

Code of Practice for Injured, Sick and Orphaned Flying-foxes



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Preface

The Code of Practice for Injured, Sick and Orphaned Flying-foxes (the Code) is intended for everyone authorised by the Office of Environment and Heritage (OEH) to rehabilitate and release flying-foxes. To protect the welfare of animals and help conserve the wild flying-fox population, the Code contains both standards and guidelines for the care of flying-foxes. It is designed to be read in conjunction with the Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH 2011) – see http://www.environment.nsw.gov.au/resources/wildlifelicences/110004FaunaRehab.pdf.

Grey-headed flying-foxes *Pteropus poliocephalus* are listed as vulnerable under the NSW *Threatened Species Conservation Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. Black flying-foxes, *P. alecto*, and little red flying-foxes, *P. scapulatus*, are not threatened, but are protected species under the *National Parks and Wildlife Act 1974* (NPW Act).

Compliance with the standards in the Code is a condition of licences issued under s. 120 of the NPW Act, to rehabilitate and release sick, injured and orphaned protected fauna. Failure to comply with a licence condition is an offence under s. 133 of the NPW Act, and may result in a penalty infringement notice being issued or a prosecution being commenced.

Compliance with this Code does not remove the need to abide by the requirements of the *Prevention of Cruelty to Animals Act 1979* and any other laws and regulations, such as the *Local Government Act 1993*.

This Code has been prepared by OEH in consultation with Tweed Valley Wildlife Carers, Northern Rivers Wildlife Carers, FAWNA, Wildlife ARC, the Native Animal Trust Fund, Sydney Metropolitan Wildlife Services, WIRES, Ku-ring-gai Bat Conservation Society, Cabramatta Creek Flying-fox Committee, the Native Animal Network Australia, Wildlife Rescue South Coast, individual flying-fox carers and flying-fox researchers.

The Code is neither a complete manual on animal husbandry nor a static document. It will be revised as necessary to account for new knowledge of animal physiology and behaviour, technological advances, developments in standards of animal welfare, and changing community attitudes on and expectations about the humane treatment of animals. OEH will consult with licence holders regarding potential changes to the Code and give written notice when the Code is superseded.

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1 Introduction

This Code sets standards for the care and housing of flying-foxes that are incapable of fending for themselves in their natural habitat. Compliance with the standards in this Code is a condition of fauna rehabilitation and release licences issued by the Office of Environment and Heritage (OEH) under s. 20 of the *National Parks and Wildlife Act 1974* (NPW Act).

2 Interpretations and definitions

2.1 Interpretations

Objectives

Objectives are the intended outcome(s) for each section of the Code.

Standards

Standards describe the mandatory specific actions needed to achieve acceptable animal welfare levels. These are the minimum standards that must be met. They are identified in the text by the heading 'Standards' and use the word 'must'.

Guidelines

Guidelines describe the agreed best practice, following consideration of scientific information and accumulated experience. They also reflect society's values and expectations regarding the care of animals. A guideline usually indicates a higher level of care than the minimum standard, except where the standard is best practice.

Guidelines will be particularly appropriate where it is desirable to promote or encourage better care for animals than is provided by the minimum standards. Guidelines are also appropriate where it is difficult to determine an assessable standard. Guidelines are identified in the text by the heading 'Guidelines' and use the word 'should'.

Notes

Where appropriate, notes describe practical procedures to achieve the minimum standards and guidelines. They may also refer to relevant legislation.

2.2 Definitions

In this Code:

- dependent flying-fox means a young flying-fox that is not yet able to fly
- experienced fauna rehabilitator means someone who has an extensive knowledge of current rehabilitation techniques gained through training courses and many years of successfully caring for native fauna
- **fauna rehabilitation** means the temporary care of an injured, sick or orphaned animal with the aim of successfully releasing it back into its natural habitat
- fauna rehabilitation group means an incorporated group that is licensed by OEH to rehabilitate and release protected fauna
- fauna rehabilitator means someone who is either authorised by a fauna rehabilitation group or zoological park or is individually licensed by OEH to rehabilitate and release protected fauna
- juvenile flying-fox means an immature flying-fox that can fly

 park means a national park, historic site, state conservation area, regional park, nature reserve, karst conservation reserve or Aboriginal area, or any land acquired by the Minister under Part 11 of the NPW Act.

3 Case assessment

Refer to page 4 of the *Code of Practice for Injured, Sick and Orphaned Protected Fauna* (OEH 2011) – see www.environment.nsw.gov.au/resources/wildlifelicences/ 110004FaunaRehab.pdf.

4 Rescue

Objective

To rescue a flying-fox while minimising further stress and injury to the animal.

4.1 Standards

- 4.1.1 Before a rescue attempt, rescuers must assess the risks to the flying-fox from environmental hazards and from capture.
- 4.1.2 Rescuers must employ the correct rescue equipment for the condition and location of the flying-fox, and be trained in its use.

4.2 Guidelines

The rescue of a flying-fox from barbed wire should not be attempted unless two people are involved, one of whom is trained in this type of rescue.

- 4.2.1 Rescuers should take available steps to protect the flying-fox from additional stressors during rescue, such as onlookers, loud noises, other animals and extremes of temperature.
- 4.2.2 A dependent flying-fox that is attached to its dead mother should be separated as soon as possible.
- 4.2.3 An adult or juvenile flying-fox should be firmly wrapped in a sheet, blanket or towel so its wings are folded beside its body, its head is covered and its legs are exposed with something to grasp.
- 4.2.4 An orphaned dependent flying-fox should be wrapped in a handkerchief or towel so its wings are folded beside its body and its head and feet are covered. It should also be given a dummy to bite.
- 4.2.5 A rescued flying-fox should be rehydrated prior to transport unless it is in shock.

Note:

Rescuers are responsible for gaining permission from property owners before gaining access to their properties and should avoid damaging assets such as fences. The RSPCA and NSW Police Force may be able to assist.

Sheets, blankets and towels are suitable for catching an adult or juvenile flying-fox. Large handkerchiefs and hand towels are suitable for catching an orphaned dependent flying-fox.

Scissors are suitable for freeing a net-caught flying-fox. Wire cutters are suitable for freeing a barbed wire-caught flying-fox.

Researchers are responsible for the welfare of the flying-foxes covered by their animal research authority. It may be useful for researchers and local rehabilitation groups to establish a relationship with each other in case an animal requires rescue.

5 Transport

Objective

To transport a flying-fox so as to minimise further stress and injury to the animal.

This section applies to all movement of animals including from the point of rescue to a veterinary surgery and between rehabilitation facilities.

5.1 Standards

- 5.1.1 The transport container must be tall enough for the flying-fox to hang by its feet without hitting its head on the floor.
- 5.1.2 The container must be designed, set up and secured to prevent injuries to the flying-fox. The sides of the container must prevent the flying-fox from poking its head or wings out.
- 5.1.3 The container must be designed to prevent the flying-fox from escaping.
- 5.1.4 The flying-fox must be allowed to hang by its feet from the top of the container or if it is unable to hang, wrapped in material (e.g. sheet or flannel) and placed in a sling so its feet are higher than its head.
- 5.1.5 The container must be kept at a temperature which is appropriate for the age and condition of the flying-fox. A range of 25–27°C is appropriate for an adult. A temperature of 28°C is appropriate for an orphan. A cool or warm water bottle may be required.
- 5.1.6 The container must be ventilated so air can circulate around the flying-fox.
- 5.1.7 The container must minimise light, noise and vibrations and prevent contact with young children and pets.
- 5.1.8 During transport, a container holding a flying-fox must have a clearly visible warning label that says 'Warning live bat'.
- 5.1.9 A flying-fox must not be transported in the back of an uncovered utility vehicle or a car boot that is separate from the main cabin.

5.2 Guidelines

- 5.2.1 Flying-fox transport should be the sole purpose of the trip and undertaken in the shortest possible time.
- 5.2.2 A minimum of two flying-foxes should be placed in each transport container, except when transporting from the point of rescue.

Note:

Placing the fauna rehabilitation group's contact details on the transport container might assist in case of an emergency.

6 Euthanasia

6.1 When to euthanase

Objective

To end a flying-fox's life in situations where death is imminent, recovery is impossible, the likelihood of successful reintegration into the wild population is remote or the animal poses an unacceptable health risk to wild animals.

6.1.1 Standards

- 6.1.1.1 A flying-fox must be euthanased without exception when:
 - death is imminent or highly likely regardless of the treatment provided, or
 - it is suffering from chronic, unrelievable pain or distress, or
 - it is carrying (or suspected to be carrying) an incurable disease that may pose a health risk to wild animals, or
 - it is permanently unable to consume food unaided due to an injured jaw.
- 6.1.1.2 A flying-fox must be euthanased (unless OEH has granted permission to hold it in permanent care) when:
 - it is permanently incapable of flying or hanging due to a missing or injured wing, leg, foot or backbone, or
 - it is unable to survive in its natural habitat because it is permanently visionimpaired, hearing impaired or anosmic (unable to smell), or
 - its ability to handle food is permanently impaired due to a missing or injured digits.

In certain exceptional circumstances, OEH may grant permission to hold such animals in permanent care. See *Rehabilitation of Protected Fauna Policy 2010* (DECCW 2010) for details – www.environment.nsw.gov.au/wildlifelicences/RehabFaunaPolicy.htm.

6.1.2 Guidelines

6.1.2.1. A flying-fox should be euthanased when its ability to fly is expected to be impaired for more than 12 months.

6.2 How to euthanase

Refer to page 9 of the Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH 2011).

6.3 Disposal of carcasses and animal waste

Objective

To dispose of waste so the risks of disease transmission are minimised.

6.3.1 Standards

6.3.1.1 Carcasses and organic waste suspected of disease contamination or that have been exposed to chemicals (e.g. barbiturates) must either be incinerated or buried at a depth that will prevent scavengers from reaching them.

Note:

Fauna rehabilitators should consider providing dead flying-foxes to research institutions for study.

7 Care procedures

7.1 Monitoring

Objective

To check the health of a flying-fox undergoing rehabilitation so issues can be promptly identified and managed. The type and frequency of monitoring will vary with the type of injury or illness and required treatment.

7.1.1 Standards

- 7.1.1.1 A dependent flying-fox and a flying-fox in intensive care must be monitored repeatedly during the day and weighed at least twice a week. A dependent flying-fox must also be measured (forearm length) at least twice a week.
- 7.1.1.2 A juvenile flying-fox and a flying-fox in intermediate care must be monitored at least once a day and weighed at least once a week.
- 7.1.1.3 Fauna rehabilitators must record the weight and forearm measurements of the flying-foxes in their care.
- 7.1.1.4 A flying-fox being prepared for release must be observed every few days to determine if it is physically and behaviourally ready for release (see clauses 10.1.1. and 10.1.2.).
- 7.1.1.5 Fauna rehabilitators must regularly monitor the temperature in a heated enclosure and take action to ensure that an appropriate temperature is maintained.

7.1.2 Guidelines

- 7.1.2.1 An apparently healthy flying-fox that has been entangled in netting or wire should be held and observed for at least two weeks before release.
- 7.1.2.2 On admission a flying-fox should be checked for:
 - · swelling or lumps on the head
 - · bone fractures
 - bleeding or wounds
 - · matted or missing fur
 - dull, sunken eyes or the lack of a normal pupil reflex
 - audible breathing
 - inflamed or pale gums/palate
 - throat obstructions
 - · discharge from the eyes, nostrils, ears, mouth or genital area
 - · ticks or maggots

- holes, burns or bruises in the wing membranes
- · missing digits
- lack of a normal wing retraction reflex or foot grasping reflex.
- 7.1.2.3 Monitoring a flying-fox should entail:
 - manually assessing body condition and observing demeanour
 - checking for signs of injury, disease (including neurological) and parasites
 - assessing hydration using the 'pinch test'
 - determining how much food has been consumed.

7.2 Controlling disease transmission between animals

Refer to page 11 of the Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH 2011).

8 Husbandry

8.1 Food and water

Objective

To ensure that the flying-fox has a feeding and watering regime that encourages rapid recovery, supports growth if it is immature and assists with the maintenance of foraging behaviour necessary for survival in the wild.

8.1.1 Standards

- 8.1.1.1 Clean, fresh drinking water must be available at all times and changed daily, except in the case of a dependent flying-fox which should be offered water at least once daily.
- 8.1.1.2 Water containers must be designed and positioned to avoid spillage and contamination, and must be appropriate for the size, age and mobility of the flying-fox.
- 8.1.1.3 An adult flying-fox must be offered fruit mixed with a protein supplement daily. For a debilitated flying-fox or flying-fox with no appetite, this will take the form of juice or puree fed through a syringe.
- 8.1.1.4 Fruit that is available in the wild must form the basis of the flying-fox's diet. This can include non-native species see 'Note' under 'Guidelines' below.
- 8.1.1.5 A hand-reared flying-fox must be fed a milk formula that is appropriate for its stage of development.

8.1.2 Guidelines

- 8.1.2.1 Food in storage should not be accessible to pets, pests and wild animals and should be protected from contamination and nutritional loss.
- 8.1.2.2 Fresh native flowers (e.g. bottlebrush and eucalyptus) and leaves should be offered to the flying-fox as a supplement.
- 8.1.2.3 A choice of different types of fruit should be offered to the flying-fox.

Note:

Non-native fruit species such as apples, pears and stone-fruit are commonly available in the wild.

8.2 Hygiene

Refer to page 14 of the Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH 2011).

9 Housing

9.1 General requirements

Refer to page 15 of the Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH 2011).

9.2 Intensive care housing

Objective

To reduce activity for a short period of time to allow injuries to heal and to facilitate frequent monitoring, treatment, feeding and rehydration.

9.2.1 Standards

- 9.2.1.1. Intensive care housing must provide sufficient space for the flying-fox to maintain a normal posture, e.g. hang, and to stretch its body and limbs, but not enough space to fly.
- 9.2.1.2. Intensive care housing must provide a constant temperature appropriate for the age of the flying-fox and nature of the illness or injury.
- 9.2.1.3. The temperature in intensive care housing must be regularly monitored using a thermometer and electrical heat sources must be regulated by a thermostat.
- 9.2.1.4. A dependent flying-fox in intensive care must be exposed to at least 15 minutes of unfiltered sunlight every day to assist with vitamin D synthesis.
- 9.2.1.5. Intensive care housing must be designed and positioned so visual and auditory stimuli are reduced, e.g. by covering the sides with a towel and placing in a quiet room.
- 9.2.1.6. Intensive care housing must be raised at least 1 metre off the ground.
- 9.2.1.7. A flying-fox in intensive care must not be housed in the same room as a predator.
- 9.2.1.8. Intensive care housing must be adequately ventilated without allowing excessive drafts.
- 9.2.1.9. Substrate used in intensive care housing must be replaced daily.

9.2.2 Guidelines

- 9.2.2.1. Intensive care housing should have floor dimensions of at least 0.5 metres long by 0.5 metres wide.
- 9.2.2.2. A flying-fox undergoing intensive care should not be kept in housing with exposed wire on the sides as this can cause wing damage.
- 9.2.2.3. A flying-fox undergoing intensive care should not be kept in housing with a straw substrate as it can lead to infection.

9.3 Intermediate care housing

Objective

To provide a mobile flying-fox with enough space to allow some physical activity while enabling it to be readily caught for monitoring or treatment.

9.3.1 Standards

- 9.3.1.1 Intermediate care housing must provide sufficient space for the flying-fox to move about freely while being conveniently sized for quick capture.
- 9.3.1.2 If an artificial heat source is provided in intermediate care housing, the flying-fox must be able to move to a cooler section of the enclosure. Electrical heat sources must be regulated by a thermostat.
- 9.3.1.3 A flying-fox in intermediate care housing must experience a light–dark cycle that replicates outside conditions. Such a cycle may be achieved by placing the animal in a well-lit room or in a sheltered area outside.
- 9.3.1.4 If a mobile enclosure is used for intermediate care housing it must be raised at least 1 metre off the ground.
- 9.3.1.5 A flying-fox in intermediate care must not be housed in the same room as a predator.
- 9.3.1.6 If intermediate care housing is situated outside, it must have a double-skinned roof.
- 9.3.1.7 A hand-reared flying-fox must be transferred to a crèche (in pre-release housing) when it is weaned and beginning to fly. This will occur between 12 and 16 weeks of age.

9.3.2 Guidelines

- 9.3.2.1 Intermediate care housing should have floor dimensions of at least 1 metre long by 1 metre wide.
- 9.3.2.2 Intermediate care housing should contain hanging material (e.g. sheets or polar-fleece) for the flying-fox to hold on to.
- 9.3.2.3 If shade cloth is used for intermediate housing outdoors it should be covered with material.

9.4 Pre-release housing

Objective

To give the flying-fox the opportunity to regain its physical condition, acclimatise to current weather conditions and practise natural behaviour. At this stage of rehabilitation, interactions between the flying-fox and humans must be greatly reduced.

9.4.1 Standards

- 9.4.1.1 Pre-release housing must provide sufficient space for the flying-fox to fly freely and express a range of natural behaviours.
- 9.4.1.2 Pre-release housing must provide areas where the flying-fox can gain exposure to prevailing weather conditions and locations where it can shelter.
- 9.4.1.3 Pre-release housing must have a doubled-skinned roof.

- 9.4.1.4 Pre-release housing must contain habitat that enables the flying-fox to perform a range of natural behaviour. A flying-fox requires netting or similar on the roof to hang from and bags or ropes to land on.
- 9.4.1.5 Pre-release housing must be designed and positioned so exposure to humans is kept to the minimum required for observation, feeding and cleaning.
- 9.4.1.6 A flying-fox in pre-release housing must have visual and auditory contact with other flying-foxes.

9.4.2 Guidelines

- 9.4.2.1 A flying-fox in pre-release housing should have some opportunity for extended flight (10 wing beats is recommended).
- 9.4.2.2 Pre-release housing should have dimensions of at least 10 metres long by 4 metres wide by 2 metres high. An enclosure this size can hold up to 30 individuals.
- 9.4.2.3 A flying-fox in pre-release housing should have visual and auditory contact with other flying-foxes.
- 9.4.2.4 Pre-release housing should not have mouse-proof wire as the inner layer or chicken-proof wire as either layer.
- 9.4.2.5 A flying-fox crèche should contain at least five individuals.
- 9.4.2.6 Pre-release housing should not contain loose wire or bags with loose threads.
- 9.4.2.7 Pre-release housing for a flying-fox should have a double-door entry system.

10 Suitability for release

Objective

To ensure that the flying-fox is physically fit and possesses the appropriate survival skills before its release. Preparations for release will start at the time of rescue and continue throughout the rehabilitation process.

10.1 Standards

- 10.1.1 A flying-fox must not be released until it is physically ready. This status has been achieved when:
 - it has recovered from any injury or disease (e.g. it flies normally)
 - its weight, condition and growth rate is within the appropriate range for its age
 - it has appropriate fitness levels as determined by both passive observation and active assessment (e.g. by encouraging the animal to fly)
 - · it has fur on its entire body
 - it has acclimatised to prevailing climatic conditions.
- 10.1.2 A flying-fox must not be released until it is behaviourally ready. This status has been achieved when:
 - it can recognise and eat fruit and flowers
 - it is not attracted to humans (i.e. not humanised) or to sights, sounds or smells that are specific to captivity (i.e. not imprinted)
 - it can navigate effectively through its natural environment
 - it can recognise and interact normally with other flying-foxes.

10.1.3. A flying-fox's readiness for release must be confirmed by either a veterinarian or experienced fauna rehabilitator.

11 Release considerations

11.1 Timing of release

Objective

To ensure that a flying-fox is released as soon as it is ready and at a time that minimises stress and maximises its chances of survival in its natural habitat.

11.1.1 Standards

- 11.1.1.1 Once a flying-fox is deemed ready for release, it must be released as soon as conditions are suitable (see clauses 11.1.1.2–11.1.1.4 for what suitable conditions are).
- 11.1.1.2 A flying-fox must be released at a time of year that facilitates survival and reintegration into the wild population.
- 11.1.1.3 A flying-fox must be released when weather conditions encourage high activity levels. Release during extreme temperatures and storms must be avoided.
- 11.1.1.4 A flying-fox must be released at a time of day that enables it to immediately investigate its environment. Morning is an appropriate release time for a flying-fox being 'hard' released, i.e. released without the flying-fox needing to be held in an enclosure near a flying-fox camp beforehand. Late afternoon is an appropriate release time for a flying-fox being 'soft' released (see section 11.3).

11.2 Release site selection

Objective

To ensure that the wild flying-fox population and natural environment are not negatively impacted on by the release. The welfare of the rehabilitated flying-fox after release is a secondary objective.

11.2.1 Standards

- 11.2.1.1 A flying-fox must be released in the nearest suitable environment to the exact or general location. A suitable environment for release:
 - is at or close to a camp occupied by other flying-foxes of the same species
 - contains appropriate habitat and adequate food resources
 - does not place the flying-fox at a high risk of injury
 - has infrastructure for 'soft'release for animals that require it (see section 11.3).
- 11.2.1.2 A flying-fox can only be released in a national park if:
 - it was originally encountered in that location
 - the release has written consent from the relevant Parks and Wildlife Area
 Manager (issued under s. 9 of the National Parks and Wildlife Regulation 2009)
 - the release complies with the relevant OEH policies on translocation and environmental integrity.

These conditions also apply to the release of a flying-fox in a location where it might reasonably be expected to immediately enter a park (e.g. on a road adjoining a park).

11.3 Release techniques

Objectives

To use release techniques that facilitate a flying-fox's successful reintegration into the wild population.

To collect information regarding the fate of rehabilitated flying-foxes after release so the relative merits of different rehabilitation and release techniques can be compared.

11.3.1 Standards

11.3.1.1 A hand-reared flying-fox must be 'soft' released. This will involve holding it in an enclosure near a flying-fox camp for several days. The enclosure must be set-up in the same way as pre-release housing (see section 9.4)

11.3.2 Guidelines

- 11.3.2.1 An adult flying-fox that has been in intermediate care for three weeks or longer should be 'soft' released. This will involve holding it in an enclosure near a flying-fox camp for several days. The enclosure should be set up in the same way as prerelease housing.
- 11.3.2.2 A flying-fox should be 'soft' released with other flying-foxes of the same species.
- 11.3.2.3 Rehabilitators should arrange for the flying-fox to be tagged, banded or micro chipped for individual identification before release. Fauna rehabilitation groups and zoological parks are encouraged to participate in post-release monitoring programs to determine rates of survival.

Note:

All research involving protected fauna requires a licence (under s. 132c of the NPW Act) and approvals as specified in the *Animal Research Act 1985*.

Banding bats requires an authority issued by the Australian Bird and Bat Banding Scheme – see www.environment.gov.au/biodiversity/science/abbbs/.

12 Training

Objective

To ensure fauna rehabilitators have appropriate knowledge and skills to ensure the welfare of the flying-foxes in their care.

12.1 Standards

12.1.1 A fauna rehabilitator who intends to work with flying-foxes must attend a flying-fox training course and keep up-to-date with changes to this Code.

- 12.1.2 A flying-fox training course must:
 - teach the standards and guidelines described in this Code and the Code of Practice for Injured, Sick and Orphaned Protected Fauna
 - focus on what a person will be able to do as a result of completing the course (i.e. be competency-based)
 - have a written assessment component.
- 12.1.3 A fauna rehabilitator must be assessed as competent before undertaking the rescue, rehabilitation or release of a flying-fox.
- 12.1.4 Training must be accompanied by ongoing support from fauna rehabilitation groups.

12.2 Guidelines

- 12.2.1 A fauna rehabilitator who cares for flying-foxes should have an understanding of:
 - flying-fox ecology (e.g. population dynamics, habitat selection, competition and predator—prey interactions)
 - flying-fox behaviour (e.g. feeding and social interactions)
 - how to care for flying-foxes
 - the human health and safety issues associated with flying-fox rehabilitation (e.g. the need for carers to be vaccinated against Australian Bat Lyssavirus before they can be licensed)
 - · how to keep accurate records.
- 12.2.2 A fauna rehabilitator who cares for flying-foxes should be proficient in:
 - · species identification
 - flying-fox handling techniques
 - recognising normal behaviour (e.g. posture) and identifying deviations from the norm
 - first aid for injured flying-foxes including hydration techniques
 - flying-fox husbandry.

13 Record keeping

Refer to page 23 of the Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH 2011).