Final Report

Butterflies of Home Valley, Durack River and Karunjie Stations, East Kimberley Region, Western Australia

27 November 2014

Matthew R. Williams

Science and Conservation Division
Department of Parks and Wildlife
17 Dick Perry Drive
Kensington, WA 6151

Mating pair of orange ringlets (*Hypocysta adiante*), East Kimberley, WA. Photo: M.R. Williams.

This report should be cited as:
Williams, M.R. (2014) Butterflies of Home Valley, Durack River and Karunjie Stations, East Kimberley Region, Western Australia. Department of Parks and Wildlife, Perth, Western Australia.

Report funded by the Bush Blitz Program, Australian Biological Resources Study, Canberra.

Bush Blitz Survey of Home Valley, Durack River and Karunjie Stations, East Kimberley Region, Western Australia

Butterflies

26 May – 5 June 2014

Matthew R Williams

27 November 2014

Contents

List of contributors

List of contributors to this report			
Name	**Institution/affiliation**	**Qualifications/area of expertise**	**Level/form of contribution**
Matthew Williams	Science and Conservation Division, Department of Parks and Wildlife, Western Australia	PhD/Lepidoptera	Survey participant and report author

Abstract

Targeted searches for butterflies were conducted over an 11-day period in the early dry season 2014 at Home Valley, Durack River and Karunjie Stations in the East Kimberley Region, Western Australia. Total survey effort was about 60 hrs during which a total of 155 records were obtained, representing 31 species of butterflies at 17 distinct sites. This is approximately 50% of the species expected from the area. The most significant discoveries were range extensions and new locations for several species. Two species (*Hasora chromus* and *Acraea terpsicore*) were recorded substantially further west than their previously known range, with the former being recorded from Western Australia for the first time. Three species that have been rarely sampled in the East Kimberley Region (*Ypthima arctous*, *Hypocysta adiante* and *Nacaduba biocellata*) were recorded at several new locations. These surveys provide records from areas that have never been sampled for butterflies before. The three stations preserve a suite of species characteristic of the drier areas of the monsoon tropics.

1. Introduction

Home Valley, Durack River and Karunjie Stations have not previously been surveyed for butterflies and there are few records for this part of the East Kimberley Region. The three stations occur in a slightly lower rainfall zone compared with the adjacent El Questro Station in the east, which has been well surveyed in the past (Braby, 2012) and provides a useful reference point. Previous surveys for butterflies in the region has been focussed primarily on the West Kimberley and around Kununurra and El Questro station to the east (Franklin et al., 2005; Williams et al., 2006; Braby, 2008; Braby, 2012). Because it occurs in a lower rainfall zone than these previous studies, the area surveyed during this study was expected to support a lower diversity of butterflies, but the composition of the fauna was difficult to predict given the lack of detailed recording for this part of the East Kimberley.

2. Methods

2.1 Site selection

The aim of sampling was to inventory the butterfly species of the three stations by sampling as many different vegetation and habitat types as possible during the survey period. Sites were selected on the basis of aerial imagery and vegetation, topographic and soil mapping. In addition, some sites were added opportunistically. Two sites were hilltops that were sampled to exploit the well-known ‘hilltopping’ behaviour exhibited by many butterfly species.

2.2 Collection methods

Butterflies were surveyed using visual observation and voucher specimens were collected using nets. The bulk of sampling was conducted by the author although volunteers assisted at some sites.

2.3 Identifying the collections

Identifications of collections made during the survey were based on the expert knowledge and experience of the author of this report.

3. Results and Discussion

3.1 Overview of collecting

Seventeen distinct sites were sampled during the survey period. Typically, each site comprised the accessible areas within a radius of 100-500 m around a centrally located point. Where sampling extended more than 500m from this point, such as occurred when sampling along stream lines for example, a new point locality was recorded. In addition, the area around the Home Valley homestead was sampled opportunistically on several occasions. This resulted in 25 sampling events at 21 locations (Table 1). Each locality was sampled over a 2-4 hr period, resulting in a total sampling effort of about 60 hrs during the survey period.

Table 1. Sampling details of survey sites.

Sample code	Site	Locality	Site name/code	Station	Survey date	Latitude	Longitude
1	1	1	Home Valley Station homestead	Home Valley Station	26 May 2014	15°43'23"S	127°49'49"E
2	2	2	Jack's Creek 1	Durack River Station	27 May 2014	15°50'14"S	127°24'23"E
3	2	3	Jack's Creek 2	Durack River Station	27 May 2014	15°50'18"S	127°24'33"E
4	3	4	8km West of Home Valley Stn	Home Valley Station	27 May 2014	15°46'49"S	127°47'23"E
5	4	5	P27 Base	Durack River Station	28 May 2014	16°14'26"S	127°36'16"E
6	4	6	P27 Creek	Durack River Station	28 May 2014	16°14'29"S	127°36'21"E
7	5	7	PKev	Durack River Station	28 May 2014	15°56'40"S	127°41'22"E
8	6	8	P24	Durack River Station	29 May 2014	16°12'17"S	127°29'48"E
9	7	9	PP1	Durack River Station	29 May 2014	15°53'6"S	127°31'35"E
10	8	10	GRR1	Home Valley Station	30 May 2014	15°49'18"S	127°31'9"E
11	9	11	GRR2	Durack River Station	30 May 2014	15°52'20"S	127°21'4"E
12	10	12	GRR3	Karunji Station	30 May 2014	15°56'6"S	127°13'17"E
13	11	13	PP2	Durack River Station	31 May 2014	16°1'6"S	127°31'58"E
14	12	14	GRR4	Home Valley Station	1 June 2014	15°46'6"S	127°46'7"E
15	7	9	PP1	Durack River Station	2 June 2014	15°53'6"S	127°31'35"E
16	13	15	PP12	Karunji Station	2 June 2014	16°4'18"S	127°9'48"E
17	14	16	Karunjie Rd	Karunji Station	3 June 2014	15°59'26"S	127°16'19"E
18	15	17	Durack Falls	Karunji Station	3 June 2014	15°52'49"S	127°13'9"E
19	16	18	P5A	Gibb River Station	4 June 2014	16°20'13"S	126°53'35"E
20	16	19	P5A creek	Gibb River Station	4 June 2014	16°20'11"S	126°54'9"E
21	17	20	PP10	Karunji Station	4 June 2014	16°3'52"S	126°59'31"E
22	3	21	8km West of Home Valley Stn (2)	Home Valley Station	27 May 2014	15°46'56"S	127°47'32"E
23	1	1	Home Valley Station homestead	Home Valley Station	31 May 2014	15°43'23"S	127°49'49"E
24	1	1	Home Valley Station homestead	Home Valley Station	1 June 2014	15°43'23"S	127°49'49"E
25	1	1	Home Valley Station homestead	Home Valley Station	5 June 2014	15°43'23"S	127°49'49"E

The survey was conducted between late May and early June, which is the early - mid dry season. The weather was uniformly warm, dry nights (min 18 - 20°C) and warm-hot sunny days (32 - 35°C), with no precipitation during the survey period. Weather conditions were warmer than is usual for this time of year. The previous two wet seasons had both produced above average precipitation in the region.

A total of 31 species of butterflies was recorded during the survey period (Figure 1). In total, 155 unique site-date records were obtained, of which 119 were collected specimens (vouchers) and 36 were sighting-only observations. Of the species recorded, vouchers were obtained for all but one of these (*Catopsilia scylla*) (Appendix 2).

None of the species recorded are endemic to the study area, although several are endemic to the 'Top End' region. The remaining species occur more widely across the monsoon tropics of northern Australia and/or the eastern coast of Australia.

One species (the chrome awl, *Hasora chromus*) had not been previously recorded from Western Australia. It was captured at the Home Valley station homestead, and may represent either anthropogenic introduction from the Northern territory, or dispersal into the region. The host plant is occasionally grown as an ornamental tree in gardens or as street trees, and this may have facilitated the westward spread of this species into WA.

Two species (*Hypocysta adiante* and *Ypthima arctous*) have been sparsely recorded in the region. Both were collected at several sites (Appendix 2). Both species are typically restricted to seasonally damp areas (e.g. along streamlines or in gorges) and their relatively high frequency of occurrence in this survey may be result of the above average rainfall in the two previous wet seasons. A further species (*Nacaduba biocellata*) that has rarely been recorded in the Kimberley was recorded at one locality.

Figure 1. Voucher specimens of butterflies collected from Home Valley, Durack River and Karunjie Stations, East Kimberley Region, Western Australia.
Top row, left to right: Hesperiidae - *Cephrenes trichopepla, Hasora chromus, Ocybadistes ?flavovittata, Pelopidas lyelli, Suniana lascivia.*
Second row: Lycaenidae - *Candalides erinus, Euchrysops cnejus, Famegana alsulus, Jamides phaseli, Theclinesthes miskini, Zizina labrudus.*
Third row: Nymphalidae - *Acraea terpsicore, Acraea andromacha, Danaus petilia.*
Fourth row: Nymphalidae - *Euploea corinna, Hypocysta adiante, Hypolimnas bolina.*
Fifth row: Nymphalidae - *Junonia villida, Junonia orithya, Charaxes sempronius, Ypthima arctous.*
Sixth row: Pieridae - *Belenois java, Catopsilia pomona, Delias argenthona.*
Seventh row: Pieridae - *Eurema hecabe, Eurema smilax, Eurema herla.*

3.2 Named taxa newly recorded for the reserve

All of the species recorded in the survey were new records for the area, which has not been sampled previously. A full list of species of butterflies recorded during the survey is given in Appendix 1. A more detailed list of the species and associated data are provided in Appendix 2.

3.3 Un-named taxa

No un-named species of butterflies were discovered during the survey.

3.4 New species to be described

No new species of butterflies were discovered that are to be described.

3.5 Weed or pest species

None of the species recorded are listed as pests under State or Commonwealth legislation. The tawny coster butterfly, *Acraea terpsicore*, is a recent introduction to Australia and has the potential to impact on the native butterfly fauna, particularly *Acraea andromacha*.

3.6 Vulnerable, threatened or endangered species

None of the butterflies recorded in this survey are listed as threatened under State of Commonwealth legislation (e.g. *Environment Protection and Biodiversity Conservation Act 1999*).

4. General comment on species lists

The survey results suggest that Home Valley, Durack River and Karunjie Stations support a moderately diverse butterfly fauna. The species list is currently less than that of the adjacent El Questro Station. However, because this survey was conducted during the early - mid dry season, many species that are only active during other times of the year, particularly the wet season, will not have been recorded.

5. Conclusions

The three stations preserve a moderate diversity of butterflies, with 31 species of butterflies recorded. These species are associated with a variety of habitats including sandstone, monsoon vine thicket/forest and a component associated with the lower rainfall (semi-arid) areas of the monsoon tropics.

Acknowledgements

I thank Bush Blitz for financial and logistic support, the Bush Blitz staff, other participants and volunteers for contributing some of the records, the pilots of Heliworks for safe delivery and recovery from sites, and the Science and Conservation Division, Department of Parks and Wildlife WA for approval to participate on the expedition.

References

Braby, M. F. (2008) Biogeography of butterflies in the Australian monsoon tropics. *Australian Journal of Zoology,* **56,** 41-56.

Braby, M. F. (2012) The butterflies of El Questro Wilderness Park, with remarks on the taxonomy of the Kimberley fauna, Australia. *Records of the Western Australian Museum,* **27,** 161-175.

Franklin, D. C., Michael, B. & Mace, M. (2005) New location records for some butterflies of the Top End and Kimberley regions. *Northern Territory Naturalist,* **18,** 1-7.

Williams, A. A. E., Williams, M. R. & Swann, G. (2006) Records of butterflies (Lepidoptera) from the Kimberley region of Western Australia. *Victorian Entomologist,* **36,** 9-16.

Appendices

Appendix 1. List of Butterflies recorded on Home Valley, Durack River and Karunjie Stations, East Kimberley Region, Western Australia.

Family	Species	New record	Putative new species	EPBC Listed	State or Territory Listed	Weed or Pest
Hesperiidae	*Cephrenes trichopepla*	Yes	No	No	No	No
Hesperiidae	*Hasora chromus*	Yes	No	No	No	No
Hesperiidae	*Ocybadistes ?flavovittata*	Yes	No	No	No	No
Hesperiidae	*Pelopidas lyelli*	Yes	No	No	No	No
Hesperiidae	*Suniana lascivia*	Yes	No	No	No	No
Lycaenidae	*Candalides erinus*	Yes	No	No	No	No
Lycaenidae	*Euchrysops cnejus*	Yes	No	No	No	No
Lycaenidae	*Famegana alsulus*	Yes	No	No	No	No
Lycaenidae	*Freyeria putli*	Yes	No	No	No	No
Lycaenidae	*Jamides phaseli*	Yes	No	No	No	No
Lycaenidae	*Nacaduba biocellata*	Yes	No	No	No	No
Lycaenidae	*Theclinesthes miskini*	Yes	No	No	No	No
Lycaenidae	*Zizina labrudus*	Yes	No	No	No	No
Nymphalidae	*Acraea terpsicore*	Yes	No	No	No	Possibly
Nymphalidae	*Acraea andromacha*	Yes	No	No	No	No
Nymphalidae	*Danaus petilia*	Yes	No	No	No	No
Nymphalidae	*Euploea corinna*	Yes	No	No	No	No
Nymphalidae	*Hypocysta adiante*	Yes	No	No	No	No
Nymphalidae	*Hypolimnas bolina*	Yes	No	No	No	No
Nymphalidae	*Junonia villida*	Yes	No	No	No	No
Nymphalidae	*Junonia orithya*	Yes	No	No	No	No
Nymphalidae	*Charaxes sempronius*	Yes	No	No	No	No
Nymphalidae	*Ypthima arctous*	Yes	No	No	No	No
Pieridae	*Belenois java*	Yes	No	No	No	No
Pieridae	*Catopsilia pomona*	Yes	No	No	No	No
Pieridae	*Catopsilia scylla*	Yes	No	No	No	No
Pieridae	*Cepora perimale*	Yes	No	No	No	No
Pieridae	*Delias argenthona*	Yes	No	No	No	No
Pieridae	*Eurema hecabe*	Yes	No	No	No	No
Pieridae	*Eurema smilax*	Yes	No	No	No	No
Pieridae	*Eurema herla*	Yes	No	No	No	No

Appendix 2. List of butterflies recorded during each sampling event.

		Sample code																								
Family	**Species**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Hesperiidae	*Cephrenes trichopepla*								1																	
Hesperiidae	*Hasora chromus*																							1		
Hesperiidae	*Ocybadistes ?flavovittata*		1																							
Hesperiidae	*Pelopidas lyelli*													2												
Hesperiidae	*Suniana lascivia*								1																	
Lycaenidae	*Candalides erinus*	1			1	2			1		1											*				
Lycaenidae	*Euchrysops cnejus*																				2					
Lycaenidae	*Famegana alsulus*																	1	1		1					
Lycaenidae	*Freyeria putli*	1			1																					
Lycaenidae	*Jamides phaseli*	3							3		1			1					1							
Lycaenidae	*Nacaduba biocellata*														1											
Lycaenidae	*Theclinesthes miskini*	1		2		1			1		1						1	*				*	2			
Lycaenidae	*Zizina labrudus*	1				1		*									3	*								
Nymphalidae	*Acraea terpsicore*					4					*		2	*			*		3		2					
Nymphalidae	*Acraea andromacha*						1				1		1	*			*	1								
Nymphalidae	*Danaus petilia*							*									*	1							1	
Nymphalidae	*Euploea corinna*	1											1			*	*	*	*		1				1	
Nymphalidae	*Hypocysta adiante*					1		1	2					1												
Nymphalidae	*Hypolimnas bolina*								2					1												
Nymphalidae	*Junonia villida*			*	1		1						1	*			1	*	1	*		*				
Nymphalidae	*Junonia orithya*			*	1		1	2						*			*		*	*		*				
Nymphalidae	*Charaxes sempronius*																			1						
Nymphalidae	*Ypthima arctous*			1		1		1					1	1	1		1	3				*				
Pieridae	*Belenois java*																			1						
Pieridae	*Catopsilia pomona*							*	1									*								1
Pieridae	*Catopsilia scylla*																*									
Pieridae	*Cepora perimale*							*	1					1			*			2						
Pieridae	*Delias argenthona*										1						1								2	
Pieridae	*Eurema hecabe*								3			1						1								
Pieridae	*Eurema smilax*					1						*					1									
Pieridae	*Eurema herla*					1	1	1					1	1			2									

A numeral indicates the number of voucher specimens collected, '' indicates a sighting record.*

Appendix 3. Financial Statement

I hereby certify that all funds for this project have been spent in the manner and for the purposes specified by the contract.

Name: Matthew R Williams

Signed: 

Date: 27 November 2014