

# 1 Introduction

This Camp Management Plan (CMP) provides Northern Beaches Council (Council<sup>1</sup>) with a five-year plan to manage issues associated with flying-fox camps within the Local Government Area (LGA), whilst ensuring flying-foxes and their ecological services are conserved. The CMP focuses on three camps located on Council-managed land; Balgowlah – Burnt Bridge Creek Reserve (Balgowlah camp), Avalon – Cannes Reserve (Avalon camp), and Warriewood Wetlands (Warriewood camp).

Three species of flying-foxes occur in New South Wales (NSW):

- grey-headed flying-fox (*Pteropus poliocephalus*) (GHFF)
- black flying-fox (*P. alecto*) (BFF)
- little red flying-fox (*P. scapulatus*) (LRFF).

Information regarding flying-fox ecology, species profiles and camp characteristics are provided in Appendix 1. All three species and their habitats are protected under NSW legislation (see Appendix 2). In addition, the GHFF is afforded protection under Commonwealth legislation as a Vulnerable species due to significant population declines in recent decades.

## 1.1 Flying-foxes in urban areas

Flying-foxes are highly nomadic, moving across their range between a network of camps. Camps may be permanently occupied, seasonal, temporary or sporadic, and numbers can fluctuate significantly on a daily/seasonal basis (Welbergen et al. 2020). Flying-foxes may travel up to 100 km a night in search of food resources (nectar, pollen and fruit), and their occurrence within the LGA is tightly linked to flowering and fruiting of foraging trees. Typically, the abundance of resources within a 20–50 km radius of a camp site will be a key determinant of the size of a camp (SEQ Catchments 2012). However, understanding the availability of foraging resources is difficult because flowering and fruiting are not reliable every year and vary between locations (SEQ Catchments 2012). This highlights the need for a multi-faceted approach to management that is continually adapted as situations change or further research improves our understanding of flying-foxes.

Living near a flying-fox camp can be challenging, with impacts associated with noise, odour, faecal drop, damage to vegetation and concern about potential health risks. There are also challenges associated with management. State approval is required under legislation to manage a camp, and actions which may affect the GHFF must also adhere to Commonwealth policy. Attempts to relocate flying-foxes are extremely costly, and often splinter a camp to multiple undesirable locations that are difficult to predict (Roberts et al. 2021). Flying-foxes will also regularly attempt to recolonise their preferred camp site when resources are available, and it is not appropriate or possible to remove all of the flowering and fruiting trees that attract them to the LGA.

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<sup>1</sup> Also used to reference previous Councils Manly, Pittwater and Warringah which were amalgamated in 2016

Flying-foxes appear to be roosting and foraging in urban areas more frequently. During a study of national flying-fox camp occupation, almost three quarters of the 310 active GHFF camps (72%) were located in urban areas, 22% on agricultural land and only 4% in protected areas (Timmiss 2017). Furthermore, the number of camps increased with increasing human population densities (up to ~4000 people per km<sup>2</sup>) (Timmiss 2017).

There are many possible drivers for this urbanising trend, as summarised by Tait et al. (2014):

- loss of native habitat and urban expansion
- opportunities presented by year-round food availability from native and exotic species found in expanding urban areas
- disturbance events such as drought, fires, cyclones
- human disturbance or culling at non-urban camps or orchards
- urban effects on local climate
- refuge from predation
- movement advantages, e.g. ease of manoeuvring in flight due to the open nature of the habitat or ease of navigation due to landmarks and lighting.

These drivers mean that flying-foxes are likely to continue occupying the camp into the future. Favourable habitat and food resources within the LGA mean that camps may also establish in new locations.

## 1.2 Plan objectives

This CMP has been prepared in accordance with the NSW Flying-fox Camp Management Policy (2015), administered by the Department of Planning and Environment (DPE). The CMP also reflects the 2019 updates in the camp management plan template and changes to state legislation around threatened species.

The overall objective of this CMP is to guide management, outline potential actions, increase awareness about flying-foxes, promote conservation and reduce negative impacts for communities near camps. Where flying-fox camps occur on or impact private land, private landowners are advised to contact Council to explore management options and the appropriate approval processes for addressing arising issues. Council is limited in how it can assist with the impacts of foraging flying-foxes however will provide support and advice about how landholders can reduce these impacts.

More specifically, the objectives of the CMP are to:

- guide management of the Balgowlah, Avalon and Warriewood flying-fox camps in accordance with the NSW Flying-fox Camp Management Policy
- minimise community impacts and avoid future conflict
- improve community understanding and appreciation of flying-foxes including their ecological role

- conserve flying-foxes and their habitat
- support community resilience to flying-fox impacts
- clearly define roles and responsibilities for management actions
- ensure actions are in accordance with relevant legislation.

## 1.3 Legislation

Flying-foxes are protected native wildlife that provide a critical ecological role in long-distance seed dispersal and pollination (see Appendix 1). As such, there is a range of legislation and policy that governs how flying-foxes and their habitat can be managed. Key legislation specific to flying-fox camp management is summarised in Table 1, with further detail in Appendix 2.

Table 1 Summary of key legislation

Level	Instrument	Relevance to CMP
Common-wealth	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Approval under the Act may be required for any action likely to impact a Matter of National Environmental Significance (MNES) e.g. nationally threatened species (such as the GHFF) or ecological communities, world heritage sites, wetlands of international importance. The Referral guideline for management actions in GHFF and spectacled flying-fox (SFF) camps (DoE 2015) specifies requirements for camp management, and when referral is required.
State	Flying-fox Camp Management Policy 2015	The Policy specifies which actions are permissible without DPE approval, with actions categorised as Level 1, Level 2 or Level 3. The Policy specifies a hierarchical approach to management based on the principle of using the lowest form of intervention. The CMP is aligned with the Policy.
	<i>Biodiversity Conservation Act 2016</i> and Flying-fox Camp Management Code of Practice 2018 (COP)	Camp management activities not specified as 'routine camp management' in the Policy require the landholder (Council or private) to obtain a licence under the Act. Managers of public land (e.g. Council) are able to undertake some actions on that land without the need for a licence, provided they are done in accordance with the COP. Private landholders will still require a licence.
	<i>Local Government Act 1993</i>	Provides a framework for local government to act in an effective, efficient, environmentally responsible and open manner, and encourages community participation in Council affairs.
	<i>National Parks and Wildlife Act 1974</i>	Provides for the conservation of nature, objects, places or features of cultural value. Approval may be required if impacts are likely to impact any of these values.
	<i>Prevention of Cruelty to Animals Act 1979</i>	It may be an offence under the Act if there is evidence of animal torment or suffering as a result of management.
	<i>Environmental Planning and Assessment Act 1979</i>	Sets the framework for appropriate management and conservation of resources for the community and environment. Development control plans under the Act should consider appropriate provisions for development near a flying-fox camp, and to protect flying-fox habitat.
	State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017	Landholders require approval under the Act to cut down, fell, root, kill, poison, ringbark, burn or otherwise destroy vegetation, or lop or otherwise remove a substantial part of the vegetation to which the Policy applies.
Local	Northern Beaches Local Environmental Plans (LEPs) and the Development Control Plans (DCPs)	Council is currently developing a single planning framework to replace the current four LEPs and four DEPs. The planning framework will guide planning decisions and manage the way land is used, as well as providing more detailed guidance for local development.