

Bat Boxes

From work by Robert Bender

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The steady deforestation of much of Europe, North America and Australia has led to loss of wildlife. Concerned conservationists became interested in replacing some of the lost natural habitat with artificial habitat early this century. The first design for an artificial roost box for insectivorous bats was published in France in 1918. In central and eastern Europe between the world wars, many boxes were established for birds and also for bats. Much of the motivation was economic, to help control insect pests of tree and other crops. There was much experimenting with designs.

Experiments in Britain started in May 1968 where 26 boxes were positioned in Dorset. Within 5 months, the first bat was found using a box and even earlier, droppings found in boxes showed bats had visited. In the 1980s, a large experiment involving 3000 boxes right across the UK was coordinated by the Institute of Terrestrial Ecology, with the Forestry Commission and the World Wildlife Fund.

In 1993, Bat Conservation International developed The Bat Builders' Handbook, describing a variety of box designs that had been tried in the USA.

Use of bat boxes in Australia developed out of these projects, with designs that had been published in the UK being circulated in various publications and leaflets in Australia, such as Land for Wildlife leaflets.

One project started at Organ Pipes National Park in Victoria (26 km northwest of Melbourne) in 1992, with 10 boxes. The first sign of use by bats was observed just over 2 years later, and a monitoring and banding project started in November 1994, which is still continuing. More boxes have been positioned on trees in the valley of Jackson's Creek which flows through the park, so now there are 33. Early results were reported in the Victorian Naturalist in 1995 vol 112 (5), and a poster displayed at the ABS conference at Naracoorte in 1996. This brought into contact other people interested in bat roost boxes, conducting projects with results as yet unpublished.

Further papers about the Organ Pipes project presented at the 1998 and 2000 ABS conferences aroused more interest, and a growing correspondence started with people elsewhere in Australia who were already conducting bat box projects or intending to get started and wanting advice.

In 2000 the Field Naturalists Club of Victoria branch in the Latrobe Valley (250 km east of Melbourne) initiated a project to publish a kit of materials to assist anyone interested in starting a bat roost box project. A small team sought help from various people on bat biology, bat species known to live in their area, bat box design and monitoring. A launch of the initial kit produced was held in Morwell National Park in February 2000. The West Gippsland Catchment Management Authority took on responsibility for funding the project, publishing and disseminating the kit, which was eventually ready for release in November 2000. It can be obtained, free of any charge, at the WGCMA, and ordered via email at westgippy@wgcma.vic.gov.au

Regrowth forest is becoming increasingly widespread around Australia. Often there are no, or very few, remaining old trees with natural hollows, so if hollow-roosting bats are to have roosting sites, these must be supplied artificially. This practice is likely to increase in future years. Very little is known about the preferences of various hollow-roosting species in terms of box height, entrance slit size, timber thickness, or roost density per hectare. All of this is information that could be obtained from projects monitoring sets of roost boxes.

Bat Roost Box Network

In April 2001 a Bat Roost Box Network was set up, to bring into contact people with an interest in bat roost box projects or in making and selling boxes. To date it has a mailing list of 24, over half in Victoria and the others in the remaining eastern states: 5 in NSW, 4 in Qld, 1 in Tas. There are sure to be other projects we have not yet heard of, especially in WA.

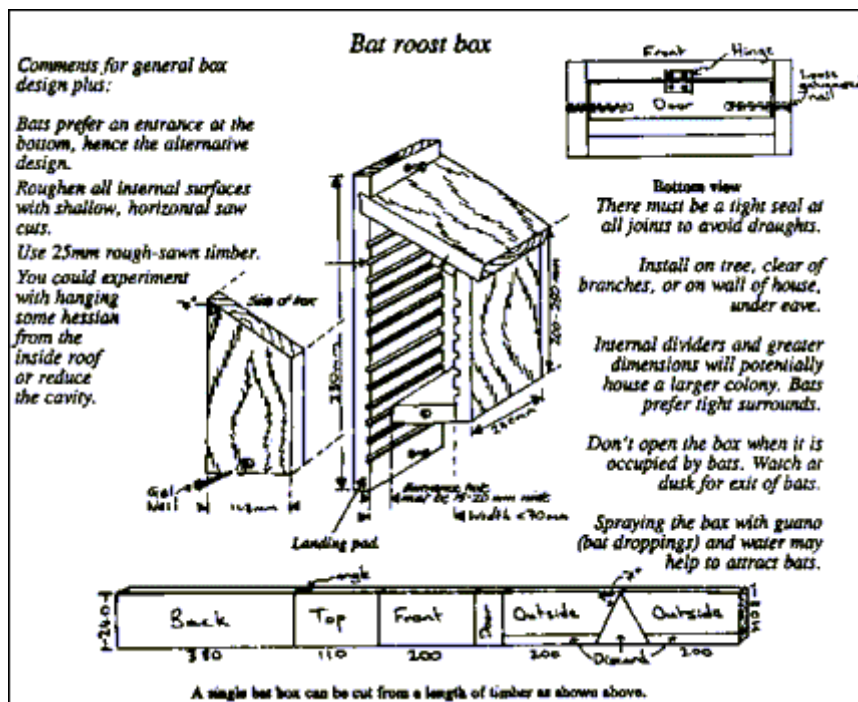
A newsletter is issued irregularly to inform members of what others are doing and to exchange ideas and designs. Most are issued via email, and a few paper copies by post. There is no membership fee at present. Contact Robert Bender for further information (

Bat Roost Box Designs

The diagram below shows a bat roost box similar to that used by Robert Bender and Robert Irvine as part of their project in Organ Pipes National Park. It is designed to simulate the roosting habitat of species that roost in tree hollows or behind loose bark. 10 of these roost boxes were installed in 1992, with more added in later years.

Pinus radiata was used in their construction and the expected life of the roost box seems to be less than 10 years. Research in Organ Pipes National Park has shown the width of the entrance slit to be important in the colonisation of roost boxes by microbats, and what species inhabit them (Bender & Irvine, 2001) The most common species found is Gould's Wattled Bat, and this species seems to prefer roost boxes with entrance slits larger than 15mm, although younger bats sometimes use boxes with smaller slits. On a few occasions, White-striped Freetail bats (much larger than Gould's) have been found in boxes and these also show a preference for entrances larger than 15mm. The one *Mormopterus* bat found also occupied a box with entrance slit of 15 mm. The one *Mormopterus* bat found also occupied a box with entrance slit of 15 mm.

Forest Bats (*Vespadelus* species) are most commonly found in boxes with smaller entrance slits, around 12mm. Large and Southern Forest Bats are often found together in these boxes.



Other designs are available in marine ply (Keelbundora Indigenous Nursery and Australian Nestbox Company) or PVC pipe (a do-it-yourself design). All have downward-facing entrances at the bottom of the structure.

The Upper River Torrens Landcare Group and the Reynella East Primary School (Adelaide, South Australia) are evaluating some bat boxes that have a bottom opening plate (hinged by loose fitting screws or kitchen cupboard lock) with an inspection hole for monitoring with a video camera (30mm diameter - with a one way rubber flap on the inner side of the hole). The advantage of this system is that the roof plate is more structurally secure when sealed properly, disturbance of bats by inspecting via a top plate is avoided, it's easier to access, and it is easier to collect or clean guano (Reardon, 2001).

Links and Contacts

These designs are part of the Bat Roost Box Kit, 2nd edition 2003, published by the West Gippsland Catchment Management Authority. The Kit is available free of charge by contacting the Authority. WGCMA PO Box 1374 TRARALGON VIC 3844.
Phone (from within Australia) 0351 757 800
Email: westgippy@wgcma.vic.gov.au

Bat Roost Boxes are available through various commercial suppliers:

Keelbundora Indigenous Nursery, Wildlife Reserves, Latrobe University, Bundoora Victoria 3086
Telephone: 03 9479 2871 Fax: 03 9479 3706
www.latrobe.edu.au/www/wildlife

Environest, 46 Fadersons Lane, Mandurang Victoria 3551
Telephone: 03 5439 5710

The Australian Nestbox company, 81 Haig St, Gordon Park Qld 4031
Telephone: 07 3857 1086
Email: ozbox@bigpond.net.au
<http://users.bigpond.net.au/ozbox>

References:

- Stebbing, R. E. & Walsh, S. T. (1991) *Bat Boxes: A Guide to the History, Function, Construction and Use in the Conservation of Bats*, Bat Conservation Trust, London, 3rd ed.
- Tuttle, M. D & Hensley, D. L. (1993) *The Bat Builders' Handbook*, Bat Conservation International, Texas
- Irvine, R. & Bender, R. (1995) *Initial Results from Bat Roosting Boxes at Organ Pipes National Park*, Victorian Naturalist 112 (5) pp. 212-217
- Bender, R & Irvine, R. (2001) *Bat boxes at Organ Pipes National Park*, Australasian Bat Society Newsletter 16, March.
- De Souza-Daw, R. (2000) *Bat Roost Box Kit*, West Gippsland Catchment Management Authority
- Reardon, T. (2001) *Artificial Bat Roost Box Design*, Australasian Bat Society Newsletter 17, October
- Rhodes, M. (2001) *Roost ecology and conservation of insectivorous bats in suburban Brisbane: An assessment of natural roost habitat of the White-striped Freetail-bat (*tadarida australis*), and artificial roost habitats (bat boxes) for insectivorous bats in Brisbane*, Australasian Bat Society Newsletter 16, March