

Nestboxes information

Notes on how to make good nest boxes

Much of the information and the pictures shown here were derived from a presentation on nestboxes by Narawan Williams, AMBS Ecology and Heritage. That presentation was made at a one day nestbox workshop run in 2019 by the Ecological Consultants Association. Huge acknowledgement to Narawan. Any errors are mine (Susan Rhind). The information of double walled nestboxes is research undertaken by Murray Ellis and Susan Rhind.

The box design: right size cavity, entrance size, right style of box for the species, good insulation properties

Good construction: so that it lasts!

The attachment: needs to last and not damage tree

The placement: right height up tree, in full shade, relation to landscape (information to follow on this aspect)

The box design

Follow publicly available guidelines for making boxes for common species to get the right size cavity & entrance size & right style of box for the species of interest. Regarding insulation_ nestboxes can get very hot in summer. If they cannot be placed in deep all-day shade they need help to stay cool. See last comments.

Good construction - most common reasons for nestbox failures

1. Material box constructed with:

- Thin, poor quality or a bad batch of ply
- Soft indoor timber used without sealing
- Hardwood that warps (if not well held in place)
- Hardwood that splits
- Plywood cut edges are not sealed well
- Poor quality screws and staples

2. Lid falls off due to:

- Hinge screwed into end grain of lid
- Hinge exposed to weather
- Ply/timber deteriorates around screws.

3. Attachment failure due to:

- Attachment does not allow for tree growth
- Sap of tree corrodes screws/metal strapping

4. Base plate falls out due to:

- Base plate not put in as an insert and screwed into end grain
- moisture rots the base plate
- Base plate chewed by fauna

How to avoid the problems

Materials & some general design recommendations for construction

General materials

- Use hardwood timber for entry plate and base plate
- Rest of box can be made of Birch Ply, Marine ply or external outdoor ply – 18mm or thicker
- Use stainless steel screws, with compatible hinges; glue and screw timber joints.

Lid

- Hardwood is best
- Lid should overhang the sides by about 30mm all round
- Add a metal front and back edge to the lid to protect end grain from weathering and chewing, it also helps clamp ply together.
- Ensure lid hinge is quality and is well protected under edge of lid and add latch over the top of the lid to hold it down. Latch can be thick rubber hose/PVC with screws (as can hinge if needed). Screw the latch across grain not into end grain.
- Metal damp course overhanging the front and back can be added to lid as an alternative to metal front and back



Base plate

- Hardwood is best
- Ensure base plate is screwed INSIDE side panels
- Drill drainage holes in the base plate so moisture can escape
- A good lid also protects the base

Face plate

- The face plate (entrance part) of the box may face the back (towards the tree in a rear entry box) front or side of the box. Cockatoos and possums love to chew around entrance holes so add some type of metal plate around the entrance hole so it cannot be enlarged. Boxes that have rear entrances do not have this problem



- Entrance hole **MUST** be the specified size for the target species – not larger as it will let in the bigger species.

The exterior

- Seal the ply with good exterior paint– pay particular attention to sealing the cut end grain and lid

- Paint the entire box in good exterior paint in a pale colour (dark colours make the box too hot)
- If box is going to be exposed to daylight construct of shading layer to go around box – see details later.

Inside the box

- Cut climbing grooves to entrance
- Do not make wire ladders – they are not needed and juveniles can injure themselves
- Do not use carpet or any fabrics on underside of lid (once thought to be helpful to deter bees)



Attachment to trees: some common problems

- Some strapping does not allow for tree growth (and the box is the weak point so gets pushed/pulled apart) and/or the tree can be damaged
- Sap of some trees can corrode metal strapping and screws e.g. red bloodwood, tallowood, *Angophora costata*, spotted gum.

Preferred attachment methods

Preferred attachment method



Note – two attachments in case one fails (nail and wire)

PVC coated wire 3.15mm wide – source Protective Wire Industries Somersby NSW
(1.5m of zigzag will allow for 1.5m growth of tree)



To further protect tree wire should run through garden hose at the back of the tree



Note:

- curved Hardwood support against tree
- short timber hex head roofing screws holds wire



Inside the box - the wire is not right through box so when box eventually falls apart wire is not going all way around tree

Alternative attachment directly into tree using coach bolts with a spacer over coach bolts



(Wooden back represents the 'tree')

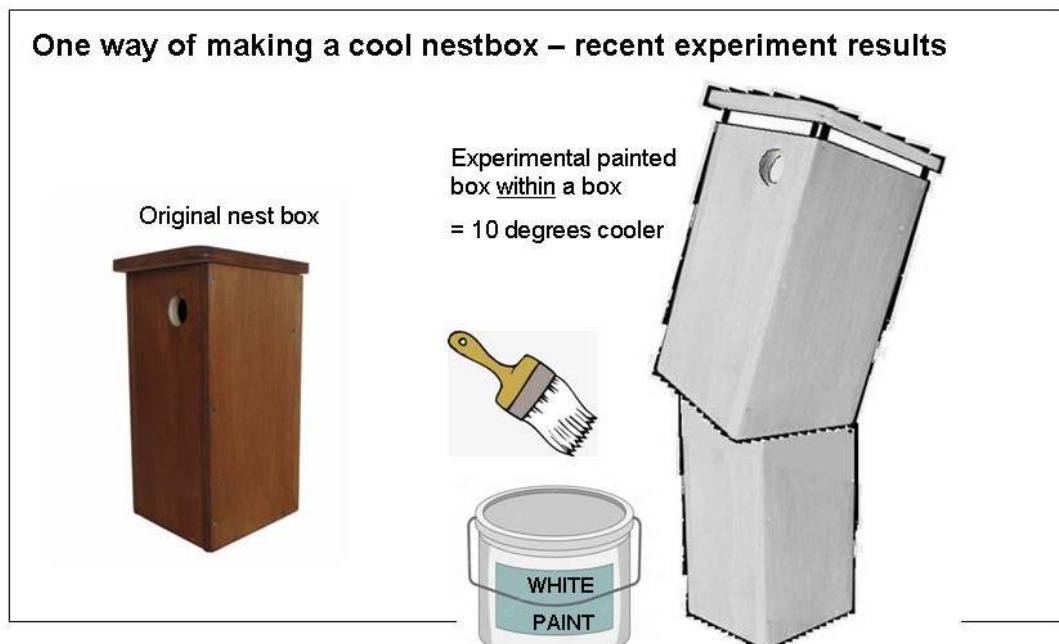
Insulation – is this box going to get too hot???

Nestboxes should be placed on trees that provide ALL-DAY shade over the box – otherwise they will get too hot in summer and will not being used or can be harmful (eg for clutches of birds eggs).

This will not be possible in heavily burnt areas or where there is limited canopy cover therefore boxes need some extra protection.

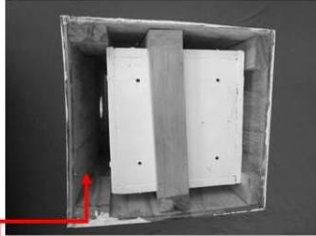
Solutions

1. Thicker wood or hardwood does provide better insulation but makes the box too heavy and can be impractical
2. Painting boxes white (or very pale) will reduce heat gain significantly – do not paint boxes in dark colours as they gain a lot of heat.
3. Putting a plywood sleeve over the box to create a covered, double walled box with an air gap at the sides and under the outer lid will reduce the box temperature by about 10 degrees compared to a typical brown wooden box (at 40 degrees air temperature). This method adds little weight to the box and can be worked to retrofit any box type.
4. Insulation foils and polystyrene have been trialed but they are an environmental problem when the box deteriorates (not biodegradable).





- Experimental nestbox with painted plywood sleeve fitted
- air space up to 50mm under the roof which is open all the way around.



Base view of sleeved nestbox showing

- internal painted box
- an open base
- 19mm air space created on the sides by the sleeve.

Double walled nestbox (rear entry) in use – interior box and lid painted white.



The end for now