

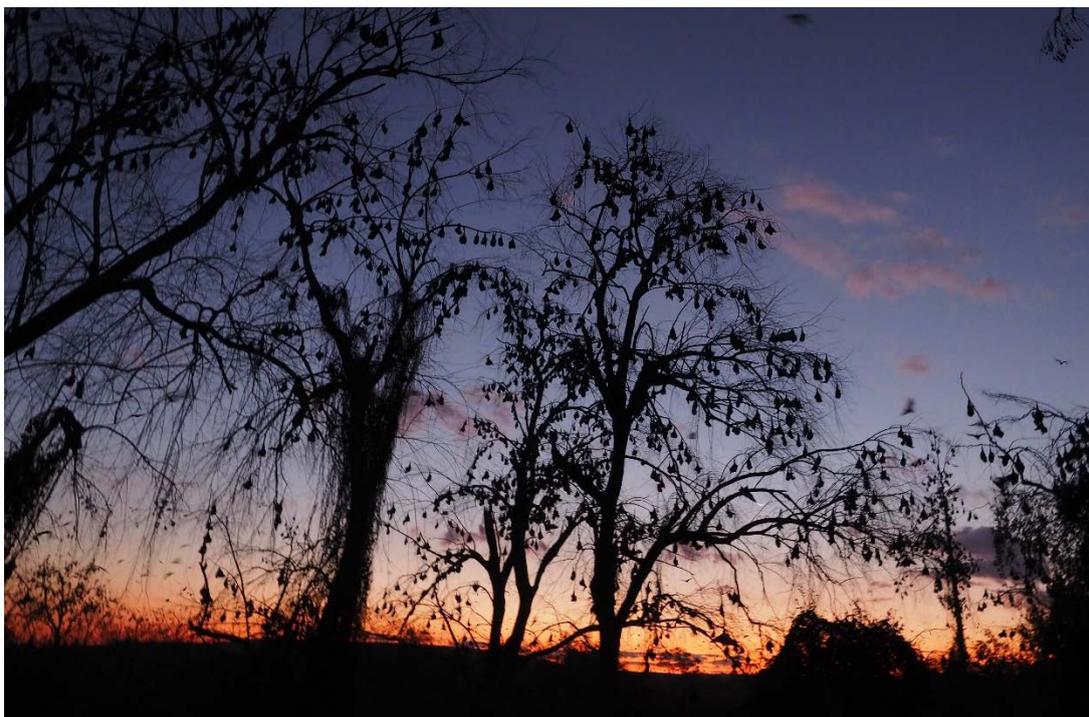
The National Flying-fox Monitoring Program

Report on the August 2016 survey

Background

The National Flying-Fox Monitoring Program (NFFMP) is a collaborative program that brings the community and local, state and the Commonwealth governments together to provide quarterly snapshots of the size and distribution of flying-fox populations in Australia. The data collected provides unique insights into the ecology and dynamics of flying-fox populations and represents an essential underpinning for their conservation and management.

Monitoring of flying-foxes is useful for a variety of reasons but is especially important because flying-foxes are so often in conflict with humans while at the same time being of conservation concern. Two species, the grey-headed flying-fox (GHFF) and the spectacled flying-fox (SFF), are listed as threatened under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and legislation in some states. The NFFMP provides key data for decision making not just for flying-fox conservation but also to inform responses to public concerns about the impact of flying-foxes on industry, amenity and public health.

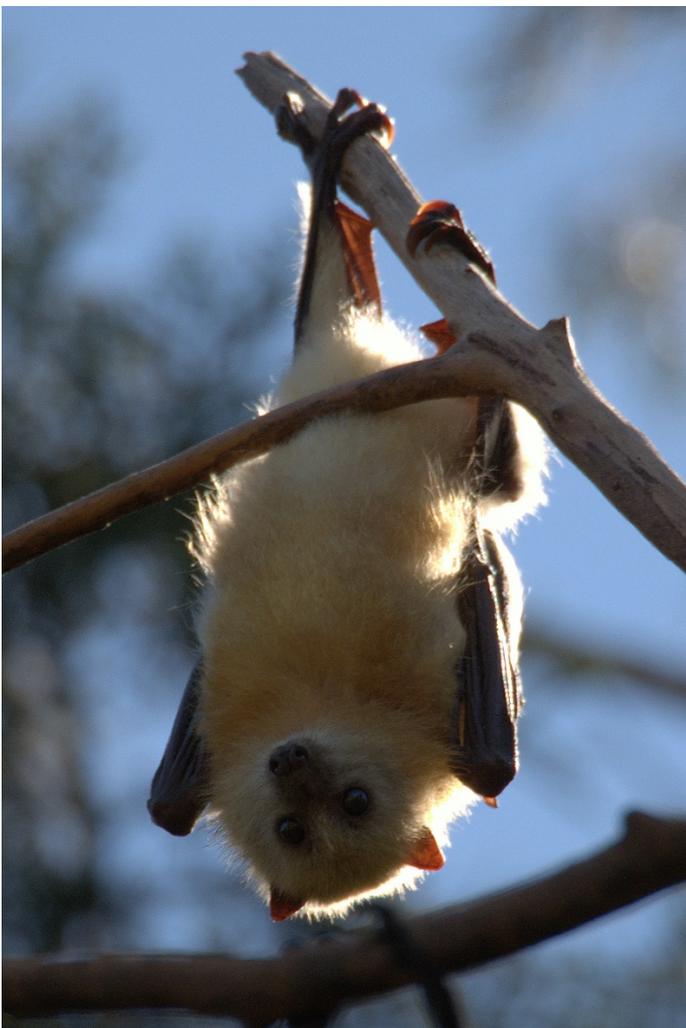


Dusk at the Muswellbrook camp

The August 2016 Survey Results - a Summary.

The August 2016 survey was the sixteenth count of the project. During the August count, 270 camps were surveyed, 113 in NSW, 146 in Qld, 9 in Vic, and one each in the ACT & SA.

The estimate for the total GHFF population in these camps was 578,000 animals and these were recorded from 73 active camps across the species range. NSW and Qld had roughly the same proportion of animals, NSW (51%) vs Qld (48%), while Victoria had 5%, SA <1% and the ACT none. Large numbers were recorded at Woocoo, Caboolture and Hervey Bay in Qld, and numbers were particularly high at Lismore in northern NSW. The Lismore camp was especially interesting as most of the camps in the Northern Rivers that are normally busy with GHFF were empty.



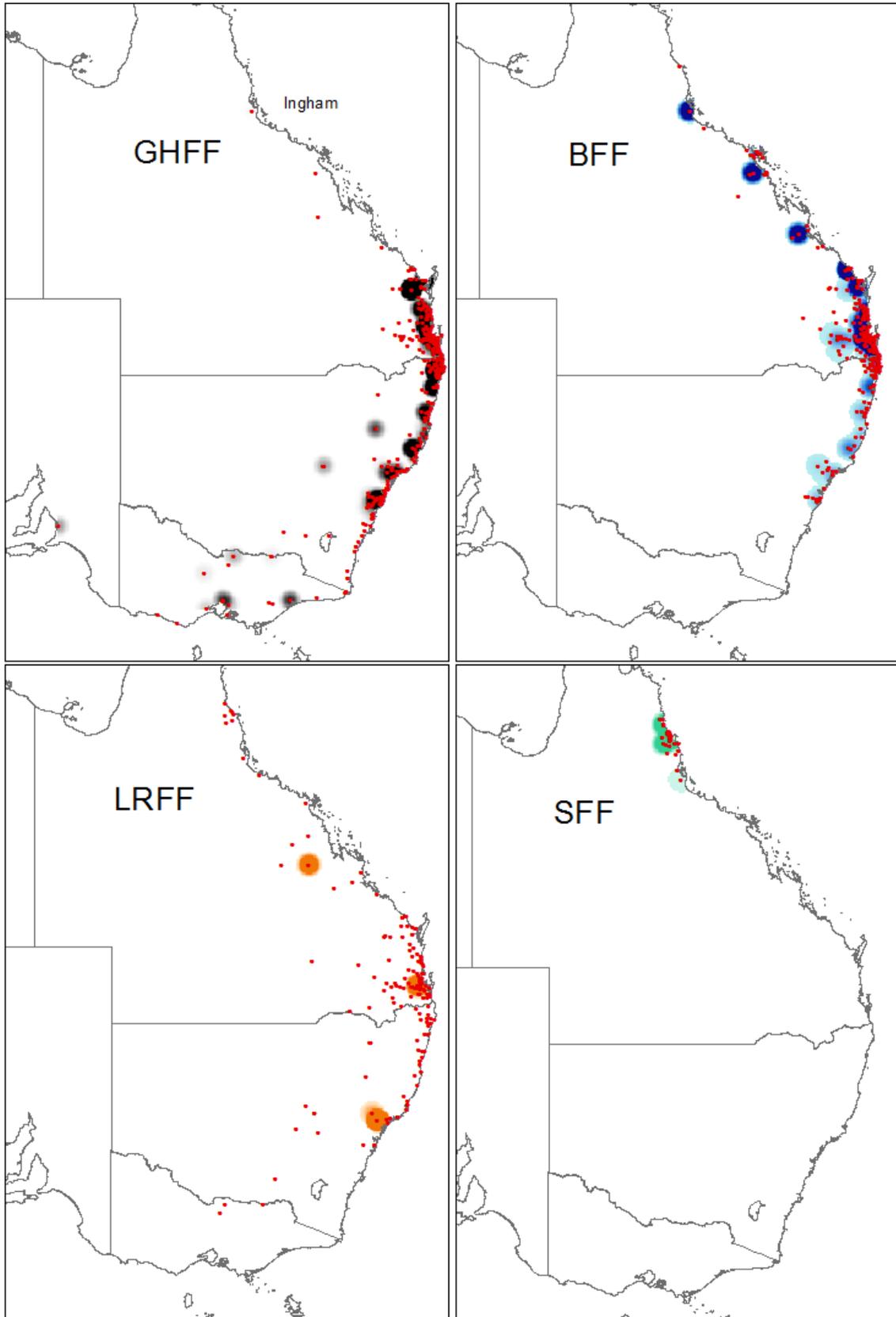
Guess the species?

SFF numbers remained in their middle of the year trough, with a total of just 28,000 animals recorded from 10 active camps. As has been the case for the last few years the species was all but absent from the southern part of its range.

The entire ranges of the GHFF and SFF are covered by the NFFMP and as a result total population estimates can be derived for these two species. In contrast, the program covers only a part of the ranges of the black flying-fox (BFF) and the little-red flying-fox (LRFF). This means that our estimates for BFF and LRFF are indicative only of the survey region and not of the entire population. In total 90,000 BFF were recorded, with 94% of those in Qld. Just 7,000 LRFF were recorded with 55% being found in NSW and the rest in Qld. Surprisingly, LRFF were recorded at Cessnock. This is an interesting result as LRFF haven't previously been reported that far south in winter during the NFFMP surveys. If you have any additional information on LRFFs deep in NSW during winter and outside of NFFMP monitoring we would be interested to hear (you can email Adam McKeown or David Westcott, details below).

Where were the flying-foxes in August?

The heat maps below show the distribution of the different flying-fox species across the region of the NFFMP. The darker the colour the greater the abundance of flying-foxes in an area, black shading refers to GHFFs, blue to BFFs, green to SFFs and orange to LRFFs. Red dots indicate visited camps



The Camps that GHFF Use

During the NFFMP surveys GHFF have now been recorded from 326 camps distributed from Adelaide all the way through to Ingham in Far North Queensland. The Ingham camp is very much an outlier. It is located 375 km NW as the crow flies from the next northern-most GHFF camp, at Finch Hatton near Mackay. These camps are separated largely by tropical woodlands, with some ocean, cattle and sugar cane thrown in. The Ingham camp is remarkable in that it is the only camp in the NFFMP surveys which regularly hosts all four species of flying-fox at the same time. The camp is usually dominated by BFFs with small numbers of SFFs and variable numbers of LRFFs. When they first appeared in 2012, 600 GHFFs were in the camp but this number has dwindled to 100 in recent counts.

All four species have also been reported from Finch Hatton, though this hasn't happened during the NFFMP surveys. The Finch Hatton camp is also a bit of an outlier in that it is about 560 km NW of Bundaberg, arguably the current northern boundary of the GHFF's main distribution. GHFFs have been reported at a number of sites between Bundaberg and Finch Hatton but, in the NFFMP surveys at least, these appear to be ephemeral.

A similar gap can be found at the other end of the GHFF's distribution and on its western margins. A small but growing camp (now just over 4000 individuals) can be found in Adelaide, just over 500km in a straight line from its nearest neighbour in Victoria at Warrnambool, while a handful of camps well west of the Great Dividing Range, e.g. at Wagga Wagga and Wellington, have hosted GHFF's regularly over the past four years. It would appear that as far as GHFFs are concerned not all camps are equal. During the NFFMP the average camp has been occupied in just 6 count periods while 88 camps reported GHFF in more than half the surveys. In any single survey period between 73 and 144 camps have been reported as hosting GHFFs with the average being 107 occupied camps. These camps have ranged in size from just one to 122,000 GHFF. The average camp has had 5600 GHFF present during the counts.

The NFFMP

A map of the camps covered in the NFFMP surveys can be viewed at <http://www.environment.gov.au/node/16393>. Clicking on a camp icon will show a plot of species composition and numbers recorded at that camp during NFFMP surveys.

The aim of the program is to establish a reliable baseline estimate of the flying fox populations and over time to estimate trends. This will take a number of years since each quarterly count will be subject to various factors which will influence the results, making assessment of population size more difficult. A report reviewing the data from the first phase of the program can be viewed at the Australian Government Department of the Environment's website at <https://www.environment.gov.au/biodiversity/threatened/publications/status-and-trends-australias-epbc-listed-flying-foxes>. This analysis suggests that while the GHFF population appears to be at approximately 700,000 individuals, the population of the SFF has declined by as much as 50% over the last decade to approximately 100,000 individuals.

In order to achieve the best possible estimate it is important that surveys are performed using the methods correctly. We are continuing to conduct training sessions and the CSIRO urges any counters who have any questions or concerns about count methodology to contact Dr David Westcott at david.westcott@csiro.au or Mr Adam McKeown at adam.mckeown@csiro.au.

Thank you to all the counters who put in the hours to assist the program. Your effort is greatly appreciated.

If you would like to participate please contact:

New South Wales – Mike.Roache@environment.nsw.gov.au

Queensland — Pauline.Fitzgibbon@ehp.qld.gov.au

If you know of additional camps or have questions about the counts please contact:

david.westcott@csiro.au or adam.mckeown@csiro.au

Additional information about the program can be found at:

www.environment.gov.au/biodiversity/threatened/species/flying-foxes-monitoring-program.html

The National Flying-fox Monitoring Program is collaboration between the Australian Government, the South Australian, Victorian, New South Wales, Australian Capital Territory and Queensland governments, CSIRO, local governments and volunteers in New South Wales and Queensland. The CSIRO was contracted by the Rural Industries Research and Development Corporation to undertake this research project. This research was funded by the Commonwealth of Australia, the State of New South Wales, the State of Queensland and RIRDC under the National Hendra Virus Research Program.