

HFNC Bear State Forest fauna nest box report, 27 Nov. 2021

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Background

On 20-21 April 2012 ten nest boxes were installed at Sites 2, 3, 5, 6 & 10 (pairs of a large and a small box) in the Bear SF. Boxes were moved from Sites 6 & 10 to Sites 14 & 15 in April 2014.

John Burtonclay from Mandurang constructed the boxes (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.

The aim was to survey small mammals, hopefully including Brush-tailed Phascogale, Sugar Glider, Pygmy Possum and *Antechinus* spp. Boxes were sited in pairs 10-20 m apart to allow Brush-tailed Phascogales the chance to use a box in areas where the dominant Sugar Gliders were present (gliders may not allow another glider family to live close by but might allow phascogales to do so).

Bees were initially a problem in 3 of the large nest boxes. In May 2013 bees and honey was removed from the 3 boxes and wool carpet was stapled on the upper walls and under the lid (Site 2) or only under the lid (Sites 3, 5, 6/14 & 10/15) of the large boxes. Two boxes (Sites 5 & 6/14) also had a movable sheep tag flap fitted over the inside of the hole to exclude bees.

Inspection of mammal nest boxes: results from Nov. 2012 to Nov. 2021

In 2015 we acquired a pole camera unit to enable us to view (and photograph) the inside of the boxes from the ground, obviating the use of a ladder. The camera lens is inserted through the entry hole on the box. The lid of the large boxes could be lifted, using a telescopic pole, to obtain a clearer view.

Site 2 – 1.2 km from Bear SF sign on Hallams Tk. [37-22-35/142-02-25]

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

Site 3 – 2.7 km from Bear SF sign on Hallams Tk. [37-21-46/142-02-2]

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

Site 5 – west of fire dam on track to McAdams Rd, in a flat. [37-21-20/142-01-30]

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

[Site 6 – 0.9 km on 2011 Burn Tk from jn 2011 Burn Tk/McAdams Tk. [37-20-51/142-01-40]

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

[Site 10 – 0.7 km N on Hallams Tk from McAdams Tk jn, then 250 m west. [37-20-50/142-02-12]

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

Site 14 – 1.3 km N on Hallams Tk from McAdams Tk jn. [37-20-32/142-02-31]

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

Site 15 – 1.9 km on Hallams Tk from McAdams Tk jn. [37-20-32/142-02-48]

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

Nest box occupation in 2021: Sugar Gliders were found at 2 of the 5 sites. There may have been 2 or 3 gliders in the large box at Site 2 and at least 1 glider in the small box at Site 5. All boxes Except for the large box at Site 15, all boxes had nests of leaves, indicating that most had probably been occupied at some time during the year. Except for the large box at Site 15 (the wood was deteriorating and the lid was on the ground) the boxes were in good condition. There had been bees in the large box at Site 2 (honeycomb was on the carpet tacked to the lid) and current activity in the large box at Site 5 – the bee flap had not sealed well. We did not investigate that box – what will the Sugar Gliders do with it?

The pole camera had inadequate lighting. We pushed up the lids of the large boxes at Sites 2, 3 & 14, to get enough light to assess occupancy. It was difficult to examine the contents of small boxes which have only a side-opening door that cannot be opened remotely. That is not a good design.

We repaired the large box at Site 15 and re-positioned it on the tree. The top attachment had failed, as well as the wood at the hinge area. We re-hinged the lid on the long axis of the box so that the entry hole is now more adjacent to the tree trunk. That might make it easier for Sugar Gliders to access the box. The box will not serve many more years, since the wood is deteriorating. A waterproofed lid would help.

Table 1. Occupation of mammal nest boxes in the Bear State Forest over 10 years (2012 to 2021)

Site	Box	Contents	2012	2013		2014		2015	2016	2017	2018	2019	2020	2021
			20/11	7/5	19/11	20/4	25/11	21/11	20/11	25/11	18/11	23/11	29/11	27/11
2	Large	Bees	Yes, S	C,L&W	-	-	-	-	-	-	-	-	-	@
		Leaves			G	G	G	G	G		G	G	G	G
		Gliders	nil	nil	2+	nil	nil	2+	2+	nil	nil	nil	2+	2-3?
	Small	Bees	-	-	-	-	-	-	-	-	-	-	-	-
		Leaves	-	-	-	-	-	-	G	D	G	G	D	G,D
		Gliders	nil	nil	nil	nil	nil	nil	?	nil	nil	nil	nil	nil
3	Large	Bees	-	C L	-	-	-	-	-	-	-	-	-	-
		Leaves			G	G	G	G	G	G	G	D	G,D	G,D
		Gliders	nil	nil	2+	nil	nil	2+	3+	1+	nil	nil	nil	nil
	Small	Bees	-	-	-	-	-	-	-	-	-	-	-	-
		Leaves			G	D	D	G	G	?	G	-	D	D
		Gliders	nil	nil	nil	nil	nil	nil	?	nil	6 (4j)	nil	nil	nil
5	Large	Bees	Yes, S	C L, F	-	-	-	-	-	-	-	-	-	yes
		Leaves	-	-	G	-	-	-	-	-	G	G	G	
		Gliders	nil	nil	nil	nil	nil	nil	nil	?	5+	nil	3+	nil?
	Small	Bees	-	-	-	-	-	-	-	-	-	-	-	-
		Leaves	-	-	-	-	-	-	-	G	G	G	G	G
		Gliders	nil	nil	nil	nil	nil	nil	nil	3+	nil	nil	nil	1+
6#	Large	Bees	Yes, S	C L, F										
		Leaves	-	-	-	-								
		Gliders	nil	nil	nil	nil								
	Small	Bees	-	-	-	-								
		Leaves												
		Gliders	nil	nil	nil	nil								
10#	Large	Bees	-	C L	-	-								
		Leaves	-	-	-	-								
		Gliders	nil	nil	nil	nil								
	Small	Bees	-	-	-	-								
		Leaves												
		Gliders	nil	nil	nil	nil								
14	Large	Bees		C L, F			-	-	-	-	-	-	-	-
		Leaves					-	-	G	G	G	G	G	D
		Gliders					nil	nil	2+	1+	4(3j)	2+	nil	nil
	Small	Bees					-	-	-	-	-	-	-	-
		Leaves					-	-	G	D	G	G	G	G
		Gliders					nil	nil	nil	nil	nil	nil	1+	nil
15	Large	Bees		C L			-	-	-	-	-	-	-	-
		Leaves					-	-	-	G	G	G	D	D
		Gliders					nil	nil	nil	2+	nil	4(2j)+	nil	nil ‡
	Small	Bees					-	-	-	-	-	-	-	-
		Leaves					-	-	-	-	G	G	G	D
		Gliders					nil	nil	nil	nil	2+	nil	3+	nil

C, L&W = honeycomb removed and carpet (C) stapled to underside of lid (L) & upper parts of walls (W)

C, L = honeycomb removed and carpet stapled to underside of the lid (L)

F = honeycomb removed and a movable ear-tag flap (F) was screwed to the inner side of entry hole

S = the box was sprayed with an insecticide to kill bees and the honeycomb was removed

= on 24 April 2014 boxes from Sites 6 & 10 were shifted to Sites 14 & 15, respectively.

G = green-tinged (fresh) leaves; D = older, 'dead' leaves

j = number of juvenile Sugar Glider included

@ = remnant of honeycomb (minus any honey) seen on the carpet attached to the underside of the lid

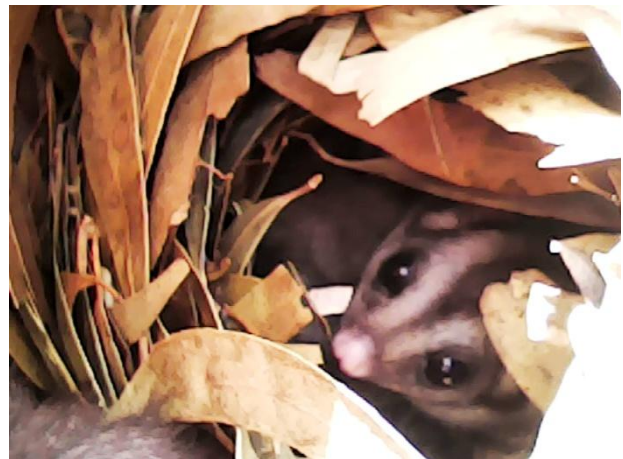
‡ = box dislodged and lid off

Conclusions to date:

1. Stapling carpet to the upper walls and/or underside of the lid to exclude bees from the large boxes has worked, except in one box (Site 2) where bees did try and establish.
2. Sugar Gliders have successfully negotiated the movable flap over the entry hole in the large box at Sites 5 & 14. However, after 8 years the flap in the box at Site 5 fitted only with that device (but without carpet) has failed and allowed bees entry.
3. Bees have not set up in the small boxes, all of which were left without carpet or bee flaps.
4. Sugar Gliders that had ignored most of the small boxes in early years appear now to be using them.
5. Sugar Gliders were the only mammals to use the boxes, taking green leaves inside for bedding.
6. Leaves and/or gliders were found in some small boxes adjacent to occupied large boxes, indicating that Sugar Gliders may nest close to another nest site (perhaps juveniles from the same family?).
7. Boxes at Sites 14 & 15 in Yellow Gum/Yellow Box woodland were initially unused by gliders, until 2017-18.
8. It was hoped that Brush-tailed Phascogales (*Phascogale tapoatafa*) might be located but no sign has been found of them or other mammals, such as Yellow-footed Antechinus (*Antechinus flavipes*) or Feathertail Glider (*Acrobates pigmaeus*) – these species may be present but have no need of artificial hollows.
9. The pole camera used to inspect the interior of the boxes did not provide high quality images, and it was hard to detect animals under the leaves, but it did obviate the need for a ladder and may have reduced the disturbance resulting from opening the lid of the box.



Site 2. Opening the large box – old honeycomb



Site 5. At least one Sugar Glider in the small box



Site 15. Repairing the large box

There were still many wildflowers in bloom. The display of Blue Pincushions (*Brunonia australis*) and Shiny Everlasting (*Bracteantha viscosa*) and Showy Podolepis (*Podolepis jaceoides*) at/near Brunonia Lookout Hill was spectacular this year.

We spent some time pulling African Weed Orchids and lining the edge of the lookout grassland area with fallen timber to discourage people from driving off the track and over the wildflowers. Unfortunately a grader driver has contributed to the problem at one place. This magnificent site needs better protection.



Rod & Reto repair the large box



Reto installing the box on the tree



Re-installed nest box at Site 15



Brunonia australis



Bracteantha viscosa



Brunonia australis



Podolepis

Diane contributed the wildflower photos above and all of the other photos except for the Sugar Glider in a nest box.

Late November is a great time to visit Bear to see the wildflowers and we had a fine warm day out.