

A checklist of the hawkmoths of Woodlark Island, Papua New Guinea (Lepidoptera, Sphingidae)

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Abstract: A tabulated and annotated checklist of hawkmoths (Sphingidae) observed and collected by the first author during three visits to Woodlark Island (Papua New Guinea, Milne Bay Province) in 2010–2011 is presented. Numerous moths were attracted to mercury vapour bulbs used to illuminate a helicopter landing site and security lights around the administrative building at Bomagai Camp (Woodlark Mining Limited), near Kulumudau on the west of the island.

Keywords: Lepidoptera, Sphingidae, Papua New Guinea, Milne Bay Province, Woodlark Island, range extension, distribution, new island records.

Verzeichnis der Schwärmer von Woodlark Island, Papua-Neuguinea (Lepidoptera, Sphingidae)

Zusammenfassung: Die 2010 und 2011 während drei Aufenthalte des Erstautors auf der Insel Woodlark (Papua-Neuguinea, Provinz Milne Bay) nachgewiesenen Schwärmerarten (Sphingidae) werden in Tabellenform und mit Anmerkungen präsentiert. An der hellen Quecksilberdampfbeleuchtung an einem Hubschrauberlandeplatz und an Sicherheitslampen am Verwaltungsgebäude des Bomagai-Camps (der Firma Woodlark Mining) bei Kulumudau im Westen der Insel wurde eine große Vielzahl von Nachtfaltern angelockt.

“After my long experience, my numerous failures, and my one success, I feel sure that if any party of naturalists ever make a yacht-voyage to explore the Malayan Archipelago, or any other tropical region, making entomology one of their chief pursuits, it would well repay them to carry a small framed verandah, or a verandah-shaped tent of white canvas, to set up in every favourable situation, as a means of making a collection of nocturnal Lepidoptera ...”

Alfred R. WALLACE (1869, “The Malay Archipelago”, Chapter 5)

Introduction

Woodlark Island is located in the Solomon Sea, in the far northeast corner of Milne Bay Province, Papua New Guinea (PNG). Roughly 700 km northeast of the national capital Port Moresby and 250 km northeast of Alotau, the Milne Bay provincial capital, Woodlark is approximately 65 km long from east to west and about 30 km wide from north to south in the centre, with a total area of approximately 847 km² (CLAPP 2006). The name Woodlark is believed to have been derived from that of a Sydney whaling vessel, the Woodlark, captained by a Captain GRIMES, who sighted the island in the 1830s (MCGEE 1988).

Traders, missionaries, adventurers and gold miners followed, and despite its remoteness, indigenous inhabitants of Woodlark have had a long history of contact with outsiders. Discovery of gold on Woodlark in 1895 was followed by a “gold rush” in 1896/1897; prospecting declined gradually and ceased in the 1930s. However,

exploration began again in 1973, and Woodlark Mining Limited (purchased by Kula Gold in 2007) was formally granted a mining lease by the PNG government in July 2014.

A combination of an oceanic origin (Woodlark has never been connected by land to New Guinea), remoteness from the main island of New Guinea, and rather restricted habitats, has resulted in an ecologically distinct fauna. For example, there are no birds of paradise, bower birds, or wallabies on Woodlark, and only one species each of honey eater, sunbird and cuscus – all taxa that are diverse and in some cases moderately numerous elsewhere in Papua New Guinea. So far as Lepidoptera are concerned, there are significantly fewer butterfly species on Woodlark than on many nearby islands (TENNENT, work in progress).

Logging was carried out on Woodlark in the 1980s and 1990s, but significant areas of largely pristine rainforest remain, although the canopy rarely exceeds 20–30 m in height. There is also extensive littoral forest, secondary forest, mangrove and other swamps. Rainfall on Woodlark is substantial, especially in the west of the island – an average of almost 4200 mm annually, measured over three decades at Kulumudau (BROOKFIELD & HART 1966).

Early collection of hawkmoths (Sphingidae) on Woodlark

The first collection of biological specimens on Woodlark appears to have been by a French Catholic missionary, Père MONTROUZIER, in 1847–1852 (BRASS 1959). His published findings (MONTROUZIER 1855) included a number of (mainly large and/or colourful) butterflies and a dozen or so moths, which did not include any Sphingidae.

During the late 19th and early 20th centuries, Albert Stuart MEEK, familiar to entomologists and ornithologists alike for his collection of, for example, the largest butterfly in the world, *Ornithoptera alexandrae* ROTH-SCHILD, 1907 (TENNENT 2010) in Oro Province, and the now extinct Solomons Crested Pigeon, *Microgoura meeki* ROTH-SCHILD, 1904, on the Solomons Archipelago (TENNENT 2009), collected natural history specimens on a commercial basis for Walter, Lord ROTH-SCHILD’s private museum in Tring, Hertfordshire, England. For much of his time in PNG, MEEK was based at Samarai – then the capital and major trading port of what was to become Papua New Guinea – from where he made forays to a number of islands, including Woodlark.

Judging from MEEK's letters to Tring, now in the archives of the Natural History Museum in London, MEEK had high expectations of collecting on Woodlark, but he was largely disappointed. In a letter from Woodlark in 1895, he said: "We are forming camp at almost the extreme west of Woodlark, on a chain of high hills about 100/500 feet high. I am very much disappointed with the place and shall get away as soon as possible ... I was out this morning and did not see a bird or a butterfly" (MEEK 1895). He was so disillusioned that he gave up collecting natural history specimens for some months, and took to prospecting for gold as a more financially rewarding pastime. MEEK eventually collected a large number of Lepidoptera specimens on Woodlark, but they included remarkably few sphingid moths: the BMNH collection contains only six specimens of five species (see annotated list). It is probable that all were collected during the day rather than at lights. Many *Macroglossum* species are crepuscular or fly during the day in dull, cloudy conditions; the first author has seen the small *Hippotion* species feeding at flowers during the day elsewhere on several occasions, and it is possible that *Angonyx* species are also at least occasionally diurnal.

Another collector of note who visited Woodlark was William W. BRANDT, who stayed on the island for several months in 1957 and made some significant butterfly discoveries, bringing back a collection of Lepidoptera now in the Australian National Insect Collection (ANIC) in Canberra, Australia. His collection included a small number of sphingid moths, incorporated in the annotated checklist, below.

Modern collecting

This paper arises from the first author's fieldwork in Milne Bay Province, Papua New Guinea that was primarily related to surveying butterflies on the islands of Milne Bay. Through the goodwill of Woodlark Mining Limited (WML) and the kindness of the other authors (at that time employed by WML as Community Affairs Manager and Environmental Database Manager), the first author visited Woodlark on three occasions, partly to survey Woodlark itself, but also as a step to reaching other remote islands. The base mining camp at Bomagai, near Kulumadau, is situated at 85 m elevation atop a small hill overlooking a forested valley. On the first visit a small number of sphingids were taken in the early mornings from wire mesh covering the louvred windows of the camp dining facility, and it was not until the second visit that very large numbers of moths were noted flying around 2× 400 W mercury vapour security lamps illuminating the helicopter landing site. Similar – but lower wattage – security lamps mounted on the administrative buildings also attracted many sphingid moths. Most sphingid records were made in 2010; the helipad lights were switched off in 2012.

According to a website providing sphingid checklists for many islands in Southeast Asia (BECK & KITCHING

2008), 13 records representing 10 species were reported from Woodlark Island. A "predicted" total of 18 species probably occurring on Woodlark (one species already recorded – *Macroglossum nigellum* – was deliberately omitted as requiring confirmation) was based on distribution elsewhere in the region (see Table). Of the 10 species actually recorded, four were species of *Macroglossum* SCOPOLI, 1777, which are diurnal or crepuscular and attracted to light only sporadically at best, especially the smaller species; the remaining six included widespread species of other genera including two, *Daphnis moorei* and *Gnathothlibus eras*, that are commonly attracted to light, often in considerable numbers. Another diurnal species, *Cephenodes woodfordi*, would not be expected to be attracted to light, nor was it seen in the daytime by the first author during several weeks on Woodlark in 2010 and 2011 or on any of the other 181 islands of Milne Bay Province visited by the first author during 16 months in the field. The following checklist does not include unconfirmed "predicted" species, although these are tabulated (see Table). All material collected on Woodlark by the first author has been deposited in the BMNH.

Annotated species list

Acosmeryx anceus anceus (STOLL, 1781)

The species was common around the Bomagai lights in December 2010. The ANIC has 4 ♂♂ collected at Kulumadau between 20th January and 6th May 1957 by BRANDT. Solitary specimens were also collected by the first author in the Marshall Bennett Islands (Gawa) and the Louisiades (Basilaki), on each occasion resting in foliage early in the morning. There were no Woodlark specimens in the BMNH, which does have a small number of specimens from the Trobriands (Kiriwina), the D'Entrecasteaux (Goodenough, Fergusson) and the Louisiades (Sudest).

Agrius convolvuli (LINNAEUS, 1758)

This is a very common and widespread species; a ♀ was taken in June 2010 and several were seen in December of the same year. There is one ♀ in the ANIC collected by BRANDT on Woodlark in 1957. The species is renowned for a long proboscis, which enables it to reach deep nectar sources, and a moth that remains unhidden in the daytime is used as a plaything by children, who hold the end of the extended proboscis whilst the moth flies around in its attempts to escape. The first author witnessed this on Gawa, the southernmost of the Marshall Bennett Islands, in July 2010 (Figs. 1, 2).

Cerberonoton rubescens severina (MISKIN, 1891)

Cerberonoton (formerly *Meganoton*) *rubescens* was common at Bomagai in December 2010. The BMNH had no material from Woodlark, but three specimens from the D'Entrecasteaux (Goodenough).

Table: Woodlark Island Sphingidae. A = species recorded (pre-2010); B = species predicted (BECK & KITCHING); C = species recorded at Bomagai (2010); × = confirmed record; o = unconfirmed prediction. — Total species: recorded pre-2010 (A) = 10; predicted (B+A not included in B) = 18; recorded currently (C + A not included in C) = 22 (figures do not include *M. nigellum*).

Genus	Species	A	B	C	World distribution
<i>Ambulyx</i>	<i>dohertyi</i>		o		Solomon Islands, Papua New Guinea, Australia (Queensland)
<i>Acosmeryx</i>	<i>anceus</i>	×	N/A	×	India, New Guinea, Australia (Queensland)
<i>Agrius</i>	<i>convolvuli</i>			×	Africa, Asia and Australia, migrating north into temperate regions and reaching many isolated oceanic islands
<i>Cerberonoton</i>	<i>rubescens</i>			×	north-eastern India, central and northern Thailand, southern China, North Vietnam, Malaysia, Indonesia, the Philippines, Papua New Guinea, Solomon Islands, Australia (north and east)
<i>Psilogramma</i>	<i>papuensis</i>			×	Indonesia (Seram), New Guinea and northeastern Australia
<i>Angonyx</i>	<i>papuana</i>	×	N/A		Papua New Guinea, Australia (northern Queensland)
<i>Cephonodes</i>	<i>woodfordi</i>		o		New Guinea (north, eastern Louisiades), Solomons Archipelago
<i>Daphnis</i>	<i>moorei</i>	×	N/A	×	Indonesia, Papua New Guinea, Australia (north)
<i>Daphnis</i>	<i>dohertyi</i>		×	×	Indonesia, the Philippines, Papua New Guinea, Australia (Queensland), Solomon Islands
<i>Daphnis</i>	<i>placida</i>		×	×	Thailand, Malaysia, Indonesia, the Solomon Islands and Australia (north)
<i>Daphnis</i>	<i>protrudens</i>			×	Indonesia, Papua New Guinea and Australia (Queensland)
<i>Eupanacra</i>	<i>splendens</i>	×	N/A		Indonesia (Moluccas), Papua New Guinea, the Solomon Islands and Australia (northeast)
<i>Gnathothlibus</i>	<i>eras</i>	×	N/A	×	eastern Sunda Islands, Sulawesi, the Moluccas, the Philippines, New Guinea, the Solomon Islands, Micronesia and eastern Australia
<i>Hippotion</i>	<i>velox</i>		×	×	Sri Lanka, India, Nepal, Burma, Thailand, Taiwan, Japan (south), Hong Kong, Malaysia, Philippines, Indonesia, Papua New Guinea, Australia (north and east), Fiji, New Caledonia
<i>Hippotion</i>	<i>rosetta</i>	×		×	Pakistan (south), India, Sri Lanka, Andamans, east across Thailand, southern China and Taiwan to Japan (Ryukyu), Malaysia, the Philippines, Indonesia, Papua New Guinea (Woodlark)
<i>Macroglossum</i>	<i>corythus</i>	×	N/A		throughout the Indo-Australian tropics, as far east as New Caledonia
<i>Macroglossum</i>	<i>melas</i>	×	N/A		Indonesia, Papua New Guinea, Solomon Islands
<i>Macroglossum</i>	<i>nigellum</i>	(×)			Indonesia (Java, Sulawesi), Papua New Guinea (Woodlark) (requires confirmation)
<i>Macroglossum</i>	<i>nubilum</i>	×	N/A		Australia (Queensland) and Papua New Guinea (Louisiades, Woodlark)
<i>Macroglossum</i>	<i>prometheus</i>		×	×	Southeast Asia, including Australia (Queensland)
<i>Theretra</i>	<i>latreillii</i>	×	o		most of Asia, including Taiwan, China, Hong Kong, the Philippines, Indonesia, Papua New Guinea, and tropical regions of Australia
<i>Theretra</i>	<i>tryoni</i>		o		Indonesia (Sulawesi, Maluku) Papua New Guinea, Solomon Islands and Australia (north and east)
<i>Theretra</i>	<i>nessus</i>			×	Sri Lanka, India, Nepal, Burma, Thailand, China (south), Taiwan, South Korea, Japan, Malaysia, Indonesia, Papua New Guinea, Australia (north) and New Caledonia. Recently recorded from Hawai'i (Oahu).
<i>Theretra</i>	<i>celata</i>		×	×	Indonesia (Timor, Moluccas), Timor Leste, New Guinea including the Bismarck Archipelago (predicted as <i>T. clotho</i>)
<i>Theretra</i>	<i>indistincta</i>			×	Indonesia (Sulawesi, Maluku), Papua New Guinea, Australia (Queensland)
<i>Theretra</i>	<i>silhetensis</i>			×	Sri Lanka, India (south), Nepal, Bangladesh, Burma, Thailand, Andamans, China, Taiwan, Japan, Malaysia, Indonesia, Papua New Guinea, Australia (northeast), Solomon Islands

Psilogramma papuensis papuensis BRECHLIN, 2001

Quite common at Bomagai on the canteen screen early in the mornings in June and July 2010, and very common around the security lights in December of the same year. The ANIC has a male taken at Kulumadau between 20th January and 6th May 1957 by BRANDT.

Angonyx papuana ROTHSCHILD & JORDAN, 1903

There is one specimen in the BMNH, taken by MEEK in April 1897. The species was not seen by the authors.

Daphnis moorei (MACLEAY, 1866)

Huge numbers of *D. moorei* flew around security lamps where the species comprised – at a rough estimate – 60–80% of the total moths present. When the lights on the helicopter landing site were first approached in December 2010, there were many more than 1000 individuals of *D. moorei* flying around the lights, settled on the concrete base under the lights, on nearby vegetation, and on the sides of nearby buildings. During frequent periods of heavy rain, unprotected individuals (e.g. resting on the

ground) were decimated, but the species continued to be the commonest sphingid species throughout the project.

The BMNH had no specimens from Woodlark, but did have material from the Louisiades (Misima, Sudest, Rossel). The fact that MEEK did not apparently collect this species – which is rarely seen during the day time – on Woodlark suggests that he did not use a light to attract moths there (see Discussion). A specimen was found on vegetation during the day, on Kaiwini Island, southeast of Nuakata, in October 2011.

Daphnis dohertyi dohertyi ROTHSCHILD, 1897

A solitary ♂ was taken in December 2010 at Bomagai, amongst very large numbers of *D. moorei*. There were no specimens from Woodlark in the BMNH, which does have material from the Louisiades (Sudest, Rossel).

Daphnis placida placida (WALKER, 1856)

A solitary ♂ of this species was also taken in December 2010 at Bomagai, amongst very large numbers of *D. moorei* (on a different night to the only male *D. dohertyi*).

There were no specimens from Woodlark in the BMNH, which does have material from the Louisiades (Sudest, Rossel).

***Daphnis protrudens protrudens* FELDER & FELDER, [1874]**

More than 20 individuals were seen at Bomagai in December 2010.

***Eupanacra splendens* (ROTHSCHILD, 1894)**

Recorded from Woodlark by BECK & KITCHING (2008) on the basis of a specimen in the Carnegie Museum of Natural History, Pittsburgh, Pennsylvania (CMNH), but not seen by the authors on Woodlark, nor are there any specimens in the BMNH from the island. The BMNH has specimens from the Trobriands (Kiriwina) and the Louisiades (Sudest, Rossel).

***Gnathothlibus eras* (BOISDUVAL, 1832)**

Very common at Bomagai, where it was probably the second commonest species, after *D. moorei*. The BMNH had no material from Woodlark, but does have specimens from the D'Entrecasteaux (Goodenough) and the Louisiades (Misima, Sudest, Rossel).

***Hippotion boerhaviae* (FABRICIUS, 1775)**

Recorded from Woodlark by BECK & KITCHING (2008), based on a specimen in the BMNH since reidentified as *H. rosetta* (see below). Not seen by the authors, but the BMNH does have material from the Trobriands (Kiriwina) and the Louisiades (Sudest). Occurrence of this species on Woodlark requires confirmation. The species is not included in the accompanying table.

***Hippotion velox* (FABRICIUS, 1793)**

A ♂ was found on the canteen screens in July 2010 and small numbers (ca. 5) were seen on the screens and at lights in December of the same year. The ANIC has 2 ♀♀ collected at Kulumadau between 20th January and 6th May 1957 by BRANDT. The BMNH had no Woodlark material, but has specimens from the D'Entrecasteaux (Fergusson) and the Louisiades (Misima).

***Hippotion rosetta* (SWINHOE, 1892)**

Quite common at Kulumadau in December 2010. The ANIC has four males collected at Kulumadau between 20th January and 6th May 1957 by BRANDT. Although their identity is yet to be confirmed, it is likely that some, if not all, are this species. The BMNH has one specimen taken by MEEK in April 1897 (misidentified by BECK & KITCHING as *H. boerhaviae*, see above), and several from the Trobriands (Kiriwina) and the Louisiades (Sudest, Rossel). The author collected a specimen flying at 15:30 h in dull and very humid conditions, on the Trobriands island of Kiriwina, in February 2012.

***Macroglossum corythus pylene* C. FELDER, 1861**

The BMNH has two specimens from Woodlark, collected by MEEK in March–April and April 1897. The museum also has material from the Louisiades (Sariba, Sudest). The first author collected a ♂ on the Trobriands (Kitava) in May 2010, feeding on the small blue flowers of a *Stachytarpheta* species (Verbenaceae), and a second male on Kwaiwata Island in the Marshall Bennett group, in November 2011.

***Macroglossum melas pullius* JORDAN, 1930**

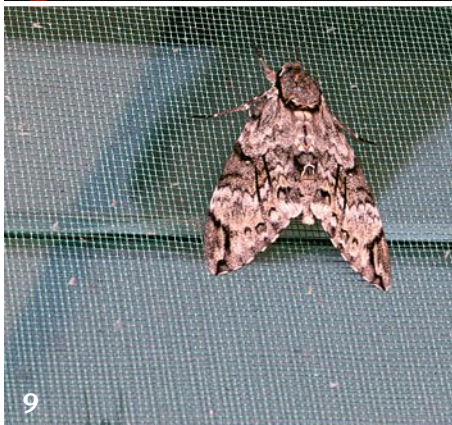
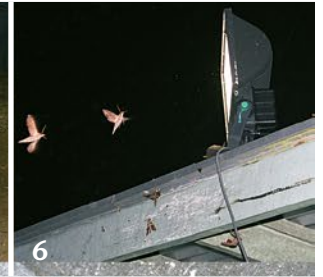
The BMNH has a solitary ♀, collected by MEEK in 1895. The species was not seen by the authors.

***Macroglossum nigellum* ROTHSCCHILD & JORDAN, 1916**

This species was described originally as *Macroglossum semifasciata nigellum*, based on a solitary ♂, now in the BMNH, collected on Java by Marinus Cornelis PIEPERS. There is another ♂ (previously curated as *M. nigellum* but now placed over a blank species identification label) in the BMNH purporting to be from “Woodlark Islands” (presented by J. J. JOICEY in 1931) and a further specimen with similar labelling in the CMNH. The records were excluded by BECK & KITCHING from their island faunal analyses because they considered that the specimen labels were probably incorrect, or at least subject to serious doubt. The BMNH specimen bears a label stating “*M. semifasciata nigellum* R. & J. cotype of ♀” and a circular, yellow-bordered paratype label that was probably derived from the “cotype” statement and added later. Both are incorrect, as *M. nigellum* was described from a unique holotype ♂, and the source of and reason for the erroneous cotype/paratype assignment remains unknown.

These isolated records are a very long way east of the known range of this species (western Java, Sulawesi, the Philippines). The species is provisionally included on the accompanying table, on the understanding that the occurrence of *M. nigellum* in Papua New Guinea requires confirmation.

Figs. 1–2: An unlucky *Agrius convolvuli* failing to find an adequate hiding place during the day. Marshall Bennett group, Gawa Island. — **Fig. 3:** *Acosmeryx anceus* at rest in the daytime: Marshall Bennett group, Gawa Island. **Fig. 4:** Sphingids flying around lamps at the helicopter landing site, Bomagai Camp, Woodlark Island. **Fig. 5:** Sphingids below the lamps at the helicopter landing site, Bomagai Camp, Woodlark Island. **Fig. 6:** Sphingids flying around lamps outside the administration building, Bomagai Camp, Woodlark Island. **Fig. 7:** *Daphnis moorei* at the base of the helicopter landing site lights, Bomagai Camp, Woodlark Island. **Fig. 8:** *Cerberonoton rubescens* at the base of the helicopter landing site lights, Bomagai Camp, Woodlark Island. **Fig. 9:** *Psilogramma papuensis* at rest on the canteen windows, Woodlark Island. **Fig. 10:** *Gnathothlibus eratus*, Bomagai Camp, Woodlark Island. **Fig. 11:** *Daphnis moorei*, Bomagai Camp, Woodlark Island. **Fig. 12:** *Daphnis protrudens*, Bomagai Camp, Woodlark Island. **Fig. 13:** *Theretra celata*, Bomagai Camp, Woodlark Island.



***Macroglossum nubilum* ROTHSCILD & JORDAN, 1903**

There is a specimen in the BMNH taken by MEEK in March 1896, together with two specimens from the Trobriands (Kiriwina).

***Macroglossum prometheus lineata* LUCAS, 1891**

The BMNH had no specimens from Woodlark. The first author took a ♂ feeding at the flowers of a *Stachytarpheta* species, 5–6 kilometres west of Guasopa, eastern Woodlark, in June 2010, and also took a ♀ on the Trobriands (Kitava) in May 2010.

***Theretra nessus nessus* (DRURY, 1773)**

This widespread and usually common species was uncommon at Bomagai, with only a handful of specimens seen in December 2010. The BMNH had no material from Woodlark, but several specimens from the D'Entrecasteaux (Fergusson), the Trobriands (Kiriwina) and the Louisiades (Misima, Rossel).

***Theretra celata celata* (BUTLER, 1877)**

Common at the Bomagai security lights in December 2010. The BMNH had no material from Woodlark, but several specimens from the D'Entrecasteaux (Goodenough), the Trobriands (Kiriwina) and the Louisiades (Misima). It was also collected by the first author on the Marshall Bennetts (Gawa). This species was predicted as likely to be present on Woodlark by BECK & KITCHING (2008), but as *T. clotho*, of which *T. celata* was then considered a subspecies.

***Theretra indistincta papuensis* JOICEY & TALBOT, 1921**

Two pairs were taken at the Bomagai security lights in December 2010. The BMNH had no material from Woodlark.

***Theretra latreillii latreillii* (MACLEAY, 1826)**

The ANIC has a ♂ taken at Kulumadau between 20th January and 6th May 1957 by BRANDT. The BMNH had no material from Woodlark, but several specimens from the Trobriands (Kiriwina) and the Louisiades (Misima). The species was not collected on Woodlark by the authors.

***Theretra silhetensis lewini* (THON, 1828)**

Seen very occasionally at the canteen screens at Bomagai in June, July and December 2010. The BMNH had no material from Woodlark. Interestingly, this relatively small sphingid was rarely seen at lights; it is possible that unlike most of the large robust species flying around the lights, *T. silhetensis* may be more manageable as a food item by bats (see Discussion).

Discussion

A notable feature of the Woodlark sphingids seen and collected is that they almost exclusively comprised large robust species. Whilst not a sphingid specialist, the first author has carried out extensive fieldwork related to hawkmoths in Hong Kong, on Borneo and in the Solomon Islands (TENNENT 1991, 1992, 1999, TENNENT & KITCHING 1998), where although Sphingidae and other large moths comprise a significant element of the total biomass coming to the light, lamps also attract very large numbers of smaller moths, together with numerous other insects (e.g. cicadas, bees, mantids etc.).

The reason for a lack of smaller moths and other insects encountered at Bomagai camp on Woodlark is something of a mystery. Bats, many of which are insectivorous, are the most diverse mammals in the southwest Pacific, and there is no shortage of bats present on Woodlark. FLANNERY (1995: 423) recorded 15 bat species (including fruit bats) from the island, and numbers of insectivorous bats casually observed flying at dusk and around lights seemed much the same as anywhere else in the region. Perhaps there are dramatically fewer smaller moth species on Woodlark; the island is not rich in butterflies, and the total number of Sphingidae presented here is low for tropical islands of comparable size. But perhaps it is more likely that setting up a lamp to attract insects in a tropical or subtropical environment for just a few nights will invariably and almost immediately attract almost everything in the vicinity, whereas permanent or semi-permanent lamps have the practical effect of providing a ready meal for the local bat population. In time it is likely to become a regular feeding source, with a corresponding long-term local decline in smaller invertebrates.

The helicopter landing zone at Bomogai has apparently not been illuminated since 2012, but the lights were a valuable temporary asset in increasing the number of sphingid species known from Woodlark from 10 to 22 (11 and 23 respectively if the dubious record of *Macroglossum nigellum* is confirmed).

Four species (*Ambulyx dohertyi*, *Cephonodes woodfordi*, *Theretra latreillii*, *T. tryoni*) were predicted by BECK & KITCHING, but not recorded by the authors. There are no Woodlark specimens of *Ambulyx dohertyi* in the BMNH, which does have a small number of specimens from the D'Entrecasteaux (Goodenough, Fergusson) and the Louisiades (Sudest). *Cephonodes woodfordi* is only represented from the Solomon Islands in the BMNH. It is noted that of the three *Theretra* species (*clotho*, *latreillei*, *tryoni*) "predicted" as being likely to be found on Woodlark, the authors only collected *T. celata* (previously considered a subspecies of *clotho* and included by BECK & KITCHING on this basis), although *T. latreillii* is apparently represented (not seen) in the ANIC. It is noted that only one of the four *Theretra* species (*T. celata*, predicted as *T. clotho*) actually recorded on the island by the authors (*nessus*, *celata*, *indistincta*, *silhetensis*) was predicted.

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