

STAKEHOLDER PERSPECTIVES ON A CODE OF PRACTICE WITH LEGISLATIVE STATUS RELATING TO FLYING-FOX CAMP MANAGEMENT

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Flying-fox camps near human settlements represent a contentious issue that requires management to alleviate the impacts on communities. In New South Wales, land managers undertaking flying-fox camp management actions require a defence to a prosecution for an offence under the *Biodiversity Conservation Act 2016* for those activities. During 2018, the New South Wales Government released a draft code of practice for public exhibition, which was proposed to be made under the Biodiversity Conservation Regulation 2017 and thus have legislative status to provide public land managers with an alternative to licensing for undertaking flying-fox camp management actions. During public exhibition, there were 99 public submissions received. The purpose of this paper was to examine stakeholder views on the proposed document and, more broadly, perspectives on flying-fox camp management expressed in public submissions. There were highly polarised views on both flying-foxes and their management and whether a code of practice with legislative status was appropriate for authorising flying-fox camp management actions. The majority of public submissions were not supportive of the draft code of practice, with many referring to the existing licensing framework as a more appropriate regulatory option. There were also concerns that the draft code of practice could potentially result in a marked increase in camp dispersals; however, this did not happen, most likely due to safeguards built into the resulting code of practice. This outcome demonstrates the importance of the public consultation process undertaken.

1 INTRODUCTION

Flying-foxes (*Pteropus* spp.) roost during the day in communal roosts, herein referred to as camps. Human-wildlife conflicts arising from flying-fox camps situated close to residential homes, community recreation areas and business premises have been well documented, particularly in Australia.¹ These issues arise from members of the public experiencing negative impacts on their amenity from flying-fox noise, odor and faeces², as well as fears of zoonotic disease transmissions³, general prejudices towards bats⁴ and disputes with other stakeholders over how issues should be

¹ Kaye Currey, Dave Kendal, Rodney Van der Ree and Pia E. Lentini, 'Land Manager Perspectives on Conflict Mitigation Strategies for Urban Flying-fox Camps' (2018) 10(2) *Diversity* 39.

² Matthew Mo, Mike Roache, Rebecca Williams, Ian N. Drinnan and Beth Noël, 'From Cleared Buffers to Camp Dispersal: Mitigating Impacts of the Kareela Flying-fox Camp on Adjacent Residents and Schools' (2020) 41(1) *Australian Zoologist* 19, 23-24; Matthew Mo, Mike Roache, Deb Lenson, Heidi Thomson, Mitchell Jarvis, Natalie Foster, Angie Radford, Lorraine Oliver, Damon L. Oliver and Joss Bentley, 'Congregations of a Threatened Species: Mitigating Impacts from Grey-headed Flying-fox *Pteropus poliocephalus* Camps on the Batemans Bay Community' (2020) 41(1) *Australian Zoologist* 124, 126.

³ Nina Y. Kung, Hume E. Field, Amanda McLaughlin, Daniel Edson and Melanie Taylor, 'Flying-foxes in the Australian Urban Environment – Community Attitudes and Opinions' (2015) 1 *One Health* 24, 26.

⁴ Daniel Lunney and Chris Moon, 'Blind to Bats: Traditional Prejudices and Today's Bad Press Render Bats Invisible to Public Consciousness' in Bradley Law, Peggy Eby, Daniel Lunney and Lindy Lumsden (eds), *The Biology and Conservation of Australasian Bats* (Royal Zoological Society of New South Wales 2011).

managed.⁵ As a result of an increasing number of flying-fox camps forming near residential areas, these situations have become numerous across much of eastern Australia.⁶ Strategies for managing these issues, herein referred to as camp management actions, have received substantial attention in peer-reviewed literature, highlighting nuances involved in addressing contentious flying-fox camps whilst considering animal welfare and conservation in the midst of polarised views between stakeholders.⁷

Historically, managers and communities in Australia have tried to address flying-fox issues by destroying animals and their camps.⁸ In the past, these practices were legal across jurisdictions since flying-fox species were not protected under state or federal legislation. In New South Wales (NSW), flying-foxes were listed under the *National Parks and Wildlife Act 1974* as unprotected species prior to 1986. Since the late 1980s, management of flying-fox camps throughout Australia has progressively transitioned toward non-lethal means. This has been of particular importance for flying-foxes listed as threatened species under various state and federal legislation, such as the grey-headed flying-fox (*Pteropus poliocephalus*).⁹

In NSW, the Flying-fox Camp Management Policy 2015¹⁰ sets out a hierarchy of management options based on a principle of using the lowest form of intervention required. Level 1 actions are routine activities that improve the resilience or condition of a flying-fox camp, such as removing hazardous tree limbs or trees, weeding, shrub trimming, plantings, mowing and grounds-keeping, applying

⁵ Kaye Currey, Dave Kendal, Rodney Van der Ree and Pia E. Lentini, 'Land Manager Perspectives on Conflict Mitigation Strategies for Urban Flying-fox Camps' (2018) 10(2) *Diversity* 39.

⁶ Libby A. Timmiss, John M. Martin, Nicholas J. Murray, Justin A. Welbergen, David Westcott, Adam McKeown and Richard T. Kingsford, 'Threatened But Not Conserved: Flying-fox Roosting and Foraging Habitat in Australia' (2021) 68(6) *Australian Journal of Zoology* 226, 229.

⁷ Leslie S. Hall, 'Management of Flying-fox Camps: What Have We Learnt in the Last Twenty-five Years?' in Peggy Eby and Daniel Lunney (eds), *Managing the Grey-headed Flying-fox as a Threatened Species in NSW* (Royal Zoological Society of New South Wales 2002); Billie J. Roberts, Matthew Mo, Mike Roache and Peggy Eby, 'Review of Flying-fox Camp Dispersal Attempts in Australia' (2021) 68(6) *Australian Journal of Zoology* 254, 254.

⁸ Daniel Lunney and Chris Moon, 'A History of Flying-foxes, Their Habitat and Their Camps on the North Coast of New South Wales With a View to Planning Their Management' Report to the New South Wales Department of Planning, Sydney.

⁹ Chris Dickman and Mike Fleming, 'Pest, or Passenger Pigeon? The New South Wales Scientific Committee's Assessment of the Status of the Grey-headed Flying-fox' in Peggy Eby and Daniel Lunney (eds), *Managing the Grey-headed Flying-fox as a Threatened Species in NSW* (Royal Zoological Society of New South Wales 2002); Julie Hughes, 'Survival, Inquiry and Sophistication in Managing Grey-headed Flying-foxes' in Peggy Eby and Daniel Lunney (eds), *Managing the Grey-headed Flying-fox as a Threatened Species in NSW* (Royal Zoological Society of New South Wales 2002).

¹⁰ New South Wales Department of Planning, Industry and Environment, Flying-fox Camp Management Policy 2015 (December 2018) <<https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Wildlife-management/Flying-foxes/flying-fox-camp-management-policy-2015-150070.pdf>> accessed 30 August 2021.

mulch or removing leaf litter. Level 2 actions involve creating buffers to separate flying-foxes from human settlements through selective removal of roost vegetation or using deterrents at the camp boundary. As a last resort, level 3 actions involve the dispersal of flying-foxes from camps through disturbance activities or staged removal of roost vegetation. There is a growing body of literature showing that dispersal attempts are largely ineffective in the long term unless all roost vegetation is removed or ongoing actions and costs are maintained¹¹, which forms the basis for *in-situ* management of flying-fox camps being preferred by the NSW Government. Under the Flying-fox Camp Management Policy 2015, land managers are encouraged to prepare flying-fox management plans to record how a flying-fox camp will be managed and align decision-making with this hierarchy of options.

Offences under the *Biodiversity Conservation Act 2016* include harming protected animals¹², picking protected plants¹³ and damaging habitat of a threatened species or threatened ecological community.¹⁴ Consequently, since flying-foxes became protected species, land managers intending to undertake flying-fox camp management actions have been required to seek a defence to a prosecution for an offence under this Act and formerly the *Threatened Species Conservation Act 1995* and *National Parks and Wildlife Act 1974*. For much of that time, the NSW Government has provided these defences through licensing camp management actions under the *Biodiversity Conservation Act 2016*¹⁵ and its predecessors. A Review of Environmental Factors or a development consent also provide a defence.¹⁶ Under the *Biodiversity Conservation Act 2016*, codes of practice approved by the Minister for the Environment and made under the Biodiversity Conservation Regulation 2017 have specific legal status, providing a defence to a prosecution for an offence under Division 1 of the Act for activities that they cover.¹⁷

¹¹ Billie J. Roberts, Peggy Eby, Carla P. Catterall, John Kanowski and Gillian Bennett, 'The Outcomes and Costs of Relocating Flying-fox Camps: Insights From the Case of Maclean, Australia' in Bradley Law, Peggy Eby, Daniel Lunney and Lindy Lumsden (eds), *The Biology and Conservation of Australasian Bats* (Royal Zoological Society of New South Wales 2011); Matthew Mo, Mike Roache, Rebecca Williams, Ian N. Drinnan and Beth Noël, 'From Cleared Buffers to Camp Dispersal: Mitigating Impacts of the Kareela Flying-fox Camp on Adjacent Residents and Schools' (2020) 41(1) *Australian Zoologist* 19, 23-24; Billie J. Roberts, Matthew Mo, Mike Roache and Peggy Eby, 'Review of Flying-fox Camp Dispersal Attempts in Australia' (2021) 68(6) *Australian Journal of Zoology* 254, 257.

¹² *Biodiversity Conservation Act 2016* (NSW) s2.1.

¹³ *Biodiversity Conservation Act 2016* (NSW) s2.2.

¹⁴ *Biodiversity Conservation Act 2016* (NSW) s2.4.

¹⁵ *Biodiversity Conservation Act 2016* (NSW) s2.10.

¹⁶ *Environmental Planning and Assessment Act 1979* (NSW) s4.2.

¹⁷ *Biodiversity Conservation Act 2016* (NSW) s2.9.

During 2018, community conflicts relating to urban flying-fox camps were regularly appearing in Australian news media, invigorated from instances within the previous two years of large influxes of flying-foxes in some camps, further camps forming in contentious locations and flying-foxes returning to sites where highly publicised camp dispersals had taken place¹⁸. The then NSW Minister for the Environment sought to expedite the authorisation of flying-fox camp management actions for public land managers¹⁹ through a code of practice under the Biodiversity Conservation Regulation 2017. This resulted in the introduction of the Flying-fox Camp Management Code of Practice 2018 (Code of Practice hereafter) on 4 December 2018, which covers the three levels of camp management actions in the Flying-fox Camp Management Policy 2015 and authorises public land managers to undertake these activities on public land provided camp management actions are undertaken in accordance with the terms of the Code of Practice.

Prior to the introduction of the Code of Practice, the NSW Government undertook a six-week period of public consultation of a draft document entitled the Code of Practice Authorising Flying-fox Camp Management Actions from 24 April to 7 June 2018.²¹ During the public consultation period, the NSW Government received public submissions containing a range of stakeholder perspectives on the notion of a code of practice with legislative status being introduced as a means of authorising flying-fox camp management actions. The submissions also contained views on flying-foxes and flying-fox camp management more broadly. The purpose of this paper was to examine these stakeholder perspectives.

¹⁸ Eco Logical Australia, 'Machattie Park and Kings Parade, Bathurst – Flying-fox Camp Management Plan' Prepared for Bathurst Regional Council. Eco Logical Australia, Mudgee, NSW (2018); Ecosure, 'Black Gully Flying-fox Camp Management Plan' Prepared for Armidale Regional Council. Ecosure, Fortitude Valley, Queensland (2018); Matthew Mo, Mike Roache, Rebecca Williams, Ian N. Drinnan and Beth Noël, 'From Cleared Buffers to Camp Dispersal: Mitigating Impacts of the Kareela Flying-fox Camp on Adjacent Residents and Schools' (2020) 41(1) *Australian Zoologist* 19, 33; Matthew Mo, Mike Roache, Deb Lenson, Heidi Thomson, Mitchell Jarvis, Natalie Foster, Angie Radford, Lorraine Oliver, Damon L. Oliver and Joss Bentley, 'Congregations of a Threatened Species: Mitigating Impacts from Grey-headed Flying-fox *Pteropus poliocephalus* Camps on the Batemans Bay Community' (2020) 41(1) *Australian Zoologist* 124, 129.

¹⁹ Public land managers refer to local councils and other managers of public reserves. This excludes private land holders, including corporations and non-government organisations.

²¹ Under s9.1(1)b of the NSW *Biodiversity Conservation Act 2016*, a code of practice requires a minimum of four weeks of public consultation.

2 METHODS

The then NSW Office of Environment and Heritage (now the Environment, Energy and Science Group within the Department of Planning, Industry and Environment) published the draft Code of Practice on the NSW Government consultations website²² on 24 April 2018. Members of the public were invited to make public submissions through the website, or alternatively via email or post. Public submissions were collated on a central repository.

We systematically recorded information about each public submission in a Microsoft Excel spreadsheet. Details about stakeholders making submissions, whether they made the submission as an individual or on behalf of an organisation, their location, contact details and affiliations were recorded. We also categorised submissions into the following stakeholder types based on information provided in submissions and, in some cases, our own knowledge of specific stakeholders: local government, environmental or community group, business or industry group, scientific researcher or a scientific organisation, wildlife carer or a wildlife rehabilitation organisation; the remainder were treated as members of the public and/or residents affected by a flying-fox camp if they indicated so. Submissions that were identical or near identical to other submissions were grouped as campaign submissions and not treated as unique submissions.

By reviewing the contents of each submission, we recorded each stakeholders' overall perception of flying-foxes (i.e. like or dislike flying-foxes or neither) and whether stakeholders were supportive, neutral or opposed to the NSW Government making the Code of Practice. We recorded the sections of the draft Code of Practice referred to within each submission and summarised the feedback in a separate Microsoft Word document.

3 RESULTS AND DISCUSSION

3.1 EXAMINATION OF STAKEHOLDERS THAT MADE PUBLIC SUBMISSIONS

During the six-month consultation period, 99 public submissions were received. Of these, 91 submissions were considered unique submissions. Eight submissions were identical or near identical to other submissions and considered campaign submissions from three groups of individual stakeholders. The majority of submissions were received from individual members of the public, comprising 59 submissions (Fig. 1). Of these, 12 members of the public identified themselves as

²² New South Wales Government, 'Have Your Say' <<https://www.nsw.gov.au/have-your-say>> accessed 24 April 2018.

residents affected by a nearby flying-fox camp. There were also 10 submissions on behalf of local government organisations, nine from environmental and/or community groups, six from wildlife carers or on behalf of wildlife rehabilitation organisations, four on behalf of business and industry groups and three from scientific researchers. The majority of submissions were from stakeholders along the eastern coast of NSW (Fig. 2). The largest proportion of submissions were within the Sydney metropolitan area, followed by the Mid North Coast, Far North Coast and South Coast regions. Inland areas of NSW represented included the Northern Tablelands, Central West, Southern Tablelands and Riverina regions. There were also three submissions from the Australian Capital Territory, Queensland and Victoria.

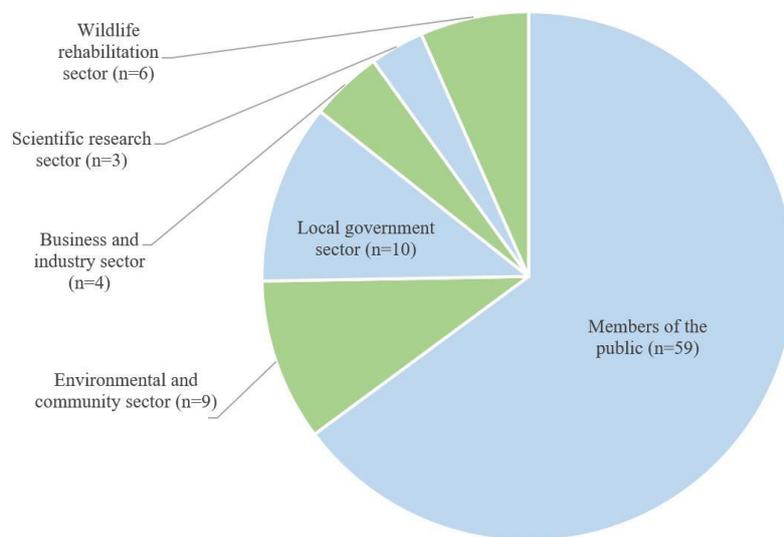


Figure 1. Stakeholders making public submissions to the draft Code of Practice Authorising Flying-fox Camp Management Actions.

Based on the contents of submissions, the majority of submissions were from stakeholders with positive perceptions of flying-foxes; 67 submissions compared to only seven submissions indicating stakeholders with negative perceptions of flying-foxes. The remaining 25 submissions did not indicate whether those stakeholders had positive or negative perceptions of flying-foxes.

3.2 STAKEHOLDER SUPPORT

Of the 91 unique submissions, 57 submissions directly addressed sections of the draft Code of Practice. These submissions collectively contained feedback on every section of the document except for Sections 1 and 4 (Fig. 3), which concerned the proposed name of the document and timing in relation to the document taking effect respectively. The remaining 34 submissions provided only general comments on flying-foxes and/or flying-fox camp management.

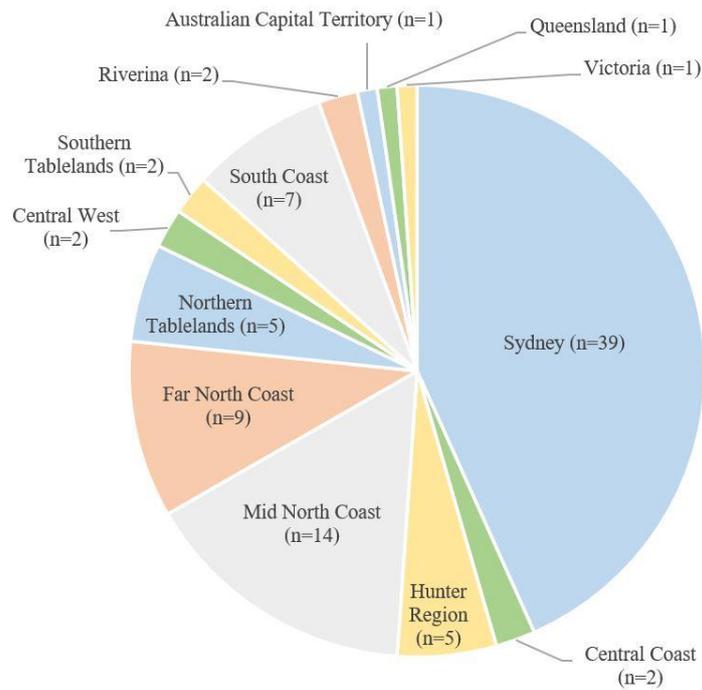


Figure 2. Geographical regions of New South Wales and other states and territories from which public submissions were received.

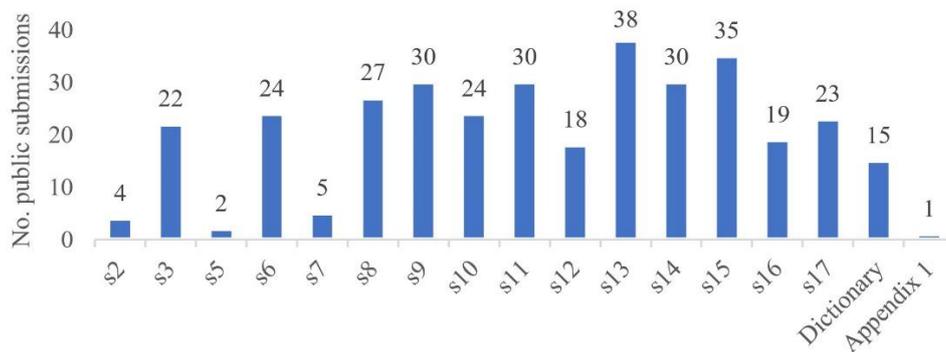


Figure 3. Number of submissions directly addressing sections of the draft Code of Practice Authorising Flying-fox Camp Management Actions.

Based on the contents of submissions, stakeholder support for the draft Code of Practice differed substantially, with 22 submissions showing clear support vs. 44 submissions showing clear opposition. The latter were mostly due to stakeholders opposing the making of a code of practice with legislative status to provide land managers with an alternative defence against the *Biodiversity Conservation Act 2016* or a perceived replacement of the existing licensing framework, rather than opposition solely based on the contents of the draft document. There were also four submissions that were neutral towards the draft Code of Practice and 21 submissions that did not state whether those stakeholders were supportive, neutral or opposed.

3.3 STAKEHOLDER PERSPECTIVES ON SECTIONS OF THE DRAFT CODE OF PRACTICE

3.3.1 SECTION 2 NATURE AND STATUS OF CODE

This section concerned the proposed legislative status of the Code of Practice:

- (1) This Code is made under clause 2.9 of the Biodiversity Conservation Regulation 2017.
- (2) This Code is a code of practice relating to the management of animals and plants and generally authorises the carrying out of flying-fox camp management actions on public land in accordance with the terms of this Code, for the purpose of providing a defence to the offences under Division 1 of Part 2 of the Act.

Stakeholders referring to this section were mostly concerned with interactions between the draft Code of Practice with other legislation, including the NSW *Prevention of Cruelty to Animals Act 1979*, NSW *Environmental Planning and Assessment Act 1979*, other provisions within the *Biodiversity Conservation Act 2016* such as biodiversity conservation licences²³ and the five-part ‘test of significance’²⁴ and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. In particular, these stakeholders observed that promotion of appropriate planning and stakeholder consultation within the existing licensing framework under the *Biodiversity Conservation Act 2016* and were concerned that the NSW Government using a code of practice with legislative status to authorise camp management actions for public land managers may compromise these processes and result in unintended consequences for affected communities.

3.3.2 SECTION 3 OBJECTIVES

This section concerned four proposed objectives of the Code of Practice:

- (1) To enable camp managers to reduce the impacts of flying-fox camps on public land on nearby human settlements in a way that has minimal impact on biodiversity values.
- (2) To minimise adverse human health outcomes from camp management actions.
- (3) To avoid or mitigate harm to flying-foxes and damage to their habitat arising from camp management actions.
- (4) To ensure that communities impacted by flying-fox camps have access to accurate information, are consulted in the process of planning camp management actions and notified prior to implementation of camp management actions.

This section attracted a substantial amount of feedback in the submissions (Fig. 3), which mostly supported the principles of the objectives but expressed concerns for how these objectives would be

²³ *Biodiversity Conservation Act 2016* (NSW) s2.10.

²⁴ *Biodiversity Conservation Act 2016* (NSW) s7.3.

achieved by the draft Code of Practice. These comments reemphasized the concern that appropriate planning and stakeholder consultation on camp management actions, promoted by the existing licensing framework, would be less likely to take place if land managers resorted to pursuing authorisation through the draft Code of Practice.

3.3.3 SECTION 5 INTERPRETATION

This section concerned how terminology in the draft Code of Practice should be understood and the status of notes and the Appendix:

- (1) Words and expressions that are defined in the Dictionary to this Code have the meaning set out in the Dictionary.
- (2) Unless otherwise defined in this Code, words and expressions that are defined in the Act or in the regulations made under the Act have the same meaning in this Code.
- (3) The Dictionary forms part of this Code.
- (4) Notes in the text of this Code do not form part of this Code.
- (5) An appendix to this Code does not form part of this Code.

This section only attracted feedback from two submissions, in which stakeholders expressed concerns for potential consequences of notes not forming part of the draft Code of Practice.

3.3.4 SECTION 6 AUTHORISATION

This section concerned the proposed terms under which public land managers would be able to use the draft Code of Practice as a defence to a prosecution for an offence under the *Biodiversity Conservation Act 2016*:

- (1) The camp manager of public land is authorised to carry out any of the camp management actions on that land, in accordance with the terms of this Code.
- (2) This Code does not authorise the intentional or negligent killing of flying-foxes in the course of carrying out camp management actions.
- (3) This Code does not authorise any damage to a declared area of outstanding biodiversity value.
- (4) This Code only authorises the carrying out of such camp management actions as are reasonably necessary to manage, mitigate or reduce the impacts of flying-foxes on nearby human settlements.
- (5) The camp manager must carry out camp management actions generally in a manner that avoids or minimises any impact on animals, plants and ecological communities.
- (6) To avoid doubt, the camp manager and any person acting on behalf of the camp manager has a defence to any offence under Division 1 of Part 2 of the Act (other than section 2.3) if the act that constitutes the offence was the carrying out of a camp management action authorised by and carried out in accordance with the terms of this Code (including any directions given by the Environment Agency Head under clause 11).

This section attracted a substantial amount of feedback in the submissions (Fig. 3), which were mostly further concerns for appropriate planning and stakeholder consultation for camp management actions authorised under the draft Code of Practice. In addition, some stakeholders sought for the exemption in clause 6(3) to be extended to habitats of threatened species (other than the grey-headed flying-fox), threatened ecological communities and lands subject to Biodiversity Stewardship Agreements²⁵ and Conservation Agreements²⁶ established under the *Biodiversity Conservation Act 2016*.

3.3.5 SECTION 7 CAMP MANAGEMENT ACTIONS

This section concerned the proposed scope of camp management actions under the draft Code of Practice:

The camp management actions authorised by this Code are the routine camp management actions in clause 8 and the high impact camp management actions in clause 9.

This section attracted feedback from five submissions, in which stakeholders advocated for controls against camp management actions being undertaken during extreme heat events, cold snaps or storm events, and sought clarification whether pre-emptive camp management actions outlined in section 10 would be authorised under the draft Code of Practice.

3.3.6 SECTION 8 ROUTINE CAMP MANAGEMENT ACTIONS

This section concerned proposed actions under the draft Code of Practice that would constitute routine camp management actions, equivalent to level 1 actions in the Flying-fox Camp Management Policy 2015:

Routine camp management actions are any one or more of the following carried out on public land:

- a) Trimming of understorey vegetation;
- b) Planting of vegetation, including revegetating areas between the flying-fox camp and areas of human settlement with plants that are unsuitable as flying-fox habitat;
- c) Minor habitat restoration for the benefit of roosting flying-foxes;
- d) Extending camp habitat through revegetation away from areas of human settlement;
- e) Mowing of grass and similar grounds-keeping actions that will not create a major disturbance to roosting flying-foxes;
- f) Installation of signage or similar-scale infrastructure; or
- g) Construction of artificial structures to augment camp habitat in current camps or to provide new camp habitat.

²⁵ *Biodiversity Conservation Act 2016* (NSW) s5.5.

²⁶ *Biodiversity Conservation Act 2016* (NSW) s5.20.

This section attracted a substantial amount of feedback in the submissions (Fig. 3). A number of stakeholders commended the inclusion of planting of vegetation with plants that are unsuitable as flying-fox roost habitat, but some highlighted a need for controls against planting exotic or non-endemic species. Similarly, stakeholders commended the inclusion of minor habitat restoration and revegetation to extend roost habitat away from areas of human settlement, however some stakeholders sought clarification on the extent that habitat restoration would be considered “minor”. There were also stakeholder perspectives highlighting the conservation value of understorey vegetation for providing retreat sites for flying-foxes during extreme heat events,²⁷ which could be impacted by clauses in this section.

3.3.7 SECTION 9 HIGH IMPACT CAMP MANAGEMENT ACTIONS

This section concerned proposed actions under the draft Code of Practice that would constitute level 2 and 3 actions in the Flying-fox Camp Management Policy 2015:

High impact camp management actions are any one or more of the following carried out on public land:

- a) Trimming or otherwise clearing vegetation at the camp boundary to create a buffer of cleared space between the flying-fox camp and areas of human settlement;
- b) Installation of noise attenuation fencing between the flying-fox camp and nearby residents;
- c) Disturbance actions, being non-lethal actions aimed at moving flying-foxes away from or preventing flying-foxes from occupying a specific location in a manner that will not cause harm or injury to flying-foxes. Disturbance actions may include (without limitation):
 - i. Habitat modification;
 - ii. Acoustic disturbance;
 - iii. Visual disturbance;
 - iv. Physical disturbance; or
 - v. Disturbance with smoke.

This section attracted feedback from a substantial number of submissions (Fig. 3), mostly in relation to stakeholder perspectives opposing the use of disturbance actions to disperse flying-foxes, which was consistent with research findings showing that camp dispersals carry high risks, including the formation of new camps in equally contentious or worse locations, and are largely ineffective in the

²⁷ Matthew Mo, Mike Roache, Janine Davies, Judith Hopper, Hugh Pitty, Natalie Foster, Sandra Guy, Kerryn Parry-Jones, Geoff Francis, Audrey Koosmen, Leah Colefax, Chelsea Costello, Josie Stokes, Sarah Curran, Michael Smith, Garry Daly, Carla-Maree Simmons, Rhonda Hansen, Desley Prophet, Sara Judge, Fiona Major, Tamsyn Hogarth, Carole-Ann McGarry, Lawrence Pope, Stephen Brend, Drew Coxon, Kimberly Baker, Kylie Kaye, Linda Collins, Michelle Wallis, Rachel Brown, Lisa Roberts, Susan Taylor, Tim Pearson, Tania Bishop, Pauline Dunne, Kylie Coutts-McClelland, Lorraine Oliver, Chris Dawe and Justin A. Welbergen, ‘Estimating flying-fox mortality associated with abandonments of pups and extreme heat events during the austral summer of 2019–20’ (2022) 28(2) *Pacific Conservation Biology* 124, 136.

long term and generally cost prohibitive for most land managers.²⁸ Submissions also raised animal welfare issues associated with camp dispersals, which has received limited scientific investigation to date.²⁹ There were also perspectives from land managers concerned about community expectations to undertake disturbance actions to disperse flying-foxes as a result of camp dispersals being covered by the draft Code of Practice. Hence, some stakeholders suggested the inclusion of requirements for land managers to have camp management plans in place before undertaking camp dispersals, which could provide a control for ensuring an adequate level of planning and risk assessment in any camp dispersals or a recourse for land managers placed under pressure from the community to undertake camp dispersals.

Similarly, submissions also contained suggestions of controls for buffer creation such as requirements for land managers to undertake work at night if flying-foxes are occupying the camp (so that work takes place after flying-foxes have departed the site to forage) or during periods when the camp is vacant. There was also advocacy for land managers to consider the amount of vegetation planned for removal in context with the total roost habitat at the site, which was addressed in another section of the document in clause 15(7); however, some stakeholders suggested that the draft Code of Practice prescribe a maximum width for buffers. The inclusion of noise attenuation fencing in clause 9(b) was commended as an alternative to vegetation removal; however, some stakeholders expressed concerns for these structures potentially disrupting local ecology by blocking wildlife flight paths and access to water, as well as possible amenity impacts for adjacent residents. As such, some stakeholders considered that such structures should be assessed through existing planning and environmental legislation³⁰ rather than being authorised under the draft Code of Practice.

3.3.8 SECTION 10 PRE-EMPTIVE CAMP MANAGEMENT ACTIONS

This section concerned pre-emptive camp management actions and associated protections proposed for species and ecological communities that are critically endangered:

²⁸ Billie J. Roberts, Peggy Eby, Carla P. Catterall, John Kanowski and Gillian Bennett, 'The outcomes and costs of relocating flying-fox camps: insights from the case of Maclean, Australia' in Bradley Law, Peggy Eby, Daniel Lunney and Lindy Lumsden (eds), *The Biology and Conservation of Australasian Bats* (Royal Zoological Society of New South Wales 2011); Billie J. Roberts, Matthew Mo, Mike Roache and Peggy Eby, 'Review of Flying-fox Camp Dispersal Attempts in Australia' (2021) 68(6) *Australian Journal of Zoology* 254, 257-269.

²⁹ Daniel Edson, Hume Field, Lee McMichael, David Jordan, Nina Kung, David Mayer and Craig Smith, 'Flying-fox Roost Disturbance and Hendra Virus Spillover Risk' (2015) 10(5) *PLoS ONE* e0125881, 10.

³⁰ *Environmental Planning and Assessment Act 1979* (NSW) Division 4.3.

(1) Camp management actions may be carried out pre-emptively in an area in order to deter flying-foxes from establishing a camp in that area.

(2) Despite (1), the camp manager may not carry out pre-emptive camp management actions involving clearing or other impacts on critically endangered species or critically endangered ecological communities.

This section attracted feedback from a substantial number of submissions (Fig. 3), mostly in relation to the lack of scientific means for predicting where future flying-fox camps will establish, which creates difficulties for identifying reasonable pre-emptive camp management actions. Stakeholders also sought clarity on what pre-emptive camp management actions are and when they are allowed to be carried out. Nevertheless, there was widespread support from several stakeholders for the principle of land managers taking any possible action to avoid conflicts between communities and flying-foxes prior to new camps establishing.

3.3.9 SECTION 11 NOTIFICATION OF ENVIRONMENTAL AGENCY HEAD

This section concerned proposed terms relating to land managers notifying the Environment Agency Head and requirements for land managers to notify surrounding local councils of imminent level 2 and 3 actions:

(1) The camp manager must notify the Environment Agency Head in writing at least five business days before carrying out any camp management actions.

Note. The contact details for the Environment Agency Head are at appendix 1.

(2) The Environment Agency Head may, within three business days of receiving a notification under clause 11(1), give directions in writing to the camp manager regarding the manner of carrying out the proposed camp management actions (including a direction not to carry out certain identified actions).

(3) The camp manager must comply with any direction given by the Environment Agency Head under clause 11(2).

(4) The camp manager must notify all local councils within a 20-kilometre radius of a camp at least five business days before carrying out any high impact camp management actions in respect of that camp.

This section attracted feedback from a substantial number of submissions (Fig. 3), mostly in relation to the proposed minimum timeframe of five business days for notifying the Environment Agency Head. Stakeholder perspectives were mixed, concerned that the proposed timeframe was too long for emergency situations, such as dangerous trees or tree limbs requiring removal, whilst limiting for ensuring both adequate stakeholder engagement (required under clause 16(4)) and planning of camp management actions and notification of adjacent land managers (required under clause 11(4)); however, these activities could be carried out prior to the notification of the Environment Agency Head to circumvent these limitations.

There were stakeholder perspectives that a broader range of stakeholders would benefit from notification of camp management actions, including private land holders and aerodromes. There were also notification requirements in other sections of the draft Code of Practice, such as notifications of wildlife rehabilitation organisations in clause 14(3) and adjacent residents in clause 16(2), which some submissions suggested consolidating into a single section to provide clarity on required notifications as a whole.

Notably, a number of stakeholders considered that routine camp management actions are often minimal in impact and thus suggested that these actions are unlikely to necessitate notification of the Environment Agency Head.

3.3.10 SECTION 12 FLYING-FOXES AND HUMAN AND ANIMAL HEALTH

This section concerned proposed terms relating to mitigating risks on human and animal health from camp management actions being undertaken:

- (1) Flying-foxes must not be handled or touched by a person.
- (2) The camp manager must advise all persons engaged by them to carry out camp management actions of the potential health risks associated with working with flying-foxes, including the need to seek medical help if bitten or scratched by a flying-fox.

Notes. For information about flying-foxes and human health, visit the NSW Health website: <http://www.health.nsw.gov.au/environment/factsheets/Pages/flying-foxes.aspx>

For information about flying-foxes and domestic animal health, visit the Department of Primary Industries website: <https://www.dpi.nsw.gov.au/animals-and-livestock/horses/health-and-disease/hendra-virus/domestic-animals-qanda>

For information about flying-foxes and horses, visit the Department of Primary Industries website: <https://www.dpi.nsw.gov.au/animals-and-livestock/horses/health-and-disease/hendra-virus/hendra>

For information on sick and orphaned flying-foxes, visit the OEH website <http://www.environment.nsw.gov.au/research-and-publications/publications-search/code-of-practice-for-injured-sick-and-orphaned-flying-foxes>

Feedback on this section was mostly relating to stakeholder concerns that land managers may potentially lack the appropriate knowledge to ensure workers are aware of health risks associated with flying-foxes. There were also submissions requesting that wildlife carers be exempted from this section provided they are trained in flying-fox handling and rescue, vaccinated against rabies, wearing appropriate personal protective equipment and authorised to rescue flying-foxes under a wildlife rehabilitation licence under the *Biodiversity Conservation Act 2016*.

3.3.11 SECTION 13 REQUIREMENT FOR A FLYING-FOX EXPERT

This section concerned proposed requirements for land managers to engage a flying-fox expert to advise whether proposed camp management actions are coinciding with sensitive breeding stages and landscape-wide food shortages, during which camp management actions are not allowed, and supervise the implementation of level 2 and 3 actions:

- (1) The camp manager must obtain advice from a flying-fox expert before carrying out any camp management actions, including advice as to whether:
 - a) the camp contains female flying-foxes that are in the third trimester of pregnancy or have dependent young that cannot fly on their own; or
 - b) the camp is in a period of significant food stress.
- (2) Camp management actions must not be carried out if, according to the flying-fox expert, the camp contains females that are in the third trimester of pregnancy or have dependent young that cannot fly on their own.
- (3) Camp management actions must not be carried out during a period of significant food stress.
- (4) The camp manager must:
 - a) engage a flying-fox expert to be present at the time that any high impact camp management actions are carried out;
 - b) consider any advice provided by the flying-fox expert on the appropriateness of the proposed actions prior to commencing them; and
 - c) immediately cease carrying out camp management actions if the flying-fox expert determines that flying-foxes have been killed or injured, or are displaying signs of stress or fatigue.

This section attracted feedback from the largest number of submissions (Fig. 3), mostly in relation to the terms under which a person is considered a flying-fox expert. Stakeholder perspectives included flying-fox experts ideally being independent to the land manager proposing camp management actions, holding relevant education and/or technical qualifications (some stakeholders preferred a certified environmental practitioner), and having expertise to identify signs of flying-fox distress, fatigue and injury.

There was widespread support for clauses 13(2) and 13(3) preventing camp management actions during periods that female flying-foxes are in the third trimester of pregnancy or flying-fox pups dependent on their mothers are flightless, and during periods of significant food shortage respectively. However, flying-fox pups are still dependent on their mothers for some months after becoming volant³¹ and there were stakeholder perspectives that no current evidence exists suggesting that these

³¹ Justin A. Welbergen, 'Growth, Bimaturation, and Sexual Size Dimorphism in Wild Gray-headed Flying foxes (*Pteropus poliocephalus*)' (2010) 91(1) *Journal of Mammalogy* 38, 40; Justin A. Welbergen, 'Fit Females and fat polygynous males: seasonal body mass changes in the grey-headed flying-fox' (2011) 165(3) *Oecologia* 629, 633.

animals are able to disperse to alternative camps; thus, by inference, camps being caused to vacate during these periods may result in mortality of these animals.³²

Food shortages are generally assessed by environmental agencies, scientists and wildlife carers at a regional level, rather than a site level.³³ Consequently, there were also stakeholder perspectives that the document should also include a requirement for land managers to seek flying-fox expert advice on the body condition of flying-foxes in surrounding camps.

3.3.12 SECTION 14 BEFORE CARRYING OUT CAMP MANAGEMENT ACTIONS

This section concerned proposed requirements of land managers prior to the implementation of camp management actions:

- (1) Camp management actions must be planned and carried out to avoid killing or injuring flying-foxes, and to minimise adverse impact on the life cycle of flying-foxes, especially the breeding and rearing of young flying-foxes.
- (2) The camp manager must carry out monitoring of the camp for at least 5 business days before any high impact camp management actions are carried out and continue to monitor while any such actions are being carried out.
- (3) Local wildlife rehabilitation groups must be notified before high impact camp management actions are carried out and must be allowed to observe the carrying out of the actions.
- (4) Camp management actions must not be carried out during or immediately after severe weather events including storms, cold snaps and heat stress events.

Note. See the Dictionary for the definition of 'heat stress event'.

This section attracted feedback from a substantial number of submissions (Fig. 3), mostly concerning stakeholder perspectives on monitoring requirements prior to and following the implementation of camp management actions in clause 14(2). These were mostly in relation to some stakeholders preferring a standardised method for monitoring, and recommendations for monitoring over a longer period of time than five business days (to adequately account for factors such as weather patterns and

³² Justin A. Welbergen, Western Sydney University, personal communication.

³³ Matthew Mo, Mike Roache, Rebecca Williams, Ian N. Drinnan and Beth Noël, 'From Cleared Buffers to Camp Dispersal: Mitigating Impacts of the Kareela Flying-fox Camp on Adjacent Residents and Schools' (2020) 41(1) *Australian Zoologist* 19, 30; Matthew Mo, Mike Roache, Janine Davies, Judith Hopper, Hugh Pitty, Natalie Foster, Sandra Guy, Kerry Parry-Jones, Geoff Francis, Audrey Koosmen, Leah Colefax, Chelsea Costello, Josie Stokes, Sarah Curran, Michael Smith, Garry Daly, Carla-Maree Simmons, Rhonda Hansen, Desley Prophet, Sara Judge, Fiona Major, Tamsyn Hogarth, Carole-Ann McGarry, Lawrence Pope, Stephen Brend, Drew Coxon, Kimberly Baker, Kylie Kaye, Linda Collins, Michelle Wallis, Rachel Brown, Lisa Roberts, Susan Taylor, Tim Pearson, Tania Bishop, Pauline Dunne, Kylie Coutts-McClelland, Lorraine Oliver, Chris Dawe and Justin A. Welbergen, 'Estimating flying-fox mortality associated with abandonments of pups and extreme heat events during the austral summer of 2019–20' (2022) 28(2) *Pacific Conservation Biology* 124, 126.

food availability) and extending monitoring to population counts of other flying-fox camps in surrounding areas (to account for landscape factors).

The requirement in clause 14(1) for land managers to plan and carry out camp management actions to avoid killing or injuring flying-foxes and minimise adverse impacts on the reproductive cycle of flying-foxes was commended. The requirement in clause 14(3) for land managers to notify local wildlife rehabilitation organisations of imminent camp management actions was also commended. However, some wildlife carers requested that clause 14(3) explicitly state that their organisations are permitted to assist injured, sick and orphaned flying-foxes.

The prohibiting of camp management actions during or immediately after severe weather events in clause 14(4) was commended. However, some stakeholders sought further development of this clause to specify a period following storms, cold snaps and extreme heat events in which camp management actions are precluded.

3.3.13 SECTION 15 WHILE CARRYING OUT CAMP MANAGEMENT ACTIONS

This section concerned proposed requirements of land managers during the course of implementing camp management actions:

- (1) If any flying-foxes appear to have been killed or injured, or are displaying signs of stress or fatigue, all camp management actions must immediately cease and the camp manager must immediately notify the Environment Agency Head.
- (2) Disturbance actions must be limited to a maximum of 2.5 hours in any 12-hour period, preferably at or before sunrise or at sunset.
- (3) If disturbance actions are to be carried out in an area within a camp, at least one other area within the camp must be designated as a rest area where disturbance actions are not to be carried out.
- (4) Disturbance actions must be limited to a maximum of six consecutive days, followed by at least one day of no disturbance actions before further actions are carried out.
- (5) Disturbance actions must cease if more than 50% of the flying-foxes occupying the camp during the monitoring period are still present after seven days of disturbance actions occurring.
- (6) Trees must not be felled, lopped or have large branches removed when flying-foxes are in or within 20 metres of the tree and likely to be harmed.
- (7) Camp management actions must not result in the removal of more than 50% of the area of vegetation that existed in an area prior to the commencement of camp management actions.
- (8) Splinter camps resulting from camp management actions must be monitored and management should be considered if significant impacts on residents occur.

Notes. Flying-foxes are wild animals and part of a complex and interdependent natural system. Their movements are hard to predict and may be affected by factors unable to be controlled at a particular site, such as regional food abundance or climate. Management actions that may be considered successful on one occasion at one camp may not reliably work at other times or locations.

Disturbance is costly and is not guaranteed to result in permanent relocation of flying-foxes. Disturbance is likely to result in dispersed flying-foxes occupying nearby camps or establishing new splinter camps. This may exacerbate conflict in those areas. A camp management plan can help camp managers set clear objectives, timeframes and methods for camp management. Advice from a flying-fox expert or OEH can assist in the analysis of management options to minimise the impacts to nearby residents and to flying-foxes. A camp management plan template is available on the OEH website: <http://www.environment.nsw.gov.au/publications/nativeanimals/flying-fox-camp-management-plan-template-160240.htm>

The Office of Environment and Heritage can provide expert advice on flying-fox matters.

Nationally important grey-headed flying-fox camps are mapped on the Australian Government website: <http://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf>

This section attracted feedback from a substantial number of submissions (Fig. 3), which were mostly stakeholders seeking further protections for flying-foxes in relation to clauses concerning disturbance actions to disperse flying-fox camps. These perspectives were mainly that the draft Code of Practice could consider a minimum parameter for a designated rest area in clause 15(3), that the effectiveness of disturbance actions should be evaluated before further actions are carried out, and that the length of time for ceasing disturbance could be specified in clause 15(5). There were also stakeholder perspectives seeking protections for flying-foxes to be incorporated into clauses concerning vegetation removal, such as concerns that clause 15(7) may potentially allow an excessive amount of vegetation removal, and suggestions that the document include clauses requiring land managers to only remove vegetation during night hours or when the camp is vacant, which are stated in the Flying-fox Camp Management Policy 2015.³⁴

3.3.14 SECTION 16 COMMUNITY EDUCATION AND ENGAGEMENT

This section concerned proposed requirements of land managers to undertake community education and engagement in relation to the planning or implementation of camp management actions:

- (1) The camp manager must engage with the community in the area around a camp.
- (2) As a minimum, the camp manager must notify residents of properties within 300 metres of a camp at least three days prior to any high impact camp management actions being carried out in relation to that camp.
- (3) The notification by the camp manager under (2) must include provision of current information on the health risks posed by flying-foxes from the NSW Departments of Health and Primary Industries.
- (4) The camp manager must provide an avenue for community members to provide information or comments to the camp manager in relation to flying-fox camps and must take that information or

³⁴ New South Wales Department of Planning, Industry and Environment, Flying-fox Camp Management Policy 2015 (December 2018) <<https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Wildlife-management/Flying-foxes/flying-fox-camp-management-policy-2015-150070.pdf>> accessed 30 August 2021.

comment into account where reasonable when determining how and whether to carry out camp management actions.

Notes. The presence of a flying-fox camp in or near residential and public areas can provoke high levels of concern across the community.

Engaging the community early, before camps become well established and before proposed management actions are carried out, is the best approach.

The OEH website includes a range of materials to support community engagement on flying-fox camp management.

The Australian Centre of Excellence for Local Government has developed an online database of community engagement resources, including techniques, principles and guidelines.

The International Association for Public Participation (IAP2) is also a useful resource: <https://www.iap2.org.au/Resources/Search-Resources>

Feedback on this section was mostly related to stakeholder perspectives on how community engagement can be undertaken in a manner that best alleviates community concerns over negative impacts from flying-foxes and potentially undesirable outcomes arising from camp management actions. These perspectives were mostly focused on the minimum notification timeframe of three days in clause 16(2), which many submissions considered inadequate notice, as well as stakeholder preferences for the dissemination of transparent information on potential benefits and consequences of camp management actions.

3.3.15 SECTION 17 RECORD KEEPING

This section concerned proposed requirements of land managers to maintain records of camp management actions:

(1) The camp manager must keep accurate written records of all camp management actions that they carry out or are carried out on their behalf, including:

- a) the date on which particular actions were implemented;
- b) the nature of the actions,
- c) whether any of the terms of this Code were contravened; and
- d) the results of the camp management actions.

(2) The Camp Manager must provide to the Environment Agency Head with a copy of all records kept under clause 17(1) within six months of the camp management actions being carried out.

Note. Flying-fox camp monitoring templates are available on the OEH website: <http://www.environment.nsw.gov.au/animals/flying-fox-monitor.htm>

This section attracted a substantial amount of feedback in the submissions (Fig. 3), which mostly related to the types of information that stakeholders deemed important for land managers to record and/or report to the NSW Government. Submissions from land managers also sought clarification on the legal implications of clause 17(1)(d), particularly if in the event of an inadvertent contravention whether providing this information to the NSW Government would provide a defence against

prosecution for an offence under the *Biodiversity Conservation Act 2016* or, on the contrary, be used as evidence in a prosecution. There were also stakeholders that considered the six-month timeframe for land managers to provide records to the NSW Government in clause 17(4) to be too long for the NSW Government to take appropriate correction action where necessary. The level of enforcement proposed for this requirement potentially corresponded with the intention of the draft Code of Practice to reduce administrative burdens for land managers.

3.3.16 DICTIONARY

This section concerned proposed definitions for terminology used in the Code of Practice:

Unless otherwise defined in this Code, words and expressions that are defined in the Act or in the regulations have the same meaning in this Code.

Act means the *Biodiversity Conservation Act 2016*.

Camp means a flying-fox camp.

Camp boundary means the extent of the vegetation in a flying-fox camp in which flying-foxes may roost.

Camp management action means a routine camp management action or a high impact camp management action.

Camp manager means the council or other public authority with lawful ownership or control of the public land on which a camp is located or on which camp management actions are carried out.

Code means this code, being the *Code of Practice Authorising Flying-fox Camp Management Actions 2018*.

Disturbance actions (see clause 9(c)).

Flying-fox means any of the following species: grey-headed flying-fox (*Pteropus poliocephalus*), black flying-fox (*Pteropus alecto*), or little red flying-fox (*Pteropus scapulatus*).

Flying-fox camp means any vegetation on public land occupied by flying-foxes during daylight hours. The occupation may be permanent, periodical or occasional.

Flying-fox expert means a person who has experience in:

- (a) classifying flying-fox species and habitat;
- (b) assessing flying-fox population numbers in camps;
- (c) identifying flying-fox breeding cycles including evidence of breeding and rearing activity in camps; and
- (d) recognising signs of distress in, or harm to, flying-foxes.

Heat stress event means a day on which the maximum temperature does (or is predicted to) meet or exceed 38°C. The end of a heat stress event is when temperatures have remained below 38°C for 48 hours.

High impact camp management action means an action listed in clause 9.

OEH means the Office of Environment and Heritage.

Period of significant food stress means a period during which food availability for flying-foxes is low.

Public land means land owned or controlled by a public authority (including a council), but does not include land reserved under the *National Parks and Wildlife Act 1974* or acquired by the Minister administering that Act under Part 11 of that Act.

Roosting flying-fox means a flying-fox occupying a flying-fox camp.

Regulation means the Biodiversity Conservation Regulation 2017.

Routine camp management action means an action listed in clause 8.

Splinter camp means a new flying-fox camp formed in a location near an existing camp in response to disturbance actions.

Stress or fatigue means a state of physiological strain or tension resulting from adverse or demanding circumstances. Indicators of this state in flying-foxes include:

- (a) panting
- (b) spreading saliva
- (c) flying-foxes descending within two metres of the ground
- (d) flight that is laboured or close to the ground
- (e) re-settling despite disturbance actions.

Submissions addressing the Dictionary made comments or suggestions for improving definitions for the terms “camp boundary”, “flying-fox camp”, “flying-fox expert”, “heat stress event”, and “stress or fatigue”. In addition, some stakeholders expressed preferences for the Dictionary to also define “buffers”, which appeared in the draft code of practice in clause 9(a), and “harm”, which appeared in clauses 3(3), 9(c), 15(6), and this section within the definition of a “flying-fox expert”.

3.3.17 APPENDIX 1 ENVIRONMENT AGENCY HEAD CONTACT DETAILS

This section provided contact details for the Environment Agency Head for land managers requiring to make notifications in fulfillment of proposed requirements in sections 11, 15 and 17:

Any notifications that are required to be made to the Environment Agency Head, as specified in this Code, can be made to flying.fox@environment.nsw.gov.au

There was only one submission that addressed the appendix section, which stated a preference for a specific contact person.

4 REFLECTIONS AND CONCLUSION

Our examination of public submissions received for the draft Code of Practice showed a broad representation of stakeholders with varying views on flying-foxes and their management. This was not surprising given the volume of previous literature documenting highly polarised public perceptions towards flying-foxes, which can be generalised to range from concern for flying-fox conservation and welfare to disdain for flying-foxes, either from negative experiences with these

species or traditional prejudice.³⁵ There were also polarised perspectives on whether a code of practice with legislative status was appropriate for authorising flying-fox camp management actions, with the majority of submissions expressing opposition to this notion. Although the draft Code of Practice was intended to expedite the NSW Government authorising public land managers to undertake flying-fox camp management actions, there was a common view across submissions that the existing licensing framework has processes that promote strategic and holistic planning of camp management actions by land managers, which provide an important buffer against reactionary responses to flying-fox issues; hence, these stakeholders had a strong preference for licensing to be maintained instead of a code of practice with legislative status providing an alternative defence to a prosecution for an offence under the *Biodiversity Conservation Act 2016*.

Prior to the release of the Flying-fox Camp Management Code of Practice 2018 in NSW, the Queensland Government had also introduced a Flying-Fox Management Framework that provided a pathway, alternative to licensing, for public land managers to obtain authorisation to undertake camp management actions. This framework provided local governments with ‘as-of-right’ authorities to undertake camp dispersals provided the actions are consistent to terms of a code of practice and within Urban Flying-Fox Management Areas.³⁶ From 2013 and 2014, following the introduction of this framework, there was a marked increase in camp dispersals in Queensland.³⁷ This was evidently one of the factors contributing to stakeholder opposition to the draft Code of Practice; however, there has not been a similar increase in camp dispersals in NSW since the introduction of the Flying-fox Camp Management Code of Practice 2018³⁸. This is likely due to the Flying-fox Camp Management Code of Practice 2018 incorporating safeguards such as land managers requiring a camp management plan developed in consultation with affected communities³⁹ and endorsed by the Environment Agency Head⁴⁰, which were not in the draft Code of Practice. This demonstrates the importance of the

³⁵ Daniel Lunney and Chris Moon, ‘Blind to Bats: Traditional Prejudices and Today’s Bad Press Render Bats Invisible to Public Consciousness’ in Bradley Law, Peggy Eby, Daniel Lunney and Lindy Lumsden (eds), *The Biology and Conservation of Australasian Bats* (Royal Zoological Society of New South Wales 2011); Nina Y. Kung, Hume E. Field, Amanda McLaughlin, Daniel Edson and Melanie Taylor, ‘Flying-foxes in the Australian Urban Environment – Community Attitudes and Opinions’ (2015) 1 *One Health* 24, 26.

³⁶ Queensland Department of Environment and Science, Code of Practice – Ecologically Sustainable Management of Flying-fox Roosts, *Nature Conservation Act 1992* (2020) <https://environment.des.qld.gov.au/__data/assets/pdf_file/0033/89853/cp-wl-ff-roost-management.pdf> accessed 30 August 2021.

³⁷ Billie J. Roberts, Matthew Mo, Mike Roache and Peggy Eby, ‘Review of Flying-fox Camp Dispersal Attempts in Australia’ (2021) 68(6) *Australian Journal of Zoology* 254, 269.

³⁸ Billie J. Roberts, Matthew Mo, Mike Roache and Peggy Eby, ‘Review of Flying-fox Camp Dispersal Attempts in Australia’ (2021) 68(6) *Australian Journal of Zoology* 254, 269.

³⁹ *Flying-fox Camp Management Code of Practice 2018* (NSW) cl6(10)(d).

⁴⁰ *Flying-fox Camp Management Code of Practice 2018* (NSW) cl6(9).

requirement in the *Biodiversity Conservation Act 2016* for codes of practice and other documents under the Act to undergo public consultation⁴¹, which provide opportunity for stakeholder perspectives to be obtained and assessed. Nevertheless, submissions received for the draft Code of Practice highlighted common concerns for the implications authorised camp management actions involving buffer creation and camp dispersals may have on flying-fox conservation and vegetation retention, which should be considered by any future amendments to the Flying-fox Camp Management Code of Practice 2018 or similar documents.

⁴¹ *Biodiversity Conservation Act 2016* (NSW) s9.1.