



Draft Code of Practice for Keeping Native Frogs

Biodiversity Conservation Act 2016

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Preface

The Code of Practice for Keeping Native Frogs (the Code) is:

- Approved as a code of practice under the *Biodiversity Conservation Act 2016* for the keeping of the species of native frogs listed in the Schedule to this Code.
- Incorporated as a condition of a licence granted under the *Biodiversity Conservation Act 2016* for the keeping of species of native frogs for which a keeper licence is required.

The species of frogs that may only be kept by a licensed keeper are listed in the NSW Native Animal Keepers' Species List published on the Office of Environment and Heritage (OEH) website.

The Code contains both mandatory standards and best practice guidelines for the care of native frogs as pets.

An animal's welfare can be thought of as the way an animal's health, safety and wellbeing are affected by its physical and social environment. Health and behaviour indicators provide information about how an animal is responding to a situation, enabling keepers to make informed decisions relating to the animal's welfare.

Failure to comply with the Code means a person may not have a defence to offences under Part 2 of the *Biodiversity Conservation Act 2016* and may result in a penalty notice being issued or the commencement of a prosecution.

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

Keepers should be aware that:

- They must follow the standards in the Code, unless advised by a veterinarian that a frog should be housed or managed in a different way to treat a particular problem. Keepers who follow a veterinarian's advice will not be considered to be in breach of the Code.
- Native frogs held under a licence for public exhibition, rehabilitation, education, conservation or scientific purposes are not subject to this Code.
- All native frogs are protected under NSW law. It is an offence under Part 2 of the *Biodiversity Conservation Act 2016* to harm, injure, buy, sell, possess, import, export, remove from the wild or release into the wild a native frog unless authorised by a licence or a code of practice.
- The importation of frogs from overseas for inclusion in private collections is prohibited under Commonwealth law. The possession of illegally imported frogs, or their offspring, is an offence under the *Environmental Protection and Biodiversity Conservation Act 1999*.

This Code was prepared in consultation with various frog keepers affiliated with the Frog and Tadpole Study Group of New South Wales Inc (FATS).

1. Introduction

- 1.1. This Code is an approved code of practice under the *Biodiversity Conservation Act 2016* for the keeping of the species of native frogs listed in the Schedule to this Code.
- 1.2. Compliance with this Code is also a condition of a licence granted under the *Biodiversity Conservation Act 2016* for the keeping of species of native frogs for which a keeper licence is required.
- 1.3. This Code comprises both enforceable standards provisions and advisory guidelines. Enforceable provisions are identified by the word 'standards' and they must be followed.

2. Interpretations and definitions

2.1 Interpretations

Objectives

The intended outcome(s) for each section of this 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 best practice agreed at a particular time following consideration of scientific information and accumulated experience. It also reflects 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:

- **Frog** means any native amphibian that may be legally kept in New South Wales under this Code or an animal keeper's licence.
- **Keeper** means the owner of the frog.

- **Nocturnal** means predominately active by night.
- **OEH** means the NSW Office of Environment and Heritage.
- **Physiological** means the functioning of an organism.
- **Terrarium** means the captive housing (enclosure) in which the frog spends the majority of its time.
- **Unauthorised person** means someone who does not have the keeper's permission to access their frog.

3. Enclosure construction

3.1 General requirements

Objectives

An enclosure constructed to a standard that maintains the security, safety and wellbeing of the frog or frogs being housed.

3.1.1 Standards

- 3.1.1.1 An enclosure must be escape-proof.
- 3.1.1.2 An enclosure must be made safe for frogs to occupy by excluding hazards that might harm it.
- 3.1.1.3 An enclosure must be designed and/or positioned to avoid overheating from direct sunlight and to prevent frogs from coming into physical contact with wild animals, pests, domestic pets, and unauthorised persons.
- 3.1.1.4 When different species of frogs are housed together, they must be compatible and known to be disease-free.

3.1.2 Guidelines

- 3.1.2.1 An enclosure should be designed so that the keeper can safely work in it and access the frogs.

Notes

Frog chytrid disease is a virulent fungal infection that is highly contagious and lethal to frogs. It can be spread by people to their pet frogs. The standards presented in this Code are designed to minimise the risk of accidental introduction and spread of disease to captive frogs.

Substrates and other items contained in a terrarium must always be sterilised before being introduced into a terrarium.

Any new frog acquired should be regarded as possibly chytrid infected despite not showing any symptoms and should be housed in isolation for a minimum of three months or until it is evident that the frog is uninfected.

Rough or sharp objects in a terrarium can cause skin tearing and abrasion and are not recommended for captive frogs.

Frogs must always have access to clean water or adequately moistened substrate for hydration. Tap water may be used but only after it has been aged or treated with water conditioner to remove chloramine and other contaminants from the water.

3.2 Outdoor enclosures

Objectives

Outdoor enclosures present potential hazards that must be considered for housing captive frogs. Frogs in outside enclosures are subject to a wide range of weather and climatic conditions as well as potential exposure to chytrid-carrying organisms.

3.2.1 Standards

- 3.2.1.1. If frogs are housed in an outdoor enclosure, the temperature, humidity and light regime must be similar to that occurring in its natural range.
- 3.2.1.2. An outdoor enclosure must have sufficient drainage to prevent the accumulation of water.
- 3.2.1.3. An outdoor enclosure must be designed and situated so that the frogs are provided with sufficient sunlight in cooler months and shade in warmer months.
- 3.2.1.4. An outdoor enclosure must provide locations where the frogs can find shelter from weather conditions such as heat, cold and rain. For terrestrial (ground dwelling) species this must include a range of shelters where they may hibernate during unfavourable weather or climate events.
- 3.2.1.5. When a mobile mesh cage or plastic tub is used to house frogs outdoors on a short-term basis (e.g. for a few hours), part of the enclosure must be in shade at all times to prevent overheating.

3.2.2 Guidelines

- 3.2.2.1. An outdoor enclosure should be fully enclosed to prevent frogs from escaping but also to prevent outside animals (e.g. other frogs or snakes) from entering the enclosure. The enclosure should have walls that extend below ground level or a solid floor to prevent the frogs from burrowing out, and pests and predators from burrowing in.
- 3.2.2.2. An outdoor enclosure should either be fully enclosed or have walls that are sufficiently tall and smooth to prevent frogs from climbing out. Protection from extreme or destructive weather events must be provided.

Notes

Keeping frogs in an outdoor enclosure is generally not advised. Some frog species require full-spectrum light (UV) and natural temperature regimes. For these more difficult-to-keep species, specialist advice should be sought.

3.3 Indoor enclosures

Objectives

An indoor enclosure that provides appropriate environmental conditions for the frogs being housed.

3.3.1 Standards

- 3.3.1.1 Frogs held indoors must be provided with temperature gradients, humidity levels and light cycles that are appropriate to the species (i.e. allows normal physiological functioning and behaviour).
- 3.3.1.2 Indoor terrariums must be constructed from impervious materials such as glass or hard plastic that can be easily cleaned.
- 3.3.1.3 Indoor terrariums must be escape-proof. If plastic mesh tops are provided they should be tightly secured so that the captive frog cannot lever the lid off and escape.

3.3.2 Guidelines

- 3.3.2.1 Doors and lids should be fitted with latches, hooks or clasps to securely fasten them.
- 3.3.2.2 Enclosure surfaces, edges and ventilation grates that are accessible by the frog, should be sufficiently smooth to prevent injury as some species are prone to rubbing themselves against surfaces.
- 3.3.2.3 Ventilation holes should be designed and secured so that frogs cannot escape. Frogs can fit through spaces smaller than themselves and so ventilation holes need to be much smaller than the frog.

4. Enclosure sizes

Objectives

To promote the physical health and psychological wellbeing of frogs by allowing the opportunity to engage in natural behaviours such as moving, feeding, basking, soaking in water and hiding.

4.1 General requirements

4.1.1 Standards

- 4.1.1.1 An enclosure must provide frogs with sufficient space to move about freely or hide undercover, express a range of natural behaviours, and avoid cage-mates.
- 4.1.1.2 Frogs must be maintained at a temperature, on land and in water, within its species preferred temperature range.

- 4.1.1.3 An enclosure housing a species that normally climbs must have sufficient useable vertical space for frogs to climb.
- 4.1.1.4 An enclosure housing burrowing frogs must contain a depth of suitable substrate where the frog can burrow and hibernate periodically.

4.1.2 Guidelines

- 4.1.2.1 An enclosure should provide sufficient space for the maintenance of an appropriate temperature gradient (i.e. one that allows the frogs to thermoregulate – or regulate their body temperature by moving around the enclosure).

4.2 Tree frogs

4.2.1 Guidelines

- 4.2.1.1 All frogs are highly mobile (particularly at night). The enclosure should not overly restrict the frogs' movements; for tree frogs, movements are lengthways along the terrarium as well as upwards by climbing. The size of the terrarium is related to the size of the frogs, the number of frogs being housed together and their habitat requirements.
- 4.2.1.2 All enclosure sizes here are the minimum suggested. An enclosure housing one or two large tree frogs (snout-vent lengths five centimetres or more) should have a floor area of at least 0.02 m² (e.g. 0.45 m x 0.45 m) and be 60 centimetres high.
- 4.2.1.3 An enclosure housing one or two medium-sized tree frogs (snout-vent lengths 3-4.9 cm) should have a floor area of at least 0.02 m² (e.g. 0.45 m x 0.45 m) and be 45 centimetres high.
- 4.2.1.4 An enclosure housing one or two small tree frogs (snout-vent lengths less than three centimetres) should have a floor area of at least 0.09 m² (e.g. 0.30 m x 0.30 m) and be 30 centimetres high.

4.3 Ground frogs

4.3.1 Guidelines

- 4.3.1.1 Ground frogs are highly mobile (particularly at night). The enclosure should not overly restrict the frog's movements; for ground frogs, most movements are lengthways across the terrarium and so there must be open movement thoroughfares available across the terrarium. The size of the terrarium is related to the size of the frog, the number of frogs being housed together and their habitat requirements.
- 4.3.1.2 An enclosure housing one or two large ground frogs (snout-vent lengths five centimetres or more) should have a floor area of at least 0.027 m² (e.g. 0.60 m x 0.45 m) and be 30 centimetres high.
- 4.2.1.3 An enclosure housing one or two medium-sized ground frogs (snout-vent lengths 3 – 4.9 cm) should have a floor area of at least 0.027 m² (e.g. 0.45 m x 0.30 m) and be 25 centimetres high.

- 4.2.1.4 An enclosure housing one or two small ground frogs (snout-vent length less than three centimetres) should have a floor area of at least 0.02 m² (e.g. 0.30 m x 0.30 m) and be 20 centimetres high.

4.4 Burrowing frogs

4.4.1 Guidelines

- 4.4.1.1 Burrowing frogs may spend a lot of time below ground but can be highly mobile when above ground (particularly at night). The enclosure should not overly restrict the frogs' movements. Burrowing frogs' movements are horizontal and across the terrarium as well as downwards by digging. The size of the terrarium is related to the size of the frog, the depth of substrate required, the number of frogs being housed together and their habitat requirements.
- 4.4.1.2 An enclosure housing one or two large burrowing frogs (snout-vent lengths five centimetres or more) should have a floor area of at least 0.027 m² (e.g. 0.60 m x 0.45 m) and be 30 centimetres high.
- 4.4.1.3 An enclosure housing one or two medium-sized burrowing frogs (snout-vent lengths 3 – 4.9 cm) should have a floor area of at least 0.027 m² (e.g. 0.45 m x 0.45 m) and be 25 centimetres high.
- 4.4.1.4 An enclosure housing one or two small burrowing frogs (snout-vent length less than three centimetres) should have a floor area of at least 0.02 m² (e.g. 0.30 m x 0.30 m) and be 20 centimetres high.

Notes

Keepers interested in providing a good quality of life for their frog are encouraged to use an enclosure that is significantly larger than the minimum sizes specified above.

Frogs that are kept in enclosures that are too small, overcrowded or have inappropriate environmental settings may become agitated or exhibit avoidance behaviour, and may self-harm in an attempt to escape the enclosure.

One of the most common responses of frogs kept in unsuitable confines is 'nose-rubbing' where they wear away the skin covering from their noses as they try desperately to force a way through the container. This will require treatment and a change of living conditions if the skin is to heal.

4.5 Tadpoles

Tadpoles are often kept as an educational aid in schools. They may also arise as a result of a breeding event by captive frogs. Tadpoles, like frogs, need to be correctly maintained if they are to develop correctly and become frogs.

4.5.1 Guidelines

- 4.5.1.1 Tadpoles need to be kept in sufficiently large containers in clean filtered or aged water. The containers may be large tanks or bowls, in which case, partial water changes should be done on a weekly basis to prevent the build-up of bacteria and wastes in the water. If the containers have a flow-through filtration system, water changes may be less frequent.

- 4.5.1.2 Tadpoles are more sensitive to water contaminants than frogs. The water source, food supplied, substrates and any other materials introduced into the tank with the tadpoles must be free of contaminants.
- 4.5.1.3 Tadpoles should not be overcrowded. As a general rule, medium-sized tadpoles (total length up to about 50 millimetres) should have at least one litre of water per tadpole. As the tadpoles grow the amount of water should be increased accordingly, or some tadpoles separated into other containers.
- 4.5.1.4 Tadpoles are initially or entirely herbivorous, at least for the earlier part of their life cycle, but once the hind limbs have noticeably emerged, most appreciate addition of protein to the diet. The most widely used food source is small pieces of frozen or boiled endive, uncooked zucchini or similar vegetable matter. Small amounts of zucchini can be thinly sliced and dropped into the container. If the amount of food put into the container has not been eaten entirely within 24 hours, too much food has been given, and the uneaten food must be removed. Boiled or frozen lettuce can also be used but it has little nutritional value. Small pieces of algae discs are also very suitable and small pieces can be crushed for smaller tadpoles. Spirulina flakes or other products that are high in fish oils are not recommended as a food source for tadpoles.
- 4.5.1.5 When the hind limbs have emerged, the addition of small pieces of protein sticks (sold for turtles) are much appreciated and improve the chances of a healthy metamorphosis. Tadpoles should be fed twice daily, depending on the rate of consumption. With rapid-growing larger tadpoles, three times a day may be recommended if food is eaten quickly.
- 4.5.1.6 Some tadpoles (especially stream-dwellers, and smaller *Pseudophryne* and *Uperoleia* tadpoles for example) have more specialised diet requirements and advice must be sought about the feeding of many Class 1 and Class 2 tadpoles. The recommended food for them is mainly small amounts of finely crushed pieces of algae discs and no leafy vegetable matter, as they are silt feeders.
- 4.5.1.7 As tadpoles approach metamorphosis they need to be able to get partially or totally out of the water. Metamorphosing froglets can drown easily if there is no surface partly in and partly out of water on which they can rest during the final stages of lung development. Provision of small ramps, small rocks or a branch for them to climb onto avoids problems and should be included once the tadpole(s) has four legs. Tree frog tadpoles are less vulnerable, as they can climb out of the water much more easily than ground frog tadpoles and will do so even with a full tail, whereas ground frog tadpoles don't normally climb completely out of water until the tail has reduced greatly.
- 4.5.1.8 Metamorphosing tadpoles of the same species should be placed in a separate escape-proof container with a dish of shallow water in which they can rest partly in water but get their head above water, move out of easily onto surrounding damp surfaces and hide under rock or similar when needed.
- 4.5.1.9 Tadpoles that have been kept for school use should be returned to their source at metamorphosis. The period from metamorphosis to young frog is a time that is problematic for most keepers to maintain the frog and many froglets die if not correctly maintained.

Notes

Many new frog keepers are keen to breed their frogs; however, this should not be done unless a suitable outcome has been determined for the progeny.

Many frogs produce more than a thousand eggs and even if some of them reach metamorphosis, they cannot be released into the wild because of the chance of spreading disease. Lots of small frogs require lots of food and this can be difficult to obtain (as well as expensive).

An exception to this will be in the case of intentional breeding by licence holders for sale of young frogs. If an accidental breeding event has occurred in an unlicensed situation, the owner should seek advice immediately from experienced breeders or from the FATS group.

5. Enclosure environment

5.1 Temperature

Objectives

To allow frogs to maintain a preferred range of body temperatures by moving to different parts of its enclosure.

5.1.1 Standards

- 5.1.1.1 Frogs must be provided with a range of enclosure temperatures that allows them to adjust their body temperature to that appropriate for the full range of normal functioning.
- 5.1.1.2 If heat sources are required, they must be designed and installed so as to prevent frogs from being injured by them.

5.1.2 Guidelines

- 5.1.2.1 The temperature requirements of frogs vary with species:
 - Species that are from tropical or warm environments may need supplementary heating (particularly during winter).
 - Species from alpine or near-alpine areas may require cooling (particularly during summer).
- 5.1.2.2 Artificial heat sources should be controlled with a thermostat to assist in the maintenance of an appropriate temperature range.

Notes

Frogs alter their internal body temperature through selection of different environmental temperatures (animals that do this are called ectothermic). They can only raise or lower their internal body temperature within the range of the surrounding temperature, so depending on the activity that they wish to undertake, they need to have an environment that enables a suitable temperature for that activity. For example, frogs usually require a warmer body in order to adequately digest recently consumed food items.

It may also be necessary to provide a diurnal and/or seasonal temperature cycle for some species.

Positioning enclosures in direct sunlight (i.e. near windows) can lead to overheating unless adequate ventilation and shade is provided.

5.2 Ventilation

Objectives

To adequately ventilate the enclosure so as to avoid excessive humidity. A careful balance will need to be achieved between ventilation, humidity and heating requirements appropriate to the species.

5.2.1 Standards

5.2.1.1 Enclosures must be adequately ventilated without causing excessive drafts.

5.3 Humidity

Objectives

To maintain appropriate humidity levels within the enclosure.

5.3.1 Standards

5.3.1.1 The humidity of the enclosure must be maintained at a level that is appropriate for the species being housed.

5.3.2 Guidelines

5.3.2.1 Care should be taken when choosing floor coverings as many particulate substrates can substantially lower relative humidity.

5.3.2.2 Humidity levels should not be so high that moisture accumulates in the enclosure. Constant contact with damp substrates can lead to infections.

5.3.2.3 Where water bowls are placed near heat sources or live plants are used to decorate enclosures, the keeper should not allow the humidity to become excessively high.

Notes

Humidity is an important factor for frogs. Frogs can dehydrate quickly in conditions of low humidity and so terraria must always have a water source available for frogs to rehydrate if they need to.

Most frogs can be successfully maintained with a relative humidity between 50% and 70%.

5.4 Lighting

Objectives

To provide frogs with an appropriate light cycle.

5.4.1 Standard

- 5.4.1.1 A light cycle (i.e. alternation between light and dark periods) must be maintained that is appropriate for the species being housed.
- 5.4.1.2 Where lighting is provided to view frogs during their activity period, this must be from non-white globes, or other products intended for that purpose. Lights must not be left on constantly throughout the activity period (frogs are nocturnal creatures and require periods of dark).

5.4.2 Guidelines

- 5.4.2.1 Frogs should have access to natural day-night cycles. This may be provided by housing it in areas with natural light.
- 5.4.2.2 An artificial light cycle of 10 hours of light and 14 hours of dark every 24 hours is appropriate when a frog enclosure does not have access to a natural seasonal day-night cycle.
- 5.4.2.3 A globe linked to an on/off thermostat should not be used as the sole heat and light source. This set-up may create a 'photo-invasive' environment and interfere with physiological processes.

Notes

Excessive light or poorly phased light cycles can disrupt normal sleeping patterns and may lead to health problems if maintained over a long period.

Varying temperature and day-length can be used to stimulate breeding in frogs.

5.5 UV light and metabolic requirements

Objectives

To provide lighting that meets the frogs' UV requirements. Most frogs will benefit from exposure to full-spectrum light, but they must be able to move away from the UV source when they need to.

5.5.1 Standard

- 5.5.1.1 Frogs must have access to UV light suitable in order to meet its metabolic needs.
- 5.5.1.2 Where artificial UV light sources are provided they must be installed at a suitable distance from basking sites and replaced as indicated by the manufacturers' specifications.
- 5.5.1.3 Glass must not be placed between the UV light source and frogs, as it reflects UV light.

5.5.2 Guidelines

- 5.5.2.1 All frog species should have access to UV light.
- 5.5.2.2 If an artificial UV light source is used it should be switched on for at least four hours per day.
- 5.5.2.3 Providing regular (i.e. weekly) controlled access to unfiltered (i.e. not through glass or plastic), natural sunlight may be used as a means of UV light provision.

Notes

The ultraviolet (UV) portion of the spectrum assists in the absorption and synthesis of minerals and vitamins such as vitamin D. Failure to provide adequate dietary vitamin D and calcium combined with insufficient access to UV light will have a detrimental effect on some species' health.

A frog's UV requirements can most easily be met by providing it with regular access to unfiltered sunlight or installing a UV globe in their enclosure.

6. Enclosure furnishing

6.1 Substrate

Objectives

To keep frogs clean and free from infection by placing a suitable substrate in their enclosure. If natural substrates such as sand, leaf litter or bark chips are to be used, they must be heat treated (sterilised) before being placed inside the terrarium and each time the terrarium is cleaned. Organic substrates such as sphagnum moss, soil, coco fibre or mulch should be regularly flushed or replaced as these can be ideal culture media for pathogens.

6.1.1 Standards

- 6.1.1.1 An enclosure housing frogs must contain a substrate or floor which keeps the frog clean and does not provide a medium for chytrid or other frog disease to incubate in.
- 6.1.1.2 Most tree frogs do not require sand or soil in the terrarium. The 'furniture' placed in the terrarium must provide the necessary variety of substrates for the frog to use.
- 6.1.1.3 Substrate for an indoor enclosure (non-burrowing) must be readily replaceable in part or in its entirety when soiled by waste material.
- 6.1.1.4 Ground frogs and burrowing frogs may require a sand/clay substrate in the terrarium. The sand/clay must be heat treated (sterilised) before being placed in the terrarium.

6.1.2 Guidelines

- 6.1.2.1 When choosing a substrate, the keeper should consider ease of cleaning, potential to harbour frog pathogenic diseases and the impacts of the substrate on other environmental requirements of the species being kept (e.g. humidity).

- 6.1.2.2 Care should be taken when choosing substrates that consist of small particles (e.g. bark chips, gravel) as it may be ingested during feeding. Digestive problems associated with consuming substrate particles such as small stones will usually require veterinary treatment.
- 6.1.2.3 Care should be taken when choosing substrates that stick to moist surfaces (e.g. fine desert sand) as it may accumulate on the frog's skin.

Notes

For some burrowing frogs the sand/clay substrate may need to be 10 centimetres or more in depth.

The collection of natural substrates (e.g. bush rocks) from the wild should not be undertaken.

6.2 Furniture

Objectives

To offer frogs the opportunity to exhibit a range of natural behaviours such as climbing, burrowing and hiding.

6.2.1 Standards

- 6.2.1.1 An enclosure must contain a physical barrier within the enclosure, under or behind which frogs can hide and must be appropriate for the species being housed (i.e. one that facilitates the natural hiding behaviour of the frog). This shelter is in addition to the enclosure walls or any other standards. Shelters may be designed so that the animal is still visible.
- 6.2.1.2 An enclosure housing frogs that normally climb must provide climbing opportunities which are appropriate for the species being housed (i.e. one that facilitates the natural climbing behaviour of the frog). Climbing opportunities can include branches, bark, rocks, perches, shelves or other suitable surfaces.
- 6.2.1.3 Heavy cage furniture must be situated so that it cannot move and injure frogs should they attempt to climb on or burrow under it.
- 6.2.1.4 Frogs need to be able to escape from view at times. Shelter items are an essential requirement in the terrarium.

6.2.2 Guidelines

- 6.2.2.1 If natural logs and rocks are to be placed in an enclosure they should be heat treated (sterilised) prior to use. This includes items being transferred from one enclosure to another.
- 6.2.2.2 Soft plastic plants (silk plants) may be used in preference to real plants as they are easier to clean and do not risk the entry of pathogenic diseases that can affect frogs.
- 6.2.2.3 Keepers should provide multiple shelters for frogs. Frogs use the shelters to hide in but also as an attack base (frogs are ambush predators). This will help them to engage in their natural hiding behaviour.

- 6.2.2.4 Enclosures housing a frog species that periodically needs to bask in the open (e.g. all bell frog species) should have a log, rock or platform underneath an overhead heat source so that it can engage in natural basking behaviour.

Notes

Items such as rocks and logs are often used by frogs to assist in skin sloughing.

7. Food, water and cleaning

7.1 Food

Objectives

A diet that maintains the good health of the frogs.

7.1.1 Standards

- 7.1.1.1 Frogs must be provided with a balanced and sufficient diet that supports their growth, development and normal physiological functioning.
- 7.1.1.2 Frequency of feeding and meal size must be appropriate to the species, sex, age and season.

7.1.2 Guidelines

- 7.1.2.1 Frogs require live food prey. Many pet shops sell containers of crickets, slaters or wood cockroaches that can be used to feed frogs.
- 7.1.2.2 Live insects can be introduced into the terrarium and frogs can hunt them at its leisure. Note: insects such as crickets can easily drown in water bowls and so a small ramp should be placed in the water bowl to allow them to escape and not to die and foul the water.
- 7.1.2.3 Food should be varied and periodically enriched with vitamins and calcium. Care should be taken so that an appropriate calcium/phosphorus balance is maintained to avoid overdosing.
- 7.1.2.4 When more than one individual is housed in a single enclosure, the keeper should ensure that all frogs are getting sufficient food.
- 7.1.2.5 Frogs should not be fed when it is unable to maintain a high enough body temperature for the proper digestion of food. If a frog ignores food being offered to it, it may be that the frog's internal body temperature is too low for the frog to be able to digest the food.

Notes

Both under and over feeding can lead to disease and other health problems. The crickets will remain live in the enclosure for longer if small pieces of carrot are included for their food. Crickets or other insects provided should be dusted lightly with calcium/mineral powder (available in pet stores) as a supplement for the frogs at every second feeding session.

7.2 Water

Objectives

Access to clean water or a moist substrate is critical for frog survival. To provide a source of hydration for the frog that meets its physiological requirements. Water not only provides a source of hydration for a frog, but it also assists in maintaining appropriate humidity levels within the enclosure.

7.2.1 Standards

- 7.2.1.1 Clean water or a moistened substrate must be provided at all times, at a quality that meets the frogs' physiological needs and in a location they can readily access.
- 7.2.1.2 Tap water or tank water must not be used directly. Both may contain contaminants such as chloramine or heavy metals. Water must be aged, filtered or treated with a water conditioner to remove the contaminants before being introduced into the terrarium.

7.2.2 Guidelines

- 7.2.2.1 Water, or access to a moistened substrate biologically relevant to the species, should always be freely available in the enclosure.
- 7.2.2.2 A water container should be used that is made of a non-toxic material that can be easily cleaned and disinfected. A disposable container may also be used if regularly replaced.
- 7.2.2.3 A water container should be stable and heavy or otherwise secured so that frogs cannot tip it over.
- 7.2.2.4 The volume of water should be adjusted to assist with the maintenance of appropriate humidity levels for the species being housed.
- 7.2.2.5 Water in the enclosure should be filtered or changed regularly to maintain optimal water quality.

Notes

Frogs do not drink, they absorb water through their skin. Frogs may sit in the water bowl to do this or they may absorb water directly from their substrate or the air if the humidity is high enough. The water should be no deeper than six to eight centimetres (depending on the size of the frogs), as some burrowing frogs are not very capable swimmers and can drown if the container does not have shallower areas such as a flat stone on the bottom or exit ramp.

7.3 Cleaning

Objectives

To maintain good hygiene standards so that the frogs remains healthy.

7.3.1 Standards

- 7.3.1.1 Faeces, urine, uneaten food and other waste materials must not be allowed to build up in an enclosure.
- 7.3.1.2 A shelter must be cleaned or replaced immediately if its interior becomes soiled with waste.
- 7.3.1.3 Food and water containers must be cleaned immediately if they become contaminated with waste.
- 7.3.1.4 An enclosure, cage furniture, food container and water container must be cleaned and sterilised before being used for a different frog.

7.3.2 Guidelines

- 7.3.2.1 The keeper should wash or disinfect their hands before and after handling any frog, food or enclosure. Disposable gloves can provide an additional layer of protection.
- 7.3.2.2 An enclosure should be regularly cleaned, disinfected and rinsed to remove any build-up of waste material.
- 7.3.2.3 Live plants, compost or plant fibres should not be used in the terrarium unless sterilised or heat treated. If soil has to be used for burrowers, sterilising in an oven for up to two hours is recommended prior to use.

Notes

Diseases such as chytrid fungus can quickly become established in an unclean terrarium. Regular cleaning and a constant supply of clean water are essential.

8. Transport

Objectives

To keep frogs safe and secure during transport. Frogs typically will be transported over short distances when attending veterinary surgeries or society shows. At other times, frogs may be transported long distances within or between states. The principles of transporting frogs are the same regardless of distance.

8.1 Standards

- 8.1.1 Frogs must not be fed during transport.
- 8.1.2 Frogs must have access to water prior to transport to avoid dehydration and some damp sheets of paper towel or a moistened substrate (such as sphagnum moss) during transit.
- 8.1.3 The transport container must be secured so that frogs cannot escape.
- 8.1.4 The transport container must be adequately insulated from noise, heat and excessive vibration.
- 8.1.5 The transport container must be adequately ventilated.

- 8.1.6 The transport container must protect the frogs from injuries such as crushing and scratching.
- 8.1.7 The transport container must not be placed in direct sunlight or rain.
- 8.1.8 A transport container used by a carrier, other than the keeper, must be clearly labelled 'LIVE ANIMALS – HANDLE WITH CARE' and 'THIS SIDE UP'.
- 8.1.9 Tadpoles must be transported in water-filled containers such as a sealed plastic bag with an air pocket placed inside a strong sealable plastic container.

8.2 Guidelines

- 8.2.1 Frogs should not be transported unless they have had sufficient time to digest any food.
- 8.2.2 Frogs may be transported over a short distance in a sealed plastic bag containing a very small amount of water secured within a Styrofoam box.
- 8.2.3. Keepers should seek the services of a transport company that has relevant small animal handling experience when transporting frogs over a long distance.

Notes

Please refer to Australia Post's Dangerous and Prohibited Goods and Packaging Post Guide for requirements for the shipping of frogs by Australia Post (www.austpost.com.au).

Transporting frogs between New South Wales and other states and territories may require an import/export licence issued by OEH.

9. Quarantine

Objectives

Practices that reduce the spread of disease between captive frogs. It is good practice to quarantine a new frog (isolate them from other frogs) for a period, before introducing them to a collection. There are a number of frog-specific diseases that have long incubation periods and can be very difficult to diagnose.

9.1 Guidelines

- 9.1.1 The OEH Hygiene Protocol for the Control of Disease in Frogs should be followed.
- 9.1.2 A quarantine period not less than two months should be employed for a newly acquired frog. (The keeping of accurate records as outlined in Section 11 can assist with tracking any health issues).
- 9.1.3 Keepers should satisfy themselves that they are purchasing a healthy frog from a disease-free source. A new frog should be examined carefully for parasites and the previous history of the frog should be known (to determine its likelihood of being exposed to diseased frogs).

- 9.1.4 Keepers should clean their hands or change disposable gloves after handling a quarantined frog and its enclosure contents to reduce the risk of transmitting diseases to other frogs in their collection.

10. Acquisition and disposal

Objectives

To ensure that frogs are lawfully acquired and disposed.

The standards set out below apply to frogs of a species that may be kept in accordance with this Code without the need for a licence, as listed in the Schedule to this Code.

For frogs of a species that may only be kept under a licence, the licensed keeper may only acquire or dispose of frogs as specified in their licence conditions.

10.1 Standards

- 10.1.1 Frogs of the species listed in the Schedule to this Code, must only be acquired by:
- persons that are at least 16 years old
 - persons under the age of 16 years, but only with the knowledge and approval of their parent or legal guardian.
- 10.1.2 Frogs of the species listed in the Schedule to this Code, may be imported from, or exported to, another state or territory.
- 10.1.3 Persons must only acquire frogs of species listed in the Schedule to this Code from:
- a person in New South Wales over the age of 16 years or persons under the age of 16 years, but only with the knowledge and approval of their parent or legal guardian
 - the holder of a current dealer licence issued by OEH that authorises the buying and selling of frogs
 - a person from another state or territory that has lawfully acquired the frog and, if required under the laws of their state or territory, has obtained a licence to export the frog to New South Wales.
- 10.1.4 Keepers must only dispose of frogs of species listed in the Schedule to this Code by giving, trading or selling the frogs to:
- a person in New South Wales that is over the age of 16 years, or a person in New South Wales that is under the age of 16 years but only with the knowledge and approval of their parent or legal guardian
 - a person in another state or territory that may lawfully acquire the frog, and if required under the laws of their state or territory, has obtained a licence to import the frog from New South Wales.

- 10.1.5 Keepers of species listed in the Schedule to this Code must only advertise the disposal or acquisition of frogs in a specialist publication, journal or internet site related to the keeping of frogs or native animals.
- 10.1.6 Keepers of species listed in the Schedule to this Code must not buy, sell or trade in native frogs as a business.

Notes

A dealer licence issued by OEH is required to buy and sell frogs as a business.

Frogs of species that are not listed in the Schedule to this Code may not be imported into New South Wales or exported from New South Wales without an import or export licence issued by OEH.

Persons from other states and territories may need a keeper licence and/or an import licence issued by the environment agency in their state or territory to acquire native frogs from New South Wales.

11. Record keeping

Objectives

To maintain accurate records of frogs. This will provide a valuable tool in proving frogs have been lawfully acquired and identifying sources of health problems.

The standards set out below apply to frogs of species that may be kept in accordance with this Code without the need for a licence, as listed in the Schedule to this Code.

For frogs of a species that may only be kept under a licence, the licensed keeper must keep records as specified in their licence conditions.

11.1 Standards

- 11.1.1 Keepers must retain records of the acquisition and disposal of frogs of species listed in the Schedule to this Code, such as signed and dated receipts indicating the number and species of frogs acquired or disposed and the name and address of the person or business from whom frogs are acquired or to whom frogs are disposed.

11.2 Guidelines

- 11.2.1 The keeper should keep records for each frog covering the following matters, as these can be of significant help when diagnosing health problems:
- feeding and refusal of food
 - veterinary treatment, medication and observations on health issues (e.g. diarrhoea and regurgitation)
 - unusual behaviour.
- 11.2.2 A large frog can be micro-chipped by a veterinarian with relevant experience, as this enables ownership of the frog to be established. In the event of the frog being stolen or escaping, a micro-chip can be used for identification by the local

council and ensure the frog is returned to its rightful owner. Micro-chipping is not recommended for juveniles and small species.

Notes

It may be useful to record body size and weight on a regular basis as well as reproductive activities and changes in weight and length of the frog.

A card attached to the outside of an enclosure is a convenient way of recording information.

Schedule

This Code is approved as a code of practice under the *Biodiversity Conservation Act 2016* for the keeping of the species of native frogs listed in the Schedule to this Code.

Common name	Scientific name	Species group
Bullfrog/eastern banjo frog	<i>Limnodynastes dumerilii dumerilii</i>	Ground frog
Centralian tree frog	<i>Litoria gilleni</i>	Tree frog
Common eastern froglet	<i>Crinia signifera</i>	Ground frog
Dainty tree frog	<i>Litoria gracilentia</i>	Tree frog
Desert tree frog	<i>Litoria rubella</i>	Tree frog
Dusky toadlet	<i>Uperoleia fusca</i>	Ground frog
Eastern dwarf tree frog	<i>Litoria fallax</i>	Tree frog
Eastern sign-bearing froglet	<i>Crinia parinsignifera</i>	Ground frog
Green tree frog	<i>Litoria caerulea</i>	Tree frog
Keferstein's tree frog	<i>Litoria dentata</i>	Tree frog
Long-thumbed frog	<i>Limnodynastes fletcheri</i>	Ground frog
Magnificent tree frog	<i>Litoria splendida</i>	Tree frog
Painted burrowing frog	<i>Neobatrachus sudelli</i>	Ground frog
Peron's tree frog	<i>Litoria peronii</i>	Tree frog
Red-eyed tree frog	<i>Litoria chloris</i>	Tree frog
Smooth toadlet	<i>Uperoleia laevigata</i>	Ground Frog
Southern brown tree frog	<i>Litoria ewingii</i>	Tree frog
Spotted marsh frog	<i>Limnodynastes tasmaniensis</i>	Ground frog
Tyler's tree frog	<i>Litoria tyleri</i>	Tree frog