

# **Cape Range Bush Blitz**

## ***Lepidoptera (Moths)***

*17 to 28 June 2019*

***Submitted: 11 October 2019***

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Nomenclature and taxonomy used in this report is consistent with:  
The Australian Faunal Directory (AFD)

<http://www.environment.gov.au/biodiversity/abrs/online-resources/fauna/afd/home>

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## List of contributors

List of contributors to this report.			
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## Abstract

Over the course of the Cape Range Bush Blitz, macro-moths (Order: Lepidoptera) were collected nightly by light trap at five sites, yielding 84 species. Nineteen of these are not named, and of these, 17 appear to reflect known undescribed species or species complexes, while two appear new to science.

## 1. Introduction

The Lepidoptera comprise around 177,500 described species (of an estimated 500,000), making them the second most speciose order, surpassed only by the Coleoptera. Moths are much more numerous than butterflies, making up around 160,000 of described lepidopteran species. In Australia there are approximately 22,000 species of moth, around half of which remain undescribed.

## 2. Methods

All moths were collected by light trap. Traps were set up in daylight, with the lights turned on up to 30 minutes before sunset and run for several hours, typically until the dewpoint was reached, often around 1-2 am (at this time there is a noticeable drop in moth visitation). Specimens from the previous night were then pinned and set the following day. This was repeated for the duration of the survey.

### 2.1 Site selection

Sites were selected based on habitat quality and landscape. Ideally, sites were relatively flat, and light traps were oriented such that they would be unobstructed and visible from as great a distance as possible. Mixed vegetation habitat was often chosen, as this was predicted to yield the greatest variety of moth species.

### 2.2 Survey techniques

Light traps consisted of a light source suspended in front of a white mosquito netting sheet stretched flat between two poles. Two types of light sources were used: one self-ballasted mixed 1000W light was run off of a portable petrol generator, while two Lepi-LED lights (<http://www.gunnarbrehm.de/en/contact.html>) were powered by USB powerbank batteries. Most nights all three traps were run simultaneously, except for the single night collecting at the “*Livingstonia* site”, where only the Lepi-LEDs could be used due to helicopter weight restrictions.

#### 2.2.1 Methods used at standard survey sites

Two Lepi-LED and one mixed spectrum 1000W light were run at Standard Survey Site 2, as described above. Standard Survey Site 1 was not sampled, due to its distance from base camp and subsequent increased night time driving risk.

### 2.3 Identifying the collections

Specimens were identified by eye and with reference to Common (1989) and the website “Coffs Harbour Butterfly House” ([www.lepidoptera.butterflyhouse.com.au](http://www.lepidoptera.butterflyhouse.com.au)), as well as through consultation with Dr Ted Edwards, Lepidoptera specialist at the Australian National Insect Collection (ANIC). Dr Edwards also provided information on updated species distributions which are not currently captured in the Australian Faunal Directory.

### 3. Results and Discussion

Appendix 1 lists all moths collected during the 2019 Cape Range Bush Blitz survey.

#### 3.1 Un-named or not formalised taxa

A total of 17 species belonging to known but not presently named taxa were collected. These have been given morphospecies codes pending further taxonomic work. As many of these are known from specimens collected elsewhere in Australia (e.g. the eastern states), future studies are likely to reveal some of these as additional species new to science.

<b>Taxon</b>	<b>Property</b>
Destolmia lineata complex msp.18	Cape Range NP
"polycmeta" BBCR msp.1	Cape Range NP
Anthela BBCR msp.2	Cape Range NP
Paralaea sp (undescribed) msp.19	Cape Range NP
Oenochroma BBCR msp.3	Cape Range NP
Dinophalus BBCR msp.4	Cape Range NP
Oenochroma BBCR msp.5	Cape Range NP
Aedia BBCR msp.6	Cape Range NP
Oenochroma BBCR msp.7	Cape Range NP
Dinophalus BBCR msp.8	Cape Range NP
Genduara BBCR msp.10	Cape Range NP
Syneora BBCR msp.11	Cape Range NP
Dinophalus BBCR msp.12	Cape Range NP
Brachycyttara BBCR msp.13	Cape Range NP
Amelora BBCR msp.14	Cape Range NP
Syneora BBCR msp.15	Cape Range NP
Capusa BBCR msp.9	Cape Range NP

#### 3.2 Putative new species (new to science)

Two species were collected that are believed to be new to science and not found in existing collections.

<b>Species</b>	<b>Comment</b>
Euproctis BBCR msp.16	Poor flyer so good candidate for a short-range species, needs further study
Persectania BBCR msp.17	Single specimen, needs DNA work to confirm

#### 3.3 Exotic and pest species

Five pest species were collected during the survey.

<b>Exotic/pest species</b>	<b>Location sighted/observed</b>	<b>Indication of abundance</b>	<b>Comments</b>
<i>Chrysodeixis eriosoma</i>	Cape Range NP: Dune off Yardie Creek Rd (SS2)	Low numbers	Green looper/ Tomato green looper: pest on garden plants, though

			also feeds on some weeds
<i>Helicoverpa armigera</i>	1) Cape Range NP: Dune off Yardie Creek Rd (SS2); 2) Cape Range NP: Livingstonia site	Low numbers	Cotton bollworm: common in WA
<i>Maroga melanostigma</i>	Cape Range NP: Shothole Canyon, 1st dry riverbed crossing	Low numbers	Pecan stem girdler: garden pest
<i>Spodoptera exigua</i>	Cape Range NP: Livingstonia site	Single specimen	Beet armyworm
<i>Sceliodes cordalis</i>	Cape Range NP: Shothole Canyon, 1st dry riverbed crossing	Single specimen	Poroporo fruit borer/eggfruit caterpillar: pest on Solanaceae

### 3.4 Threatened species

No listed threatened species were collected.

Species	Listing status and level (EBPC, State/Territory)	Location sighted/observed	Indication of abundance
N/A			

### 3.5 Range extensions

Range extensions are difficult to determine, as there is no moth list for Cape Range, and the AFD is not up to date. Nonetheless, we record here 17 new records for the region, based on consultation with moth expert Ted Edwards from ANIC. Distances from nearest known records are for the most part not available.

Species	Location sighted/observed	Distance from nearest known record (km)	Comments
<i>Ectopatria xerampelina</i>	Cape Range NP: near quarry off Learmonth Minilya Rd		Pilbara
<i>Homospora rhodospota</i>	Cape Range NP: Shothole Canyon, 1st dry riverbed crossing	1127	Single record from Derby
<i>Notarcha polytimeta</i>	Cape Range NP: Shothole Canyon, 1st dry riverbed crossing		Nearest record from Kimberley
<i>Crysiptora orthogramma</i>	1) Cape Range NP: Shothole Canyon, 1st dry riverbed crossing; 2) Cape Range NP: Dune off Yardie Creek Rd (SS2)		Pilbara
<i>Acantholipes zuboides</i>	Cape Range NP: Light trap near power lines	215	Previously recorded on Montebello Islands
<i>Destolmia lineata complex msp.18</i>	Cape Range NP: Dune off Yardie Creek Rd (SS2)		New record for the Cape region

<i>Heliocheilus ranalaetensis</i>	Cape Range NP: Dune off Yardie Creek Rd (SS2)		New record for Cape Region, possible new record for WA
<i>Anthela BBCR msp.2</i>	Cape Range NP: Livingstonia site		New record for Cape region; known from single specimen elsewhere in WA
<i>Aedia BBCR msp.6</i>	Cape Range NP: Shothole Canyon, 1st dry riverbed crossing		New record for Cape region
<i>Dinophalus BBCR msp.8</i>	Cape Range NP: Livingstonia site		New record for Cape region
<i>Calloplistria maillardi</i>	Cape Range NP: Dune off Yardie Creek Rd (SS2)		New record for Cape region; has been known from WA since ~2011
<i>Xenogenes chrysoplaca</i>	1) Cape Range NP: Livingstonia site; 2) Cape Range NP: Dune off Yardie Creek Rd (SS2)		Found in northern WA, new record for region
<i>Eloasa callidesma</i>	Cape Range NP: Shothole Canyon, 1st dry riverbed crossing		New record for Cape region
<i>Euproctis BBCR msp.16</i>	Cape Range NP: Livingstonia site		New record for Cape region
<i>Acantholipes zuboides</i>	Cape Range NP: Light trap near power lines		New record for Cape region
<i>Crypsiprora orthogramma</i>	1) Cape Range NP: Shothole Canyon, 1st dry riverbed crossing; 2) Cape Range NP: Dune off Yardie Creek Rd (SS2)		New record for Cape region
<i>Dinophalus BBCR msp.12</i>	1) Cape Range NP: Shothole Canyon, 1st dry riverbed crossing; 2) Cape Range NP: Dune off Yardie Creek Rd (SS2); 3) Cape Range NP: Livingstonia site		New record for the Cape region, but known from elsewhere in WA

### 3.6 Genetic information

N/A

## 4. Information on species lists

There is no species list for Cape Range moths.

## 5. Information for land managers

As with other native fauna, moth diversity is best preserved through the preservation of habitat, and the avoidance of vegetation burning during spring while plants are flowering and fruiting.

## **6. Other significant findings**

No other significant findings were reported.

## **7. Conclusions**

The Bush Blitz survey of Cape Range resulted in the collection of 84 species of moth from five light trap sites. Of these, 17 are known but unnamed and two are thought to be new to science.

## **Acknowledgements**

The ABRS is greatly thanked for their funding and logistical support in running this survey. We also thank the Australian Defence Force for providing lodging and facilitating access to Defence Force lands, the Parks and Wildlife Service, the Ningaloo Centre, and the Earthwatch volunteers. We acknowledge that this survey was conducted on the ancestral lands of the Jinigurida, Baijunju, and Thalanyji people.

## **References**

Common, I.F.B. 1990. Moths of Australia. Brill, Victoria.  
Lepi website

## **Appendices**

### **Appendix 1. List of nocturnal Lepidoptera collected in Cape Range National park during 2019 Bush Blitz.**

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State Act)	Exotic/ pest
Anthelidae	<i>Anthela adriana</i>		no	no	no	no
Anthelidae	<i>Anthela</i> BBCR msp.2		yes	no	no	no
Anthelidae	<i>Anthela decolor</i>		no	no	no	no
Anthelidae	<i>Anthela exoleta</i>		no	no	no	no
Anthelidae	<i>Anthela tetraphrica</i>		no	no	no	no
Anthelidae	<i>Anthela unisigna</i>		no	no	no	no
Anthelidae	<i>Anthela xantharcha</i>	Orange tailed anthelid	no	no	no	no
Anthelidae	<i>Munychryia senicula</i>	Grey Anthelid	no	no	no	no
Crambidae	<i>Notarcha polytimeta</i>		no	no	no	no
Crambidae	<i>Omiodes odontostica</i>		no	no	no	no
Crambidae	<i>Sceliodes cordalis</i>	Poroporo fruit borer/eggfruit caterpillar	no	no	no	yes
Erebidae	<i>Acantholipes zuboides</i>	nr (from Montebello)	no	no	no	no
Erebidae	<i>Achaea argilla</i>	Plain looper	no	no	no	no
Erebidae	<i>Achaea janata</i>	Castor oil looper/Croton caterpillar	no	no	no	no
Erebidae	<i>Aloa marginata</i>	Donovan's tiger moth	no	no	no	no
Erebidae	<i>Amata aperta</i>	Pale spotted tiger moth	no	no	no	no
Erebidae	<i>Anomis involuta</i>	Hibiscus cutworm/ Jute looper	no	no	no	no
Erebidae	<i>Brachycyttara</i> BBCR msp.13		yes	no	no	no
Erebidae	<i>Brachycyttara crypsipyrha</i>	Cryptiv crest	no	no	no	no
Erebidae	<i>Crypsiprora orthogramma</i>	nr	no	no	no	no
Erebidae	<i>Crypsiprora orthogramma</i>	Inscribed crest	no	no	no	no
Erebidae	<i>Donuca spectabilis</i>	White-spotted owl moth	no	no	no	no
Erebidae	<i>Eudesmeola lawsoni</i>	Lawson's night moth	no	no	no	no
Erebidae	<i>Euproctis</i> BBCR msp.16		yes	no	no	no
Erebidae	<i>Grammodes ocellata</i>	Large-eyed box-owlet	no	no	no	no
Erebidae	<i>Ophiusa parcemacula</i>	Figure eight moth	no	no	no	no
Erebidae	<i>Pandesma submurina</i>	Pale migrant	no	no	no	no
Erebidae	<i>Pantylia diemeni</i>	Gap-lined pantylia	no	no	no	no
Erebidae	<i>Praxis marmarinopa</i>	Western praxis		no	no	no
Erebidae	<i>Xenogenes chrysoplaca</i>		no	no	no	no
Erebidae	<i>Xenogenes gloriosa</i>		no	no	no	no

Geometridae	Amelora BBCR msp.14		yes	no	no	no
Geometridae	Amelora conia		no	no	no	no
Geometridae	Capusa BBCR msp.9		yes	no	no	no
Geometridae	Capusa cuculoides	White-winged wedge-moth	no	no	no	no
Geometridae	Capusa stenophara	Dusky wedge-moth	no	no	no	no
Geometridae	Cernia amyclaria		no	no	no	no
Geometridae	Cryphaea xyliina	Woodland geometrid	no	no	no	no
Geometridae	Crypsiphona ocultaria	Red-lined geometrid	no	no	no	no
Geometridae	Dinophalus BBCR msp.12		yes	no	no	no
Geometridae	Dinophalus BBCR msp.4		yes	no	no	no
Geometridae	Dinophalus BBCR msp.8	nr	no	no	no	no
Geometridae	Homospora rhodoscopa	nr	no	no	no	no
Geometridae	Oenochroma BBCR msp.3		yes	no	no	no
Geometridae	Oenochroma BBCR msp.5		yes	no	no	no
Geometridae	Oenochroma BBCR msp.7		yes	no	no	no
Geometridae	Oenochroma cycnoptera		no	no	no	no
Geometridae	Oenochroma cycnoptera	Dry country wine-moth	no	no	no	no
Geometridae	Paralaea sp (undescribed)	known unknown	yes	no	no	no
Geometridae	Prasinocyma rhodocosma	Northern emerald	no	no	no	no
Geometridae	Syneora BBCR msp.11		yes	no	no	no
Geometridae	Syneora BBCR msp.15		yes	no	no	no
Lasiocampidae	Genduara BBCR msp.10	nr	yes	no	no	no
Lasiocampidae	Genduara subnotata	Clear-winged snout moth	no	no	no	no
Lasiocampidae	Porela homospila	Desert porela	no	no	no	no
Lasiocampidae	Porela notodontina	Grey porela	no	no	no	no
Limacodidae	Eloasa callidesma		no	no	no	no
Limacodidae	Parasoidea paroa		no	no	no	no
Limacodidae	Pseudanapaea transvestita	Orange cup moth	no	no	no	no
Noctuidae	"polycmeta" BBCR msp.1		yes	no	no	no
Noctuidae	Aedia BBCR msp.6		yes	no	no	no
Noctuidae	Australothis rubescens		no	no	no	no
Noctuidae	Callopietria maillardi		no	no	no	no
Noctuidae	Chrysodeixis eriosoma	Green looper/Tomato green looper	no	no	no	yes

Noctuidae	Diatenes aglossoides		no	no	no	no
Noctuidae	Ectopatria euglypta		no	no	no	no
Noctuidae	Ectopatria xerampelina	nr	no	no	no	no
Noctuidae	Hecatesia thyridion	Southern whistling moth	no	no	no	no
Noctuidae	Helicoverpa armigera	Cotton bollworm	no	no	no	yes
Noctuidae	Heliocheilus cladotus		no	no	no	no
Noctuidae	Heliocheilus eodora		no	no	no	no
Noctuidae	Heliocheilus ranalaetensis		no	no	no	no
Noctuidae	Persectania BBCR msp.17		yes	no	no	no
Noctuidae	Spodoptera exigua	Beet armyworm	no	no	no	yes
Noctuidae	Thalatha guttalis		no	no	no	no
Nolidae	Armactica columbina		no	no	no	no
Notodontidae	Destolmia lineata complex	Streaked notodontid	no	no	no	no
Notodontidae	Paradestolmia nigrolinea		no	no	no	no
Oecophoridae	Maroga melanostigma	Pecan stem girdler	no	no	no	yes
Psychidae	Lomera boisduvalii		no	no	no	no
Sphingidae	Hippotion celerio	Vine hawk moth	no	no	no	no
Sphingidae	Hippotion scrofa	Coprosma hawk moth	no	no	no	no
Sphingidae	Hopliocnema brachycera	Desert hawk moth	no	no	no	no
Sphingidae	Leucomonia bethia		no	no	no	no