

# HFNC Bear State Forest fauna nest box report 23 Nov. 2019

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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.nestboxenviro.net.com](http://www.nestboxenviro.net.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. 2019

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. leucoxylo*, *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. leucoxylo* & *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. leucoxylo*, *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. leucoxylo* & *E. melliodora* open woodland

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

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

**Nest box occupation in 2019:** Sugar Gliders were found at 2 of the 5 sites. At least 2 gliders were seen in the large box at Site 14 and at least 4 gliders (incl. 2 or 3 juveniles) were seen in the large box at Site 15. Oddly, at Site 15 the small box but not the large box had been occupied in 2018. In 2019 all boxes contained some green leaves but there were few leaves in the small box at Site 3. This indicates that at least 9 of the boxes had probably been occupied at some time during the year. The boxes were all in good condition and bees had not occupied any box.

A summary of the occupation of the boxes over the last 8 years is presented in Table 1.

Table 1. Occupation of mammal nest boxes in the Bear State Forest from 2012 to 2019

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

j = number of juvenile Sugar Glider included

### Conclusions to date:

1. The action taken stapling carpet to the upper walls and/or underside of the lid to exclude bees from the large boxes has worked. Sugar Gliders have successfully negotiated the movable flap over the entry hole in the large box at Sites 5 & 14. The flap alone may be enough to exclude bees.

2. Bees have not set up in the small boxes, all of which were left without carpet or bee flaps.
3. Sugar Gliders that had ignored most of the small boxes in early years appear now to be using them.
4. Sugar Gliders were the only mammals to use the boxes, taking green leaves inside for bedding.
5. 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?).
6. Boxes at Sites 14 & 15 in Yellow Gum/Yellow Box woodland were initially unused by gliders, until 2017-18. It was hoped that Brush-tailed Phascogales might be located but no sign was found.
7. 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 disturbance resulting from opening the lid of the box.
8. The video option, cf. individual images with the camera, enabled a better estimate of the number (if any) of occupants in a box – and it could reveal any movement deep among the leaves.



Site 2. Large Box – no animals visible



Site 2. Small Box – no animals visible



Site 3. Large Box – no animals visible



Site 3. Small Box – no animals visible



Site 5. Large Box – no animals visible



Site 5. Small Box – no animals visible



Site 14. Large Box – tails of 2 gliders visible



Site 14. Small Box – no gliders visible



Site 15. Large Box – 2 gliders visible



Site 15. Small Box – no gliders visible



Site 15. Large Box – 2 or more Sugar Gliders visible