2 Flying-foxes in the Northern Beaches

2.1 Regional context

Three flying-fox camps occur on Council-managed land within the Northern Beaches LGA; the Avalon, Warriewood, and Balgowlah camps (Figure 1). Nearby camps include Woywoy, Everglades to the north, Gordon (nationally important camp) to the west, and Centennial Park (nationally important camp) to the south.

Flying-fox occupancy in certain areas can be influenced by a multitude of factors but is generally driven by resource availability in the local area. Between 2019 and 2020, flying-foxes experienced significant population impacts across the east coast of Australia due to a range of extreme weather events. A prolonged drought period caused a mass food shortage from Coffs Harbour to Gladstone, in which thousands of flying-foxes perished from starvation (Cox 2019, Huntsdale & Millington 2019). Following this, bushfires across the country resulted in the loss of large areas of native forest that provides natural foraging habitat for flying-fox populations. Resource availability and these landscape scale events will influence numbers at Northern Beaches camps.

Figure 2 shows natural flying-fox foraging habitat within 50 km of the Northern Beaches flying-fox camps (mapping by Eby et al. 2019, building on Eby & Law 2008). Further detail about vegetation communities, their value as flying-fox foraging habitat and indicative flowering times can be found in spatial data and literature available from these studies.

Figure 1: Regional context

Northern Beaches Council

Northern Beaches Flying fox Camp Management Plan

- Nationally important flying-fox camp
- Flying-fox camp
- Local Government Area

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Job number: PR7197
Revision: 0
Author: EK
Date: 20/06/2022

0 0.5 1 2
Kilometers

GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

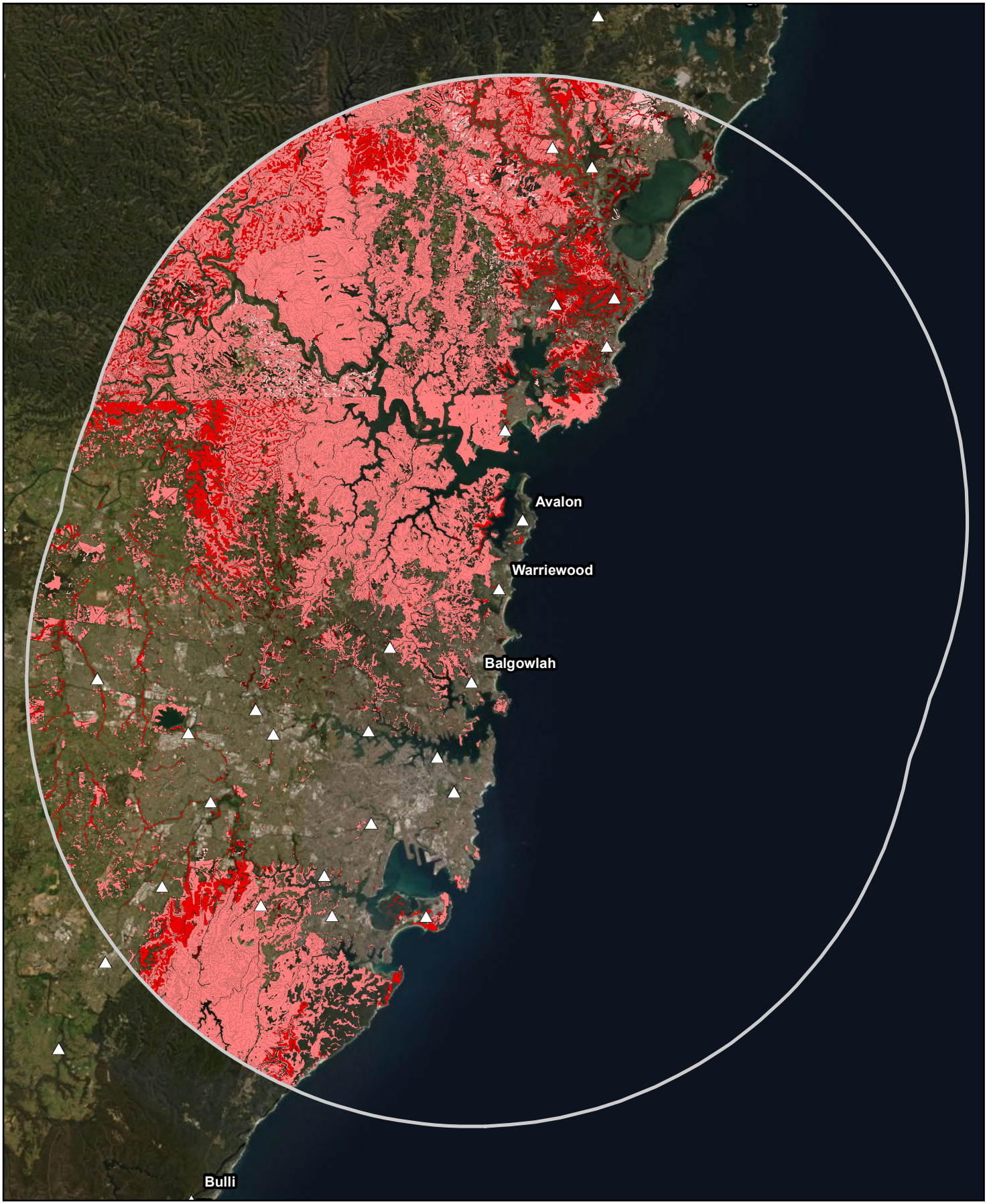

Figure 2: Flying-fox foraging habitat within 50 km of Northern Beaches camps

Northern Beaches Council

Northern Beaches Flying fox Camp Management Plan

△ Flying-fox camp

50 km buffer

Habitat score *

0.00

0.01 - 0.25

0.26 - 0.50

0.51 - 0.75

0.76 - 1.00

* weighted productivity x reliability scores of flying-fox diet plants (nectar habitat). Data source: Eby et al. 2019

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0 2.5 5 10
Kilometers

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2.2 Potential impacts from flying-foxes

Flying-foxes in urban areas are commonly the source of conflict with the community. This CMP aims to provide Council with management actions to reduce impacts on residents.

2.2.1 Noise

A highly sociable and vocal animal, the activity heard from flying-foxes at camps includes courting, parenting, and establishing social hierarchy. Noise is often most disturbing pre-dawn, and during the breeding season (e.g. during mating March/April, and pup rearing in spring/summer).

2.2.2 Odour

Flying-foxes use pheromones to communicate with each other, which is the source of the characteristic musky smell around their camps and some foraging trees. There are several factors that affect odour detectability and intensity, such as the number of flying-foxes, time of year, weather conditions, wind direction, and site characteristics.

Odour may be more intense at camps during the breeding and rearing season as female flying-foxes use scent to find their pups after foraging, and males regularly mark their territories (Wagner 2008). Likewise, odour is stronger after rain as males remark branches in their territories.

2.2.3 Faecal drop

Flying-foxes have an extremely fast digestive process with only 12 – 30 minutes between eating and excreting (SEQ Catchments 2012). Given that flying-foxes regularly forage 20 km from their camp (Markus & Hall 2004) and establish new camps within 600 m – 6 km when dispersed (Roberts & Eby 2013, Ecosure 2014), attempting to relocate a camp will not reduce this impact. As such, faecal drop impacts are best managed at an individual property level.

Faecal droppings can cause health concerns, reduced amenity, create a slip hazard, require time and resources to clean, and can damage paint if not promptly removed. Appropriate personal protective equipment (PPE) and hygiene measures are required when cleaning any animal excrement. High-pressure hoses and specific cleaning products are available to assist cleaning. Flying-foxes can be deterred from roosting and foraging around areas of concern. Areas of concern, such as picnic tables and play equipment, could also be covered (e.g. with shade cloth).

2.2.4 Human and animal health

All animals carry bacteria and other microorganisms in their guts, some of which are potentially pathogenic to other species. Flying-foxes may carry pathogens which can be harmful to humans, though there is no known risk of contracting bat-related viruses from contact with faecal drop or urine. As such, flying-fox urine and faeces should be treated like any other animal excrement. Key human and animal health risks associated with flying-foxes are

Australian bat lyssavirus (ABLV) and Hendra virus (HeV); the latter being particularly important for flying-fox camps located in close proximity to horse paddocks. Excluding those people whose occupations require contact with bats, such as wildlife carers and vets, human exposure to ABLV and HeV and frequency of infection is extremely rare. Health risks can be effectively mitigated through education, protocols, PPE, and basic hygiene measures. Further information on flying-foxes and human/animal health is provided in Appendix 3.

Water quality concerns

Contamination of water supplies by any animal excreta (birds, amphibians and mammals such as flying-foxes) poses health risks to humans. Household water tanks can be designed to minimise potential contamination, such as using first flush diverters to divert contaminants before they enter water tanks.

Tanks should be appropriately maintained and flushed, and catchment areas regularly cleaned of potential contaminants. Trimming vegetation overhanging the catchment area for the tank (e.g. flying-fox foraging vegetation overhanging the roof of a house) will also reduce wildlife activity and associated potential contamination. Tanks should also be appropriately maintained and flushed, and catchment areas regularly cleaned to remove potential contaminants. Tanks in urban areas are not for domestic drinking water supply and these areas are supplied with reticulated town water.

Pool maintenance practices (e.g. filtration, chlorination, skimming, vacuuming) should remove general contamination associated with wildlife droppings. Public water supplies are regularly monitored for harmful bacteria and are filtered and disinfected before being distributed. Management plans for community supplies should consider whether any large congregation of animals, including flying-foxes, occurs near the supply or catchment area. Should this occur, increased frequency of monitoring should be considered to facilitate early detection and management of contaminants if required.

There have also been concerns about water quality in artificial or natural waterbodies near a flying-fox camp. In stagnant waterbodies there may be an increase in bacteria and nutrients associated with many animals, including flying-foxes and/or native birds. Water quality monitoring should be considered if this is of concern.

2.2.5 Damage to vegetation

Large numbers of roosting flying-foxes can damage vegetation. While damage can be problematic, most native vegetation is resilient and generally recovers well (e.g. casuarina and eucalypts), and flying-foxes naturally move within a roosting site allowing vegetation to recover. The impact of vegetation damage should be assessed against the potential impact if flying-foxes were not present; specifically, the loss of critical ecological services flying-foxes provide and the associated benefits to other species. If vegetation damage is deemed severe and likely to be permanent, intervention may be required (as a last resort) to protect tree health.

2.2.6 Flying-foxes and aircraft

Flying-foxes are large (~1 kg) animals that transit in large numbers at relatively low altitudes. Consequently, in terminal airspace, where aircraft are also operating at low altitudes, they may present a significant risk to air safety particularly prior to first light and post last light, daily. Between 2008 and 2017, flying-foxes and bats[2] were involved in 1,303 strikes in Australia and accounted for 10% of damaging strikes (ATSB 2019).

The consequence of wildlife strikes with aircraft can be very serious. Worldwide, in civil and military aviation, fatal bird strike incidents have resulted in more than 532 human fatalities and 614 aircraft losses since the beginning of aviation (Shaw et al. 2019). Wildlife strikes cost the commercial civil aviation industry an estimated US$1.2 billion per annum (Allan 2002) and involve more than just the repair of damaged engines and airframes. Even apparently minor strikes which result in no damage can reduce engine performance, cause concern among aircrew and add to airline operating costs.

[2] Due to inconsistent species reporting, species reported to the Australian Transport Safety Bureau (ATSB) include: flying fox, bat, fruit bat, micro bat, freetail bat, eastern freetail bat, mouse-eared bat, and spectacled flying-fox. ATSB reported that it is likely that many of the strikes involving animals reported as 'bats' actually involved flying-foxes.