



# Gio's nest-box forum

## **schools creating homes for displaced local wildlife**

“Dear Gio,  
Your nest-box program sounds  
a most valuable enterprise.  
Congratulations on having  
taken it so far already.”

**Sir David Attenborough**  
August 18, 2012

**Gio's nest-box forum covers AusVELS (Australian Curriculum) domains:**  
Science; Mathematics; and Design, Creativity and Technology

**When a school undertakes a nest-box project the following domains  
are relevant:** Civics and Citizenship; Communication



# Get to know Gio

Dear Teachers and Students,

Gio Fitzpatrick is a dedicated teenage conservationist currently attending Wesley College. From the time he began to walk and talk his leisure time has been spent enjoying, studying and researching nature and taking practical action to protect it. As a result, his knowledge of local native plants and animals is equal to that of many people working in the wildlife conservation field.

At age 11 Gio realised that loss of breeding habitat was central to the survival of many wildlife species. So he learnt all he could about nest-boxes in Victoria. He read all available books and was soon designing homes to meet the particular needs of individual species. He built, installed and monitored boxes and continued to learn along the way. Apart from this introduction, all information and photos in this booklet are the result of Gio's research.

Gio has a natural ability to explain in simple terms how animals live, the threats they face, and what ordinary people can do about it. Volunteering with the Port Phillip EcoCentre since 2010, he has delivered numerous talks and workshops to school classes and family groups and drawn praise from all ages. So it's only natural that we've established a schools' wildlife program that allows Gio to pursue his passion and share his knowledge.

'Gio's Nest-box Forum' aims to bring together and celebrate the great work of the various nest-box programs in Victoria, but which too few people hear about. Through participation in 'Gio's Nest-box Forum' schools will embark on a positive journey of discovery and understanding of their local wildlife and community. Monitoring of boxes will provide a basis for ongoing on-line correspondence with Gio to share success stories and solutions to nest-box management issues.

Yours sincerely

**Neil Blake**

*Director, Port Phillip EcoCentre*



# Native wildlife and tree hollows



## Why nest-boxes?

Australia is home to over 350 species of land animals that depend on the hollows that form in old growth gum trees either for shelter or reproduction.

Some of the many animals in Australia that rely on tree hollows include parrots, owls, kingfishers, ducks, possums, gliders, microbats and even many reptiles, frogs and invertebrates.

Many hollow-dependent species are in decline due to the widespread destruction of hollow-bearing trees. In urban areas hollows are removed for public safety reasons and elsewhere they are destroyed for land clearance, firewood production and woodchips.

Even if these trees are replanted, up to 100 years or more may pass before they begin to form hollows suitable for use by wildlife.

If hollow-dependent species are to continue to survive in urban and rural areas, urgent action is required to protect hollow-bearing trees wherever possible. Nest-boxes are needed in areas where hollows have already been lost.

Nest-boxes act as an artificial hollow that provide opportunities for hollow-dependent fauna to survive in areas where their natural breeding habitat has been destroyed. Nest-boxes are most useful in areas where hollows are lacking but other aspects of habitat are sufficient, such as food supply.

## Biological pest control

Nest-boxes can support animals that prey on pest species in gardens and farms, therefore restoring ecological balance. Examples include microbats that eat half their body weight in mosquitoes each night; and Southern Boobook and Barn Owls that prey on House Mouse, Black, Brown Rat, Common Starling, Common Myna, Feral Pigeon, and Black Field Cricket.

## Nest-boxes and education

Community involved nest-box programs are a great tool for connecting people with nature because the benefit to the environment is direct and easy to witness. They also allow close observations of the fascinating behaviour displayed by wildlife during the nesting period. The welfare of the animals using the nest-boxes must be a priority so they should either be observed from a distance or viewed via a webcam to minimise disturbance. It is a very rewarding experience to have animals move in and breed in an area that would have previously been uninhabitable.

A great deal is yet to be learned about the behaviour and physiology of our hollow-dependent species. So nest-boxes also have an important role to play in the future research of this topic.





# How to run your nest-box program

## 1. List your target species

This should only include native hollow-dependent species that are not increasing in numbers locally and have not expanded their range into your area since European settlement. Preferably you should target species that are declining in your area and the main contributing factor is the lack of tree hollows.

However, there is no point including species in your list that have only been recorded in your area a few times unless all records were during the breeding season. This information is best gained from local naturalists.

## 2. Get permission from land managers

Most public land managers would be happy for nest-boxes to be installed in their area, provided that procedures and guidelines are followed. So these people should be consulted before any nest-boxes are installed in public areas. Your local council can provide information regarding this issue.

## 3. Building nest-boxes

You can choose to purchase and assemble one of Gio's nest-box kits or build your own. First you must decide the nest-box designs that you will be using (depending on the target species) and then decide how many of each design you will need. It is cheap and environmentally friendly to use recycled or reused materials such as those disposed of at construction and demolition sites. It would also be worth visiting a local resource recovery centre. For obvious reasons, any wood that is used must be untreated and free of paint or varnish. Timber that has been treated with arsenic usually has a green tinge.



*When climbing a ladder to install a nest-box there should always be a second person on the ground holding the ladder steady. It may also be a good idea to wear a helmet and a harness depending on the height of installation. If there are strong winds or electrical storms, leave installation to another day.*

## 4. Installing nest-boxes

Nest-boxes can be hoisted into position by a strong rope looped over a branch above the spot where the box will finally sit. The species of tree on which the nest-box is installed does not seem to have much of an effect on the species of animal that ultimately uses the box. However the box must be positioned correctly according to the target species. For example, possums like a sheltered box that is concealed within the tree's branches but microbats prefer a very exposed box on a bare trunk.



As seen in the photo above, the best method of attaching a nest-box is to thread one end of 2mm galvanised wire rope (for heavy boxes) or 3mm galvanised wire (for light boxes) through the two side walls, then through an appropriate length of hose, (to prevent damage to the tree) then around the tree trunk, over a branch on the opposite side of the tree and then, if you have used wire, tie the two ends together securely and if you have used wire rope connect the two ends together tightly with a pair of appropriately sized wire rope clips.

Always leave extra wire for future loosening as the tree grows. This extra wire should be pushed back up the hose to prevent injury to animals. It is important to let the nest-box sag down slightly.





## 5. Monitoring nest-boxes

Nest-boxes come with responsibilities as they will need regular monitoring to evict pest species, gather information on what is or is not using the boxes, and to check if maintenance is required. As some birds nest in areas with a large nectar supply, bees are likely to be a problem and will need to be managed. When nest-boxes are used by pests it defeats their purpose. It is important to make sure that you do not disturb any animals that are using your boxes (especially if they are sitting on eggs) as this may cause some species to desert the box. First you should observe the box from the ground and look for signs of occupancy such as...

- **Chew marks on the lid or entrance**  
(indicates possums, gliders or parrots)
- **Fur around the entrance**  
(indicates possums or gliders)
- **Scats on or below box**  
(could indicate any bird or mammal. Most mammals and some birds can be identified by close observation of their scats)
- **Pellets of fur, bones, feathers and insect parts on or below the box**  
(indicates owls, kestrels or falcons)
- **Leaves, grass or twigs inside the box or protruding through the entrance**  
(may indicate Common Ringtail Possums, Sugar Gliders, Antechinus, House Sparrow, Common Starling or Grey Shrike-thrush)
- **Plastic rubbish inside the box or protruding through the entrance**  
(indicates Common Mynah)



*This Barn Owl pellet was found on the lid of a nest-box in the St Kilda Botanical Gardens.*

Nest-boxes that are being used by mammals can be inspected simply by carefully opening the lid or looking through the entrance hole. However, birds can be sensitive to disturbance around their nest so they are best observed from a distance of about 30 metres as they come and go from the box. Alternatively an infra-red surveillance camera can be used inside or directly outside the box. It is a good idea to keep

records on all of your boxes as this information may be of interest to researchers and others wanting to start their own nest-box program.



*Microbat boxes are best inspected by removing the floor as the bats usually hang from the roof.*

## 6. Communicating and sharing results

Systematic monitoring of nest-boxes is important to gauge their value for different wildlife species. Monitoring can identify particular design features and locations that optimise successful occupancy of the species we hope to assist; or features that discourage occupancy of pest species.

Gio's Nest-box Forum provides an on-line opportunity to share success stories and discuss management issues. Ultimately, this will inform design improvements that increase breeding success for wildlife.



*Australian Wood Duck eggs in a nest-box at Elwood Canal, Elwood.*



## Build and install a microbat tube

Microbat tubes are made of 90 or 100mm wide PVC pipe such as commonly used as downpipe from house roof gutters. Your local plumber may be happy to donate off-cuts. Lengths of 500mm or more are ideal. The pipe is lined inside with carpet which insulates the tube and gives the bats a surface to hang from. Your local carpet-layer may be happy to donate off-cuts.

PVC pipe capping, available from plumbing suppliers, are used for the roof and floor of the tube. To maximise insulation, the roof should also be lined with carpet attached with a non-toxic glue.

This box usually takes around 45 minutes to build.

### Tools for construction:

- > **Wood cutting hand saw**
- > **Drill**
- > **Drill bit** (30mm diameter)
- > **Stanley knife**
- > **Tin cutters**
- > **Paint brush**
- > **Pencil**
- > **Measuring tape**
- > **Clamp** (large enough to fit over the width of the chosen pipe and work bench thickness)

### Tools and materials for installation:

- > **Ladder**
- > **Rope** (long and strong enough to hoist the box to the point on the tree where it will be installed)
- > **Pliers**
- > **Wire** (3mm diameter and long enough to go around the circumference of the tree at the point where the box will be installed and still leave room for the box to sag down slightly and the two ends of wire to be tied together securely)
- > **Hose pipe** (Approximately 1/3 of the length of the wire)



*Close up of microbat tube floor*



*PVC pipe cap cut to fit base of tube and provide entry hole*



*Close up of floor - note small nail locking floor in place can be removed for tube inspection*

The PVC bat pipe



Exit and inspection hole,  
3cm diameter.

Landing platform at least  
7cm long.

● ● ● ● ● ● ● ●  
8-10cm internal diameter  
plus the width of the  
carpet.

● ● ● ● ● ● ● ●  
50 – 65cm long.

Entry slot, 2.5cm width at  
the widest point plus the  
width of the carpet.

Locating the PVC bat pipe

This box is best placed on a vertical tree trunk, but microbats will also happily use it on a post or the wall of a house. Microbats need a warm and easily accessible roost site so this box should be placed on a tree below the base of any branches, preferably with no trees or other obstacles within 5m beside or in front of the box. The box should receive full sun. If it is installed on a tree with understory, the box should sit at least 3m above the shrub layer as bats require a bit of space to swoop down as they leave the box.



The closer this box is placed to a source of freshwater such as a lake or creek the higher the chance of success.

*This is an example of a well placed PVC bat pipe in the St Kilda Botanical Gardens. Just 13 days after installation a Gould's Wattled Bat moved in and then within two months the box housed nearly thirty Gould's Wattled Bats.*

Possible inhabitants of the PVC bat pipe and preferred box heights above ground:	
Species	Suggested Height
White-striped Freetail Bat	5m — 10m
Eastern Freetail Bat	5m — 10m
Southern Freetail Bat	5m — 10m
Common Bent-wing Bat	4m — 7m
Gould's Wattled Bat	2m — 6m
Chocolate Wattled Bat	2m — 6m
Gould's Long-eared Bat	1m — 3m
Lesser Long-eared Bat	1m — 3m
Southern Myotis	3m — 5m
Inland Broad-nosed Bat	4m — 7m
Eastern Broad-nosed Bat	4m — 7m
Large Forest Bat	3m — 6m
Southern Forest Bat	3m — 6m
Little Forest Bat	3m — 6m



## Gio's Nest-box Forum resource list

Item	Description	Cost *
Introductory Incursion & Resource Kit	Have an EcoCentre Education team member visit your school and inspire students to reconnect with their local environment; through creating, installing & monitoring nest-box homes for wildlife. Includes bonus copy of Gio's Wildlife Discovery DVD and full-colour booklet. (Nest-box kits are sold separately.)	\$150
Gio's Wildlife Discovery DVD	An inspirational DVD in which Gio explains why nest-boxes are needed, how to build them and featuring a video of nest-box monitoring. Includes full-colour booklet.	\$30
Microbat tube Kit	All materials required for kit assembly and installation, plus fact sheet to guide assembly, installation and monitoring.	\$33
Nest-box Kit	All materials required for kit assembly and installation, plus fact sheet to guide assembly, installation and monitoring.	\$66

\* All costs include GST and postage and handling

## Gio's Nest-box Forum contributors

Bayside City Council

City of Port Phillip

Earthcare St.Kilda Inc.

Field Naturalists Club of Victoria

Friends of Burke Road Billabong

Friends of Westgate Park

Goulburn Broken Catchment Management Authority

Port Phillip and Westernport Catchment Management Authority

Port Phillip EcoCentre

## Further reading

'The Nestbox Book' by Gould League

'Nest boxes for wildlife' by Alan and Stacey Franks

Booklet Design by Joe Malignaggi - [www.joemal.com/wp](http://www.joemal.com/wp)

Photography - **Gio Fitzpatrick, Neil Blake**



For more information on Gio's Nest-box Forum, contact the **Port Phillip EcoCentre**.

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