

## ***Danaus affinis* in Papua, Indonesia (Lepidoptera: Danainae, Nymphalidae)**

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*Abstract:* The distribution of *Danaus affinis* ssp. in Papua, Indonesia is presented. A new subspecies is described from the lower mountains outside the Baliem Valley. Also a map and illustrations of various subspecies and forms are presented.

*Ikhtisar:* Distribusi dari *Danaus affinis* ssp. di Papua, Indonesia disajikan, Suatu subspecies baru dari pegunungan rendah di luar lembah Baliem diletakan. Juga peta distribusi dan gambar-gambar subspecies dan bentuk-bentuk diberikan.

*Keywords:* Distribution, new subspecies,

### **Abbreviations**

CD	- Private collection Chris Davenport, Inverness, U.K.	PNG	- Papua New Guinea
HT	- Holotype	PT	- Paratype
Kec.	- Kecamatan (District)	R.	- River
KSP	- Koleksi Serangga Papua (Collection Papuan Insects), Jayapura, Indonesia	und.	- underside
Mts	- Mountains	upp.	- upperside
Peg.	- Pegunungan (Mountains)	WHP	- West Highland Province
		ZMAN	- Zoölogisch Museum Amsterdam, The Netherlands

### **Introduction**

D'Abrera (1971, 1977, 1990) recorded *Danaus philene* Stoll, 1782 with fifteen subspecies, of which *obscura*, *subnigra*, *jobiensis*, *mylitene* and *sabrona* occur in Papua, Indonesia and *Danaus affinis* (Fabricius, 1775) with eight subspecies, of which only *galacterion* occurs in Papua, Indonesia.

Ackery & Vane-Wright (1984) revised the Danainae, a subfamily of the Nymphalidae. In this work the taxa *philene* and *affinis* were synonymized under the senior name

*affinis*: *Danaus (Salatura) affinis* (Fabricius, 1775), including 72 subspecific taxa, ranging "from Java eastward to the Solomons, New Hebrides and New Caledonia, northward to Luzon and southward to the northern and eastern coastal areas of Australia; apparently absent from Sumatra and Borneo but re-occurs in Malaya and Thailand".

Eight subspecies are known from Papua, Indonesia: six which formerly belonged to *philene*, two to *affinis*.

(ex *philene*)

<i>obscura</i> Capronnier, 1886	Waigeu
<i>subnigra</i> Joicey & Talbot, 1922	Numfor and Biak
<i>jobiensis</i> Grose-Smith, 1894	Japen, Roon
= <i>pittakus</i> Fruhstorfer, 1907	
<i>mytilene</i> Felder & Felder, 1860	NW Papua
<i>bonguensis</i> Fruhstorfer, 1899	NE New Guinea
<i>sabrana</i> Talbot, 1943	N + NE Papua
(ex <i>affinis</i> )	
<i>galacterion</i> Fruhstorfer, 1906	Fergusson and Trobriand Isl. and SE Papua
<i>strephon</i> Fruhstorfer, 1907	Etna Bay, Kapaur, SW Dutch New Guinea (not mentioned by Ackery & Vane-Wright, 1984)

Based on the well-known variability of *affinis* by Joicey & Talbot (1925) and the plethora of names that have been applied to *affinis/philene* (especially as many of the taxa were based on only very limited material), Parsons (1999) decided to use older names only provisionally to denote forms of *affinis* in PNG and to establish the main phenotypes of the species to be found in that country as follows:

1. *affinis* Fabricius, 1775. The lightest, whitest form.
2. *philene* Stoll, 1782. The darkest form.
3. *bonguensis* Fruhstorfer, 1899. A rather sandy-brown form somewhat intermediate to the above 2 taxa, and with the pale median to basal wing areas pale brownish-orange.
4. *mytilene* C. & R. Felder, 1860. A paler form than *philene* with somewhat smaller white spotting.
5. *jimiensis* Miller & Miller, 1978. A mauve form, mimetic of other danaines in the Jimi River.

In Papua, the Indonesian part of New Guinea, principal forms are distributed as follows:

The darkest form is known from the centre and eastern part of the Bird's Head, from Kebar Valley to the west. This form has a quite poor developed row of subapical spots on the upperside of the fore wing. (ssp. *mytilene* Felder)

Specimens from Manokwari and the island of Mioswaar are quite variable. Most have white subapical spots on forewing and the two rows with (sub)terminal spots on hindwing well developed; however, in some examples the white spots –especially on hindwing– are poorly developed.

Specimens from the islands of Numfor, Supiori and Biak are close related to *mytilene*, but the white subapical spots are smaller and even less evident. (ssp. *subnigra* Joicey & Talbot)

Specimens from the Wondama peninsula differ from *mytilene* and *subnigra*, by lightly larger white subapical spots and by the orange brown coloration at the base of the upperside of the fore wing. These differ from ssp. *bonguensis* Fruhstorfer, because the brown ground colour is dark.

Specimens from Japen are very variable, but do not show particular characteristics that distinguish them from material from the north coast of Papua. For that reason it is doubtful to treat them as a separate subspecies. (ssp. *jobiensis* Grose-Smith)

Specimens from the north coast of Papua become lighter from west to east.

Specimens from Nabire and the Moor and Mambor islands are quite dark, from Sarmi and the Kumamba islands are slightly lighter and in the Pantai Timur islands, Jayapura and Keerom the ground colour is light brown, sometimes with white median spots on upperside and underside of hind wing. (ssp. *sabrona* Talbot)

The populations on Waigeu, Gam, Batanta and Salawati (Raja Ampat) belong to subspecies *obscura* Capronnier, 1886. This subspecies is easily recognized by its well developed white subapical stripes on the upperside of the forewing. Subspecies *strephon* Fruhstorfer occurs in Fakfak (Kapaur). This subspecies has the same well developed subapical stripes as *obscura*, but is much paler brown with well developed white parts on both wings.

On the south coast the pale form occurs from the Mimika in the west to Merauke in the east. From west to east the dark coloration at the upperside of both wings becomes darker. The population is similar to ssp. *galacterion* Fruhstorfer, originally described form SE PNG.

In the interior of Papua only a single population is known from the environment of Kobakma (800 m) and a lower parts of Pass Valley (850 m). This approaches ssp. *jimiensis* Miller & Miller from PNG in appearance, however, the ground colour of the upperside of both wings is not mauve, but pale pink with brown veins, even paler than in pale forms of *Euploea algea* or *E. stephensii*. The latter is a very common species in Kobakma area, so it is – as *jimiensis* – “certainly part of an unusual pale-form Mullerian mimetic assemblage of various danaines.” (Parsons, 1999) This new race will be described here as *Danaus affinis kobakma* **subsp. nov.**

The author agrees with Parsons (1999) that on smaller islands *affinis* tends to occur in strand habitat. Even when only a few species are found, *affinis* is often one of

them. In Papua, there are no confirmed records of *affinis* from higher elevations. All specimens in KSP are from coastal lowland, from 0 to 400 m (in the Cyclops Mts and at Ubrub, both in the environment of Jayapura). There are no records on lower mountains (600 m upwards) from any location on the mainland of Papua, including Fakfak, Wondama, Kobowre Mts and Star Mts, or on islands as Supiori and Japen. The only exception is the newly discovered population from the Kobakma area (800-850 m), described in this paper.

In PNG, ssp. *jimiensis* also inhabits a lower-montane habitat in the Jimi River valley of Western Highlands, at altitudes between 700 and 1,000 m.

*Danaus affinis kobakma* **subsp. nov.**

Figs 1 - 4; Map 1

**Holotype** ♂. IRIAN JAYA, Kec. Abenaho, Pass Valley, 850 m, 17.V.1999, Henk v. Mastrigt, KSP 15015, KSP.

Paratypes (9 ♂♂, 1 ♀). Kobakma, R. Nendawi, 24.VI.1993, Henk van Mastrigt, 2 ♂♂, KSP (15005, 15007); Kobakma, 25.VI.1993, Henk van Mastrigt, 5 ♂♂, 1 ♀, (KSP 15008-9, 15011-14), KSP; Kobakma, R. Hablafuri, 10.i.1996, KSP 15006, 15010), KSP.

**Diagnosis:** The subspecies can easily be distinguished from all other *Danaus affinis* subspecies by its pale pink coloration on the upperside of both wings.

**Description:** Male. Upperside of forewing is pinkish, especially in discal cell, getting paler to slightly convex termen, with a row of eight white terminal dots and a second row of eight larger subterminal spots. The apex is brownish with some white dots and spots, bordered by more or less white subapical stripes. Upperside of hindwing has same pinkish coloration as forewing, with some white in median part of discal cell and –largely– in cells M<sub>1</sub> and M<sub>2</sub>; along both sides of anal vein a white streak. At the costa a white spot. The border is dark brown, the subterminal area is pale brown, both areas with a row of 14 white terminal dots, 2 in each cell. A large oval dark brown sex brand at the anal side of vein CuA<sub>2</sub>, about 5 mm from discal cell. Undersides of both wings have the same pattern as on upperside. Only the pinkish areas on upperside are pale brown underside. Female. As male, but terminal border of forewing is more straight and on the hindwing is the sexbrand missing.

Length of forewing: 34-42 mm (38.5 mm)

**Etymology.** "kobakma" is a noun in apposition, being the name of the village where a large population of this subspecies is found.

## Acknowledgements

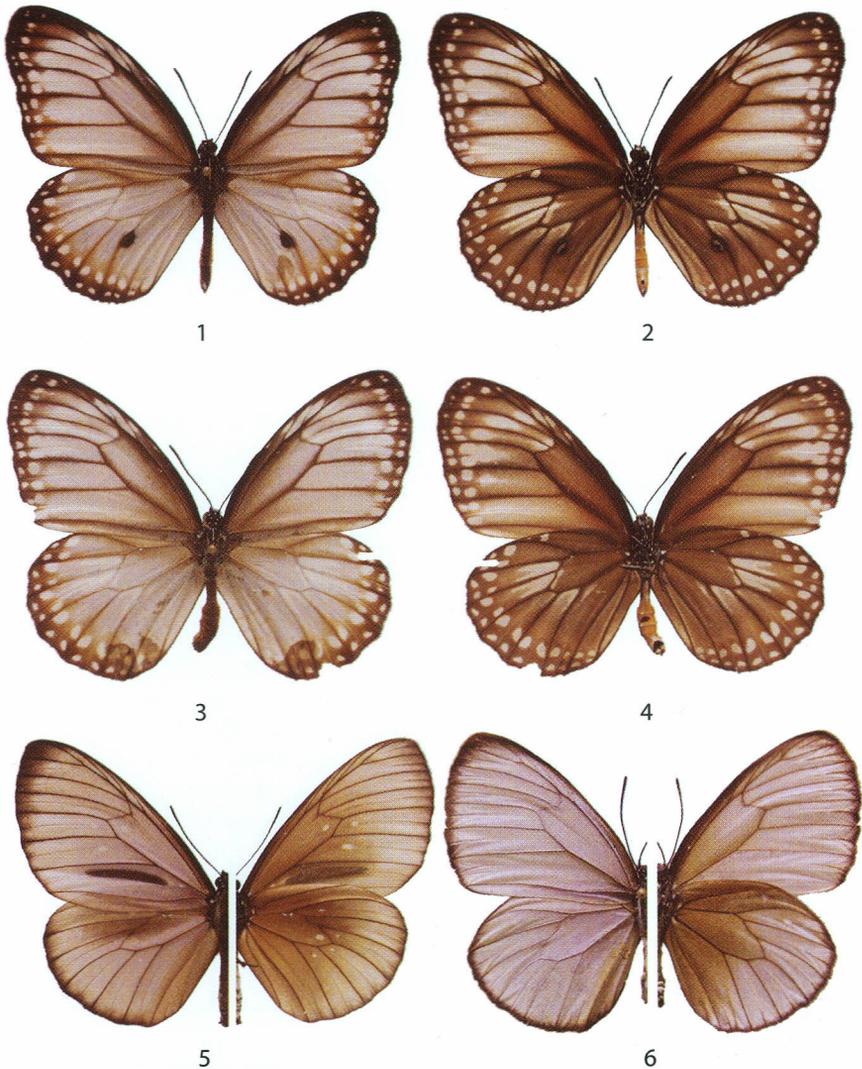
The author thanks the local people of Papua and the governmental authorities who were helpful and cooperative on various surveys. Thanks also to the staff of KSP, especially Mr. Rinto Mambrasar and Miss less Piran for their assistance in the laboratory. Last but not least I acknowledge Mr. Chris Davenport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

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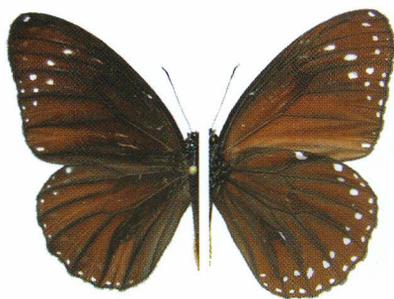
**Map 1.** Distribution of *D. affinis* ssp. in Papua, Indonesia



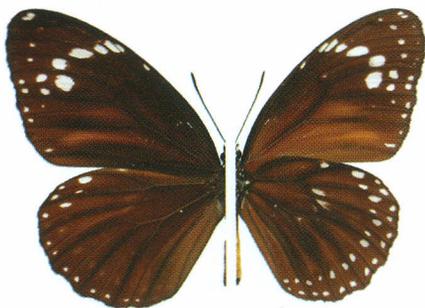
**Figs 1-4.** *Danaus affinis kobakma* subs. nov.: 1. HT ♂ (KSP 15015) upp.;  
2. idem, und.; 3. PT ♀ (KSP 15014) upp.; 4. idem, und.  
**Fig. 5.** *Euploea algea* ♂ pale form (Kobakma) – KSP 15540, upp. + und.;  
**Fig. 6.** *Euploea stephensii* (Kobakma) – KSP 15518, upp. + und.



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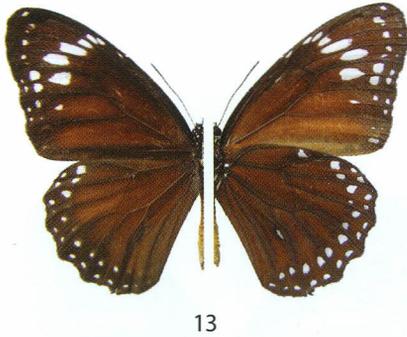


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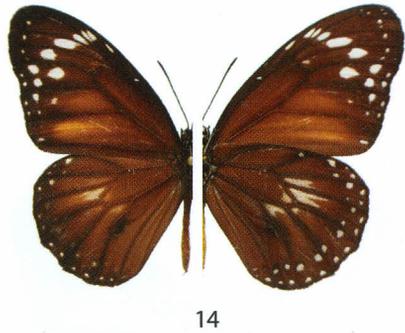


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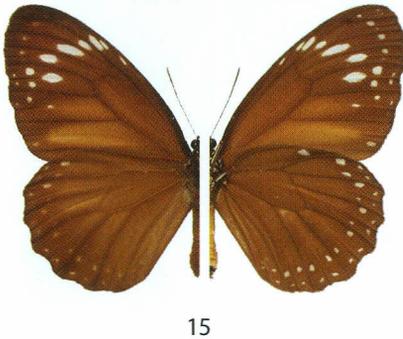
**Figs 7-12.** *Danaus affinis* ssp. upp. + und.: 7. ssp. *mytilene* ♂ (KSP 14903; 8. ssp. *subnigra* ♂ (KSP 52701); 9. ssp. *bonguensis* ♀ (KSP 14912); 10. ssp. *jobiensis* ♂ (KSP 47880); 11. ssp. *jobiensis* ♂ (KSP 47881); 12. ssp. *sabrona* (KSP 14993 – Kep. Moor & Mamboor).



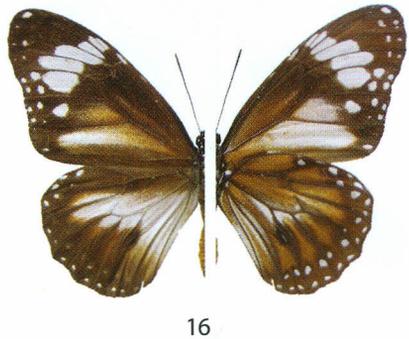
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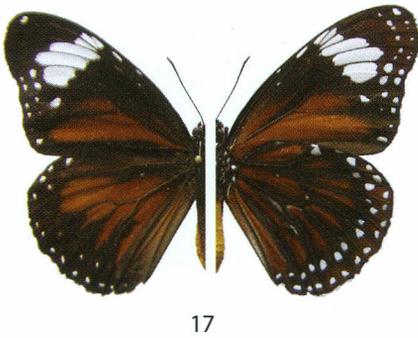
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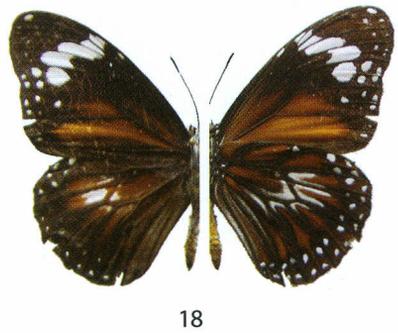
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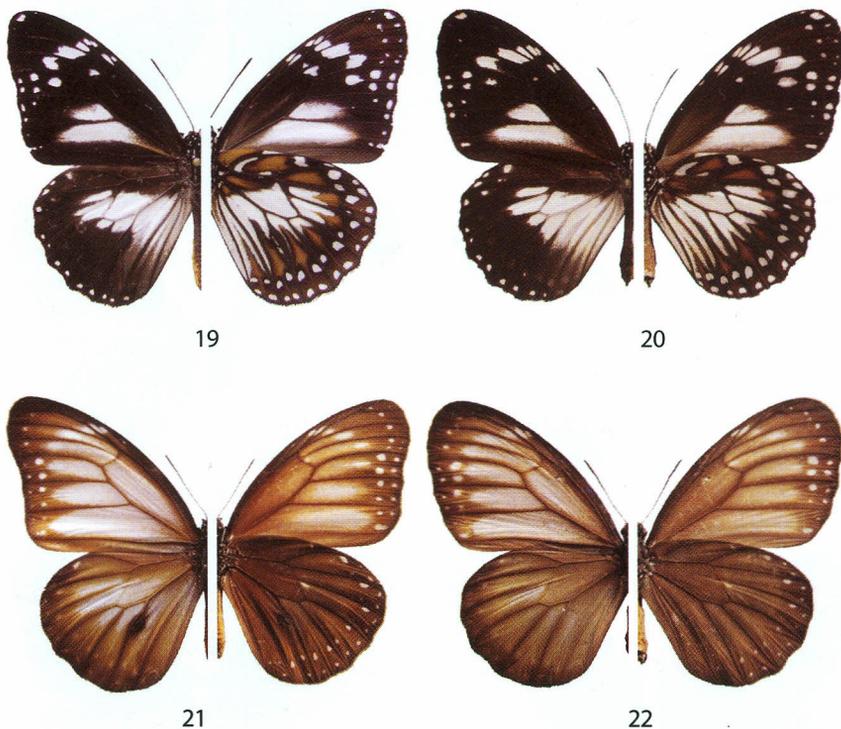


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**Figs 13-18.** *Danaus affinis* ssp. (continue): 13. ssp. *sabrona* ♂ (KSP 50773 – Waropen); 14. ssp. *sabrona* ♂ (KSP 14991 – Jayapura); 15. ssp. *sabrona* ♀ (KSP 14997 – Jayapura); 16. ssp. *strephon* ♂ (KSP 14875 – Fakfak); 17. ssp. *obscura* ♂ (KSP 57462); 18. ssp. *obscura* ♂ (KSP 57460).



**Figs 19-22.** *Danaus affinis* ssp. (continue): 19. ssp. *galacterion* ♂ (KSP 14888);  
20. ssp. *galacterion* ♀ (KSP 51576);  
21. ssp. *jimiensis* ♂ (PNG, WHP, Koinambe, Jimi River valley, 900 m - CD);  
22. ssp. *jimiensis* ♀ (PNG, WHP, Koinambe, Jimi River valley, 900 m - CD).