

# Report - Friday 18th December 2020

Grey-Headed Flying-fox Colony at the Glebe Park Lagoon in Bega, Far South Coast of NSW, Australia

Report by Hugh Pitty

## Brief Summary

A total of 40,203 flying foxes were counted (+5,147/-2,272) with an adjusted total of 43,028 flying foxes, which approximates to 43,000 given the margin of error. It is estimated that several hundred juveniles were left in the camp after the fly-out. This is the second count of the season and comes just over eight weeks since the camp re-established on Thursday 22<sup>nd</sup> October, and four weeks after the previous count of 22,970 on 20<sup>th</sup> November.

## Weather

The weather was overcast but fine with a light breeze providing moderate counting conditions.

## Methodology

The scheduled meeting time was 7:45pm ahead of the fly-out anticipated around 8:30pm. First flight was between 8:20pm and 8:34pm, peak flow between 8:30pm and 8:42pm, and the finish of departures between 8:50pm and 9:01pm. The duration of departure at each station lasted between 23 and 30 minutes, with the overall departure lasting 41 minutes.

The counting locations established over the past seven years were used (map of locations in Appendix).

Volunteer counters were allocated to counting stations on the basis of recent observations of directions of departure and available numbers of volunteers. Where possible, counters were allocated to the same counting stations as on previous occasions to maintain consistency. Counters dispersed to counting stations prior to dusk falling and returned to the meeting place at the shelter shed to collate raw count data and make qualitative adjustments for error. These were then collected for inclusion in the report.

## Results

With 9 volunteers attending (including 8 adults and 1 child), 7 of whom were experienced counters, with the other 2 volunteers counting for their first or third time, the following results were obtained.

**Table 1 – Results from Counting Activity (including both Raw Count and Qualitative Adjustments)**

Station	Direction of Departure	Facing IN	Facing OUT	Raw Count	Undercount	Overcount	Adjusted Total	Percentage of Total
A (1)	South-West	8,520	0	8,520	1,704	852	9,372	22
B (2)	West-South-West	*13,550	0	13,550	2,000	1,000	14,500	34
D (3)	North-West	865	0	865	40	0	905	2
F (4)	North	5,300	0	5,300	300	0	5,600	13
G (5)	East	**2,300	**1,810	2,055	100	220	1,935	5
H (6)	East-South-East	470	0	470	50	0	520	1
K (7)	South	1,910	0	1,910	200	200	1,910	4
L (8)	South-South-West	7,533	0	7,533	753	0	8,286	19
<b>TOTAL</b>	<b>8/12 directions</b>	<b>40448</b>	<b>1810</b>	<b>40203</b>	<b>5147</b>	<b>2272</b>	<b>43028</b>	<b>100</b>

\*Counter faces along East Street

\*\*Both counters facing out

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## Direction of Departure

The direction of departure was primarily to the south-west (Stations A, B & C) with a combined total of 56% (Figure 1), followed by the south (Stations J, K & L) with a combined total of 23%, and the north (Stations D, E & F) with a combined total of 15%. Departures to the east and south-east (Stations G, H & I) were smaller with a combined total of only 6%.

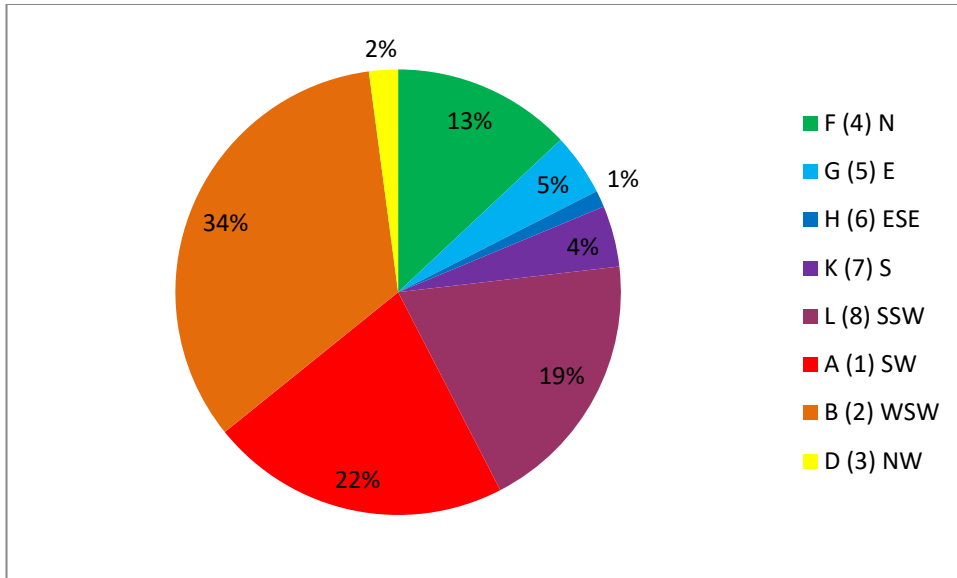


Figure 1 - Direction of Departure - as percentage of adjusted total

The direction of departure was predominantly to the south-west (Figure 2). This pattern is usual for this time of year and is a change from that seen at the previous count which was predominantly to the south-east. It is usual for the south-west and north to be the main directions of departure for the first few months (October, November, and December).

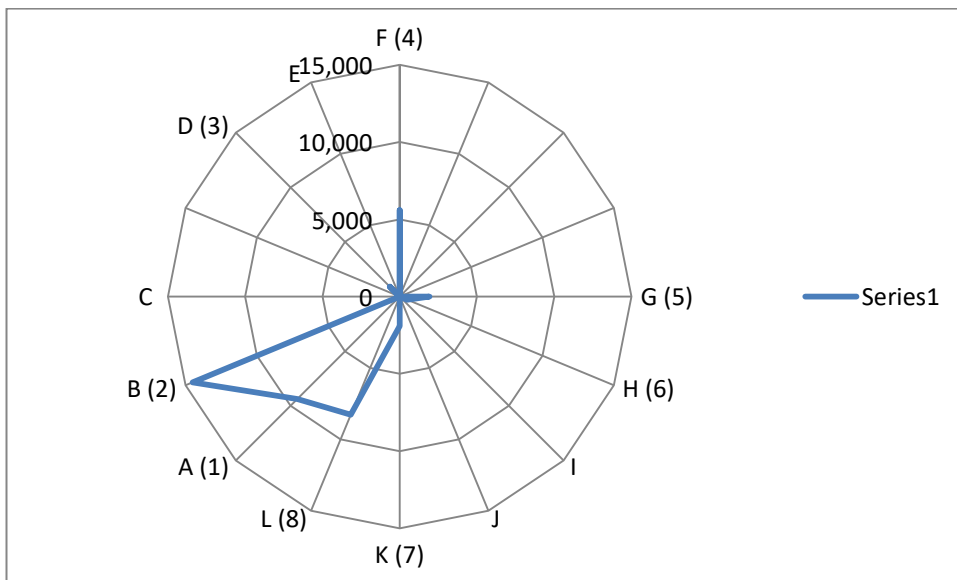


Figure 2 – Radar Chart of Results showing Direction of Departure strongly to the South-West

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## Discussion

This was the second count of the new season, since the camp re-established on the 22nd of October. The approximately 43,000 flying foxes counted on this occasion represent the largest ever count recorded at the Glebe Wetlands in over eight years of monitoring flying foxes in Bega. The count result is more than double the previous December record of 20,495 six years ago in December 2014, and represents an increase of 20,000 on the previous count of approximately 23,000 recorded on 20<sup>th</sup> November.

The extent of the camp included many trees that have not been used by the flying foxes before. In addition to the core of the camp in the Willows and Privet understorey at the head of the lagoon, flying foxes were occupying the Willows and Box Elders along the northern shore; the Willows and Box Elders along both sides of the Tathra Road; the Willows, Box Elders, Casuarinas and Eucalypts along the southern shore; the Casuarinas, Box Elders and Paperbarks on both the islands; all the trees (Poplar, Eucalypt, Agonis and Pin-Oak) along the southern boundary of the Glebe Park; many of the trees in the grassed area on the southern side of the Glebe Park (including large and small Eucalypts, Pin-Oaks, Poplar and a lone Box Elder); and most of the trees in the grassed area on the northern side of the Glebe Park (including Casuarinas, Silky Oak, Eucalypts, Pine and all of the Pin-Oaks). An aerial photo with the extent of the camp shown is included in the Appendix. On some days, both before the count and since, occasionally flying foxes have also been observed roosting in a Willow on the western side of East St. The density of occupation continues to be very high in the main part of the camp and is increasing in outlying areas of the camp. Some of the roosts in the small Box Elders along the Tathra Road are quite low, with some flying foxes being only 4 or 5 metres above the heads of pedestrians using the footpath below. Unusually, lactating females with nursing juveniles have been observed in the Willows and Box Elders along the Tathra Rd.

The massive numbers appear to be a response to the bushfires from the Black Summer of 2019-20. The large areas burnt further up the South Coast and hinterland may have left a 'food desert' extending from the north of the Shoalhaven down to the Cobargo/Quaama area, and likewise, the extensive area burnt south of Eden, inland and across the border well into Far East Gippsland may have left a similar 'food desert', while the still relatively large areas of unburnt forest within reach of Bega represent an attractive foraging resource in the circumstances.

### Major bushfires in Australia

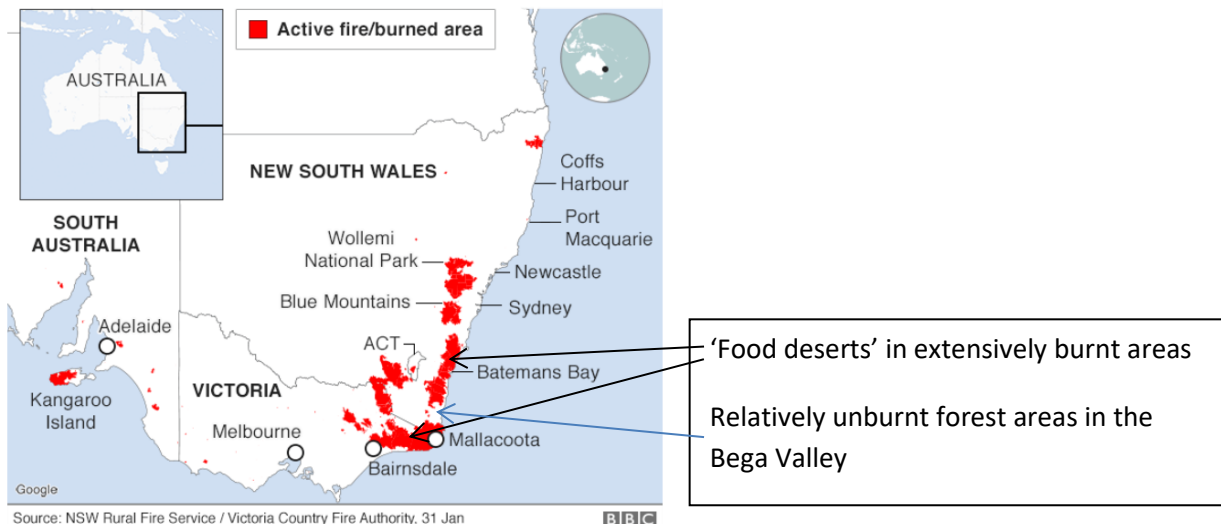


Figure 3. Downloaded on 21<sup>st</sup> December 2020 from <https://www.bbc.com/news/world-australia-50951043>

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As shown in Figure 3 above and Figure 4 below, compared with the extensive areas burnt in neighbouring parts of the coast and hinterland in both NSW and across the border in Victoria, the Bega Valley has significant areas of unburnt forest. Furthermore, the intensity of the fires, with nearly two-thirds burnt at either high or very high intensity (see Figure 4), suggests that a prolonged detrimental effect on food availability for flying foxes in the burnt areas may be likely with the knock-on effect that the forests in the Bega Valley are more important as foraging areas for flying foxes in coming years.

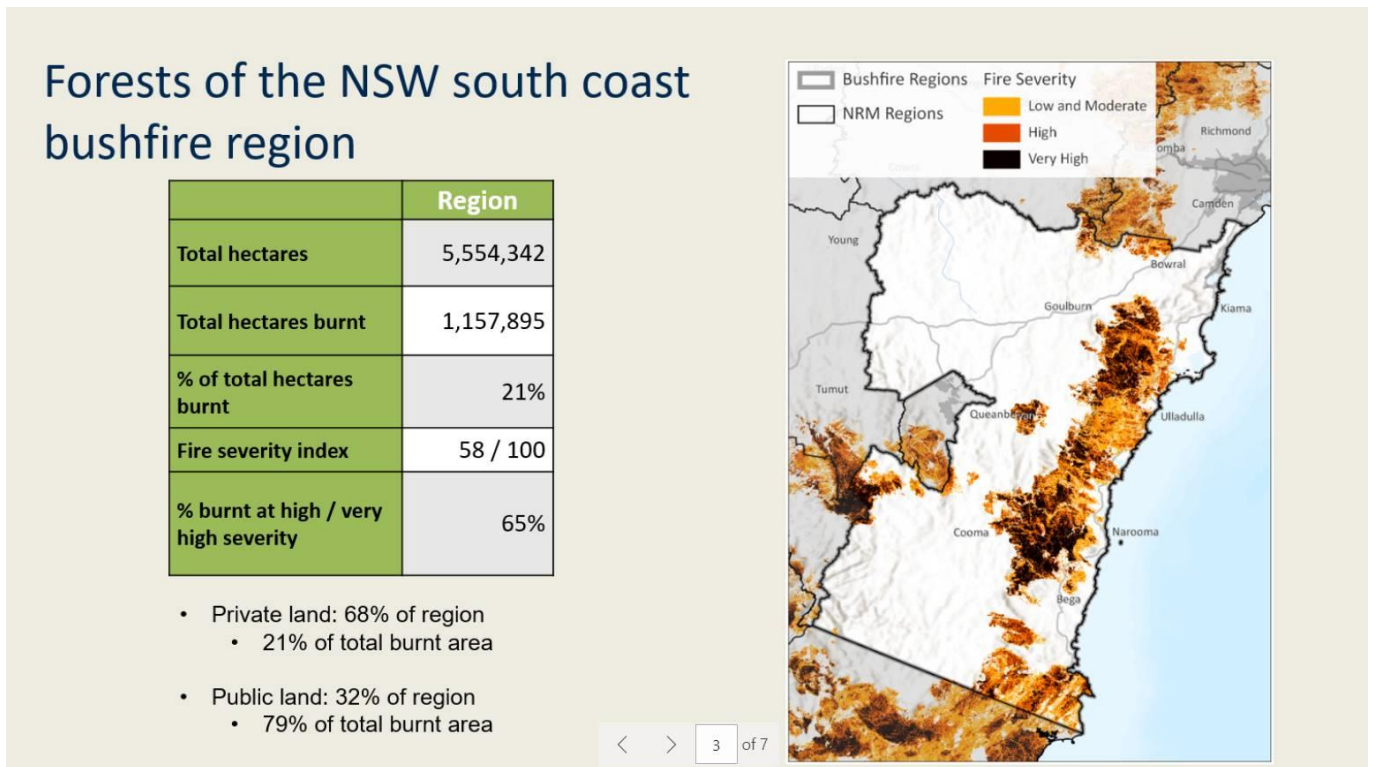


Figure 4. DAWE (2020). Australian Google Earth Engine Burnt Area Map. *A Rapid, National Approach to Fire Severity Mapping*. Department of Agriculture, Water and the Environment, Canberra, July 2020.

### Direction of Departure

The predominant direction of departure being to the south-west indicates that the forest areas in Tantawangalo and other parts of the South East Forests are the primary foraging area at present. Areas to the south from Woluma along to Myrtle Mountain may also be attracting significant numbers. However, forest areas in other directions to the north and east are also still important given the large numbers of flying foxes present, while the major food sources in the Bournda area (*Melaleuca armillaris* and *Kunzea ambigua*) that were so attractive at the time of the November count four weeks prior appear to have become less so.

Local botanist, Jackie Miles advises that “*Eucalyptus radiata* is flowering pretty solidly up on top of the escarpment, in the unburnt parts, which could account for some of the south-westerly departure perhaps. Although given the extent of the fire round Tantawangalo,” Jackie adds that she would “have thought they'd be going more straight west or NW if that was their destination.” Without the benefit of radio-tracking, it is difficult to know exactly where the flying foxes are going to forage at night and what food resources are sustaining them in such large numbers at this time.

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## **Nearby Camps**

### **Panboola Wetlands in Pambula**

The camp at the Panboola Wetlands re-established during the second week of December, which is earlier than usual as the camp does not usually form until late January or February when the Bloodwood starts flowering. A count on Saturday 19<sup>th</sup> December recorded 18,000 flying foxes, showing a remarkable increase in a short time. The overwhelming majority of these flying foxes (around 15,000) were departing to the south-east in the direction of Ben Boyd National Park where the *Kunzea ambigua* is flowering strongly. As the camp in Bega has grown so large, with the flying foxes there residing in many trees in the outlying areas of the Glebe Park previously never occupied, it is probable that there is now pressure to find suitable roosts and so re-locating to Pambula becomes a sensible proposition for an increasing number of flying foxes, given the availability of food in the Ben Boyd National Park.

### **Eurobodalla**

In the week leading up to the count in Bega, the camp at Catalina North/ Golf Course (in Batemans Bay) had only 700 flying foxes which is a relatively stable number for the past month or so. All other camps in the Eurobodalla are still empty – this includes the Water Gardens (in Batemans Bay), Moruya Heads, Tuross Head, Moruya Town, Dalmeny, Broulee and Narooma.

### **Gippsland**

Lisa Roberts from the Friends of Bats and Habitat Gippsland and Tony Mitchell from the Department of Land, Water, Environment and Planning (DEWLP) advise that the Mitchell River camp at Bairnsdale has seen a reduction in numbers in recent weeks from the very large numbers (26,000 in November) this year that had seen the camp spill out eastwards toward the Port of Bairnsdale, as now the camp is confined to the walking track area beside the Mitchell River. Meanwhile, the camp in Maffra continues to have very large numbers and the camp in Sale at Lake Guthridge has grown as flying foxes have spilled off the island and onto the mainland to the south, spreading all the way to the start of the Botanic Gardens (approx. 600m). Tony advises that “the Redgum flowering event on the plains seems to be the reason for this level of activity.” Specific camp counts are due next week, meaning that the results will be included in the January report.

## **Next Meeting**

It was good to have 9 volunteers available for the counting activity. Thanks to Richard, Bernadette, Deb, Lea, Siobhan, Reed, Hugh, Peter and Marilyn for all attending the count, particularly at this busy time of year. All your efforts are very much appreciated. The next count is scheduled for Friday 22<sup>nd</sup> January.

Hugh Pitty

Community Coordinator

**Friends of Glebe Wetlands (Bega)**

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**Thank you for your interest and support of this ongoing activity.**

For more info contact Hugh Pitty (ph: 6492 0408 or 0414 525 761)

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## APPENDIX

### Map of Location of Counting Stations



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## Extent of flying fox camp in December 2020



Aerial Photo of the Glebe Park Lagoon and surrounding area in the Glebe Wetlands showing the extent of the camp on Friday 18<sup>th</sup> December 2020 (area within the blue lines).

N.B. The base photo was taken some time ago and some of the vegetation has changed since.