Introduced species of Lepidoptera in Papua

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Abstract: Four species of hitherto alien lepidoptera are recorded in Papua (the Indonesian part of New Guinea): *Papilio demoleus, Euthalia aconthea, Elymnias hypermnestra, Junonia altiles.* The temporary presence of that *Samia ricini* in Irian Jaya is recorded.

Ikhtisar: Empat spesies disajikan yang sekarang ini termasuk dalam fauna Papua (bagian barat New Guinea yang termasuk Indonesian): *Papilio demoleus, Euthalia aconthea, Elymnias hypermnestra, Junonia altiles.* Di samping itu *Samia ricini* disebutkan sebagai spesies yang pernah di Papua, pada waktu ada proyek sutra di Wamena.

Keywords: Papilio demoleus, Euthalia aconthea, Elymnias hypermnestra, Junonia altiles, Samia ricini, New Guinea.

Depositories

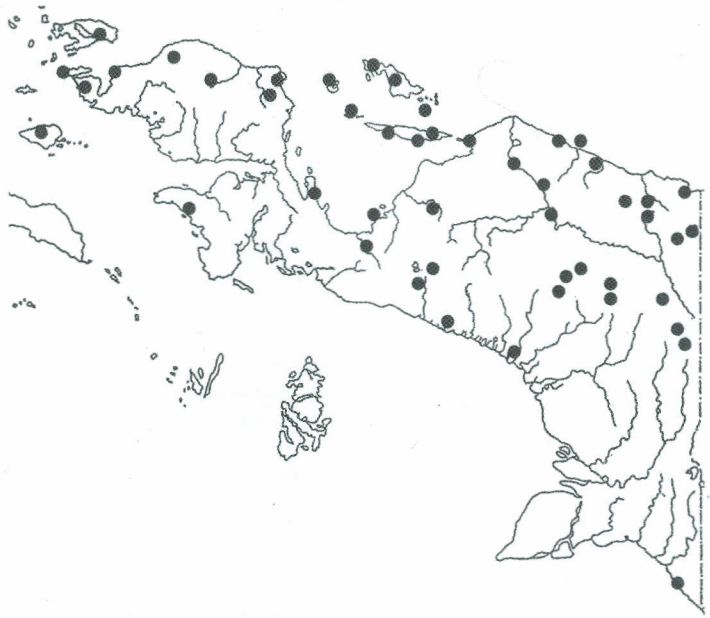
The abbreviations given below have been used throughout the text.

CI - Conservation International
J. D. F. - Joint Development Foundation
lfw - length of forewing
KEP - Kelompok Entomologi Papua (Entomological Group Papua)
KSP - Koleksi Serangga Papua (Collection Papuan Insects) at Jayapura
PNG - Papua New Guinea
UNCEN - Universitas Cenderawasih (Bird of Paradise University) at Jayapura
UNIPA - Universitas Papua (Papua State University) at Manokwari

Introduction

Since the beginning of the 1990's some 'new' butterflies have been observed in Irian Jaya (now Papua), not recorded in earlier surveys. A number of these species are usually found in the Oriental rather than Australasian region.
The term 'introduced species' is used for species that, until very recently, have not been recorded from Papua and that appear to originate from a non-Australasian region.

Map 1 shows all localities surveyed after 1995 and may be compared with the separate maps for each species.



Map 1. All localities surveyed after 1995

Introduced species

This publication records four species which are now present in Papua[1]: *Papilio demoleus* Linnaeus, 1758, *Euthalia aconthea* Cramer, 1777, *Elymnias hypermnestra* Linnaeus, 1763 and *Junonia altiles* Linnaeus, 1758. Additionally, the temporary presence of *Samia ricini* Donovan, 1798 in Irian Jaya, during a few years in the 1970's is recorded.

Papilio demoleus Linnaeus, 1758

(Map 2, Figs. 1-2)

Papilio demoleus is know as a very widely distributed species, of which seven subspecies are recognized (Moonen, in manuscript) all over the region, from Iran

1) Since 2006 the Indonesian Provinces Papua and Papua Barat, in the past named Irian Jaya (1972-2000), Irian Barat (1963-1972) and Nederlands Nieuw Guinea (up till 1963).

eastwards, and into the Indo-Australian Region from Sri Langka and India to southern China (including Hong Kong and Taiwan), Vietnam, the Malaya Peninsula, being absent from Sumatra, Borneo, Sulawesi, and the Moluccas (cf. Parsons, 1999). Its occurrence is considered indigenous in the Philippines and few records are known from Java over the 19th century and now it may even be common (cf. Moonen, 1991, 1998). Further eastwards *demoleus* is known from Sumba, Sumbawa and Timor (Moonen, 1999) and ranges throughout continental Australia (except Tasmania), the Torres Strait Islands, reaching the southern mainland of PNG, were it sometimes can be very common, especially during the wet season (October-April). D'Abrera (1990) mentioned *P. demoleus sthenelus* Macleay from the Torres Strait Islands and the continental Australia (except Tasmania), where it is common in Queensland and sporadically elsewhere, and *P. demoleus novoguineensis* Rothschild from southern Papua (i.e. Southeast PNG). No records or observations were known from the western part of New Guinea, till October 1997 (Moonen, 1999), when some specimens were recorded along the Sanoba River near Nabire. Also some records are known from Waropen, the coastal mainland of Papua east from Nabire. Since July 1998 *demoleus* has become the most common *Papilio* in the Jayapura area. Daawia (2001) observed Papilio species from January to June 2001, and reported that *demoleus* was the most common Papilio between 22.3% (in June) and 24.7% (in May) of all Papilio specimens. It is a common daily visitor to our garden in Jayapura and caterpillars are often found on small citrus trees there.

From the various surveys of KEP, together with students of UNCEN and UNIPA, and from the surveys organized by CI Indonesia, the following can be reported. During the surveys at the islands of Pantai Timur (2001), at the Kumamba Islands (2002), at South Supiori (2004), at Numfor (2005), at Japen (2006, 2007) and Miosnum, Biak and the Padaido Islands (2008) *demoleus* was not recorded. It was only recorded in the surroundings of Sarmi (2002), on the way to the Kumamba Islands. During the survey to the Moor and Mambor islands (2003), many species were found at the mainland near Nabire and only on the islands Moor, Mambor and Heriti. The surveys to the Mamberamo area, Dabra (2000), Marina Valen (2004) and Kwerba (2005, 2008) did not result in any records or observations of *demoleus*. Also during surveys at Ubrub (2003), in Tuwan-Wouwi Forest near Manokwari (2003), Fakfak (2005), Merauke (2007, 2008) and at Sorong and Waigeu Island (2008) no observations were made, nor at all localities in the central mountain range of Papua. Both the surveys on 1,400 m at Mokwam in the Arfak Mountains (2007) and to the coastal areas of Wondama (2008) resulted in observations and records of *demoleus*. On the south side of Papua *demoleus* is only known from the surroundings of Timika. Gotts & Pangemanan (2001) confirm *demoleus* as indeed a part of the Mimika butterfly fauna, which is identified as ssp. *novoguineensis*.

Moonen (1998) disagrees with the subspecific identification, as the Papuan specimens (from Sentani and Jayapura, 1998) are closest to *malayanus* Wallace, but do not exactly match with any described subspecies and concludes that perhaps these populations, including those from Papua and the Lesser Sundas, are the result of mixture of different subspecies. The specimens pictured in Gotts & Pangemanan (2001) show the same features as the specimens from other localities in Papua and differ from both ssp. *novoguineensis* and ssp. *sthenelus*, known from Southeast PNG and Australia.

Map 2. Localities where *Papilio demoleus* is recorded

***Euthalia aconthea* Cramer, 1777**

(Map 3, Figs. 3-4)

Euthalia aconthea is not mentioned by D'Abrera (1971, 1977, 1990), nor by Parsons (1999) which indicates that this species in recently introduced in the New Guinea area. D'Abrera (1985) described *Euthalia aconthea* is one of the commonest species throughout its range and mentioned fifteen subspecies distributed from Sri Langka, central and northern India (including Sikkim and Assam) to Thailand, southern China, the Malaya Peninsula, various Southeast Asian islands, including Sumatra,

Java, Borneo, Bali, Lombok and Sumbawa as most eastern Indonesian Island. No records are reported from Celebes (Sulawesi) or the Moluccas islands. The first records from Papua are reported by Van Mastrigt & Rosariyanto (2005) who mention its presence at Sentani, in December 2000. In the last few years *E. aconthea* has not only be reported from the Jayapura area, but also from Nabire and Manokwari, so indicating that it is now widespread along the coastal area of northern Papua. Because there is no biogeographic relation between the presumed origin (West from Celebes) and Jayapura, it is likely that humans played an important role by the move of this species to Papua. It is noted that the Papuan specimens appear most alike *E. aconthea aconthea* from Java.

Map 3. Localities where *Euthalia aconthea* is recorded

***Elymnias hypermnestra* Linnaeus, 1763**

(Map 4, Figs. 5-8)

Elymnias hypermnestra is not mentioned by D'Abrera (1971, 1977, 1990), nor by Parsons (1999) which indicates this species is recently introduced in New Guinea. D'Abrera (1984) described *Elymnias hypermnestra* as perhaps the most widespread *Elymnias*, as occurring in the entire Oriental Region except the Philippines and the Sulawesi subregion. Furtheron D'Abrera stated that "there are too many names

(mostly infrasubspecific) in the literature which continue to confuse the unwary. Suffice to say that the species is variable even locally, but nevertheless recognizableÖ All races are subject to a certain degree of seasonal variation".
It is difficult to say when *Elymnias hypermnestra* was introduced to the Supiori and Biak Islands in Papua. The species was not recorded by the author during visits to Biak in the 1970's and 80's, however these surveys were not exhaustive or of long duration. The first record in KSP is from Biak, during a short survey close to Korim at northern Biak in April 2001. On all later visits to Supiori (2004, 2006, 2007) and to Biak (2006, 2007) *E. hypermnestra* was recorded, including one specimen from the Owi Island (one of the Padaido Islands, East of Biak). The origin of the Supiori-Biak population is currently unclear, pending further comparison of the specimens with known subspecies.

Map 4. Localities where *Elymnias hypermnestra* is recorded

Junonia altiles **Linnaeus, 1758**
(Map 5, Figs. 9-10)

Junonia altiles is mentioned by D'Abrera (1984) as occurring in the entire Oriental region, except the Philippines. A recent record and the observation of a second

specimen near Sorong, Birdshead, Papua Barat Province on July 12th, 2008, may indicate a range expansion this species into the Australian region.

The lack of further sightings suggests that these individuals may be monsoon driven vagrants, rather than members of a breeding population.

Map 5. Locality where *Junonia atlites* is recorded

***Samia ricini* Donovan, 1798**

(Map 6, Figs. 11-12)

Samia ricini was present in Papua from 1974 till 1976, when J.D.F. in cooperation with the Catholic Church started a silk-project at Wamena, Baliem Valley at an altitude of 1,600 m. The eggs were imported from Assam. The author obtained a few caterpillars, on 22nd February 1976 two moths hatched from the cocoons and were prepared for the collection. However, following the closing down of the project in 1976, *Samia ricini* disappeared from Papua.

Map 6. Locality where *Samia ricini* was present in the 1970's

Material in KSP

Papilio demoleus: Manokwari, Minyambouw, Mokwam, 26.XI.2006, 1 ex; Teluk Wondama, Tandia, 15&23.VIII.2008, 1 ex; Nabire, River Samoba, I.1998, 2 ex.; Nabire, 20.XII.1999, 1 ex; Nabire, 8.VII.2003, 2 ex; Nabire, Pulau Moor, 8-14.VII.2003; 3 ex; Nabire, Pulau Mambor, 23-25,31.VII.2003, 2 ex, Nabire, Pulau Hariti, 2-6.VIII.2003, 1 ex; Mimika, Timika, IV-V.2005, 1 ex; Waropen, X-XII.2000, 2 ex; IV.2001, 6 ex; Sarmi, 18.VII.2002, 2 ex; 8.VIII.2002, 1 ex; 9.VIII.2002, 1 ex; Sentani, 14.I.1998, 1 ex; 12.VI.1998, 1 ex, 13.VI.1998, 2 ex, 29.VII.1998, 1 ex; 31.VII.1998, 1 ex; 10.VIII.1998, 1 ex; 3.V.1999, 1 ex; Jayapura, Abepura, 5-15.V.2001, 2 ex; Jayapura, A.P.O., 11.IX,2001, 1 ex; 22.XI.2003, 3 ex; 1.II.2004, 1 ex.
Euthelia aconthea: Jayapura, Angkasapura, 10.IX,2001, 1 ex; Abepura, Waena, XII, 2000, 1 ex; Sentani, 17.X.2001, 1 ex.
Elymnias hypermnestra: Supiori, Korido, Air Terjun, 2.IV.2004, 1 ex, idem, Marsrib, 6.IV.2004, 1 ex; idem, Hutan, 14.IV.2004, 1 ex; Supiori Utara, 24.VIII-1.IX.2006, 1 ex; idem, Kampung Pudori, 21.IX.2006, 2 ex; Biak Barat, Arabdori, Wardo, 31.VII-2.VIII.2007, 2 ex; idem, Maudori, 6+8.VIII.2007, 1 ex; Biak Utara, Warsa, Sansundi, (26606), 1 ex; Korem, IV.2001, 1 ex; Biak Kota, I-V.2004, 2 ex; Biak Timur, Pulau Owi, 22-25.VI.2007, 1 ex.
Junonia altiles: Sorong, Makbon, Malawor, 12.VII,2008, 1 ex.
Samia ricini: Wamena, 22.II.1976, 2 ex.

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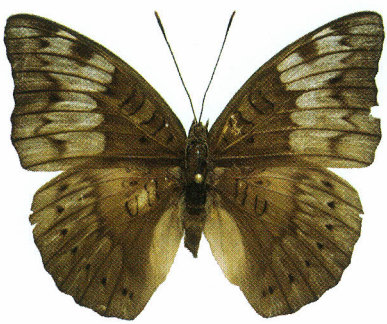

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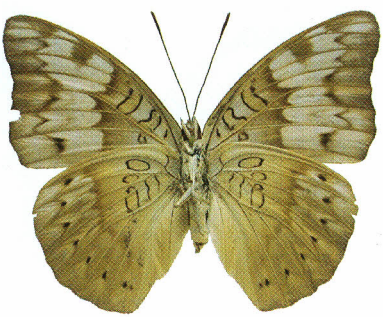

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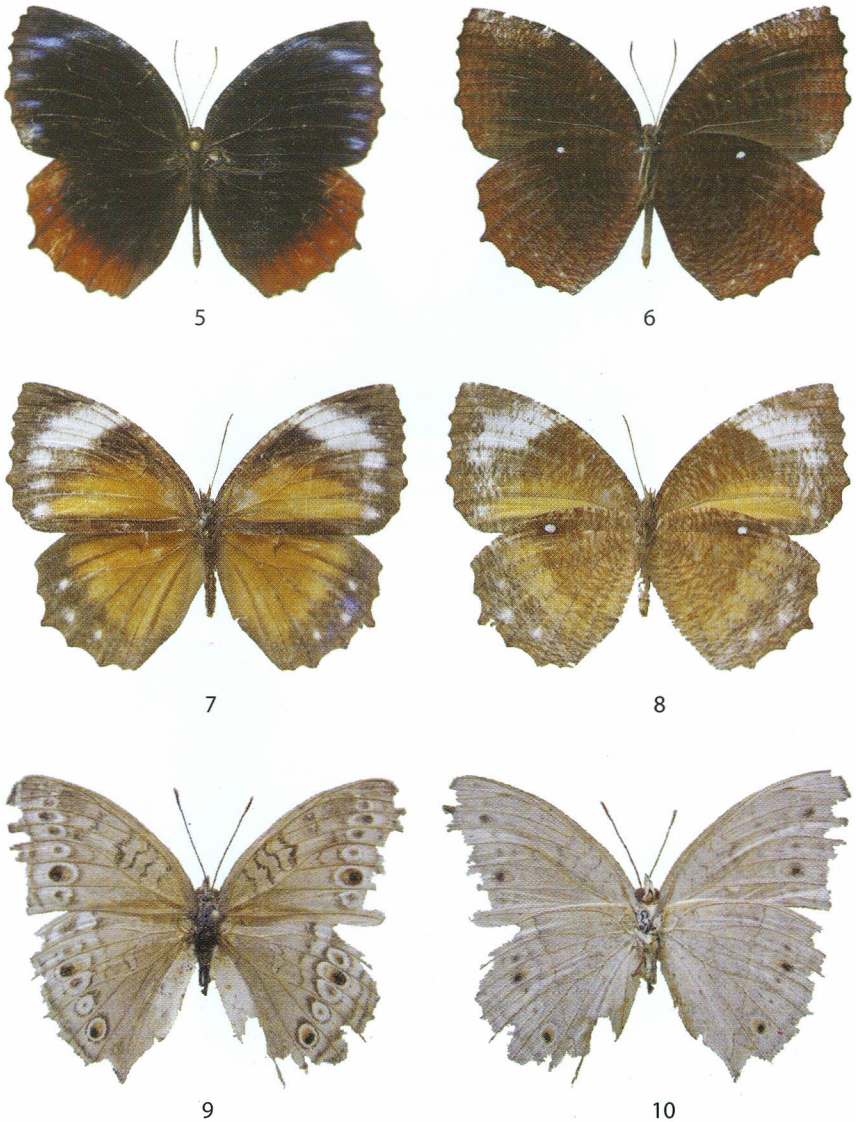
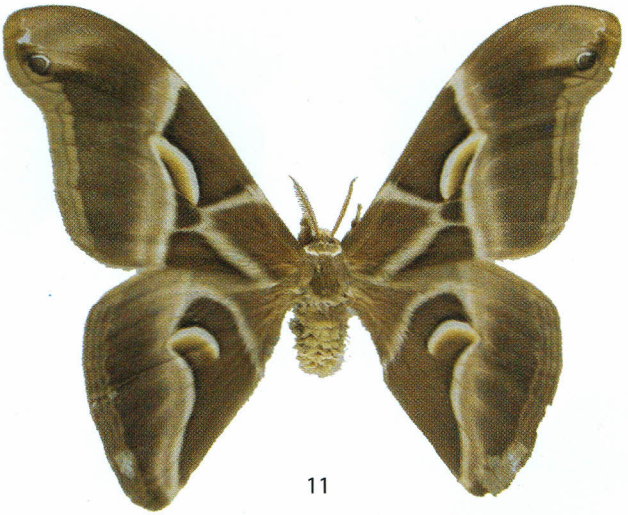
Figs. 1-2. *Papilio demoleus.* 1.♂ upperside (lfw: 43 mm); 2. idem underside.
Figs. 3-4. *Euthalia aconthea.* 3.♀ upperside (lfw: 36 mm); 4. idem underside.



Figs. 5-8. *Elymnias hypermnestra*. 5. ♂ upperside (lfw: 33 mm); 6. idem underside; 7. ♀ upperside (lfw: 35 mm); 8. idem underside.
Figs. 9-10. *Junonia altiles*. 9. ♂ upperside (lfw: 31 mm); 10. idem underside.



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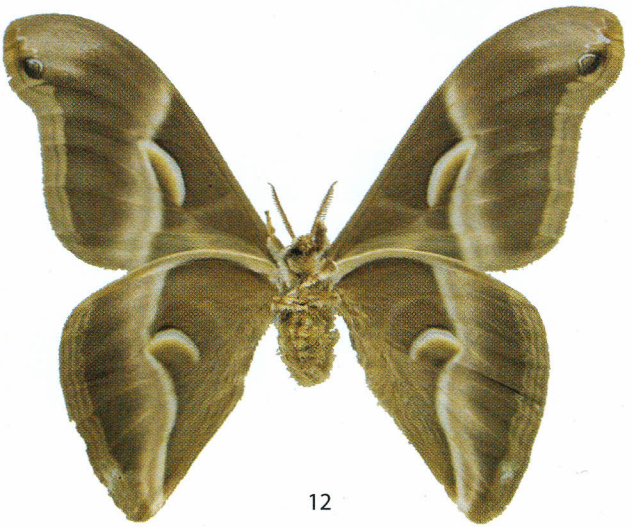

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Figs. 11-12. *Samia ricini*.11. upperside (lfw: 63 mm); 12. idem underside.

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