

# HFNC Bear State Forest fauna nest box report, April 2012-November 2014

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## Background

On 20-21 April 2012 ten nest boxes were installed at 5 sites (pairs of a large and a small box) and remote cameras at those sites and 5 other sites in the Bear SF. The main objective was to survey small mammals, hopefully including Brush-tailed Phascogale, Sugar Glider, Pygmy Possum and *Antechinus* spp. The aim of putting 2 boxes near one another was to allow Brush-tailed Phascogales the chance to occupy a box in areas where Sugar Gliders were present (gliders will not allow another glider family to live close by). Problems arose with bees occupying some of the large nest boxes and action was taken to overcome it.

John Burtonclay from Mandurang constructed the boxes ([www.nestboxenviroest.com](http://www.nestboxenviroest.com))

The fauna nest boxes were of 2 types, both with a 40 mm entry hole specific for our target species:

- Tuan/Glider box – 370 mm x 197 mm x 235 mm internal spaces (H x W x D), with top-hinged lid.
- Bush box – 271 mm x 195 mm x 157 mm internal spaces (H x W x D), with side opening.

## Siting of the boxes and occupation status

**Site 2** – 1.2 km from Bear SF sign on Hallams Tk. [gps Aust84 37-22-34.7/142-02-24.5]

Habitat – dense *E. baxteri* forest with *X. minor* understorey (unburned >60 years). A few obvious hollows.

Report:

- Nov. 2012 – bees in the large box were sprayed with insecticide. No bees in the small box.
- 7 May 2013 – dead bees & honeycomb was removed from the large box and carpet was stapled under the lid and the upper 150 mm section of walls.
- 19 Nov. 2013 – there were leaves and several Sugar Gliders in the large box but not in the small box. No bees in either box.
- Apr. 2014 – no animals were seen in either box. Green leaves were among old leaves in the large box. No bees in either box.
- 25 Nov. 2014 – no leaves in the small box; fresh leaves with old leaves in the large box. No bees in either box.

**Site 3** – 2.7 km from Bear SF sign on Hallams Tk; [37-21-45.8/142-02-2.1]

Habitat – a valley with *E. leucoxyton*, *E. melliodora*, *E. viminalis*, *E. baxteri*, *B. marginata*.

Report:

- Nov. 2012 – there were no bees in either box.
- 7 May 2013 – there were no bees in either box. Carpet was stapled under the lid of the large box.
- 19 Nov. 2013 – the large box contained leaves and Sugar Gliders. Many leaves were in the small box. No bees in either box.
- Apr. 2014 – no animals were found in either box but green leaves were among the old leaves in the large box. Only dry leaves were in the small box. No bees in either box.
- 25 Nov. 2014 – old leaves in the small box; fresh leaves & old in the large box. No bees in either box.

**Site 5** – west of fire dam on track to McAdams Rd, in a drainage flat. [37-21-20.0/142-01-30.2]

Habitat – *E. melliodora*, *E. baxteri*, *B. marginata*, *A. mearnsii* and *X. Minor* and many logs.

Report:

- Nov. 2012 – bees in the large box were sprayed with insecticide. The small box was empty.
- 7 May 2013 – dead bees & honeycomb was removed from the large box. Carpet was stapled under the lid and a 50 mm circular, black-painted sheep ear tag was loosely attached inside the box on a screw, over the 40 mm entry hole, to deter bees from entering.
- 19 Nov. 2013 – green-coloured but dry gum leaves filled a depth of about 6 cm in the large box but there were no animals present. The small box was empty. No bees in either box.
- Apr. 2014 – green leaves were found among the dry leaves in the large box but no animals were seen. There were no leaves in the small box. No bees in either box.
- 25 Nov. 2014 – no leaves or animals in small box or old box. No bees in either box.

**Site 6** – 0.9 km on 2011 Burn Tk from jn 2011 Burn Tk/McAdams Tk. [37-20-51.1/142-01-40.1]

Habitat – *E. leucoxyton* & *E. baxteri* and *X. minor* in an area partially burned in 2011.

Report:

- Nov. 2012 – bees in the large box were sprayed with insecticide. No bees in the small box.

- 7 May 2013 – dead bees & honeycomb was removed from the large box and carpet was stapled under the lid and a flap was fitted over the hole (as for Site 5).
- 19 Nov. 2013 – both boxes were devoid of leaves or animals. No bees in either box.
- Apr. 2014 – no leaves or animals were found in either box. No bees in either box. Both boxes were removed from the area and shifted to Site 14.

**Site 10** – 0.7 km N on Hallams Tk from McAdams Tk jn, then 250 m west. [37-20-49.9/142-02-12.4]

Habitat – *E. leucoxyton*, *E. melliodora*, *E. viminalis* & *B. marginata* open woodland with *X. minor*.

Report:

- Nov. 2012 – no bees in either box.
- 7 May 2013 – there were no bees in either box. Carpet was stapled under the lid of the large box.
- 19 Nov. 2013 – both boxes were empty of leaves or animals. No bees in either box.
- Apr. 2014 – both boxes were empty of leaves or animals. No bees in either box. Both boxes were removed and shifted to Site 15.

**Site 14** – 1.3 km N on Hallams Tk from McAdams Tk jn, then East 300 m. [37-20-32.3/142-02-30.8]

Habitat – *E. leucoxyton* & *E. melliodora* open woodland

Report:

- Apr. 2014 – large & small nest boxes from Site 6 were installed on Yellow Gums at Site 14 (GPS 37-20-32.3/142-02-30.8).
- 25 Nov. 2014 – both boxes were empty of leaves or animals. No bees in either box.

**Site 15** – 1.9 km on Hallams Tk from McAdams Tk jn, then North 250 m. [37-20-32.1/142-02-47.6]

Habitat – *E. leucoxyton* open woodland adjacent to *E. baxteri* forest & *E. camaldulensis* creek line

Report:

- Apr. 2014 – large & small nest boxes from Site 10 were installed on Yellow Gums at Site 15 (GPS 37-20-32.1/142-02-47.6).
- 25 Nov. 2014 – both boxes were empty of leaves or animals. No bees in either box.

### **Conclusions after 3 years monitoring of fauna nest boxes at Bear SF:**

There were green leaves in boxes that had been used by Sugar Gliders when inspected on 29 Nov. 2013 and 20 Apr. 2014. The animals appear to have other day-time roosts, as none were found in boxes in Nov. 2014.

No fauna had occupied boxes at Sites 6 & 10 from Apr. 2012 to Apr. 2014. Nor were these boxes used from Apr. 2014 to Nov. 2014 when shifted to Sites 14 & 15 where *E. leucoxyton* was the main tree.

Bees: 3 of the large boxes had bees (Sites 2, 5 & 6) and measure were taken to prevent them returning.

- 5 Small boxes – these boxes were not modified and remained free from bees (and 4 had no leaves).
- 1 Large box with carpet fixed on the upper half of the inner walls and under the lid (Site 2) in May 2013 – no bees were found thereafter to Nov. 2014.
- 2 Large boxes with an entry flap installed and carpet fixed under the lid in May 2013 (Site 5 & Site 6/14) – no bees were found thereafter to Nov 2014.
- 2 Large boxes with carpet attached only under the lid (Site 3 & Site 10/15) in May 2013 – no bees were found thereafter to Nov 2014. This strategy seems sufficient to deter bees.

### Sugar Gliders

- Large boxes – the animals have been able to negotiate the entry flap and build a nest (Site 5). However, the need for an entry flap is questionable, if one fixes carpet in the lid (ceiling) of the box.
- Small boxes – one box had a mass of leaves in it. The box may be too small for this species but the question arises as to whether the small boxes would be used if they were placed on their own at a site.

Brush-tailed Phascogales & Antechinus spp. Our nest boxes failed to detect these small mammals. One possibility is that the habitats surveyed were inappropriate. We relocated 2 pairs of nest boxes to Yellow Gum (*E. leucoxyton*)/Yellow Box (*E. melliodora*) woodland sites but did not detect these species. However, one *Antechinus* sp. (probably *A. flavipes*) was detected by camera.

Pygmy Possums – we did not detect this species in any nest box, despite some of the sites being in or adjacent to Silver Banksia (*Banksia marginata*). A previous camera survey in 2011 had found one individual animal and one animal (probably *Cercartetus nana*) was also detected by camera in Oct-Nov. 2014.

### Future use of nest boxes for fauna survey

The nest boxes that continue to be unused by fauna may be removed at a future time when/if required for a survey at another site. Boxes that are in use will remain.

It is expected that an annual inspection of nest boxes at Bear SF will be made in autumn – using a pole-mounted camera, to avoid unnecessary use of a ladder. Problems with bees will be dealt with at that time.

Future nest boxes will be the larger type, since there was little usage of the small boxes. Old wool carpet which has no fire retardant chemicals will be used in new boxes. We may place some small boxes in the woodland/forest to check whether that will render them more attractive to fauna seeking a nest or roost site.

### Photographs

- November 2014 – see below.
- May 2013 and November 2013 – see the next page, for features of nest boxes and activities.



Site 2. Large Nest Box Bear SF 25 Nov 2014



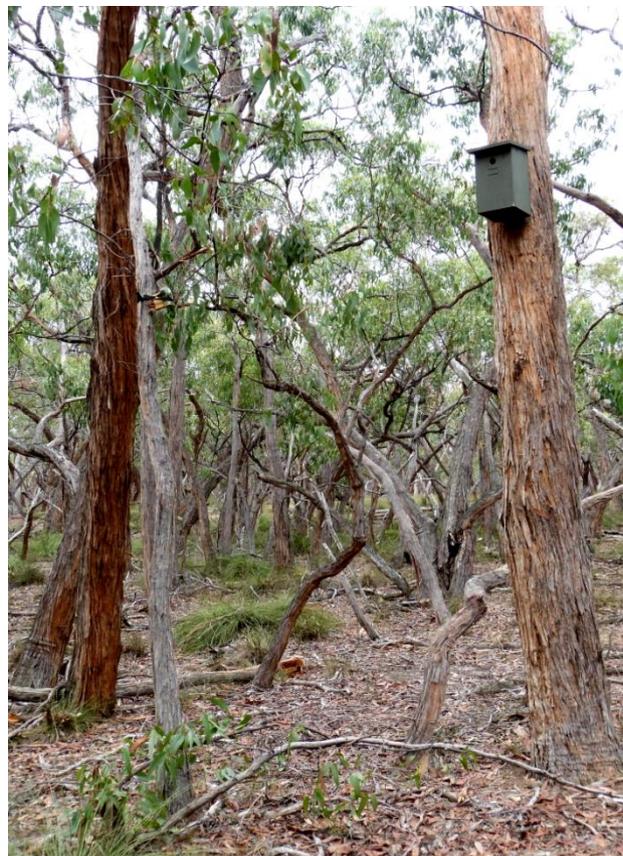
Site 3. Large Nest Box Bear SF 25 Nov 2014



Site 5. Large Nest Box Bear SF 25 Nov 2014



Site 3. Small Nest Box Bear SF 25 Nov 2014



Site 2. Large Nest Box in a Stringy-bark tree Bear SF 2014



**Photo 1 – Site 2.**  
Carpet stapled to lid and all internal upper walls (15 cm depth).

**Photo 2 – Sites 5& 6**  
Bee excluder flaps to cover the box entry hole – front (outside) and back (inside) of the tag.

**Photo 3 – Site 5.**  
John Cayley with nest box and honeycomb in May 2013.

**Photo 4 – Site 2 19 Nov 2013 –**  
juv. Sugar Glider in a large box

**Photo 5 – Site 2 19 Nov 2013 –**  
Sugar Gliders in leaves in large box

**Photo 6 – Site 5 19 Nov 2013 –**  
gum leaves in a large box with flap

**Photo 7 – Site 3 19 Nov 2013 –**  
Roger Thompson at a small box.

**Photo 8 – Site 3 19 Nov 2013 - 3**  
or more Sugar Gliders in large box

**Photo 9 – Site 3 19 Nov 2013 –**  
fresh gum leaves in the small box

