

Nest Boxes

Old trees (whether dead or alive) with hollows provide essential habitat for a broad range of Australian wildlife. Over 300 of Australia's vertebrate species (creatures with backbones such as birds, mammals, reptiles and frogs) use tree hollows for nesting, protection from predators, shelter and roosting. This means that if suitable hollows are not available for them to use, they may not survive in the area and become locally extinct. Nest boxes can play a vital role as substitutes for hollows, providing nesting opportunities for a wide

range of wildlife. This Note identifies the benefits of having habitat trees and nest boxes and how to establish and maintain them.

Some wildlife only live and breed in hollows

A wide range of native wildlife depend on tree hollows for different purposes. Microbats use tree hollows as both day-time roosts and maternity sites. Many birds use hollows for nesting. Arboreal (tree-dwelling) mammals use hollows for breeding dens and shelter, while owls use them for roosting during the day and for nesting.

Nearly 90% of all Australian parrots and more than 50% of Australian microbats rely on tree hollows. Birds that depend on hollows include

kingfishers, kookaburras, lorikeets, rosellas, tree creepers, Owllet Nightjars, owls, Dollarbirds, Galahs, Grey Shrike Thrushes, Pacific Black Ducks, Wood Ducks and cockatoos.

Mammals that use hollows include Ringtail and Brushtail Possums; Greater, Squirrel, Sugar and Feather-tail Gliders; Brush-tailed Phascogales; as well as insectivorous or microbats. Reptiles, such as goannas and Carpet Pythons, will also use nesting boxes, as will a range of treefrog species.

The same tree hollow may be used by several species at different times of the year, and one animal may use several hollows in its lifetime. Hollows are an essential part of habitat requirements for many species of wildlife.



Squirrel Gliders in a nest box. The size and variability of hollow users is an important consideration. Photo by Alan and Stacey Franks, Hollow Log Homes.

Recruiting new habitat trees

Tree hollows take a long time to form and usually occur in trees at least 100-200 years old. As a result of tree clearing, tree-hollows are an increasingly scarce resource in the Australian landscape. While work is underway to plant native gardens, actively regenerate areas and restore landscapes, the significant time involved in growing trees to an age where they form hollows creates a shortage. If wildlife cannot find appropriate tree hollows, they cannot successfully breed.

In order to provide trees with suitable hollows for the future, it is important to earmark and retain younger trees on your property. Trees which are expected to develop hollows over time should be selected as 'recruitment' hollow-bearing trees.

Recruitment of young trees is important, even if your property has existing, mature habitat trees. Younger trees are required to replace trees that may be lost over time. Ensuring a continuous supply of multi-aged trees will help support a rich variety of wildlife.

If your property does not have trees with natural tree hollows, you can use nest boxes as a supplement. Nest boxes can increase habitat for many wildlife species, and ideally are used in conjunction with recruitment trees and retained mature habitat trees.

Will wildlife use nest boxes?

Yes! There have been many studies and anecdotal observations that show that a wide range of wildlife use nest boxes. Birds, possums, gliders, bats and reptiles readily move into nest boxes. Nest boxes are successful in bush blocks, urban residential properties, public parks and farm forestry plantations. However, nest boxes alone do not attract wildlife. They must be located close to the resources of food, water, shelter and mates.

Nest boxes can also provide an opportunity for you to observe and monitor wildlife that is otherwise difficult to study.

Nest box requirements

Different species of wildlife have specific requirements for hollows and nest boxes. The following factors should be considered when constructing or installing a nest box:

- Size and depth.
- Shape.
- Insulation.
- Entrance hole dimensions.
- Orientation of the nest box (facing away from or towards the tree).
- Position in environment need to match the requirements of the target species (e.g. in the shade or in the open).

Chat with your local Land for Wildlife Officer about the preferences of your local wildlife. It is best to provide a variety of nest box types. For small animals, such as Feather-tailed Gliders, nest box entrances need to be just larger than their bodies. They prefer small spaces to prevent attack by larger animals. Large boxes will suit possums and larger animals. Sugar Gliders prefer a small opening at the rear of the box against the trunk of a tree.

Parrots like hollows and nest boxes with a suitable perch near the entrance. Cockatoos generally select hollows that are quite high above the ground, therefore, nest boxes will need to be placed high in a tree.

Where the nest box is located will also affect the chances of the nest box being used. Some species will only utilise nest boxes close to food resources and watering points. For example, some bat colonies will only roost within 400 metres of open water.

You can target certain animals by purchasing or making nest boxes of specific dimensions. Check your nest box regularly to see what wildlife is using it; however, take care not to disturb any inhabitants.



A Pale-headed Rosella using a home-made nest box on a Land for Wildlife property. Photo by Keith McCosh.

Where can I get a nest box from?

Nest boxes are commercially available for a range of wildlife or you can make your own. Most commercially available nest boxes are built to consider the animal's safety and comfort and are targeted for specific species.

If you decide to make your own there are numerous construction designs freely available. First, research what animals in your area require hollows for breeding, and then design a box to suit.

Some tips on making your own nest box:

- Boxes can be made from either timber or exterior grade plywood (12-19 mm is ideal).
- Waterproof the box by screwing the ends together and painting the exterior. Do not paint the inside of the box.
- Ensure nest boxes are well ventilated and have good drainage (a small gap under the roof or a few small holes in the floor is sufficient).
- Avoid using treated timber, toxic paints, chipboard or smelly glues. Ensure there are no sharp edges or protruding nails.



When deciding on the best location for your nest box, consider:

- **Orientation** - nest boxes should be protected with the entrance facing away from prevailing weather.
- **Flight paths** - most birds and micro bats prefer nest boxes to be placed in an open area so that flight paths and observation perches are unobstructed.
- **Protection** - many mammals prefer nest boxes to be placed among dense foliage for protection against predators.
- **Shading** - nest boxes should be shaded from the midday sun.



Large old living and dead trees are an irreplaceable resource for hollow dependent wildlife.



It is important that nest boxes are placed high enough above ground to protect inhabitants from predators such as cats and dogs. Shown here is a nest box designed for micro-bats.

Unwelcome guests

It is important to maintain a watch on nest boxes from unwanted house guests. Starlings, Common Mynas, House Sparrows, European Honeybees, Black Rats and other introduced species can take up residence in nest boxes. Native predators, such as Carpet Pythons, Lace Monitors and butcherbirds should not be excluded from nest boxes, unless they are a danger to a protected or threatened species.

After installation, regular weekly inspections of nest boxes can prevent use by pest species. Should a nest box be frequented by starlings, mynas or sparrows you may need to close the nest box off for a period and remove the nesting materials and/or eggs of the pest bird or completely remove the box and look for an alternative location.

European Honeybees can be deterred with water. If you see the first scout bees entering a box, give them a good squirt with the hose. The honeycomb foundation is water soluble and this gives bees the message to move on. Commercially available wasp control products that contain the ingredients d-Allethrin and d-Phenothrin are effective in controlling bees. Some trial work has been successfully undertaken using cattle ear tags designed for Buffalo fly. The active chemical is Diazinon, which is non-residual.

Enjoying wildlife

Nest boxes provide an opportunity to monitor wildlife movements and breeding patterns on your property. They may also offer delightful opportunities to see wildlife, including some of the more cryptic nocturnal animals. Once a nest box is occupied by a native species, observe the animal from outside the box. You should avoid opening the lid, as the disturbance may result in wildlife deserting the nest box.

While nest boxes play a role in wildlife conservation, they can only supplement natural tree hollows. Compared to naturally occurring hollows, nest boxes have a short life span and require replacement and maintenance.

What you can do

- ✓ Retain old habitat trees.
- ✓ Recruit new habitat trees by protecting young trees.
- ✓ Discover what wildlife lives in your area.
- ✓ Install nest boxes to supplement natural tree hollows. Your Land for Wildlife Officer will be able to advise you on nest box manufacturers.
- ✓ Choose the correct size and shape nest box for the wildlife in your area.
- ✓ Ensure the position and orientation of the nest box matches the requirements of the target species.

References and further reading

Franks A and Franks S (2007) *Nest Boxes for Wildlife: a practical guide*. The Green Book Company.

Gibbons P & Lindenmeyer D (2002) *Tree Hollows and Nature Conservation in Australia*. CSIRO Australia.

Land for Wildlife Note V7 - The Value of Habitat Trees.

www.hollowloghomes.com.au (commercially available nest boxes and information on nest box construction).

www.birdsaustralia.com.au/resources/info-sheets.html (technical information on nest boxes).



This nest box mounted on a tall old post has been used by Pale-headed Rosellas and Red-rumped Parrots.



Owlet Nightjars and other nocturnal birds will utilise nest boxes.



Nest boxes need to be monitored for the presence of unwelcome guests such as feral European Honeybees.

Land for Wildlife is a voluntary program that encourages and assists landholders to provide habitat for wildlife on their properties. For more information about Land for Wildlife South East Queensland, or to download *Land for Wildlife Notes* free of charge, visit www.lfwseq.com.au

Citation: Land for Wildlife Queensland (2011) *Note A2: Nest Boxes*.

Information in *Land for Wildlife Notes* is not necessarily endorsed by any of the supporting agencies, nor should it be taken to constitute professional advice or a recommendation of land management.

Land for Wildlife Notes are developed and funded by the Local Governments delivering the LfWSEQ program shown below. Reprinted in 2022.

