

Butterflies of Fiji

Brian Patrick and Hamish Patrick

Otago Museum, Box 6202, Dunedin (bpatrick@xtra.co.nz)

Introduction

Between the 22nd September and 2nd October 2001 we visited the Coral Coast resort “The Fijian” on Yanuca Island, which is joined by a causeway to the main island of Viti Levu, Fiji, and made a collection of the insects encountered, including butterflies. While most of the collecting was done on the 50 ha island, several excursions were made to the adjacent mainland, east to Suva, and inland up the Sigatoka Valley to the Nausori Highlands and west to Nadi. Given our reasonable results and the paucity of recent literature on the Fijian butterfly fauna, we have compiled our records, together with a full list of the species recorded from Fiji. The pinned and dried butterfly specimens are stored in the collections of the Otago Museum, Dunedin.

While most butterflies were captured using a net by day, two nymphalids were attracted to light. One of the surprises to us was the ability to collect butterflies every day, and from early morning to after dark. There is no rest for the butterfly-hunter in the tropics!

While this expedition was not as serious as that of Degener (1949) or as detailed as that of Robinson (1975), the results may spur further research to give a better understanding and protection of the flora and fauna. Several workers have published their observations on the Fijian butterfly fauna. Among them, Poulton (1924) presented an exhaustive account, with a profusion of illustrations, of mimicry amongst crow and blue moon butterflies in Fiji, covering a great many island groups. Robinson (1975) reviewed the macro-lepidoptera of Fiji including a useful list of the butterflies, most of which he illustrated. Ryan (1988, 2000), in two popular accounts of the natural history of the islands, illustrated the most common species. Braby (2000) updated the nomenclature of many of the species in an exhaustive review of the Australian butterflies.

Results

The following is an annotated list of the butterfly fauna of Fiji as far as we can ascertain from the literature (Robinson 1975, D’Abrera 1977, 1990, Dugdale 1978, Ackery & Vane-Wright 1984, Ryan 1988, 2000, Braby 2000).

Hesperiidae

Coeliadinae

Hasora chromus bilunata Butler

One locality on Yanuca Island where it was locally abundant. The subspecies is also known from Vanuatu. Stated by Robinson (1975) to be rare and not well collected.

Hasora khoda (Mabille)

Not seen. Known from a single specimen only (Robinson (1975)).

Badamia exclamationis (Fabricius)

Not seen. Robinson (1975) stated that it is difficult to catch.

Badamia atrox subflava Waterhouse

Not seen. Stated by Robinson (1975) to be a rare species in Fiji.

Trapezitinae

Oriens augustula angustula (Herrich-Schaffer)

Common in most areas of roadside and forest; Yanuca Island, adjacent mainland, Sigatoka Valley and Korotogo. The subspecies is endemic to Fiji, with a related subspecies in Samoa.

Papilionidae

Papilioninae

Papilio schmeltzi Herrich-Schaffer

Found at two localities in roadside forest near Korotogo along Coral Coast. An endemic swallowtail to Fiji that can be locally common.

Pieridae

Coliadinae

Catopsilia pomona Fabricius

Several seen flying fast over wasteland; Yanuca Island; Korotogo.

Catopsilia scylla gorgophone Boisduval

Not seen. Only recorded from Suva on one occasion (Robinson, 1975)

Eurema hecabe sulphurata (Butler)

A very common sulphur on roadsides, over grasslands, forest edge and forest interior; Yanuca Island, adjacent mainland, Korotogo and Sigatoka Valley. It is an endemic subspecies to Fiji, with other subspecies from Southeast Asia to Tonga.

Pierinae

Belenois java micronesia (Fruhstorfer)

Often seen flying in early morning, it is a fairly common species of coastal areas on Yanuca Island and adjacent mainland. It is an endemic subspecies to Fiji, with many other subspecies from Indonesia to Samoa.

Cepora perimale inopinata Waterhouse

One only caught in forest area of Yanuca Island. Rare in Fiji, being recorded from only one location until now (Robinson, 1975).

Appias albina (Boisduval)

Not seen. According to Robinson (1975), the species is not generally distributed, being known only from two collections.

Nymphalidae

Satyrinae

Melanitis leda levuna Fruhstorfer

It is an endemic subspecies to Fiji; common at dusk and night; Yanuca Island.

Xois sesara Hewitson

A common, low-flying species of forest edge, roadsides and forest interior; Yanuca Island, adjacent mainland, Korotogo and Sigatoka Valley.

= *Xois fulvida* Butler according to Robinson 1975, but treated as separate species by D'Abbrera (1977). It is an endemic species to Fiji.

Acraeinae

Acraea andromacha Fabricius

Not seen. It is a reasonably widespread species in Fiji.

Argynninae

Vagrans egista vitiensis (Waterhouse)

Not seen. It is an endemic subspecies to Fiji that is extremely rare, being known only from the type from Lambasa.

Nymphalinae

Doleschallia bisaltide vomana Fruhstorfer

An endemic subspecies to Fiji, with other subspecies distributed from Indonesia to Tonga. The species is reasonably common flying at dusk or attracted to light on Yanuca Island, Korotogo and Sigatoka Valley.

Hypolimnas antilope lutescens Butler

Not seen. Found commonly by Dugdale (1978) on Lakeba Island. A rare species according to Robinson (1975) that is not known from Viti Levu.

Hypolimnas bolina pallescens Butler

The blue moon butterfly is common in coastal, roadside and forested areas. Female extremely variable – from orange to wholly black; Yanuca Island, adjacent mainland, Korotogo and Sigatoka Valley. This is an endemic subspecies.

Hypolimnas inopinata Waterhouse

Not seen. Known from the type material only.

Hypolimnas octocula Butler

Not seen. A few of this rare species were seen on Lakeba Island by Dugdale (1978).

Junonia villida Fabricius 1787

A few seen on a roadside weedy area on adjacent mainland to Yanuca Island and on island itself. Probably common in Fiji.

Vanessa kershawi McCoy 1868

Not seen. A vagrant species to Fiji that has been captured only once (Robinson, 1975).

Charaxinae

Polyura caphontis (Hewitson)

Not seen. A rare species that has once been captured in numbers (Robinson, 1975).

Danainae

Tirumala hamata neptunica Felder

Not seen, but a reasonably widespread species in Fiji.

Danaus chrysippus petilia Stoll

Not seen; only a single specimen known (Robinson, 1975).

Danaus plexippus plexippus Linnaeus

Not seen. Dugdale (1978) records a few from Lakeba and Moce Islands of this widespread species on the islands.

Euploea tulliolus forsteri Felder

This species was commonly collected in forested areas on Yanuca Island, Korotogo and in Sigatoka Valley. It is an endemic subspecies to Fiji, with other subspecies distributed from Southeast Asia to Loyalty Islands. The species is widespread in

Fiji.

Euploea lewinii eschscholtzii Felder

This species was fairly common in forests of Coral coast and Yanuca Island. It is an endemic subspecies to Fiji, with other subspecies distributed from Vanuatu to Cook Islands. The species is widespread in Fiji.

Euploea leucostictos macleayi Felder

This crow was fairly common in forested areas of Yanuca Island. Ackery & Vane-Wright (1984) synonymised *E. nemertes* with this species. The subspecies is endemic to Fiji and widespread there.

Euploea boisduvali boisduvali Lucas

One only was collected on Yanuca Island in forest. Fiji is the type locality for this species that is distributed from The Solomon Islands to Fiji. This subspecies is endemic to Fiji and is widespread there.

Lycaenidae

Theclinae

Deudorix epijarbas diovella Waterhouse

Not seen. According to Robinson (1975), this is a rare species known only from a few localities.

Polymmatinae

Nacaduba dyopa (Herrich-Schaffer)

Not seen, but recorded by Dugdale (1978). The species is found from Vanuatu to Tonga, but is only locally common (Robinson, 1975).

Nacaduba biocellata armillata (Butler)

Not seen. The species is known only in Fiji from two individuals collected at Lautoka (Robinson, 1975).

Nacaduba samoensis Druce

Not seen. Noted by Robinson (1975) from only a few localities, but not mentioned by D'Abrera (1977).

Catopyrops ancyra (Felder)

Not seen. Not mentioned by Robinson (1975), but recorded by Braby (2000) for Fiji.

Jamides bochus candrena Herrich-Schaffer

One only specimen was collected flying fast on the forest edge of Yanuca Island. It is

an endemic subspecies of a widespread species found from Sri Lanka to Society Islands. It is a widespread species in Fiji.

Catochrysops taitensis (Boisduval)

One pair were observed and captured around a pretty pea-flowered tree on Yanuca Island. It is distributed from Vanuatu to Society Islands. Robinson (1975) notes few localities for this species in Fiji.

Lampides boeticus (Linnaeus)

Not seen, but found on Moce Island by Dugdale (1978) and reasonably widespread in Fiji (Robinson, 1975).

Famegana alsulus (Herrick-Schaffer)

Not seen, but recorded on Lakeba Island by Dugdale (1978). Robinson (1975) doubted that it occurred in Fiji.

Euchrysops cnejus (Fabricius)

Not seen, but reasonably widespread in Fiji.

Strymon bazochii gundlachianus (Bates)

This species was introduced for biological control of *Lantana*, but was not seen. The species is reasonably common and widespread according to Robinson (1975).

Zizina labradus (Godart)

The common grass blue is a common grassland species that was found on roadsides and over grasslands as follows; Yanuca Island, adjacent mainland, Sigatoka Valley and Coral Coast generally including Korotogo. Treated as *Z. otis mangoensis* by Robinson (1975).

Zizula hylax (Fabricius)

This species was extremely common, locally in forested, mainland areas opposite Yanuca Island and along Coral Coast, Korotoga, and in Sigatoka Valley. Interestingly, Robinson (1975) recorded this species for the first time on Fiji, from just one locality, whereas we found it to be common and widespread. The species may be spreading or may simply have been overlooked in the past.

Discussion

Of the 20 species found (Table 1), it is significant that 18 of these were found on Yanuca Island, reflecting the huge diversity of vegetation present, some of which is nurtured in the resort's nursery. An additional species is present on the adjacent mainland in forest. We found that butterfly diversity is highest on the coast and decreases markedly both inland and as one climbs in altitude. It would be interesting to compare this observation with other collector's experiences.

Table 1. Fijian butterfly fauna and results

Fauna	Total known	Surveyed 2001	Proportion
Vagrant species	1	0	
Native species	42	20	47 %
Exotic species	1	0	
Total	44	20	45 %

It is noteworthy that 14 of the 21 species recorded during a survey of Lepidoptera of similar duration (17 days) conducted in late June/early July on the Lau group of islands of Fiji (Dugdale 1978) were also found in this brief survey.

It seems from the combined observations of Robinson (1975), Dugdale (1978) and this short survey, that just 25 (56 %) of the recorded butterflies are common and widespread. The balance of 19 species (44 %) are rarely found, although three of these (*Hasora chromus bilunata*, *Catochrysops taitensis* and *Cepora perimale inopinata*) we found on Yanuca Island during our research period. It is apparent that much more collecting is needed to confirm this surprisingly high percentage of rarely recorded species. In summary, this survey recorded 17 of 25 of the common species of Fiji (68 %), and 3 of 19 of the rarely recorded species (15 %).

The Fijian butterfly fauna is of interest for its distinctiveness, containing both endemic species and a significant number of endemic subspecies. The existence of endemic taxa is matched by other faunal groups and the flora, which in the latter includes an endemic plant family Degeneriaceae (Ryan 2000). One significant aspect of the butterfly fauna is the diversity of crow (*Euploea* spp.) butterflies with four species present (Poulton, 1924). Fiji is the easternmost archipelago in the Pacific where an assemblage of crow butterflies is found. East of Fiji the archipelagoes have only one species each.

Some species, such as the endemic *Xoïs sesara*, common blue *Zizina labradus*, sulphur *Eurema hecabe sulphurata*, orange skipper *Oriens augustula augustula* and local subspecies of the blue moon *Hypolimnas bolina pallescens*, are exceedingly common in many habitats, both natural and modified. Nevertheless it is vital that more research is performed to determine if any of the endemic butterfly species are at risk of extinction.

Much work is required on the life history of the species in Fiji, together with more biogeographic studies across the vast array of island groups.

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