

Some bat facts:

- bats are mammals
- all 90 species of Australian bats are native
- bats occur in most landscapes
- bats are nocturnal
- bats are long-lived, have low reproductive rates, and are sensitive to environmental disturbances
- bats provide essential ecosystem services (pollination, seed dispersal, insect regulation).

There are two major groups of bats, generally referred to as microbats and megabats.

Microbats are typically small mouse-sized bats, that eat mainly insects. They use sonar for navigation in the dark.

Eight species of microbats are nationally listed as threatened and are protected under the *EPBC Act* 1999. Many more species are listed as threatened under State laws.

All reported fatalities of bats from wind turbines, in Australia and overseas, have been microbats.



Goulds wattled bat
Grey-headed flying-fox

Megabats, or flying-foxes, are large bats. They live on a diet of fruit and nectar. They use vision for navigation. While there are no reports of megabat fatalities caused by collision with wind turbines, they too may be vulnerable. Megabats do not occur in countries where most existing wind farms have yet been built. In Australia, no wind farms have been built near megabat colonies.

Bats and wind farms



The Australasian Bat Society Inc. (ABS) has amongst its aims, to promote bat conservation, and raise awareness of bats by providing information about Australasian bats.

The ABS strongly supports environmentally-friendly energy generation and therefore has no philosophical objection to wind farms.

However, studies in Australia and overseas have demonstrated that bat fatalities have been caused by impact with wind turbines. With the projected growth in the number of wind farm proposals, there is a need to find ways to minimise the ecological impact of wind farms on native bats.

The purpose of this brochure is to:

- provide relevant information about Australian bats and wind farms;
- make recommendations about pre- and post- wind farm construction environmental impact studies.

For further information contact:



AUSTRALASIAN BAT SOCIETY INC.

PO Box 3229

Tamarama NSW 2026

<http://abs.ausbats.org.au>

email: secretary@ausbats.org.au

Impacts of wind farms on bats

There is an increasing number of reports from around the world, of fatal impacts by wind turbines on bats.

Where reliable data are available, the bat deaths reported range from 1.6 per turbine per year¹ to over 90 bats per turbine per year².

Even a relatively low number of deaths per turbine per year, could result in many hundreds of mortalities for a single wind farm development.

High annual mortality rates may prove catastrophic for populations of some bat species.

Steps to minimise the impact upon bats

The selection of turbine sites is the most important stage for minimising harmful impacts to bats.

Bat-friendly site selection involves the following steps:

- consultation with bat specialists during the prospecting stage, and
- thoroughly conducted EIS/EES surveys.

Two other steps are important to the overall process:

- post-construction monitoring, and
- research.

Early consultation

The ABS recommends that bat specialists be engaged early in the wind farm prospecting process. The early recognition of highly sensitive bat areas can only save time and money.

Importance of thorough assessment prior to development of wind farm

Comprehensive surveys are required as part of Environmental Impact Statements (EIS) and Environmental Effects Statements (EES) during the planning phase of all new developments to determine what bats may be in the area and how they might be impacted.

Questions that should be asked with respect to a proposed development site include:

- what species of bats occur in the area?
- are any of these listed as threatened under national or state legislation?
- what are the relative activity levels of bats throughout the site? This should be assessed at each proposed tower location.
- how do activity levels vary in response to habitat types (e.g. wetlands, remnant vegetation, open farmland)?
- are there important roost sites in the area (e.g. caves, large old trees with hollows)?
- are there potential migration routes or commuting corridors?
- what are the activity levels of each species at blade height compared to ground level?
- what are the seasonal activity patterns (bats are most active spring to autumn with generally low levels over winter)?
- what is the likely impact upon local populations.

Bat surveys require specialist expertise and equipment. The ABS recommends that bat specialists are consulted during the preparation of EIS/EES so that assessments are conducted using appropriate techniques and sampling methodology, and that all important issues are considered. The ABS has developed minimum reporting standards to ensure that the level of reporting is appropriate.

The importance of monitoring after wind farm construction

A key element in the goal of reducing environmental impacts of wind farm developments is to learn from the experience of completed projects.

If proper pre-project assessment has been conducted, then developers should have no concerns about supporting on-going monitoring of the effects of wind farms on bats.

It is only by studying existing wind farms, particularly with the inclusion of well-designed monitoring, that potential impacts on new developments can be assessed. Results can then be integrated with targeted research to reduce the impacts upon bats. This improved knowledge base also gives a better platform to inform pre-project assessments (i.e. EIS/EES).

The need for targeted research

The continuing challenge for wind farm developers and engineers, working with bat researchers, is to find methods to reduce the impact upon bat populations.

Targeted research should be undertaken to look for possible methods to deter bats from flying close to turbines.

Other valuable areas for research include:

- determining why bat strikes occur
- developing models for assessing likely mortality rates
- identifying migration paths and commuting corridors.