

THE BUTTERFLIES (LEPIDOPTERA: HESPERIOIDEA AND PAPILIONOIDEA) OF BARROW AND NEARBY ISLANDS, WESTERN AUSTRALIA

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SUMMARY

This paper contains a synopsis of records of butterflies from Barrow Island and nearby island groups. Sixteen species are recorded from eleven islands, their distribution amongst the islands is tabulated and larval host plants discussed. Flowers used as nectar sources are listed.

INTRODUCTION

This paper deals with Hesperioidea and Papilionoidea (skippers and butterflies) recorded mainly between 1 and 18 May 1982, during a visit to the Montebello and Lowendal Islands and Barrow and nearby smaller islands off the coast of Western Australia. Most time was spent on Barrow, by far the largest of the islands (20°46'S, 115°24'E). A few specimens collected on Barrow by H. Heatwole and W.H. Butler in February 1977 are included and the records of Montague (1914) for the Montebellos repeated for completeness and discussion.

Although the distribution maps given in Common and Waterhouse (1981) indicate which species of butterflies are likely to be found on these islands there is specific mention of only a few from the Montebellos and none from Barrow, Lowendals or the other smaller islands. Table 1 gives a summary of the currently known distributions of species through the islands. Recent records are marked "*", material collected by Heatwole and Butler in 1977 is marked "o" and records from Montague (1914) marked "+". Long Island (in the Montebellos) was not visited recently; all the records from that island are from Montague (*loc. cit.*) and where islands are not individually mentioned by that author it is assumed that the species was found on both Hermite and Trimouille.

Most of the material collected in 1982 will be deposited in the Western Australian Museum.

Annotated Checklist

HESPERIIDAE

Anisyntoides argenteoornatus insula (Waterhouse)

This is the only species recorded from the area which was not included in the most recent collections. It has been recorded from the Montebellos but not from Barrow. Its larval food plant, *Acanthocarpus preissii*, occurs on Barrow so it probably occurs there. The specimens on the Montebellos were collected in June and July (Common and Waterhouse 1981).

Taractrocera anisomorpha (Lower)

One specimen was collected on Hermite and one on Middle Island. This is near the western limit of the known range for the species which is found in northern Australia and along the eastern part of the continent as far south as about Burleigh Heads south eastern Queensland. The larvae probably feed on *Cenchrus ciliaris* (buffel grass) of which there is some on Barrow; although adults were not seen there it seems likely that it would occur.

PAPILIONIDAE

Papilio demoleus sthenelus (W.S. Macleay)

Three specimens were collected and another seen on Barrow Island. *Psoralea leucantha*, which is a known larval food plant in other parts of its range, occurs on Barrow. *Psoralea lachnostachys* also occurs but larvae have not yet been reported from this plant.

PIERIDAE

Eurema smilax (Donovan)

Five collected and a sixth seen on Barrow Island. Several species of *Cassia* are known to be larval food plants for this widespread species but none of the five which occur on Barrow Island is amongst them.

Anaphaeis java teutonia (Fabricius)

This widespread species was found on all islands visited except one, (Lowendal S.), and was the only butterfly seen on Mushroom Island.

Concentrations were found near the larval food plant, *Capparis spinosa*, on which eggs, larvae and pupae were found. Elsewhere, scattered specimens were frequently encountered. The larvae were heavily attacked by a tachinid parasite of which adults were very numerous on some of the plants.

NYMPHALIDAE

Danaus chrysippus petilia (Stoll)

Although frequently encountered on the islands this species was not seen on the more northerly of the Lowendals visited nor on Double or Mushroom Islands. It was particularly concentrated near the larval food plant, *Cynanchum floribundum*, of which there are large stands in some areas of white sandy soil. One adult was seen probing its proboscis into dew-wet sand in the shade of a *Triodia* plant.

Vanessa kershawi (McCoy)

This was a fairly widespread species but was seen infrequently. The larval food plant on the island is not known but many species are utilized in other parts of its range.

Junonia villida calybe (Godart)

This species was a little more frequently encountered than *Vanessa kershawi* but was seen especially on the white sand and dune areas near the coast. *Portulaca oleracea* and *Evolvulus alsinoides* are recorded larval food plants and both occur on Barrow. Several species of *Scaevola* are present on Barrow, including a species similar to *S. aemula*, which is a recorded host plant. "*Goodenia* sp." has been recorded as a food plant; *G. microptera* is present on Barrow but it is not known whether it is eaten by the larvae.

LYCAENIDAE

Candalides heathi aeratus (Montague)

This subspecies was described from the Montebellos and is now recorded from the Lowendals, S. Double, Barrow and Boodie Islands. There is considerable variation in size in both sexes. The larvae of *C. h. heathi* (Cox) feed on *Myoporum deserti* in Queensland as well as other plants. *M. acuminatum* occurs on Barrow and as adults were usually found in the vicinity of this plant it probably provides larval food.

Nacaduba biocellata biocellata (C. and R. Felder)

This small lycaenid was very concentrated around plants in flower on Barrow Island. Several species of *Acacia* have been recorded as larval food plants, of which *A. victoriae* is the only one on Barrow. Adults were particularly common around flowering *A. coriacea* from the flower heads of which larvae were beaten; this *Acacia* has not previously been reported as a food plant.

Theclinessthes miskini miskini (T.P. Lucas)

This species was found only on Trimouille, Barrow and Boodie Islands. It was not frequently encountered, only a few specimens being collected. Adults were taken near *Acacia victoriae*, a known larval food plant, and near flowering *A. coriacea* and other plants in flower, such as *Myoporum acuminatum* and *Adriana tomentosa*.

Theclinessthes albocincta (Waterhouse)

T. albocincta was found only on Barrow and Boodie Islands. It was mostly concentrated in the vicinity of *Adriana tomentosa* which is probably its larval food plant. Other species of *Adriana* have been recorded as food plants in South Australia and Victoria. It is a very variable species (Sibatani and Grund 1978) and the specimens from Barrow and Boodie agree with the description of the brown form from the mainland adjacent to the islands (Common and Waterhouse 1981) and with a specimen from 8 km south of Exmouth in the collection of M.S. Moulds.

Theclinessthes serpentata serpentata (Herrich-Schäffer)

T. serpentata was taken on several islands and occurred in locally dense populations on Barrow Island flying around stands of *Halosarcia halocnemoides*, immediately behind mangroves. This plant has not been recorded as a larval food plant but females were seen ovipositing on it. Species of *Rhagodia*, *Chenopodium* and *Atriplex* have been recorded as food plants elsewhere and members of these genera occur on Barrow although none of the species is the same as the recorded host. *Atalaya hemiglauca*, which also occurs on Barrow, has been recorded as a larval food plant in Queensland.

Lampides boeticus (Linnaeus)

Only two specimens of this widespread species were seen, one on Barrow, which was collected, and one on Trimouille which avoided capture. Many fabaceous plants have been recorded as larval food plants. Several have congeneric relatives on Barrow and *Lotus australis*, a recorded food plant, occurs there.

Zizina labradus labradus (Godart)

A frequently abundant species over its widespread range elsewhere, this species was found on five of the islands visited although it was nowhere frequent. Many plants (all Fabaceae) have been recorded as larval food plants. Several have congeneric relatives on Barrow and, as in the case of *Lampides boeticus*, *Lotus australis*, a recorded food plant, occurs there.

Famegana alsulus alsulus (Herrich-Schäffer)

Only two specimens of this small, low-flying lycaenid were collected. The Barrow Island larval food plant is not known. Elsewhere the larvae feed on various Fabaceae.

ISLAND DIVERSITY AND SPECIES NUMBERS

Table 2 lists the islands in order of size and gives the number of species known from each. Barrow is far the largest and is geologically and floristically the most diverse. Table 2 indicates that the larger islands tend to support more species than the smaller. This is expected because larger islands are generally more diverse ecologically.

RESIDENTIAL STATUS OF SPECIES ON THE ISLANDS

Of the sixteen species recorded from the islands eight are known to undertake migratory flights at times. These are *P. demoleus*, *A. java*, *D. chrysippus*, *V. kershawi*, *J. villida*, *E. smilax*, *L. boeticus* and *Z. labradus* and all have widespread distributions over Australia and beyond. There is, however, no reason to suspect that their presence on the islands was due to immigration as all have recorded larval food plants available, were seen to be breeding or have relatives of recorded food plants present. They are probably resident breeding populations. The same comments would apply to the other eight species, most of which are probably less mobile. There is little doubt that all the species recorded are permanent residents. In the case of the migrant species the populations are probably reinforced by immigration from time to time whereas in the others the populations are more isolated. This is supported by evidence from at least some of the species not known to be migrants. *A. argenteoornatus* and *C. heathi* have both developed recognizable populations within Australia which have been formally named as subspecies, in each case one of which is the form occurring in the islands dealt with here. *Th. albocincta*, although they are not formally named, also has recognizable forms and is highly variable through its range - the island form corresponds with the description of the form from the adjacent mainland (Common and Waterhouse 1981) and with a specimen from 8 km south of Exmouth in the collection of Mr. M.S. Moulds. The development of such recognizable populations generally implies fragmentation of the distribution with virtually no movement from one population to another or little individual movement within a continuous population.

NECTAR SOURCES USED BY BUTTERFLIES

The presence of flowering plants does not necessarily mean that a nectar source is available to butterflies. Few observations have been carried out in Australia on the flowers utilized by butterflies. It was evident on Barrow Island that not all available flowers were visited. The matter was not systematically investigated but the following is a list of plants in flower between 1 and 18 May 1982; species at which butterflies of at least one species were seen to feed are marked with an asterisk (*).

Abutilon exonemum, **Acacia bivenosa*, **A. coriacea*, **Adriana tomentosa*, **Amaranthus pallidiflorus*, **Boerhavia diffusa*, *Calandrinia balonensis*, **Canavalia brasiliensis*, *Capparis spinosa*, *Cassia glutinosa*, **Cleome viscosa*, *Clerodendrum tomentosum*, **Codonocarpus cotinifolius*, *Corchorus parviflorus*, **Cynanchum floribundum*, **Frankenia pauciflora*, *Hakea suberea*, **Heliotropium ovalifolium*, **H. undulatum*, *Indigofera monophylla*, **Myoporum acuminatum*, **Olearia axillaris*, *Petalostylis labicheoides*, *Plumbago zeylanica*, *Pterocaulon sphacelatum*, *Ptilotus clementii*, **Rhagodia*

	Montebellos			Lowendals		Barrow and nearby islands					
	Long	Trimouille	Hermite	Lowendal (N)	Lowendal (S)	Mushroom	N. Double	S. Double	Barrow	Middle	Boodie
Hesperiidae											
<i>Anisyntoides argenteoornatus</i>		+	+						*	*	
<i>Taractrocera anisomorpha</i>											
Papilionidae											
<i>Papilio demoleus sthenelus</i>									*		
Pieridae											
<i>Eurema smilax</i>		+	+	*		*		*	*	*	*
<i>Anaphaeis java teutonia</i>											
Nymphalidae											
<i>Danaus chrysippus petilia</i>		*	+		*		*	*	°	*	*
<i>Vanessa kershawi</i>		+	+				*	*	°		
<i>Junonia villida calybe</i>		+	+	*	*		*	*	°	*	
Lycaenidae											
<i>Nacaduba biocellata biocellata</i>	+	+	+	*	*				*	*	*
<i>Theclinessthes albocincta</i>		*							°		*
<i>Theclinessthes miskini miskini</i>		*					*	*	*	*	*
<i>Theclinessthes serpentata serpentata</i>	+	+	+	*			*	*	*	*	*
<i>Lampides boeticus</i>		*	*	*			*	*	*	*	*
<i>Zizina labradus labradus</i>				*				*	*	*	*
<i>Famegana alsulus alsulus</i>				*				*	*	*	*
<i>Candalides heathi aeratus</i>		+	+	*				*	°		*
No. of species	2	11	10	6	3	1	4	6	14	5	7

Table 1. Occurrence of butterflies on Montebello, Lowendal and Barrow Islands and nearby smaller islands. (see text for explanation of symbols)

obovatus, **Scaevola globulifera*, **S. nitida*, **S. spinescens*, **Sida corrugata*, *Solanum diversiflorum*, *S. lasiophyllum*, *Stylobasium spathulatum*, *Trichodesma zeylanicum*, *Waltheria indica*.

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Island-	No. of species	Approx. sq. km Area
Barrow	14	233
Hermite	10	8.9
Trimouille	11	4.6
Middle	5	3.5
Boodie	7	2.0
Lowendal (S)	3	0.3
Lowendal (N)	6	1.1
S. Double	6	0.16
N. Double	4	0.20
Mushroom	1	few hectares
Long	2	?

Table 2. Size and diversity/no. of species (see text for discussion)

FROM FIELD AND STUDY

Notes on the Swamp Parrot - At 1000 hrs, on 26 February 1983, on the Drummond Track 8.1 km south of the Old Ongerup Road, in vacant Crown Land north of the Fitzgerald River National Park, a single Swamp Parrot *Pezoporus wallicus* was observed feeding on *Daviesia pachyphylla*. This plant has thick and almost cylindrical, sclerophyllous leaves. Feeding was restricted to regrowth where widening of the track had occurred 18-24 months previously. Regrowth was absent from nearby mature vegetation. A large amount of chewed leaves indicated that the bird had spent some time feeding on the plant. Several *D. pachyphylla* plants within 30 m of the bird had been chewed in the same manner. This appears to be the first feeding record for the Swamp Parrot in Western Australia. Frith (1977, *The Readers Digest Complete Book of Australian Birds*) notes that in south-eastern Australia the bird's food consists of "seeds of grasses and herbaceous plants, and vegetable matter, particularly green shoots".

The Swamp Parrot has been rarely recorded in Western Australia. Most of the sightings during the last 20 years have occurred in vacant Crown Land north of the Fitzgerald River National Park, between Susetta and West Rivers (Newbey, 1982, "Land Use Planning of the North Fitzgerald Area: Initial Ecological Survey". Private report.). The habitat of low heathland, with or without scattered mallees, differs markedly from that of other sightings in coastal



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