

Code of Practice

Ecologically sustainable lethal take of flying-foxes for
crop protection

Nature Conservation Act 1992

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Approved in accordance with section 174A of the *Nature Conservation Act 1992*

Human Rights compatibility

The Department of Environment and Science is committed to respecting, protecting and promoting human rights. Under the [Human Rights Act 2019](#), the department has an obligation to act and make decisions in a way that is compatible with human rights and, when making a decision, to give proper consideration to human rights. When acting or making a decision under this code of practice, officers must comply with that obligation (refer to [Comply with Human Rights Act](#)).

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1. Purpose and operation of this Code of Practice

- 1.1 The purpose of this *Code of Practice— Ecologically sustainable lethal take of flying-foxes for crop protection* ('the Code') is to:
- 1.1.1 ensure that the take of flying-foxes is ecologically sustainable; and
 - 1.1.2 minimise pain and suffering of flying-foxes taken and dealt with.
- 1.2 The Code does the following things:
- 1.2.1 states the things the chief executive must be satisfied of to meet the requirements of section 164(2)(b), (c), (f) and (g) and 164(3) of the *Nature Conservation (Animals) Regulation 2020* ('the Animals Regulation').
 - 1.2.2 states the things that a holder of a damage mitigation permit (a *permit*) must do to satisfy sections 167 and 171 of the *Animals Regulation*.
- 1.3 The Code is developed under the *Nature Conservation Act 1992* ('the Act').
- 1.4 The Code does not exempt a person or other entity from compliance with any Act, regulation or other statutory instrument.
- 1.5 Words in italics, apart from species names and legislation, are defined in Schedule 4 – Definitions.
- 1.6 Unless stated otherwise, terms used in the Code have the same meaning as those used in the Act.
- 1.7 Failure to comply with any provision of the Code or condition of a *permit* may result in suspension or cancellation of a current *permit* and may impact upon subsequent *permit* applications. It may also result in enforcement action being taken under the Act.

2. General information

- 2.1 All flying-fox species are protected under the Act. Three of the species of flying-fox found in Queensland fall within the scope of the Code: the black flying-fox *Pteropus alecto*, grey-headed flying-fox *P. poliocephalus* and little red flying-fox *P. scapulatus*. The spectacled flying-fox *P. conspicillatus* is listed as 'endangered' under the *Nature Conservation Act 1992* and therefore a damage mitigation permit cannot be granted for the lethal take of this threatened species for the purposes of crop protection. It is also listed as 'endangered' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) . This document uses the generic term 'flying-fox' to refer to the three species of flying-fox not classified as threatened wildlife under Queensland legislation, unless otherwise specified.
- 2.2 The Department of Agriculture and Fisheries and the Department of Environment and Science recommend exclusion netting as the most effective method for protecting crops from damage by flying-foxes. Exclusion netting also excludes birds and may protect against insect pests and hail damage. The costs of netting can be offset by improvements in crop quality and yield, and shorter sorting and packaging times.
- 2.3 The Queensland Rural and Industry Development Authority will accept applications for low interest loans from growers who wish to install exclusion netting for the control of flying-foxes. Find out more about Queensland Rural and Industry Development Authority's 'Sustainability Loan Program' at <https://www.qrida.qld.gov.au/current-programs/sustainability-loan> or phone 1800 623 946.

3. Restrictions on the granting of damage mitigation permits by the chief executive

- 3.1 To ensure that the numbers of a particular species of flying-fox taken are ecologically sustainable, and to meet the requirements of section 164(3) of the *Animals Regulation*, the chief

executive cannot grant a *permit* for taking a flying-fox of a particular species in a financial year after the total permit number for the species for the financial year has reached the maximum permit number for the species. The maximum permit numbers are specified in *Table 1: Annual Queensland quotas for the lethal take of flying foxes*.

Table 1: Annual Queensland quotas for the lethal take of flying-foxes

Species	Annual Queensland quotas (numbers of animals per financial year)
<i>P. scapulatus</i> (little red flying-fox)	4000
<i>P. alecto</i> (black flying-fox)	3500
<i>P. poliocephalus</i> (grey-headed flying-fox)	1280

- 3.2 To meet the requirements of section 164(2)(b) of the Animals Regulation, the chief executive must, before granting a permit, be satisfied that the applicant has made a reasonable attempt to implement the *non-lethal deterrence methods* set out in schedule 1, or has demonstrated why they cannot reasonably implement the *non-lethal deterrence methods*.
- 3.3 To meet the requirements of section 164(2)(c) of the Animals Regulation, the chief executive must, before granting a permit, be satisfied that the applicant may suffer significant economic loss as defined in this code if the damage is not prevented or controlled.
- 3.4 Significant economic loss is defined as any loss that may impact on the commercial viability of the crop for the grower.
- 3.5 To meet the requirements of section 164(2)(f) and (g) of the Animals Regulation, the chief executive must, before granting a permit, be satisfied that the proposed way of taking and dealing with a taken flying-fox complies with schedule 2.

4. Requirements of the permit holder

This section of the Code states the things a *permit* holder must do to satisfy section 167 and 171 of the Animals Regulation.

- 4.1 The *permit* holder may only take a flying-fox and deal with a taken flying-fox in a way detailed in schedule 2.

Schedule 1 – Non-lethal deterrence methods

- A) *Exclusion or tunnel netting* over the entire crop, installed prior to commencement of crop ripening and maintained in accordance with any instructions or advice from the manufacturer until completion of crop harvesting;
- or
- B) Any two of the following six methods at the same time, installed/operational prior to commencement of crop ripening and maintained/used in accordance with any instructions or advice from the manufacturer until completion of crop harvesting:
1. Netting:
 - Drape netting which covers at least 25% or 2 hectares of the crop, (whichever is less), OR exclusion netting which covers at least 10% or 1 hectare of the crop (whichever is less).
 - Drape netting must be installed in a way that minimises the risk of a flying-fox becoming entangled in loose netting.
 - Mesh size of *exclusion netting* must be no larger than 40 mm, and drape netting no larger than 20 mm. Mesh size is measured across the diagonal from knot to knot, when installed to the proper tension.
 2. Sound:
 - Sound equipment that emits sound within the flying-fox hearing range, of a sufficient volume to provide effective deterrence in all areas of the crop where exclusion netting is not present,
 - Explosive, pyrotechnic-charged cartridges fired from shotguns may be used as the sound method.
 3. Light:
 - Light equipment that emits light at a sufficient intensity to provide effective deterrence in all areas of the crop where exclusion netting is not present.
 4. Smoke:
 - Foggers or fires that produce sufficient smoke to provide effective deterrence in all areas of the crop where exclusion netting is not present.
 5. Movement:
 - Lasers, 'scarecrow' type devices, or other equipment that produces sufficient movement to provide effective deterrence in all areas of the crop where exclusion netting is not present.
 6. Alternative method:
 - Another method that the chief executive is satisfied will provide effective deterrence in all areas of the crop where exclusion netting is not present.

N.B. While operating under a *permit*, temporary removal of nets and/or equipment may only occur in anticipation of a bad weather event to prevent damage to nets and/or equipment, however nets and/or equipment must be replaced as soon as practical after the weather event.

Schedule 2 – Method for taking and dealing with a taken flying-fox

Taking a flying-fox

- Shooting is the only authorised way to take flying-foxes.
- The firearm may only be a shotgun with a calibre of 12 gauge or .410, and only with full choke.
- The shot may only be lead shot.
- Shot size for a 12 gauge may only be from 6 to 2. Shot size for a .410 may only be 7.5 to 4, with a minimum 2.5 inch cartridge.
- Flying-foxes may only be shot when they are not in flight.
- The distance between the shooter and the target animal must be close enough to accurately identify the species of flying-fox and not be more than 25 metres at the time of shooting for a 12 gauge, and not more than 15 metres for a .410.
- Each flying-fox must be identified to the species level prior to a shot being fired (see species descriptions set out in schedule 3).
- Sufficient illumination must be used to ensure accurate species identification and target precision.
- Only one flying-fox must be targeted at a time and the shooter must aim the shotgun so as to have a single flying-fox in the centre of the shot pattern at the point of impact. The shot must be aimed at the target animal's head or chest and the shooter must make all reasonable efforts to ensure that only the target animal is hit with the shot.
- Shooting at a group of flying-foxes is not authorised.
- Shooting at a flying-fox from a moving vehicle or other moving platform is not authorised.
- Prior to the commencement of shooting, the *permit* holder must notify neighbouring land holders that shooting of flying-foxes is being carried out on the property and that the shooting is authorised.

Dealing with a taken flying-fox

- Where conditions and safety considerations allow, a reasonable attempt must be made to locate dead flying-foxes and to deal with wounded or orphaned flying-foxes immediately after they are shot. If all dead, wounded or orphaned flying-foxes cannot be located immediately after shooting, a search of the property must be conducted at dawn the following morning.
- Wounded flying-foxes must not be handled.
Note: Any flying-fox could carry the Australian Bat Lyssavirus—a potentially fatal rabies-like virus. To ensure personal safety, wear appropriate protective clothing, i.e. long sleeves and puncture resistant gloves. If a person is bitten or scratched, immediately wash the wound thoroughly with soapy water for at least five minutes, apply an alcohol or iodine based antiseptic if available and seek medical attention as soon as possible.
- Wounded flying-foxes must be euthanased by a shot to the head from a safe distance.
- Only a shotgun or rim-fire rifle may be used for euthanasia. Consideration must be given to ensuring pain and suffering of flying-foxes is minimised as well as ensuring the safety of the operator and any other people that may be within range of the firearm.
- All dead flying-foxes must be examined for dependent young in the armpits (see schedule 3, figure 5) with the use of an implement so as to avoid directly touching the animal. If a suitable implement is not available, use appropriate protective equipment such as puncture resistant gloves to carefully manipulate the flying-fox. Any unwounded, dependent young found are to be left on their mothers, and either collected by a

wildlife carer for rehabilitation, or euthanased by a shot to the head from a safe distance. Contact the RSPCA hotline on 1300 ANIMAL (1300 264 625) for a registered wildlife carer.

Note: If a young flying-fox is euthanased, it is deemed to be taken under the permit.

- All dead flying-foxes must be taken to the *notified disposal site*. Ensure personal safety by wearing appropriate protective clothing and equipment. The dead flying-foxes must be disposed of in an appropriate manner (i.e. buried or incinerated) at the *notified disposal site*. However, any flying-fox that has been taken to the *notified disposal site* must not be buried, incinerated or otherwise destroyed for a period of 24 hours. For this 24 hour period, the dead flying-foxes should be kept secure to avoid any animal coming into contact with them.
- The *notified disposal site* must be made available for inspection by a Queensland Government-employed conservation officer (as appointed under s.127 of the Act) at any time that the *permit* authorising lethal take of flying-foxes is in force.
- Section 172 and Chapter 8 of the Animals Regulation require that records are kept returns of operations submitted. These records must address the following matters as well as any other relevant matters required under the regulation, or required by the chief executive on the *permit*.
 - the number of flying-foxes taken on each day; and
 - all other requirements on the return of operations form.
- The return of operations form must be made available for inspection by a conservation officer at any time, and submitted to the Department of Environment and Science within 10 business days after each three month period for the duration that the *permit* has been granted.

Schedule 3 – Identification of flying-foxes

- The little red flying-fox—
 - Reddish brown to dark brown.
 - Fur on neck, shoulders, around the eyes and under the wing varies from brown to yellow. The top of the head tends to be grey.
 - Distinguishable from other common flying-foxes by its small size; forearm length 125–156 mm and head and body length 195–235 mm.
 - There is little to no fur on the legs.
 - The ears are prominent.



Figure 1. Little red flying-fox

- The black flying-fox—
 - Short black fur with a slight silver frosting in older individuals.
 - Brown rings around the eyes are found on some individuals which usually have dark grey-brown hind neck and shoulder fur.
 - There is no fur on the lower leg of this species.
 - Largest of the Australian flying-foxes with a forearm length of 150–191 mm and a head and body length of 240–280 mm.



Figure 2. Black flying-fox

- The grey-headed flying-fox—
 - Head and body covered in thick grey fur, with a reddish-yellow collar completely encircling the neck.
 - Fur extends to the ankle.
 - Large species with a forearm length of 138–180 mm and a head and body length of 230–289 mm.



Figure 3. Grey-headed flying-fox

- The spectacled flying-fox—
 - Almost black with prominent yellow neck ruff and prominent straw-coloured fur surrounding the eyes and along the muzzle. The ruff and head is silver-blond in some individuals.
 - Yellow rings (spectacles) around the eyes.
 - There is no fur on the lower leg of this species.
 - Size of forearm is 160–189 mm and head and body length is 220–240 mm.



Figure 4. Spectacled flying-fox

Note: Although the spectacled flying-fox occurs in Queensland, due to its listing as a threatened species under the *Nature Conservation Act 1992*, a damage mitigation permit cannot be granted for its lethal take unless specifically authorised under a conservation plan.



Figure 5. Black flying-fox showing young in armpit

Schedule 4 – Definitions

euthanasia means—the deliberate bringing about of the death of a flying-fox that has been wounded, injured or orphaned as a consequence of lawful shooting of a flying-fox for crop protection, by using a method that achieves instantaneous insensibility followed by the rapid death of the animal without first regaining sensation or consciousness. The only methods of euthanasia approved under the Code are shooting, at a safe distance, aimed at the head of the flying-fox.

exclusion or tunnel netting means— netting or other physical material that is intended to provide full exclusion of flying-foxes, for example, canopy netting or tunnel netting, and for fruit such as bananas, protective fruit bags.

method for taking and dealing with a taken flying-fox—are the methods of taking a flying-fox and dealing with a taken flying fox listed in [Schedule 2](#).

non-lethal deterrence methods—are the methods listed in [Schedule 1](#).

notified disposal site means—the location on the *permit* holder's property where all flying-foxes that have been taken under the *permit* granted for lethal take of flying-foxes must be disposed of as notified in the relevant application for the *permit*.

permit means— a damage mitigation permit under the *Nature Conservation (Animals) Regulation 2020*.