Little Desert NP Bush Blitz

Apoidea – Native Australian bees

28–30 October 2019

Submitted: 27 February 2020

Dr Ken Walker

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

Contents

List of contributors

List of contributors to this report.			
Name	**Institution/affiliation**	**Qualifications/area of expertise**	**Level/form of contribution**
Dr Ken Walker	*Museums Victoria*	*Hymenoptera*	*In full*

Abstract

The Little Desert National Park Bush Blitz provided an opportunity to survey the native Australian bee fauna in this park. Few bee records are available for this park on the Atlas of Living Australia. Despite an abundance of flowering eucalypts, no native bees were attracted to these flowers, which is highly unusual. The results of the three-day bee survey produced a significantly lower bee diversity and lower number of specimens collected than was expected. Two putative new *Lasioglossum* species were recorded. Five specimens (representing both sexes) of *Euryglossa pammicta* were collected which was significant, as this native bee species had not been seen or collected since 1969.

1. Introduction

The Little Desert NP has been poorly surveyed for native Australian bees. A search on the Atlas of Living Australia (ALA) revealed only 10 bee records for the NP. These included five for the European Honeybee (*Apis mellifera*), one record for the Colletidae genus *Hylaeus*, one record for the Halictidae genus *Lasioglossum* and one record for the bee family Megachilidae.

2. Methods

2.1 Site selection

Site selection was based on the availability of flowering plants – both native and exotic. Bees are attracted to flowers and this is the best way to collect bees.

2.2 Survey techniques

The only survey technique used was to sweep flowers with a bee net. A bee net is basically a butterfly net (i.e. a round, metal hoop on the end of the pole and a white mesh net around the hoop). Bee nets differ by having a much finer mesh than used in a butterfly net. The butterfly net mesh space would allow many of the small euryglossine bees to escape. As well, to be able to reach flowers several metres above ground level, several two-metre length poles can be joined together with the hoop net attached at the top.

2.2.1 Methods used at standard survey sites

Unfortunately, no flowering plants were located at the two standard survey sites. However, flowering plants were located nearby.

2.3 Identifying the collections

Several years ago, I developed a website that contained multiple, montaged diagnostic images per native Australian bee species (up to 10 images per species) from specimens named by recognised bee experts and referenced specimens held in these institutions:

University of Queensland Insect Collection (now stored at the Queensland Museum), Brisbane

Australian National Insect Collection, Canberra

Museums Victoria, Melbourne

Each bee species has its own webpage consisting of up to 10 diagnostic images for both sexes and a species distribution map. This website contains bee web pages for 1639 bee species from the total known Australian bee fauna of about 1670 species.

Individual images can be viewed or comparative user defined image pages can be constructed and viewed.

The web address for this site is: http://www.padil.gov.au/pollinators/search?queryType=all

Dr Ken Walker identified all specimens collected during the Bush Blitz

Ken Walker surveying native bees in the Little Desert NP
Photographer: Benjamin Healley | Source: Museums Victoria

3. Results and Discussion

Appendix 1 lists all bees recorded during the Bush Blitz. Collections made during this Bush Blitz will result in 101 specimens being added to public collections and an equivalent number of records added to publicly accessible databases. No flowering plants were located at the two standard survey sites, resulting in the collection of no bee specimens from these sites.

3.1 Un-named or not formalised taxa

Table 1. Putatively un-named or not formalised taxa	
Taxon	**Comment**
Leioproctus and *Euhesma*	These are large and only partially revised taxa so I have left their ID at a generic level.

3.2 Putative new species (new to science)

In this report, 'putative new species' means an unnamed species that, as far as can be ascertained, was identified as a new species as a direct result of this Bush Blitz.

Table 2. Putative new species (new to science)	
Species	**Comment**
Lasioglossum (Chilalictus) sp. nov.	I revised the subgenus *Chilalictus* and found only three species which had lateral hair tufts on the first metasomal (i.e. abdominal) segment. This new species has such lateral hair tufts and is not one of those three known species.
Lasioglossum (Ctenonomia) sp. nov.	This subgenus has not been revised but I believe I know all of the described taxa. The mesoscutal (ie. thorax) sculpture pattern is not known in other named species.

3.3 Exotic and pest species

Table 3. Exotic and pest species			
Exotic/pest species	**Location sighted/observed**	**Indication of abundance**	**Comments**
European honeybee (*Apis mellifera*)	Most sites collected	Low numbers on flowers except where a feral hive was found in base of eucalypt tree at Broughton's Waterhole	The appearance of European honeybees was as expected.

Apis mellifera, European Honeybees, drinking at Broughtons Waterhole, Little Desert NP
Photographer: Ben Healley | Source: Museums Victoria

3.4 Threatened species

Table 4. Threatened species			
Species	**Listing status and level (EBPC, State/Territory)**	**Location sighted/observed**	**Indication of abundance**
None found			

3.5 Range extensions

Table 5. Range extensions or significant infill in distribution records for species			
Species	**Location sighted/observed**	**Distance from nearest known record (km)**	**Comments**
Euryglossa pammicta	10km W Broughton's Waterhole 29 Oct 2019 -36.5655S 141.3134 on Leptospermum	Known from NW Victoria (e.g. Horsham)	There are only 12 known records for this species and the last record was from 1969. It is nice to know the species is still extant in these areas.

3.6 Genetic information

The pinned specimens may be available for future genetic research.

4. Information on species lists

Identifications for bee groups that have revisions and keys available were relatively easy. For taxa where there are no keys, the identification was left at the generic level.

5. Information for land managers

Within the park itself, habitat for native bees seemed to be acceptable. There was a variety of flowering plants and lots of suitable nesting habitat. The areas surrounding the park appear to be primarily grain-based agriculture. Grains are wind pollinated and do not offer suitable food or nesting habitats for native bees.

6. Other significant findings

While I found an abundance of flowering eucalypts, I was surprised to find little to no bee activity on these flowering eucalypts – there were even few European honeybees at these flowers. Usually, flowering eucalypts attract a wide variety of native bees, especially the very common Colletidae – Euryglossinae bees. I collected only two samples of Euryglossinae bees on non-eucalypt flowers. The almost complete absence of bees on flowering eucalypts was puzzling and my only suggestion was that these flowers were not producing nectar. My best bee collection was made on a stand of flowering Chocolate Lily (*Arthropodium strictum*). These lilies also do not produce nectar and yet the bees were visiting them in abundance so why were bees not attracted to flowering eucalypts remains a puzzling question?

7. Conclusions

Native bees were not in abundance in the Little Desert NP during our October 2019 Bush Blitz survey. This was despite an abundance of flowering eucalypt trees which are considered to be a major food resource (both pollen and nectar) for native bees. I am unsure of the reason(s) why native bees were not using the available eucalypt flowers. I collected native bees on non-eucalypt flowers although my collection of bees was low in numbers and low in diversity to what I would have expected. Perhaps this may be due to the sustained drought but may also be due to the surrounding areas being primarily grain based agriculture as grain based plants are wind rather than bee pollinated therefore large areas of land surrounding the National Park are not suitable for high diversity and numbers of native bees.

Acknowledgements

Bush Blitz for funding this fieldwork.

References

PaDIL website at http://www.padil.gov.au/pollinators/search?queryType=all

Appendix 1. List of Apoidea – Native and non-native Australian bees recorded during the Little Desert Bush Blitz

	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State/Territory Act)	Exotic/pest
Halictidae	*Homalictus urbanus*	Native bee	No	No	No	No
Halictidae	*Lasioglossum* (*Chilalictus*) sp. nov.	Native bee	Yes	No	No	No
Halictidae	*Lasioglossum* (*Ctenonomia*) sp. nov.	Native bee	Yes	No	No	No
Halictidae	*Lasioglossum aspratulum*	Native bee	No	No	No	No
Halictidae	*Lasioglossum clelandi*	Native bee	No	No	No	No
Halictidae	*Lasioglossum cognatum*	Native bee	No	No	No	No
Halictidae	*Lasioglossum convexum*	Native bee	No	No	No	No
Halictidae	*Lasioglossum erythrurum*	Native bee	No	No	No	No
Halictidae	*Lasioglossum globosum*	Native bee	No	No	No	No
Halictidae	*Lasioglossum hilactum*	Native bee	No	No	No	No
Halictidae	*Lasioglossum instabilis*	Native bee	No	No	No	No
Halictidae	*Lasioglossum lanarium*	Native bee	No	No	No	No
Halictidae	*Lasioglossum littleri*	Native bee	No	No	No	No
Halictidae	*Lasioglossum pachycephalum*	Native Bee	No	No	No	No
Halictidae	*Lipotriches gracilipes*	Native bee	No	No	No	No
Colletidae	*Euhesma* sp.	Native bee	No	No	No	No
Colletidae	*Euryglossa pammicta*	Native bee	No	No	No	No
Colletidae	*Hylaeus* (*Rhodohylaeus*) sp.	Native bee	No	No	No	No
Colletidae	*Hylaeus honestus*	Native bee	No	No	No	No
Colletidae	*Hylaeus* sp.	Native bee	No	No	No	No
Colletidae	*Leioproctus* sp.	Native bee	No	No	No	No
Apidae	*Apis mellifera*	European honeybee	No	No	No	Yes