HFNC Beear State Forest fauna nest box report 18 Nov. 2018

Rod Bird & Reto Zollinger

Participants: Rod Bird & Diane Luhrs, Reto Zollinger & Yvonne Ingeme, Hillary Turner, Peter Hocking, Kay Aldridge, Kate Kennedyand 2 neighbours to the reserve, Colin & Mary King. Members from Hamilton left the Visitor Centre at 9.30 am and met the others at Hallams Rd before entering the Beear SF.

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 Beear SF. Boxes were moved from Sites 6 & 10 to Sites 14 & 15 in April 2014.

John Burtonclay from Mandurang constructed the boxes (www.nestboxenvironest.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. 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. 2018

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 lid of the large boxes could be lifted, using a telescopic pole, to obtain a clearer view where no animals could be seen when the camera lens was inserted through the entry hole.

Site 2 – 1.2 km from Beear SF sign on Hallams Tk. [Waypoint 003; gps 37-22-35/142-02-25]
Habitat – dense *E. baxteri* forest with *X. minor* understorey (unburned >60 years).

Site 3 – 2.7 km from Beear SF sign on Hallams Tk. [Waypoint 005; gps 37-21-46/142-02-2]
Habitat – a valley with *E. leucoxylon, E. melliodora, E. viminalis, E. baxteri, B. marginata*.

Site 5 – west of fire dam on track to McAdams Rd, in a flat. [Waypoint 008; gps 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. [gps 37-20-51/142-01-40]
Habitat – *E. leucoxylon & 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. [gps 37-20-50/142-02-12]
Habitat – *E. leucoxylon, E. melliodora, E. viminalis* & *B. marginata* open woodland with *X. minor*.

Site 14 – 1.3 km N on Hallams Tk from McAdams Tk jn. [Waypoint 019; gps 37-20-32/142-02-31]
Habitat – *E. leucoxylon & E. melliodora* open woodland

Site 15 – 1.9 km on Hallams Tk from McAdams Tk jn. [Waypoint 020; gps 37-20-32/142-02-48]
Habitat – *E. leucoxylon* open woodland adjacent to *E. baxteri* forest & *E. camaldulensis* creek line

In 2018, Sugar Gliders were found at 3 of the 5 sites, in 4 of the 10 boxes, including one small box unused in previous years that had at least 2 adults (Site 15). We found at least 3 juveniles with one or more adults in another small box (Site 3). In 2 large boxes (Sites 5 & 14) at least 4 or 5 gliders were seen, with at least 3 juveniles in one box (Site 14). The boxes were all in good condition and, despite some fears in 2017 for one large box (Site 5), bees had not occupied any box.

A summary of the occupation of the boxes over the last 7 years is presented in Table 1.
Table 1. Occupation of mammal nest boxes in the Beear State Forest from 2012 to 2018

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

C l&w = honeycomb removed and carpet (C) stapled to underside of lid (l) and upper parts of walls (w)
C l = honeycomb removed and carpet stapled to underside of the lid
F = honeycomb removed and a flap (F) fitted to inner side of entry hole
S = box sprayed with an insecticide to kill bees
# = on 24 April 2014 boxes from Sites 6 & 10 were shifted to Sites 14 & 15, respectively.
G = green-tinged (fresher) leaves
D = dry (faded) old leaves
j = number of juvenile Sugar Glider included

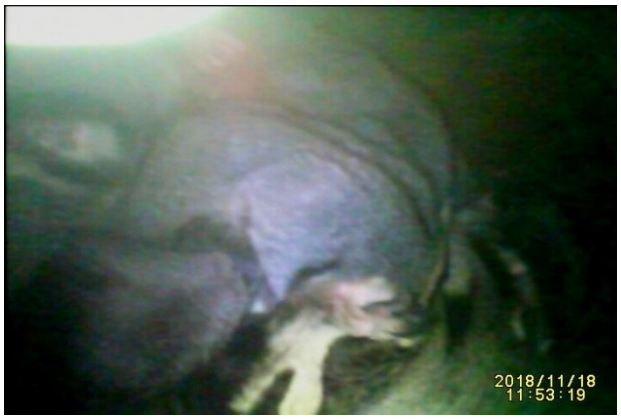
Conclusions to date:

1. The action taken stapling carpet to the underside of the lid and/or upper walls to exclude bees from the large boxes has worked. Sugar Gliders successfully negotiated the 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 not possible 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.

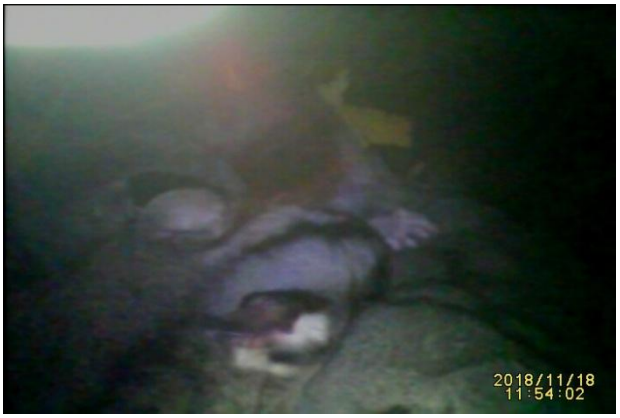
Site 2. Large Box - No animals visible

Site 2. Small Box - No animals visible

Site 3. Large Box - No animals visible

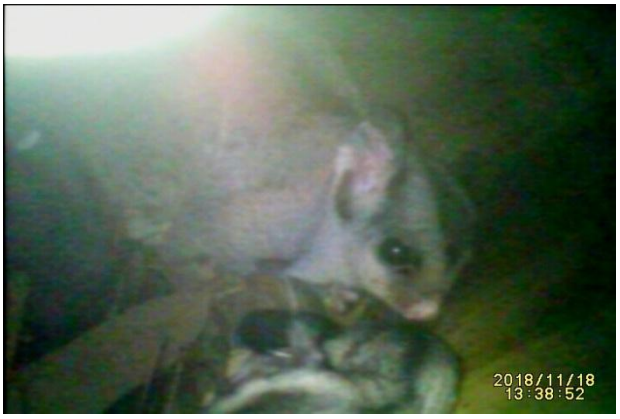


Site 3. Small Box – Sugar Gliders present



Site 5. Large Box – Sugar Gliders present

Site 5. Small Box – No animals visible



Site 14. Large Box – Sugar Gliders present

Site 14. Small Box - No animals visible

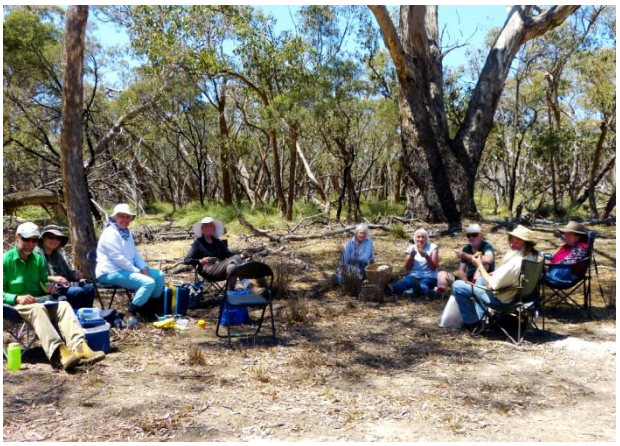
Site 15. Large Box – No animals visible

Site 15. Small Box – Sugar Gliders present

We noted several bird species as we drove around the 12 km loop track, including a male Mistletoebird, a small flock of White-browed Woodswallows and very vocal and numerous Rufous Whistlers.

1. Australian Magpie
2. Common Bronzewing
3. Crimson Rosella
4. Emu
5. Grey Currawong
6. Grey Shrike-thrush
7. Horsfield's Bronze-cuckoo
8. Laughing Kookaburra
9. Little Raven
10. Long-billed Corella
11. White-browed Woodswallow
12. Mistletoebird
13. New Holland Honeyeater
14. Restless Flycatcher
15. Rufous Whistler
16. Spotted Pardalote
17. Striated Pardalote
18. Sulphur-crested Cockatoo
19. Wedge-tailed Eagle
20. White-throated Treecreeper
21. Yellow-faced Honeyeater

A highlight of the visit was the spectacular display of Blue Pincushions (*Brunonia australis*) as we drove up the northern flank of Lookout Hill. There were also many flowers on the hilltop too, but off-road vehicles have degraded that site. It ought to be protected. Members spent about 30 minutes digging up dozens of African Weed Orchids that were found there.



Picnic lunch in the Beear State Forest

Brunonia display near Lookout Hill