

BATS & THE CANNING RIVER REGIONAL PARK (CRRP)

The CRRP is a reserve spanning the section of the Canning River between Nicholson Road Bridge and Shelley Bridge, within the City of Canning. It is jointly managed by the City of Canning and the Department of Biodiversity, Conservation and Attractions, having areas for both conservation and recreation. The Park is of significant ecological value because it includes habitat resources in an urban setting. Use of the Park helps to ensure positive human interaction with nature and ensures community involvement in the conservation of biodiversity.

In the middle of the reserve is a pedestrian enabled weir, which separates the fresh water upstream from the salt water downstream. Near the south (Ferndale) side of the weir are bat boxes that were installed between about 2008 and 2017. There are also excellent roosting options in the flooded gums lining the river bank, the larger ones having many potential roosting hollows. It is easy to observe the microbats in the boxes if you look up and into the narrow slot beneath the box. The microbats will appear in front of the reflective tape on the ceiling of the box.

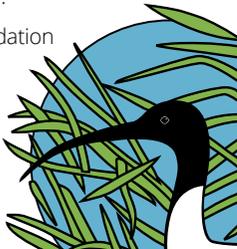
Bats play a vital role in the health of ecosystems. Microbats eat a wide range of insects, including mosquitoes, moths, beetles and bugs, helping to keep their numbers in check. This includes a range of species that are agricultural pests.

THREATS TO BATS IN THE REGIONAL PARK

LOSS OF TREES: Feral bees will occupy tree hollows, thereby excluding microbats. The occupation of tree hollows by Rainbow Lorikeets and the deliberate removal of trees by humans also results in habitat loss for the microbats. Providing roosting boxes to augment habitat in the park has been proved by this study to be beneficial to only one species of bat. It is vital that natural habitat is preserved for these creatures.

LOSS OF INSECT PREY: The spraying of pesticide chemicals has been found to be directly detrimental to microbats and to also have the indirect effect of removing and/or contaminating the night flying insects on which the microbats prey.

PREDATORS: The microbats are subject to predation from native, introduced and domestic animals such as falcons, owls, cats, and possibly snakes and lizards. This explains their habit of moving to new roosts on a regular basis to confuse the predators.



CANNING RIVER REGIONAL PARK VOLUNTEERS

Canning River Regional Park Volunteers are a small, dedicated group who work within the Canning River Regional Park, mostly between Nicholson Road Bridge in the east and Adenia Lagoon near the western end of the park.

FOR MORE INFORMATION CONTACT:



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REFERENCES, FURTHER READING & ACTIVITIES:

- Canning River Eco Education Centre (CREEC) – located in the Park at Queens Park Rd, Wilson
- Burgar, J., Y. Hitchen & J. Prince 2021 Effectiveness of bat boxes for bat conservation and insect suppression in a Western Australian urban riverine reserve. Austral Ecology January 2021. A copy is available at: https://www.researchgate.net/publication/348280620_Effectiveness_of_bat_boxes_for_bat_conservation_and_insect_suppression_in_a_Western_Australian_urban_riverine_reserve
- Churchill, S. 2008 Australian Bats second edition 2008 (third edition expected in 2020)
- Bats in Western Australia, Joe Tonga – <http://gobatty.com.au>
- Australian Museum – <https://australianmuseum.net.au/learn/animals/bats/>
- Australasian Bat Society – <http://ausbats.org.au/>
- The Amazing Life of Bats by Bryony Fremlin – brochure. Contact CREEC
- Burgar, J. 2020 CRRP Bat Diet Composition. Contact CREEC or CRRPV.
- Burgar, J. 2019 CRRP Call Data. Contact CREEC or CRRPV.
- Armstrong, K. 2000 A survey of the bat community of Bannister Creek Reserve. Contact SERCUL.
- Observe the bat boxes near the west side of the weir.



This project was kindly funded by Lotterywest

WHATS ON THE MENU in the Regional Park?

*Microbats and their diet in the
Canning River Regional Park*

BATS IN THE PERTH REGION

Bats (Chiroptera) are thought to have evolved approximately 60 million years ago and are the only flying mammal. There are two broad groups of bats: the large fruit eating megabats and the smaller insect eating microbats.

In the Park we have the microbats who roost in the tree hollows and under bark. The bats can see but use echolocation to navigate and to capture prey. They emit a sound which bounces off objects around them and is then intercepted by their large ears or nose folds.



Gould's Wattled Bat by Jesse Young



Gould's Wattled Bat using a bat box in the Regional Park by Claire Kennedy

On occasion, a bat walk through the Park will yield few bats calls, on another night, the recording equipment may sound continuously.

Nine species of microbat are known in the Southwest of Australia. Three of these were detected on the bat recorders in the Park: the White-Striped Freetail Bat (*Austronomus australis*), Gould's Wattled Bat (*Chalinolobus gouldii*) and a *Nyctophilus* species. One of them, the White-striped Freetail bat, can be heard by people with good hearing as a tic..tic..tic. It is fast moving and typically flies above the tree canopy. Adults of this species weigh about 38g and the other two bat species recorded, weigh about 13g. For comparison, an adult house mouse weighs about 20g. There may be other bat species in Park, however their calls are hard to detect (the quiet bats).

BAT STUDIES IN THE REGIONAL PARK

THE BAT STUDY PROJECT

Microbats are small and nocturnal and generally "invisible" to the Perth community. Very little was known about the bats that live in this Park in the middle of Perth and in 2016 the Canning River Regional Park Volunteers decided to address this with a new study. Lotterywest provided funds to make this project possible.

The aims of the project were to:

- identify the species of microbats living the Park,
- identify the diet of these microbats,
- remove feral honeybee populations that were threatening the existence of the microbats,
- refurbish and install new bat boxes for their protection,
- educate the wider community about microbats.

HOW WE COLLECTED BAT CALL INFORMATION AND WHAT WE FOUND:

Bat echolocation calls were recorded at several fixed locations and recordings were also taken while walking, using a recorder which plugs into an iPad. More calls were recorded near large trees than either over the sedge areas or nearby residential areas.

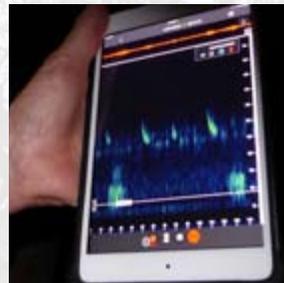
The Park is home to three species of microbat. Overall, 12 952 microbat calls were recorded during the surveys with nearly two-thirds belonging to the White-striped Free-tailed Bat and just over one-quarter belonging to Gould's Wattled Bat. Four calls were identified as a *Nyctophilus* species and this type of bat is known to have low amplitude calls. It may well live within, or travel through, the Park but was not always detected by the recorders.



Microbat detection gear



Batwalk Dec 10, 2016 photo by Jan Botha



Evidence of microbat activity on the tablet

Interested in having
a bat recorder
installed temporarily
in your area?
Enquire at CREC.

BAT FAECES DIET STUDY

To figure out which species of microbat are roosting in the bat boxes, and what insects those microbats are eating, tables were placed under the boxes to collect their faeces. This was done while the bats were roosting during the day. These faeces were analysed for DNA to identify the bat species and the insects that they eat. Happily, this resulted in minimal disturbance to the bats.

Although there are three species of microbat in the Park, Gould's Wattled Bat was the only microbat identified during the DNA study. That is because this microbat tends to make the most use of the roosting boxes. The other microbat species appear to prefer to roost in the trees.

Gould's Wattled Bats are important to the ecosystem and to the humans who enjoy the Park. These bats consume a wide variety of insects considered to be agricultural and disease threats. For example, 11% of the microbat faeces analysed contained mosquito prey. Generally, Gould's Wattled Bats consume whatever crosses their path, although eating larger insects, like moths, provides more calories for energy expended when hunting prey.

Of the insect prey identified during the study, the vast majority (76%) were moths (from the Lepidoptera order of moths and butterflies). One example that was found, the common insect cutworm, is a night-flying moth in its mature stage, and was found in two-thirds of the bat faeces collected.



Jim with Lotterywest representatives photo by Claire Kennedy



Jim with set up to collect microbat faeces



Microbat box



Microbat box