

## Bats in rural Victoria

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*Bats are common and widespread in rural Victoria. Even so, many landholders would be generally unaware of the diversity and abundance of bats that may frequent their property.*

***Bats may play an important role in maintaining the health of the rural environment as most species are insectivorous, consuming up to half their body weight in insects each night.***

Greater natural control of agricultural pests by bats and other wildlife means less dependence on potentially harmful chemicals.

Bats survive in rural areas better than most other mammals. Most Victorian species roost in tree hollows but the precise patterns of use of available habitats in rural areas are still not clear. Habitat destruction has affected bats, especially the forest-dependent species, such that now some species are restricted to large areas of native vegetation. No extinctions of bats are known to have occurred in Victoria, although a number of species are rare.

Bats are flying mammals and give birth to live young that suckle milk from their mothers. Like many other Victorian mammals they are active at night and are best observed when they leave their roost at dusk. Most bats are equipped with an echo-location system that allows them to navigate and capture prey in complete darkness. Study of bat echo-location has led to many technological advances of benefit to man including navigational radar and medical scanners. When Gerard Kreft, a naturalist active in the 1850's, asked aborigines along the Murray to collect bats for him they refused because they regarded bats as 'a departed friend and relative'.

### Some of the species found in Victorian rural areas

Bats can be considered in two groupings:

- Megachiropterans (nectar and fruit eaters - flying foxes)
- Microchiropterans (insect eaters)

### Megachiropterans (nectar and fruit eaters - flying foxes)

#### Grey-headed flying fox



Source: Lindy Lumsden

#### Figure 1. Grey-headed flying fox

This species is generally not resident in Victoria but comes in nomadically from NSW with most records from south of the Great Dividing Range. A small colony has recently become established in Melbourne's Botanic Gardens.

These bats roost in fairly open situations in the tree canopy and are visible during the day. They mainly eat nectar from blossoms and soft fruit.

#### Little red flying-fox

##### No illustration

This species is more nomadic than the grey headed flying fox and is usually found inland of the divide. There is a close association with flowering river red gums. They will attack orchards for soft fruit such as nectarines and peaches. They can be a localised pest, but never a widespread problem. They have excellent day as well as night vision.

## Microchiropterans (insect eaters)

Of the eighteen insectivorous bat species in Victoria, fifteen use tree hollows whilst only 3 use caves as roosting and breeding sites. Approximately twelve species can occur in rural areas. Roosts are mainly in tree hollows or under bark (in living or dead trees) but can also be in the roofs or walls of buildings or other dark places like clothing hanging in a shed

### Tree(etc)-dwelling Microchiropterans

#### Lesser long-eared bat



Source: Lindy Lumsden

*Figure 2. Lesser long-eared bat*

One of the commonest and most widespread bats in Victoria. It is highly maneuverable and can hover over leaves to catch tree dwelling insects. This bat is often caught by cats, probably because of its low fluttering flight.

#### Gould's wattled bat



Source: Lindy Lumsden

*Figure 3. Gould's wattled bat*

Also common in rural areas eg in red gums along creeks. It emerges early after dark and feeds on moths, beetles, caterpillars and crickets.

#### *Eptesicus spp*



Source: Lindy Lumsden

*Figure 4. Eptesicus spp*

There are four species in Victoria, all of which are superficially similar. The smallest weighs only 3g.

#### Western broad-nosed bat



Source: Lindy Lumsden

*Figure 5. Western broad-nosed bat*

This generally uncommon species has apparently adapted well to open rural environments inland of the Divide. Colonies of substantial numbers have been recorded in houses.

**Yellow-bellied sheath-tail-bat**

Source: Lindy Lumsden

*Figure 6. Yellow-bellied sheath-tail-bat*

This species is the largest Victorian microchiropteran weighing up to 50g. It forages high above the tree canopy. Specimens are easy to recognise having a cream or pure white belly. Although common in northern Australia there are only 15 confirmed Victorian records. These records are mostly from autumn, and it is possible that this species is a migrant, if not a vagrant, to Victoria. Specimens have been found during daylight, alive on a footpath or hanging on a wall, in an exhausted condition in both urban and rural areas. If any specimens are found, of this or any other species of bat, please report details to a Wildlife Officer of the Department of Natural Resources and Environment.

**White-striped mastiff-bat**

Source: Lindy Lumsden

*Figure 7. White-striped Mastiff-bat*

This is also called a free-tailed bat. The echo-location call of this species ("chioo" repeated) is clearly audible (most other species' calls are too high in frequency for humans to hear). It is a large bat feeding on large insect prey. It usually forages above the tree canopy although it will also come to the ground to seek prey. This bat is common in urban areas where its call is sometimes mistaken for 'pinging' power lines, insects etc. White stripes are present on the underbelly, and can sometimes be seen when the bat is in flight.

**Little mastiff-bat**

Source: Lindy Lumsden

*Figure 8. Little Mastiff-bat*

This species is distinct from most others in having half the tail free of the tail membrane. It forages high above the canopy but will also come down to the ground to feed. It may then need to climb to a high point to resume flight. This bat has often been found roosting with Western Broad-nosed bats. Like most bats, it is an agile swimmer if knocked into water.

**Cave-dwelling Microchiropterans****Common bent-wing bat**

Source: Lindy Lumsden

*Figure 9. Common Bent-wing bat*

This is the most likely cave-dwelling bat to be encountered in Victoria. It roosts in caves and mine shafts and can move large distances. For example, 200 km may separate a winter roost site from a maternity cave. The cave temperature and humidity are critical in determining the selection of maternity sites where up to 60,000 females may congregate. May be sensitive to inner-cave temperature variations of as little as 0.1 of one degree. Like most bats it is long lived and has been recorded living up to 20 years.

## Insectivorous Bat Diet

Most insectivorous bats are opportunistic feeders and will take what is common and available, therefore moths and beetles are particularly prevalent in the diet. Mosquitoes, caterpillars, flies, flying ants and many other invertebrates are also eaten. There is little information on the diet of bats in rural areas, so it is not possible yet to establish in detail the effect of bats on reducing agricultural pests.

## Enhancing a property for Bats

The following measures would be beneficial for bats in rural environments:

- Retaining living or dead trees with hollows. In areas lacking sufficient natural hollows, nest boxes\* designed especially for bats can be installed.
- Planting up areas to provide roosts is a long-term aim, as tree hollows develop only after many decades, but trees which have sloughing (peeling) ribbon or sheet bark may provide roost sites for some species long before hollows develop. Planting understorey and ground-layer plants will benefit bats that forage below the tree canopy.
- Reduced use of pesticides will benefit bats, since they may ingest large quantities from the numerous affected insects eaten. Any increase in bats should compensate for reduced pesticide usage. Bats have high metabolic rates, and can eat up to one-half of their body-weight in insects per in ht; this amounts to huge numbers of insects consumed.
- If you know of bats using a cave or a mine the best action to take is to leave the bats undisturbed. Where you know of people disturbing cave-dwelling bats, please report this to the Department of Natural Resources and Environment so that expert advice can be obtained on an appropriate course of action. Note that anything that causes a change in the cave's microclimate may harm its value to bats.

## Living with Bats

When bats are in large and persistent numbers in buildings can they occasionally cause problems such as staining and smell.

Where bats are a problem, outdoor nest boxes\* may be used to induce them to desist from using the building. A "bat flap"\* can be used to allow exit from a roof without allowing re-entry. Some pest controllers are still unaware of bats being protected wildlife and that it is illegal to apply pesticides to remove them. Further information on how to deal with problem bats can be obtained from regional offices of the Department of Natural Resources and Environment or the Wildlife Damage Control Officer on (03) 94124429.

## Further Information

Reardon, T.B., and Flavel, S.C. (1987). *A Guide to the Bats of South Australia*. Sth Aust. Museum, North Terrace, Adelaide, SA, 5000. Contains a list of other references. Colour photographs.

Hall, L. & Richards, G., (1979), *Bats of Eastern Australia*, Qld Museum Booklet No. 12. 1

Dingle, A.E. (1984), *Settling*. Fairfax, Syme, Weldon & Assoc. p i5. All photographs by Lindy Lumsden.

Land for Wildlife Note 5 gives a list of Victorian bats and their conservation status and Note 6 discusses wildlife & tree hollows.

\* Land for Wildlife Officers can provide suitable bat box/flap designs

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