp. nov.

Figs 1-4

Material: HT♂. Indonesia: Prov. Papua, Kep. Mambor, Pulau Hariti, 2-6.viii.2003, Mahas. UNCEN, KSP. Paratypes (26♂♂, 13♀♀); as HT, 7♂♂, 2♀♀; idem, but Pulau

Here, 25, 31.vii.2003, 1 ♂; idem, but Pulau Mambor, 1 ♂, 1 ♀; idem, but Pulau Ahee, 1 ♀; idem but Pulau Mowirim, 1 ♂, 2 ♀♀; idem, but Kepulauan Moor, Pulau Moor, 8-14.vii.2003, 7 ♂♂, 4 ♀♀; idem, Pulau Nuta Itu, 19.vii.2003, 1 ♂; idem, but Pulau Ratewi, 8 ♂♂, 3 ♀♀. All in KSP.

Diagnosis

In comparison to the many specimens of *Cyrestis acilia* from various localities in Papua, Indonesia (see map 1) the new subspecies of the Moor and Mambor Islands is easily recognized by the very reduced (much narrower) white band on upperside of both wings, and the more developed third and fourth spot in the subterminal band on underside of forewing. It differs from *biaka* by the presence of vivid and extensive orange colouring on the anal area on the hindwing.

Description

Male – Upperside of forewing brown, with a post median white band from dark costa to inner margin, getting wider towards inner margin. Vein R is brown in white band. A subterminal band bordered by two pale lines with seven orange brown bordered black quite oval spots, from costa to inner margin, of which the last two spots are much smaller and connected one to another. Inner brown part bears some pale brown vertical lines from costa to inner margin, some others only till cubitus. Upperside of hind wing, with an irregular termen, with a sharp, short tail at vein M_3 and a second, more rounded one at vein CuA_2 , continues the pattern of the forewing. The white band is getting narrower from costa to inner margin and is ending in a large orange brown spot with to eyes. The subterminal band has six much better developed spots, of more or less same size, only the first one is smaller.

Underside of both wings have same pattern as on upperside; however, light brown ground colour with much more obvious light parts which are grey to white.

Female – As male, however with paler brown coloration. At the upperside of hindwing is the large spot at inner margin dirty brown in stead of orange brown in males.

Length of forewing: 26-33 (av. 29.05) mm.

Derivation of name: '*moorensis*' is a adjective in apposition, derived from 'Moor', the name of an island and an island group where this subspecies occurs.

Cyrestis acilia kumambana subsp. nov.

Figs 5-8

Material: HT ♂. **Indonesia:** Papua, Sarmi, Pulau Liki, 22.vii.2002, Mah. UNCEN, 4, KSP. Paratypes (13 ♂♂, 10 ♀♀); as HT, 1 ♂, 2 ♀♀; idem, but Pulau Liki, Doro Tempayang, 29.vii.2002, 1 ♂, 1 ♀, 30.vii.2002, 1 ♂, 2 ♀♀; idem Teluk Hald, 1.viii.2002, 1 ♂; 12.viii.2002, 1 ♂; idem, K. Bobo, 23.vii.2002, 1 ♂, 31.vii.2002,

1 ♂, 1 ♀; idem, Wete (150-400 m), 7.viii.2002, 1 ♂, 1 ♀; idem, kebun, 25.viii.2002, 1 ♂, 1 ♀; Papua, Sarmi, Pulau Armo, 26.vii.2002, Mah. UNCEN, 2 ♂♂, 1 ♀; idem 3.viii.2002, 2 ♂♂, idem, 4.viii.2002, 1 ♀. All in KSP.

Diagnosis

The new subspecies of the Kumamba Islands is closely related to the newly described subspecies from Moor and Mambor Islands, however it can be recognized on forewing upperside by the post median band which is creamy, especially in females and the narrower and more elongate third and fourth spot in subterminal band; on hindwing upperside is the last spot on the subterminal band quite larger than the five other ones.

Description

Male – Upperside of forewing brown, with a post median (creamy) white band from dark costa to inner margin, getting wider towards inner margin. Vein R is brown in white band. A subterminal band bordered by two pale lines with seven orange brown bordered black quite oval spots, from costa to inner margin, of which the third and fourth spots are narrow and elongate and the last two spots much smaller and connected one to another. Inner brown part bears some pale brown vertical lines from costa to inner margin, some others only till cubitus. Upperside of hind wing, with an irregular termen, with a sharp, short tail at vein M_3 and a second, more rounded one at vein CuA_2 , continues the pattern of the forewing. The (creamy) white band is getting narrower from costa to inner margin and is ending in a large orange brown spot with to eyes. The subterminal band has six much better developed spots, of which the first one is smaller and the last one larger than the four others of more or less the same size.

Underside of both wings have same pattern as on upperside; however, light brown ground colour with much more obvious light parts which are grey to white.

Female – As male, however lighter brown coloration, with a creamy postmedian band. At the upperside of hindwing is the large spot at inner margin dirty brown in stead of orange brown in males.

Length of forewing: 26-32 (av. 29.42) mm Derivation of name: '*kumambana*' is a adjective in apposition, derived from the Kumamba Archipelago, where this subspecies occurs.

Discussion

The author agrees with Fruhstorfer's (1912: 589), statement that ssp. *biaka* cannot be treated as a subspecies, but should be given specific rank and herewith propose the formal combination: *Cyrestes biaka* Grose Smith, 1894, **stat. nov.** The much more obvious subapical and subterminal rows of black

spots with orange brown borders on the upperside of both wings and the absence of the orange brown spot at the bottom of the white band, at the inner margin are two important characteristics that distinguish this species from *C. acilia* and others.

The presence of only 3-4 distinctly developed spots in the submarginal band on the forewing, instead of six, characterizes all mainland populations and those from islands close to the mainland, such as Waigeu, Batanta, Mioswar, Japen and Pantai Timur islands. However, individuals with less developed third and fourth spots, even sometimes absent, are nearly all areas. Populations with six well developed spots are treated as separate (sub)species and found on Numfor (*C. acilia maforensis*), Supiori and Biak (*C. biaka stat. nov.*) and Moor and Mambor islands (*C. acilia moorensis subsp. nov.*).

In summary, the following taxa of *Cyrestis* occur in Papua province and adjacent islands, Indonesia:

Cyrestis acilia (Godart, 1819), with

ssp. *acilia* Godart, 1819, from Waigeu, Japen and mainland of Papua

ssp. *misolensis* Marten, 1903, from Misol Island

ssp. *maforensis* Marten, 1903, from Numfor Island

ssp. *moorensis subsp. nov.*, from Moor and Mambor Islands

ssp. *kumambana subsp. nov.*, from the Kumamba Archipelago

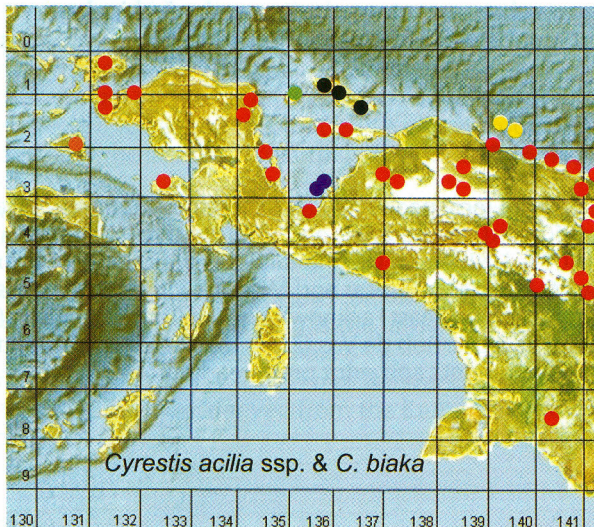
Cyrestis biaka Grose Smith, 1894, **stat. nov.**, from the islands of Supiori and Biak.

Acknowledgements

The author thanks the local people of Papua and the governmental authorities who were helpful and cooperative on various surveys. Thanks also to the students of UNCEN, UNIPA and UKiP involved in various surveys and staff of KSP, especially Mr Rinto Mambrasar and Miss less Piran for their assistance in the laboratory. Last but not least I acknowledge Mr. Chris Davenport (Inverness, United Kingdom) and Drs. Rob de Vos (ZMAN, Amsterdam, The Netherlands) for their advices, comments and print proof reading.

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Map 1. Distribution of *Cyrestis acilia* ssp. and *C. biaka* in Papua, Indonesia

- *C. acilia acilia*; ● *C. acilia misolensis*; ● *C. acilia maforensis*
- *C. acilia moorensis*; ● *Cyrestis acilia kumambana*; ● *C. biaka*

Table 1. Width of the white band on both wings on *C. acilia* ssp. and *C. biaka* males, according to the various areas

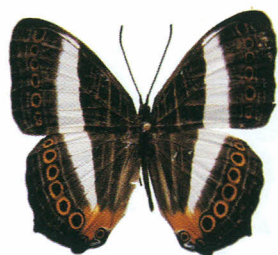
Locality	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Raja Ampat - Batanta	5	28	30	29.40	3.30	3.90	2.00	3.37	3.99	2.04
Raja Ampat - Salawati	-			-						
Sorong	1	29	29	29.00	4.00	5.00	3.00	4.14	5.17	3.10
Fakfak	3	26	30	28.33	4.67	5.67	4.00	4.88	5.99	4.23
Manokwari	10	25	32	29.30	4.95	5.45	3.80	5.08	5.60	3.89
Wondama	3	29	31	30.00	4.83	5.33	3.83	4.83	5.33	3.82
Nabire	2	27	30	28.33	4.50	6.00	4.67	4.58	6.37	4.97
Timika	4	29	31	30.00	3.88	6.25	4.38	3.87	6.25	4.37
Mamberamo	10	24	30	27.60	4.80	5.95	4.50	5.22	6.48	4.89
Foja	1	28	28	30.00	5.00	6.00	5.00	5.00	6.00	5.00
Waropen	7	28	31	30.14	4.43	6.00	4.07	4.41	5.96	4.03
Sarmi	1	29	29	29.00	5.00	5.00	4.00	5.17	5.17	4.14
N/E. of Baliem V.	16	25	30	28.56	4.69	6.44	4.41	4.92	6.76	4.63
Langda	3	28	29	28.33	4.67	6.83	5.00	4.94	7.24	5.30
Jayapura	6	29	31	30.33	4.42	5.92	4.33	4.37	5.85	4.29
Ubrub	5	26	31	28.80	4.30	6.30	4.20	4.50	6.57	4.36
Borme	5	29	31	29.50	4.50	6.63	4.75	4.59	6.74	4.83
Abmisibil	1	29	29	29.00	5.00	6.00	4.00	5.17	6.21	4.14
Mabilabol										
Mappi - Katan	1	26	26	26.00	4.00	6.00	4.00	4.62	6.92	4.62
Mioswar	3	27	29	28.33	5.00	5.67	3.00	5.30	6.02	3.18
Kep. Moor	14	26	33	30.00	3.36	3.68	2.39	3.34	3.67	2.37
Kep. Mambor	13	27	31	29.46	3.65	4.58	2.88	3.72	4.66	2.94
Kep. Kumamba - Liki	10	27	30	29.40	2.45	3.65	1.85	2.50	3.72	1.88
Kep. Kumamba - Armo	4	26	31	29.25	2.13	3.63	1.75	2.17	3.71	1.79
Kep. Pantai Timur	11	28	31	29.73	4.64	6.00	4.36	4.67	6.06	4.40
Numfor	9	27	29	28.44	2.28	4.17	2.50	2.40	4.39	2.64
Yapen	6	27	29	28.00	4.00	5.00	3.42	4.27	5.36	3.67
Supiori	10	(22)26	30	27.70	3.70	3.60	1.55	3.99	3.90	1.68
Biak	12	23	30	27.42	3.46	3.21	1.46	3.79	3.53	1.59
average size	176	22	33	27.98	3.82	4.85	3.17	3.96	5.03	3.27

Table 2. Width of the white band on both wings on *C. acilia* ssp. and *C. biaka* females, according to the various areas

Locality	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Raja Ampat - Batanta	-			-						
Raja Ampat - Salawati	1	28	28	28.00	4.00	4.00	2.00	4.29	4.29	2.14
Sorong	1	29	29	29.00	4.00	5.00	3.50	4.14	5.17	3.62
Fakfak	1	29	29	29.00	4.00	6.50	5.00	4.14	6.72	5.17
Manokwari	1	25	25	25.00	5.00	4.00	3.50	6.00	4.80	4.20
Wondama	1	30	30	30.00	3.50	5.50	3.00	3.50	5.50	3.00
Nabire	1	28	28	28.00	4.00	6.00	5.00	4.29	6.43	5.36
Timika	1	29	29	29.00	3.50	6.00	4.00	3.62	6.21	4.14
Mamberamo	4	28	31	29.25	4.38	6.38	4.88	4.50	6.55	5.01
Foja	2	28	28	28.50	4.50	6.00	4.75	4.75	6.32	5.00
Waropen	2	28	31	29.50	4.25	6.50	4.50	4.32	6.60	4.56
Sarmi	1	31	31	31.00	5.00	6.00	4.50	4.84	5.81	4.35
N/E. of Baliem V.	1	24	24	24.00	5.50	7.00	5.50	6.88	8.75	6.88
Langda	1	29	29	29.00	4.00	7.00	5.00	4.14	7.24	5.17
Jayapura	5	29	30	29.60	4.10	6.20	4.70	4.16	6.29	4.76
Ubrub	-			-	-	-	-	-	-	-
Borme	2	29	29	29.00	5.00	6.50	4.75	5.17	6.72	4.91
Abmisibil										
Mabilabol	1	30	30	30.00	4.00	8.00	6.00	4.00	8.00	6.00
Mappi - Katan	1	28	28	28.00	5.00	6.00	4.00	5.36	6.43	4.29
Mioswar	7	28	32	29.57	4.86	6.14	3.57	4.94	6.24	3.64
Kep. Moor	9	27	31	30.00	2.83	3.33	2.39	2.83	3.34	2.39
Kep. Mambor	4	27	31	29.50	3.38	4.38	3.25	3.43	4.45	3.29
Kep. Kumamba - Liki	8	27	32	29.38	1.63	3.44	1.38	1.66	3.51	1.39
Kep. Kumamba - Armo	2	28	32	30.00	1.50	3.00	1.50	1.47	2.95	1.47
Kep. Pantai Timur	3	30	31	30.67	4.50	6.50	4.83	4.40	6.37	4.73
Numfor	4	28	30	28.75	2.50	4.25	2.75	2.62	4.44	2.87
Yapen	1	28	28	28.00	3.50	5.00	3.00	3.75	5.36	3.21
Supiori	2	29	30	29.50	4.25	3.50	1.50	4.32	3.57	1.53
Biak	3	26	29	27.33	3.17	3.17	1.17	3.46	3.47	1.27
average size	70	24	32	28.81	3.54	4.89	3.25	3.64	5.03	3.34

explanation:

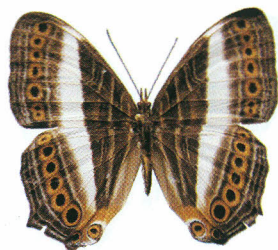
- (1) number of individuals
- (2) minimum wing size
- (3) maximum wing size
- (4) average wing size
- (5) av. width of white band on top fore wing
- (6) av. width of white band on top wing
- (7) av. width of white band along vein
- (8) as (5) related to wing size
- (9) as (6) related to wing size
- (10) as (7) related to wing size



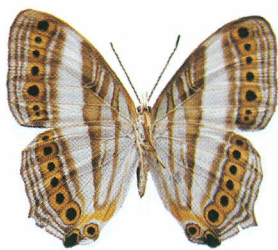
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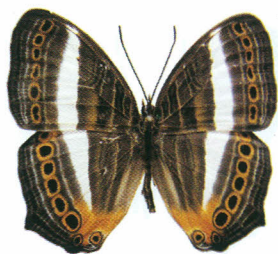
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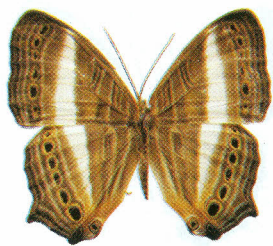


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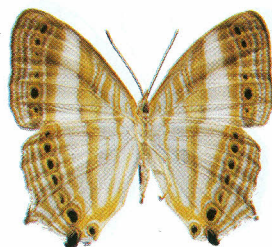


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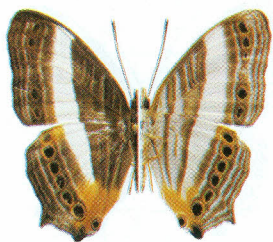
Figs 1-4. *Cyrestis acilia moorensis* **ssp. nov.:** 1. HT ♂ upperside; 2. idem underside; 3. PT ♀ upperside; 4. idem, underside. **Figs 5-6.** *Cyrestis acilia kumambana* **ssp. nov.:** 5. HT ♂ upperside; 6. idem underside.



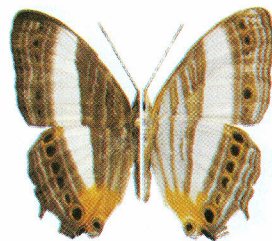
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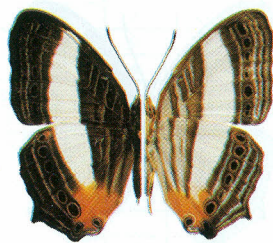
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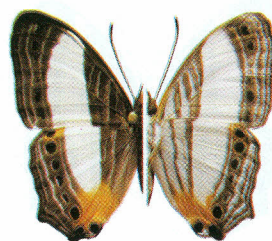
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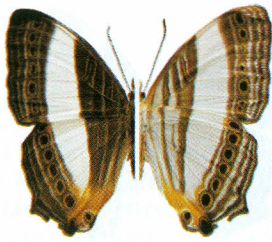


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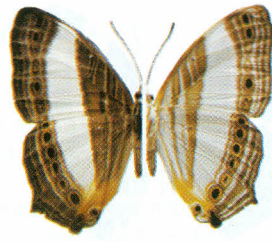


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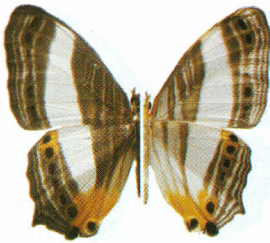
Figs 7-8. *Cyrestis acilia kumambana* **ssp. nov.**: 7. PT ♀ upperside; 8. idem, underside. **Figs 9-12.** *Cyrestis acilia acilia* upp.+ und.: 9. ♂ from Raja Ampat; 10. ♂ from Sorong; 11. ♂ from Jayapura; 12. ♂ from Langda.



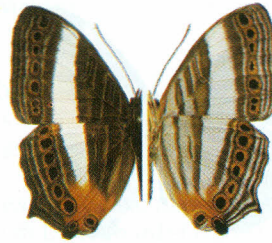
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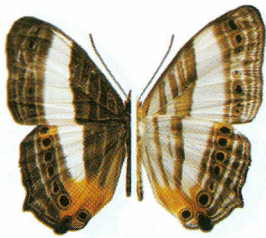
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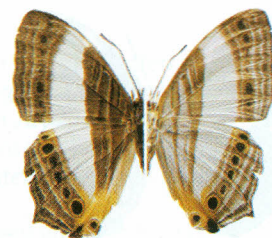
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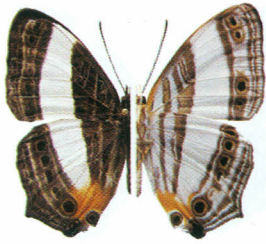


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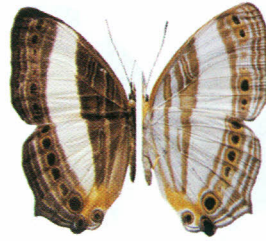


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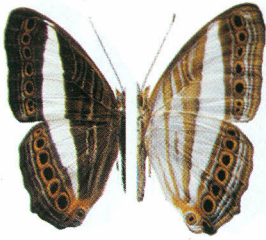
Figs 13-18. *Cyrestis acilia acilia* upp.+ und. (continued): 13. ♂ from Foja Mts; 14. ♀ from Foja Mts; 15. ♂ from Katan (Kepi); 16. ♂ from Ambaidiru (Japen); 17. ♂ from Mioswar; 18. ♀ from Mioswar.



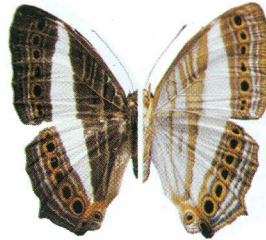
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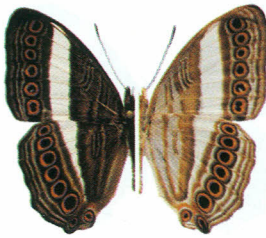
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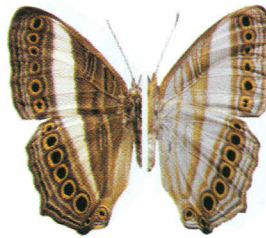
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Figs 19-20. *Cyrestis acilia acilia* upp.+ und. (continued): 19. ♂ from Wakde (Pantai Timur); 20. ♀ from Wakde (Pantai Timur). **Figs 21-22.** *Cyrestis acilia maforensis* upp.+ und.: 21. ♂ from Numfor; 22. ♀ from Numfor. **Figs 23-24.** *Cyrestis biaka* **stat. nov.**: 23. ♂ from Korido (Supiori); 24. ♀ from Biak.