

# Bat Roosts

## What are Microbats?

Microbats (Microchiropteran bats) are relatively small mammals with weights ranging from a mere 3 grams up to 40 grams. These species are specially adapted for flight with wing membranes up to 25cm. They use both eye sight and echolocation for finding their way around and locating prey, being mostly insects, even on the darkest nights.

These bats represent a diverse and significant component of the mammal fauna of north-eastern NSW. They comprise about 25% of Australia's mammals and in north-eastern NSW this ratio increases to almost 39%. Nineteen microbat species are listed as threatened under the NSW *Threatened Species Conservation Act 1995* (TSC Act).



Southern Forest Bat

## Where do they roost?

All microbats require roost sites for both day and night time resting, predator protection, social contact and breeding.

Individual species are very specific in their choice of roost sites ranging from hollows and cavities in trees to rock overhangs, caves and subterranean tunnels. They may also use stormwater culverts, flood mitigation structures and the underside of timber and concrete bridges. These sites may alternate due to different weather, seasons or even on a daily basis.

Refer to Advisory Note 1- Trees with Hollows for more information on the importance of trees with hollows.

## Significant Roost Sites

Whilst all bat roost sites are important for day to day survival, roosts used for winter, cold weather hibernation and breeding (maternity sites) are most significant.

These sites are often used seasonally. This means that the species may only be present at certain times of the year. To determine the significance of roost sites, assessments may be required over a number of seasons.

A significant subterranean roost site often has a combination of at least two of the following features:

- Mines or caves that are mainly near-horizontal tunnels. These may range from several metres long to deep complex mines or caves with interconnecting passageways. Vertical shafts are infrequently used.
- The presence of standing water, or at least a damp floor.
- A domed area where temperature and humidity are elevated, either through a natural accumulation of heat, or by retaining body heat of adult and young bats.
- High humidity which can be provided by the mine containing water, damp soil, or the mine being located within the water table.

Significant subterranean roost sites may also be characterised by the following features:

- Usually deep enough to have a fully dark area where temperatures are constant. However some species may roost close to the entrance of the mine or cave.
- Airflow is often restricted by partial collapse of the entrance or passageways.



***Bat species which are known to inhabit derelict mines and caves in NSW***

Species	Comments
Large Bent-wing Bat ( <i>Miniopterus schreibersii</i> ) (V), Little Bent-wing Bat ( <i>Miniopterus australis</i> ) (V), Eastern Horseshoe Bat ( <i>Rhinolophus megaphyllus</i> ) (P)	Cave dweller. Maternity sites limited. Species limited to colony sites which contain large numbers of individuals, thus prone to mass damage from catastrophic events (roost disturbance).
Large-footed Myotis ( <i>Myotis adversus/macropus</i> ) (V)	Roosts in vegetation near water and sometimes culverts and bridges. However largest colonies known from tunnels and derelict mines.
Large-eared Pied Bat ( <i>Chalinolobus dwyeri</i> ) (V), Little Pied Bat ( <i>Chalinolobus picatus</i> ) (V)	Occasionally found in caves, mines, culverts etc., generally roosts in tree hollows.
Eastern Cave Bat ( <i>Vespadelus troughtoni</i> ) (V)	Mostly roosts in caves and/or mines.
Lesser Long-eared Bat ( <i>Nyctophilus geoffroyi</i> ) (P), Eastern Falsistrelle ( <i>Falsistrellus tasmaniensis</i> ) (V), Yellow-bellied Sheathtail Bat ( <i>Saccolaimus flaviventris</i> ) (V), Chocolate Wattled Bat ( <i>Chalinolobus morio</i> ) (P)	Occasionally found in caves. May potentially utilise derelict mines.

(V) = Vulnerable Species listed in the *Threatened Species Conservation Act 1995*, (P) = Protected under the *National Parks and Wildlife Act 1974*

***What can you do?***

Cave-dwelling bats are vulnerable to disturbance of caves and subterranean tunnel roost sites, in particular as large numbers representing significant proportions of regional populations can congregate in one roost site for protection and breeding.

Disturbance may include removal of vegetation surrounding and immediately adjacent to the cave or tunnel entrance, changes to airflow within and at the cave or tunnel entrance and alteration of water flows and ground hydrology in the surrounding area.

In particular, disturbance of maternity colonies during spring and summer breeding and raising of young and during winter when animals congregate for warmth, can result in a significant impact on regional populations.

Protection of trees with hollows, trees with defoliating (loose) bark and rock overhangs, caves and subterranean tunnels are vital for the conservation of microbats.

***References and Further Reading***

- Thomson, B. (2002) *Australian Handbook for the Conservation of Bats in Mines and Artificial Cave-Bat Habitats*, Ameer Paper Number 15.
- Australian Centre for Mining Environmental Research Website: [www.acmer.com.au](http://www.acmer.com.au)
- DEC Website at [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

***Further Information***

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