

# **Diversity and distribution of Papilionoidea (Lepidoptera) in the south eastern part of Papua, Indonesia**

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*Abstract:* In 2007 a survey was carried out in the savannah area near Merauke in south east Papua. Two years later, WWF organized a survey in the nearby Mappi and Asmat area. The results of both surveys are presented with a list of the 148 species recorded and some notes about significant taxa .

*Ikhtisar.* In 2007 diadakan survei di daerah sabana di Merauke. Dua tahun kemudian WWF mengadakan suatu survei di daerah Mappi dan Asmat. Hasil dua survei tersebut disajikan di sini dengan daftar 148 spesis dan beberapa catatan pada spesis yang menarik perhatian.

*Keywords:* Butterflies, Merauke, Asmat.

## **Introduction**

The biodiversity of Papua –the Indonesian part of New Guinea– is among the highest in the world, a reason for many scientists to visit and survey this region with its huge tropical rainforests. However, from reviewing the work of many entomologists who visited Papua, it is evident that mountainous areas and islands have been visited much more frequently than the lowland areas on both sides of the central mountain range. The expectation of finding endemic species on islands and in the isolated mountain chains, and the swampy, mosquito infested nature of the hot lowlands with fewer endemics, are possible reasons for the bias in survey locations and knowledge of lowland biodiversity

From the south eastern part of Papua (the former Kabupaten (Sub-province) of Merauke, now divided in five sub-provinces) only some incidental data are known, but no reports are available on its biodiversity as results of intensive surveying in the area, that –especially in west and north– consists of large rainforests, while the south eastern part is more open with locally a savannah-like landscape. A large part of this more open area is within the Taman Nasional Wasur, the Wasur national

reserve, with an area of 4,138.10 km<sup>2</sup>, situated between long. 140°27' and 141°02' E and lat. 8°5' and 9°7' S.

The administration of this area in five sub-provinces is causing huge pressure on the natural environment, as large areas are about to be designated for palm oil plantations, logging activities, and as industrial and urban areas. Confronted with this prospect, in 2009 WWF, in cooperation with the local governments, organised a number of ecological surveys in order to assemble data on the natural richness of this area. Kelompok Entomologi Papua (Entomological Group in Papua) was invited to provide expertise on insects, especially Lepidoptera and Odonata. Specimens were collected at three localities: in the environment of Kepi, close to Senggo and along the Vriendschap River.

Two years earlier –from July 9<sup>th</sup> to August 8<sup>th</sup>, 2007– a survey was carried out by Beatrix Wanma c.s., at six localities in the environment of Merauke: three localities inside the Wasur reserve and three localities outside the reserve in order compare the diversity on butterflies inside and outside Wasur. Additionally, she recorded information on the different habitat requirements of butterflies in this area and about the presence of endemic butterflies.

In this publication, with the permission of WWF, the results of both surveys are brought together in order to provide an overview the diversity and distribution of Papilionoidea in this area.

## Survey locations

The localities inside the Wasur reserve chosen by Beatrix Wanma, student of the Cenderawasih University, for her survey were in the environment of Sota (about 8°25.925' S and 141°00.54' E), Rawa Biru (about 8°39.645' S and 140°50.440' E) and Ndalir (about 8°29.832' S and 141°01.423' E). The habitat of these three localities is similar: quite open forest (of a better quality than that found outside the reserve), with much grass (*Imperata cylindrical*) and eucalyptus and *Mealeuca cajuputi* (Apocynaceae) as dominant trees. In the environment of Rawa Biru are swamps, where *Pandanus* is frequent in the extensive grassland. Ndalir is situated on the coast among mangrove forest.

The three localities outside the reserve were Salor (about 8°16.902' S and 140°21.912' E), Erom (about 8°15.207' S and 140°46.020' E) and Buti Payum (about 8°31.627' S and 140°24.338' E). Although the vegetation inside and outside the reserve is similar, the quality of the forest outside the reserve is noticeably poorer due to logging activities.

In Salor the forest is less and much more open, with *Metroxilon sagoo* as most common tree. Erom has been opened by the government for transmigration and the swamp areas are being converted to *sawah* (wet rise plantations). The remaining forest is used for agriculture, gardening and cattle. Buti Payum is located at the coast and has very little remaining forest because of many human settlements. WWF located the survey camps in three different areas; the first one outside Kepi (about 6°44.60' S and 139°14.87' E), the second one in the environment of Senggo (about 6°39.10' S and 139°13.70' E) and the third one along the Vriendschap River (about 5°20.20' S and 138°54.72' E). These three areas were quite different one to another. The area around Kepi is relatively open with broad roads and settlements. The forest is degraded as many native trees have been cut for commercial reasons, or replaced with *Melaleuca cajupui*, planted for medical use. However, at Katan, a small secondary forest was found to be in a fairly good condition. There are many settlements and gardens in the vicinity of Senggo, however the nearby forest was still very dense and of good quality. At the Vriendschap River, just a few houses are situated on the banks of the river and no large settlements are found. The forest is rich in sago trees, and is sometimes visited to collect the bark of the *Aquilaria malaccensis* trees. The difficulties in accessing this area have allowed the forest to remain unexploited and of a good quality.

## Field conditions

The survey results at the nine localities were influenced by four important factors: the duration of the stay, the composition of the survey team (number of members and their experience), the weather and the accessibility of favourable collecting sites.

In 2007, five consecutive days was spent at each of the six localities by a team of four to five people, including two experienced members. The weather was quite good and the collecting areas were accessible. During the 2009 survey the team consisted of three people, including only one experienced member. The habitat at Kepi was accessible and during a five days stay the weather was fine. Because of transportation and other difficulties, only three days was spent at Senggo during very rainy weather, and it was not easy to enter the forest because of its density and the many muddy areas. Four days in July and further two days in October were spent surveying from the camp on the Vriendschap River. In July the weather was precarious; in October it was fine.

## Diversity

The results at 2007 survey show that the number of species observed during five days was varying between 42 (at Ndalir) and 64 (at Sota and Erom). In total, 104 species were observed during the thirty days .

The results of the 2009 survey are similar with a total 103 species recorded; however, these were collected in fifteen days only. The differences between the three localities were quite marked: only 27 species at Senggo (only three days, hard access and bad weather), 67 species at the Vriendschap River (six days, quite good weather and restricted access) and 72 species at Katan, in the environment of Kepi (quite open area, some variety in habitat and a good accessibility).

59 species were recorded during both surveys, 45 species only in the 2007 survey (in the open savannah-like forests), and 44 species only in 2009 (in the more dense forests).



**Table 1.** Butterflies in south eastern Papua

No	Species Name	Survey Bea Wanma c.s								Survey WWF/KEP					TTL
		So	Sa	Nd	Er	RB	BP	TL	TT	Ka	Se	Vr	TL	TT	
	<b>Papilionidae - Papilioninae</b>														
1	<i>Atrophaneura polydorus</i>	1	1	-	1	1	1	5	1	1			1	1	6
2	<i>Ornithoptera priamus</i>	1	1	1	1	-	1	5	1				-	-	5
3	<i>Graphium agamemnon</i>	1	-	-	1	1	-	3	1	1	1	1	3	1	6
4	<i>Graphium macfarlanai</i>		-	-	1	-	-	1	1				-	-	1
5	<i>Graphiumj sarpedon</i>	1	-	-	-	-	-	1	1	1	1	1	3	1	4
6	<i>Graphium eurypylus</i>									1			1	1	1
7	<i>Graphium aristeus</i>											1	1	1	1
8	<i>Papilio demoleus</i>									1			1	1	1
9	<i>Papilio aegesus</i>	1	1	1	1	1	-	5	1	1	1	1	3	1	8
10	<i>Papilio fuscus</i>	1	-	1	1	-	-	3	1				-	-	3
11	<i>Papilio ulysses</i>	1	1	-	-	1	-	3	1	1	1		2	1	5
12	<i>Papilio euchenor</i>	1	-	-	-	-	-	1	1	1	1	1	3	1	4
	<b>Jumlah Papilionidae</b>	<b>8</b>	<b>4</b>	<b>3</b>	<b>6</b>	<b>4</b>	<b>2</b>		<b>9</b>	<b>8</b>	<b>5</b>	<b>5</b>		<b>9</b>	
	<b>Pieridae - Coliadinae</b>														
13	<i>Catopsilia pomona</i>	1	1	1	1	1	1	6	1	1	1	1	3	1	9
14	<i>Catopsilia pyranthe</i>		1	1	-	-	1	3	1	1			1	1	4
15	<i>Eurema hecabe</i>	1	1	1	1	1	1	6	1	1	1	1	3	1	9
16	<i>Eurema puella</i>		-	-	1	-	-	1	1	1		1	2	1	3
17	<i>Elodina andropis</i>												1	1	1
	<b>Pieridae - Pierinae</b>														-
18	<i>Appias celestina</i>									1		1	2	1	2
19	<i>Appias ada</i>		1	-	1	-	-	2	1			1	1	1	3
20	<i>Cepora perimale</i>		1	1	1	-	1	4	1				-	-	4
21	<i>Delias argenthona</i>		1	-	-	-	1	1	3	1			-	-	3
22	<i>Delias mysis</i>	1		1	1	-	1	4	1				-	-	4
23	<i>Delias lara</i>	1						1	1			1	1	1	2
24	<i>Delias aruna</i>											1	1	1	1
25	<i>Delias dice</i>									1			1	1	1
	<b>Jumlah Pieridae</b>	<b>4</b>	<b>6</b>	<b>5</b>	<b>6</b>	<b>3</b>	<b>6</b>		<b>9</b>	<b>6</b>	<b>2</b>	<b>8</b>		<b>10</b>	
	<b>Lycaenidae - Riodininae</b>														
26	<i>Dicallaneura decorata</i>	1	-	-	-	-	-	1	1	1		1	2	1	3
27	<i>Praetaxilla segecia</i>	1	-	-	-	-	-	1	1	1		1	2	1	3
	<b>Lycaenidae - Curetinae</b>														
28	<i>Curetis barsinoe</i>											1	1	1	1
	<b>Lycaenidae - Lycaeninae</b>														
29	<i>Pseudodipsas eone</i>	1	-	-	-	-	-	1	1	1			1	1	2
30	<i>Hypochrysops apollo</i>		-	-	-	1	-	1	1				-	-	1
31	<i>Hypochrysops narcissus</i>		-	1	1	1	1	4	1	1			1	1	5
32	<i>Hypochrysops appeles</i>	1	1	1	-	-	1	4	1	1		1	2	1	6
33	<i>Hypochrysops pythias</i>									1			1	1	1
34	<i>Hypochrysops polycletus</i>		1	-	1	-	-	2	1				-	-	2
35	<i>Hypochrysops mioswara</i>									1			1	1	1

**Table 1.** Butterflies in south eastern Papua (continuation)

No	Species Name	Survey Bea Wanma c.s								Survey WWF/KEP					TTL	
		So	Sa	Nd	Er	RB	BP	TL	TT	Ka	Se	Vr	TL	TT		
36	<i>Hypochrysops heros</i>											1	1	1	1	1
37	<i>Philiris harterti</i>											1	1	1	1	1
38	<i>Philiris fulgens</i>	1	-	-	-	-	-	1	1			1	1	1	1	2
39	<i>Philiris helena</i>		1	-	-	-	-	1	1			1	1	1	1	2
40	<i>Philiris mayri</i>	1	-	-	-	-	-	1	1							1
41	<i>Philiris moira</i>									1	1	1	3	1	1	3
42	<i>Arhopala herculina</i>									1			1	1	1	1
43	<i>Arhopala centaurus</i>		1	1	-	1	-	3	1				-	-	-	3
44	<i>Arhopala madytus</i>	1	1	1	1	1	1	6	1	1			1	1	1	7
45	<i>Arhopala micale</i>		1	1	1	1	-	4	1					-	-	4
46	<i>Arhopala admete</i>									1			1	1	1	1
47	<i>Arhopala thamyras</i>									1		1	2	1	1	2
48	<i>Hypolycaena phorbias</i>	1	1	1	1	1	1	6	1	1	1	1	3	1	1	9
49	<i>Hypolycaena danis</i>		-	-	-	-	1	1	1			1	1	1	1	2
50	<i>Anthene lycaenoides</i>		-	-	-	1	-	1	1			1	1	1	1	2
51	<i>Candalides helenita</i>	1	1	-	1	1	-	4	1	1	1	1	3	1	1	7
52	<i>Candalides affreta</i>	-	-	-	1	-	-	1	1					-	-	1
53	<i>Candalides erinus</i>	-	-	-	1	1	1	3	1					-	-	3
54	<i>Candalides tringa</i>									1			1	1	1	1
55	<i>Candalides ardosiaacea</i>	-	-	-	1	-	-	1	1					-	-	1
56	<i>Nacaduba nerine</i>									1			1	1	1	1
57	<i>Nacaduba berenice</i>	1	1	-	1	1	1	5	1					-	-	5
58	<i>Nacaduba kurava</i>	1	-	-	-	-	-	1	1					-	-	1
59	<i>Nacaduba cyanea</i>	-	1	-	-	-	-	1	1					-	-	1
60	<i>Nacaduba tristis</i>	-	1	-	-	-	-	1	1					-	-	1
61	<i>Erysichton lineata</i>											1	1	1	1	1
62	<i>Danis danis</i>									1			1	1	1	1
63	<i>Danis melimnos</i>											1	1	1	1	1
64	<i>Perpheres perpheres</i>									1			1	1	1	1
65	<i>Psychonotis caelius</i>	1	-	-	1	-	-	2	1			1	1	1	1	3
66	<i>Prosotas gracilis</i>	-	1	-	-	-	-	1	1	1			1	1	1	2
67	<i>catophyrops ancyra</i>	1	1	1	1	1	1	6	1			1	1	1	1	7
68	<i>Ionolyce helicon</i>									1			1	1	1	1
69	<i>Theclinesthes miskini</i>	-	-	-	-	1	-	1	1					-	-	1
70	<i>Sahulana scintillata</i>	-	-	-	1	1	1	3	1					-	-	3
71	<i>Jamides bochus</i>	1	1	1	1	1	1	6	1	1			1	1	1	7
72	<i>Jamides soemias</i>					1		1	1							
73	<i>Jamides amarauge</i>		1	1				2	1							
74	<i>Jamides celeno</i>	-	1	-	-	-	-	1	1					-	-	1
75	<i>Jamides aleuas</i>	1	-	-	-	-	-	1	1	1	1		2	1	3	3
76	<i>Jamides aruensis</i>	-	1	-	1	-	-	2	1	1			1	1	1	3
77	<i>Jamides coritus</i>											1	1	1	1	1
78	<i>Catochrysops strabo</i>	-	1	-	-	-	-	1	1					-	-	1
79	<i>Catochrysops panormus</i>	1	1	1	1	-	-	4	1	1			1	1	1	5
80	<i>Lampides boeticus</i>	1	1	1	1	1	1	6	1	1			1	1	1	7

**Table 1.** Butterflies in south eastern Papua (continuation)

No	Species Name	Survey Bea Wanma c.s								Survey WWF/KEP					TTL
		So	Sa	Nd	Er	RB	BP	TL	TT	Ka	Se	Vr	TL	TT	
81	<i>Pithecopis dionisius</i>	1	1	-	1	-	-	3	1	1			1	1	4
82	<i>Neopithecopis lucifer</i>	-	1	-	1	-	-	2	1				-	-	2
83	<i>Leptotes plinius</i>											1	1	1	1
84	<i>Zizina labradus</i>	1	1	1	1	1	1	6	1	1			1	1	7
85	<i>Zizula hylax</i>	-	-	-	1	1	-	2	1				-	-	2
86	<i>Everes lacturnus</i>	-	1	-	1	-	-	2	1				-	-	2
87	<i>Euchrysops cnejus</i>	1	1	1	1	1	1	6	1				-	-	6
88	<i>Freyeria trochylus</i>	-	-	-	-	-	1	1	1				-	-	1
	<b>Jumlah Lycaenidae</b>	<b>20</b>	<b>25</b>	<b>13</b>	<b>23</b>	<b>19</b>	<b>14</b>	<b>45</b>	<b>27</b>	<b>4</b>	<b>20</b>	<b>40</b>			
	<b>Nymphalidae - Ithomiinae</b>														
89	<i>Tellervo assarica</i>	1	1	1	1	1	-	5	1	1			1	1	6
90	<i>Tellervo (assarica) sp.</i>											1	1	1	1
	<b>Nymphalidae - Danainae</b>														
91	<i>Parantica schenkii</i>											1	1	1	1
92	<i>Ideopsis juvena</i>		1	1	1	1	-	4	1	1	1	1	3	1	7
93	<i>Tirumala hamata</i>		-	-	1	-	-	1	1				-	-	1
94	<i>Danaus affinis</i>	1	1	1	1	1	1	6	1	1		1	2	1	8
95	<i>Danaus chrysippus</i>		-	1	-	-	-	1	1				-	-	1
96	<i>Euploea sylvester</i>		1	1	1	-	-	3	1				-	-	3
97	<i>Euploea phaenareta</i>									1	1	1	3	1	3
98	<i>Euploea leucostictos</i>		-	-	1	-	-	1	1				-	-	1
99	<i>Euploea tulliolus</i>		1	1	1	-	-	3	1				-	-	3
100	<i>Euploea algea</i>	1	1	1	1	1	1	6	1	1	1		2	1	8
101	<i>Euploea core</i>		1	1	-	-	1	3	1				-	-	3
102	<i>Euploea netscheri</i>	1	1	1	1	1	1	6	1	1	1	1	3	1	9
103	<i>Euploea alcathoe</i>	1	1	1	1	1	1	6	1	1		1	2	1	8
104	<i>Euploea wallacei</i>		1	-	1	-	-	2	1	1	1	1	3	1	5
	<b>Nymphalidae - Morphinae</b>														
105	<i>Hyantis hodeva</i>											1	1	1	1
106	<i>Taenaris catops</i>									1	1	1	3	1	3
107	<i>Taenaris hyperbolus</i>									1		1	2	1	2
108	<i>Taenaris myops</i>		1	-	-	-	-	1	1	1	1	1	3	1	4
109	<i>Taenaris dimona</i>									1		1	2	1	2
	<b>Nymphalidae - Satyrinae</b>														
110	<i>Mycalesis perseus</i>	1	1		1	1		4	1				-	-	4
111	<i>Mycalesis duponchelii</i>										1	1	2	1	2
112	<i>Mycalesis mucia</i>									1		1	2	1	2
113	<i>Mycalesis phidon</i>									1		1	2	1	2
114	<i>Mycalesis terminus</i>	1	1	1	1	1	1	6	1	1	1	1	3	1	9
115	<i>Mycalesis bazochii</i>											1	1	1	1
116	<i>Mycalesis shiva</i>		1	-	1	-	1	3	1	1	1	1	3	1	6
117	<i>Mycalesis sirius</i>	1	1	1	1	1	1	6	1	1			1	1	7
118	<i>Mycalesis durga</i>							-		1		1	2	1	2
119	<i>Orsotriaena medus</i>	1	1	1		1		4	1	1			1	1	5

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No	Species Name	Survey Bea Wanma c.s								Survey WWF/KEP					TTL
		So	Sa	Nd	Er	RB	BP	TL	TT	Ka	Se	Vr	TL	TT	
120	<i>Hypocysta isis</i>		-	-	1	-	-	1	1	1	1		2	1	3
121	<i>Hypocysta haemonia</i>	1	-	-	1	1	-	3	1	1		1	1	4	
122	<i>Harsiesis yolante</i>									1		1	1	1	
123	<i>Ypthima arctoa</i>	1	1	1	-	1	1	5	1			-	-	5	
124	<i>Melanitis leda</i>	1	1	1	1	1	-	5	1		1	1	2	1	7
125	<i>Elymnias agondas</i>	1	1	1	1	1	-	5	1	1	1	1	3	1	8
	<b>Nymphalidae - Charaxinae</b>														
126	<i>Prothoe australis</i>	1	-	-	-	1	-	2	1			1	1	1	3
	<b>Nymphalidae - Apaturinae</b>														
127	<i>Cyrestis acilia</i>									1		1	1	1	
128	<i>Cyrestis achates</i>		-	-	1	-	-	1	1			-	-	1	
	<b>Nymphalidae - Nymphalinae</b>														
129	<i>Lexias aeropa</i>										1	1	2	1	2
130	<i>Euthaliopsis aetion</i>	1	-	-	-	1	-	2	1			1	1	1	3
131	<i>Parthenos tigrina</i>		-	-	1	-	-	1	1			1	1	1	2
132	<i>Pantoporia consimilis</i>		1	-	1	-	-	2	1	1		1	2	1	4
133	<i>Pantoporia venilia</i>	1	1	1	1	1	1	6	1	1		1	2	1	8
134	<i>Neptis prasilini</i>	1	1	-	-	-	-	2	1	1		1	2	1	4
135	<i>Neptis satina</i>									1		1	1	1	
136	<i>Doleschallia noorma</i>	1	1	-	1	-	-	3	1			-	-	3	
137	<i>Doleschallia hexophthalmos</i>	1	-	-	-	-	-	1	1			-	-	1	
138	<i>Hypolymnas bolina</i>	1	1	1	1	1	1	6	1	1	1	1	3	1	9
139	<i>Hypolymnas alimena</i>	1	1	-	1	1	1	5	1			-	-	5	
140	<i>Hypolymnas antilope</i>											1	1	1	1
141	<i>Yoma algina</i>											1	1	1	1
142	<i>Junonia erigone</i>		1	-	-	-	-	1	1			-	-	1	
143	<i>Junonia hedonia</i>	1	1	1	1	1	1	6	1			1	1	1	7
144	<i>Junonia villida</i>		1	1	1	1	1	5	1			-	-	5	
145	<i>Junonia orithya</i>	1	1	-	-	1	1	4	1			-	-	4	
	<b>Nymphalidae - Heliconidae</b>														
146	<i>Cethosia cydippe</i>									1	1	1	3	1	3
147	<i>Vagrans egista</i>	1	-	-	-	-	-	1	1			-	-	1	
148	<i>Cupha prosope</i>	1	-	1	1	1	-	4	1	1		1	1	5	
	<b>Jumlah Nymphalidae</b>	<b>25</b>	<b>29</b>	<b>21</b>	<b>29</b>	<b>22</b>	<b>15</b>		<b>41</b>	<b>31</b>	<b>16</b>	<b>34</b>		<b>44</b>	
	<b>Jumlah Papilionoidea</b>	<b>57</b>	<b>64</b>	<b>42</b>	<b>64</b>	<b>48</b>	<b>37</b>		<b>104</b>	<b>72</b>	<b>27</b>	<b>67</b>		<b>103</b>	

**Explanation:**

**So** Sota  
**Sa** Salor  
**Nd** Ndalir  
**Er** Erom  
**RB** Rawa Biru  
**BP** Buti Payum  
**TL** Total localities  
**TT** Number spesies

**Explanation:**

**Ka** Katan (Kepi)  
**Se** Senggo  
**Vr** Vriendschap River  
**TL** Total localities  
**TT** Number spesies  
**TTL** Total loc. of both surveys





**Figs 1-8.** Upperside and underside of some significant species.  
1. *Atrophaneura polydorus* varus ♂; 2. idem ♀; 3. *Hypochrysops mioswara*; 4. *H. apollo*;  
5. *Mycalesis perseus*; 6. *M. sirius*; 7. *Orsotriaena medus*.



9



10



11



12

**Figs 9-12.** Upperside and underside of varieties *Elymnias agondas* ♀.



13



14



15



16



17



18

**Figs 13-14.** Some sites in the environment of Sota.  
**Figs 15-17.** Some sites during WWF-survey. 15. On the way to Katan; 16. At Senggo;  
17. Bivak at Vriendschap River. **Fig. 18.** *Orsotriaena medus* at rest.



Among the 148 species observed, some deserve further comment:

### **Papilionidae**

*Atrophaneura polydorus* (Papilionidae) in south eastern Papua belongs to subspecies *varus* Fruhstorfer. The significant differences with the other subspecies in Papua, especially the longer tail and the pink eyes, invite to further study about the status of this subspecies.

*Papilio demoleus* (Papilionidae) is an introduced species (van Mastrigt, 2008), having been recorded from Papua since 1990. This species was only found in the close environment of Kepi. At all other localities it was not observed.

### **Pieridae**

The sympatry of *Delias mysis nemea* and *Delias mysis lara*, observed at Sota in 2007, lead to a review of *D. mysis* (Davenport & van Mastrigt, 2008), in which *D. lara* was stated as separate species.

The record of *Delias dice* in the environment of Kepi is still remarkable, as this species is generally rare and only represented by a few specimens in KSP.

### **Lycaenidae**

*Hypochrysops apollo wendesi* is a notable record at Rawa Biru. Previously only a single female ( the holotype) was known from Papua, collected at Wendesi in 1909. Only a few specimens are known from PNG, PNG, besides 16 males + 2 females of subspecies *phoebus*, recorded at four localities in the southern and eastern part of the mainland (Parsons, 1999).

A single specimen of both *Hypochrysops heros* and *Danis melimnos* were recorded at the Vriendschap River, both new records for KSP.

*Jamides bochus* was recorded on all localities at the 2007 survey and in 2009 at Katan. After the surveys it became evident that among these specimens was a single specimen of *J. soemias* (recorded at Rawa Biru) and two specimens of *J. amarauge* (recorded at Salor and Ndalir).

*Neopithecops lucifer* has a wide distribution from Bacan and Halmahera, Waigeu, Kai and Aru islands, mainland of New Guinea to Cape York. On the mainland of New Guinea it is known from Fakfak (in the Birdshhead) and some localities in the south of PNG. The records from Salor and Erom fit in this distribution.

*Freyeria trochylus* has a large range from India to Australia. However the records from Salor and Erom are the first ones for KSP.



## Nymphalidae

Specimens of a *Tellervo* sp. collected at the Vriendschap River, are much darker than *T. assarica digulica* which was recorded at five localities in the 2007 survey. These two nearly black specimens require further study to establish their status. *Mycalesis perseus* was a quite common species in the 2007 survey, recorded at all localities except Buti Payum. In the field, the team noticed some varieties, especially in number of eyes and intensity of the white median line on underside of both wings and in size. Further study of the material established that 12 males + 1 female of the records were *M. perseus* and that the other specimens (17 males + 1 female) were identified as *Orsotriaena medus*. Forewing measurements are as follows: *Mycalesis perseus* ♂: 18-22 (av. 19.7) mm; ♀: 22 mm; *Orsotriaena medus* ♂: 23-25 (av. 24.2) mm; ♀ 27 mm.

*Mycalesis sirius* ranges –according to Parsons, 1999– from Buru, Ambon, Seram, Aru, Waigeu, mainland of New Guinea, and various outlying islands in PNG and Australia (including the Northern Territory, Torres Street islands and Cape York to Makay). It was a common species at all localities of the 2007 survey and was also recorded at Katan, fitting in the above mentioned distribution. These are the first records for KSP, suggesting that in Papua *M. sirius* might be restricted to the southern part, however a recent record from the grasslands at Ifar, Sentani, near Jayapura, indicates a wider distribution.

*Elymnias agondas* occurs –according to Parsons, 1999– from Seram, Aru, Waigeu, Salawati, mainland of New Guinea and north-eastern coastal area of the Cape York Peninsula in Australia. In Papua it is a common species in the Birdshhead and throughout the southern lowlands. The presence of this species in all localities except Buti Payum confirms this distribution. An interesting feature is the variety of forms of the female, imitating *Taenaris* sp., *Euploea* sp, and even *Hypolimnias deois*, forms which were not locally defined and often occur together.

## Distribution

From the 148 species recorded in both surveys, only six were found at all sites (*Catopsilia pomona*, *Eurema hecabe*, *Hypolycaena phorbis*, *Euploea netscheri*, *Mycalesis terminus* and *Hypolimnias bolina*). Six species were found at all but at a single site (*Papilio aegaeus*, *Danaus affinis*, *Euploea algea*, *E. alcathoe*, *Elymnias agondas*, *Pantoporia venilia*). Ten species were found at seven sites, 7 species at six sites, 10 species at five sites, 13 species at four sites, 23 species at three sites, 22 species at two sites and 52 species at a single site only. Among these 52 species, 19 were recorded in the open forests at the 2007 survey and 32 in the more dense forests at the 2009 survey.

During the 2007 survey in the more open forest with grassy areas, 18 of the 104 recorded species were found at all six localities and 10 species at five localities. During the 2009 survey, in more dense forest areas, from a total of 103 species, 20 were recorded at all three localities.

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## References

- Ackery, P. R. 1985. The danaid genus *Tellervo* Lepidoptera, Nymphalidae) – a cladistic approach – Zoological Journal of the Linnean Society **89**: 203-275, with 25 figures.
- Davenport, Chris & Henk van Mastrigt. 2008. Revision of *Delias mysis* (Fabricius, 1775) and closely relate species (Lepidoptera: Pieridae) – SUGAPA **3**(2): 15-31.
- Parsons, M. 1999. The Butterflies of Papua New Guinea: their Systematics and Biology, pp. I-XVI, 1-736, Pl. 1-162 (132 col.); HB. Academic Press, London. ISBN: 0-12-545555-0.
- Van Mastrigt, Henk. 2008. Introduced species of Lepidoptera in Papua – SUGAPA **3**(2): 1-14.
- Van Mastrigt, Henk & Iess Piran, 2009. Hasil Survei Serangga di Mappi (not published).
- Wanma, Beatrix I. S. 2008. Studi Perbandingan Keragaman Kupu-kupu Superfamili Papilionoidea di Dalam dan di Luar Kawasan Taman Nasional Wasur Kabupaten Merauke, pp. i-xv, 1-74 (not published).