



Code of practice for the welfare of animals - Private keeping of reptiles (Victoria)

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Contents

Introduction

General requirements

Enclosures

- sizes
- - lizards
- - terrestrial snakes
- - arboreal snakes
- - freshwater turtles
- - crocodiles
- - outdoor
- - indoor
- - temperature
- - ventilation
- - humidity
- - lighting

Substrate

Cage furniture

Hygiene

Housing dangerous reptiles

Water

Food

Record keeping

Quarantine

Transporting reptiles

Bibliography

1. Introduction

The keeping of wildlife, including reptiles, is a legitimate activity in Victoria and provided for under the *Wildlife Act 1975* and *Wildlife Regulations 2002*. Under the regulations, people are permitted to keep a number of different species of reptiles in Victoria. This Code is intended to complement the requirements of individuals under legislation so that people keeping reptiles do so in a

manner that meets minimum standards of animal welfare appropriate for the species concerned.

Detailed requirements for particular species can be obtained by referring to the publications cited in the bibliography. It is the responsibility of the individual keeper to source the information that is necessary to meet the biological and psychological needs of the animals in question.

Keepers must possess a basic knowledge of the biological, nutritional and environmental requirements of reptiles. This is a prerequisite for successful maintenance of captive reptiles because the majority of diseases observed in these animals are precipitated by environmental stress and inadequate husbandry.

All persons involved in the husbandry of reptiles, and especially snakes, should be familiar with appropriate handling techniques through demonstrated experience, appropriate training courses or attendance at approved reptile holding establishments. Under the *Wildlife Regulations 2002*, persons under 18 years of age must include written evidence of their competency in handling venomous snakes with their application for a *Private Wildlife (Advanced) Licence* before their licence will include the entitlement to keep them.

1.1 Definitions

'Arboreal' means adapted for living and moving about in the trees.

'Conspecifics' means members of the same species.

'Diurnal' means predominantly active during the day.

'Ectothermic' means reliant on external heat sources for regulating body temperatures.

'Fossorial' means digging or burrowing.

'Interspecific' means between two or more species.

'Intragroup' means within a group.

'Intraspecific' means within a species.

'Montane' means of or associated with mountains or uplands.

'Nocturnal' means predominantly active by night.

'Photoperiod' means the relative length of day and night.

'Physiological' means the functioning of an organism.

'Quarantine' means isolation of an animal that has arrived from elsewhere, or been exposed to, and might spread, infectious or contagious disease.

'Terrestrial' means adapted to live and move on the ground.

'Thermoregulate' means the regulation of an animal's body temperature by behavioural or physiological means (i.e. some reptiles will warm their bodies by sitting on a sun-exposed rock to increase metabolic rate, so they can then forage).

2. General requirements

- a) Welfare of the captive reptiles must always be viewed as a high priority in order to safeguard them from disease, injury and stress.
- b) All reptiles held by private keepers must be provided with temperatures, humidity and light cycles that are appropriate to the species and allow normal physiological functioning and behaviour.
- c) Different species of reptile may be kept together within an enclosure provided that their feeding habits, relative sizes and interspecific aggressiveness are not incompatible.
- d) Reptiles must not be restricted or restrained by the use of a leash or tether.
- e) Reptiles must not be kept in areas with excessive noise or vibration, or which are subject to excessive temperature fluctuation.
- f) Care must be taken when introducing a reptile to an enclosure, including consideration of any effects this may have on the introduced animal, as well as on any reptiles already occupying the enclosure. All introductions should be carefully monitored.
- g) All reptile enclosures should be safe for the keeper to access/exit and work in.

3. Enclosures

3.1. Sizes

- a) The cage must be of sufficient size so as to provide enough space, both horizontally and vertically, to enable the animals to take exercise and to protect animals from undue dominance or conflict.
- b) The cage must be large enough so that there is a temperature gradient, with one end being warmer than the other to allow the animal to thermoregulate.

3.1.1. Lizards

- a) Minimum floor area for 2 adult specimens = $2.5L \times 2.0L$ (L = length of longest specimen); for each additional specimen add 20% to the area.

- b) Lizards under 12 months of age are exempt from the space requirements in point a) above, as appropriate enclosure dimensions for such lizards can vary greatly. However, solely as a guide, up to six hatchling Bearded Dragons can be maintained in an enclosure measuring 60 cm long x 30 cm wide x 30 cm high, provided that these numbers are gradually reduced as the lizards grow and/or as soon as any signs of dominance-related stress become apparent. Overcrowding must be avoided at all times. These considerations notwithstanding, such lizards must still be provided with all the other conditions set out in this Code.

3.1.2. Terrestrial snakes

- a) For two adult specimens up to 4m in total length (L = length of longest specimen):

$$\text{length} = 0.45L$$

$$\text{width} = 0.375L$$

$$\text{height} = 0.25L$$

For each additional specimen add 20% area.

- b) Snakes under 12 months of age are exempt from the space requirements in point a) above, as appropriate enclosure dimensions for such snakes can vary greatly. However, solely as a guide, up to six hatchling snakes can be maintained in an enclosure measuring 60 cm long x 30 cm wide x 30 cm high, provided that these numbers are gradually reduced as the snakes grow and/or as soon as any signs of dominance-related stress become apparent. Overcrowding must be avoided at all times. These considerations notwithstanding, such snakes must still be provided with all the other conditions set out in this Code.

3.1.3. Arboreal snakes

- a) For two adult specimens up to 4 m in total length (L = length of longest specimen):

$$\text{length} = 0.45L$$

$$\text{width} = 0.3L$$

$$\text{height} = 0.5L$$

For each additional specimen add 20% area.

- b) Snakes under 12 months of age are exempt from the space requirements in point a) above, as appropriate enclosure dimensions for such snakes can vary greatly. However, solely as a guide, up to six hatchling pythons can be maintained in an enclosure measuring 60 cm long x 30 cm wide x 30 cm high, provided that these numbers are gradually reduced as the snakes grow and/or as soon as any signs of dominance-related stress become apparent. Overcrowding must be avoided at all times. These considerations notwithstanding, such snakes must still be provided with all the other conditions set out in this Code.

3.1.4. Freshwater turtles – Family *Chelidae*

- a) Australian freshwater turtles must be provided with sufficient water to cover the animals and provide sufficient room for exercise (minimum of 30 cm depth). An additional area of ground surface must be provided to allow a dry basking site, with a temperature of 28–32°C.
- b) A gently sloping floor, or other appropriate means, must be provided to enable the animals to enter/exit the water to their basking site.
- c) Water temperature must be thermostatically controlled within the naturally occurring temperature ranges on a daily, and preferably seasonal, basis. Recommended water temperatures of 24–28°C are suitable for tropical species, 22–26°C for temperate species.

3.1.5. Crocodiles

- a) For small specimens (up to 25 cm total length), up to two specimens can be maintained in an enclosure measuring 60 cm long x 30 cm wide x 30 cm high.
- b) For all specimens, the pond must be at least twice the length of the largest specimen and have a width at least as great as the length of the largest specimen.
- c) The pool must be deep enough for the largest specimen to submerge completely and swim freely.
- d) An additional area of dry land must be provided, which is at least as long and wide as the length of the largest specimen, and which has a basking site with a temperature of 30–33°C.
- e) It is recommended that only crocodiles up to a total length of 2.5 m are kept. Applications to keep larger specimens should be considered on a case-by-case basis.

3.2. Outdoors

- a) Outdoor enclosures are usually only suitable for species from a similar climatic region to that of the enclosure location, as they provide a natural regime of climatic and seasonal conditions.
- b) Outdoor enclosures must not be dug below ground level unless there is provision of adequate drainage, notwithstanding clause c), because of the possibility of flooding or muddy conditions following rain.
- c) The walls of outdoor enclosures must be constructed of smooth, non-climbable barriers and should continue into the ground not less than 50 cm to prevent reptiles from escaping by climbing or burrowing out. The walls of the enclosure should be of sufficient height to prevent escape. A 45° return, angled inwards on the top of the wall, will also help prevent climbing reptiles from escaping.
- d) Shrubs must not be placed close to the enclosure walls, but situated away from them to prevent reptiles from escaping.
- e) Enclosures must be constructed so as to prevent unsupervised people from contacting the animals contained within.

f) Outdoor enclosures must:

- provide access to direct sunlight throughout the day;
 - provide adequate hiding facilities for all reptiles housed within;
 - provide adequate shade at all times of the day;
 - be well drained to prevent the accumulation of water and facilitate dehydration of the substrate;
 - provide areas which are permanently covered and dry.
- g) Crocodiles should not be kept completely outdoors in Victoria. They may be kept in a situation which is partly outdoors provided they have ready access to shelter and appropriate heating.
 - h) Enclosures must be designed to facilitate ease of maintenance and keeper safety/access.

3.3. Indoors

- a) Indoor enclosures provide a greater degree of environmental control than outdoor enclosures, thereby allowing less hardy animals to be kept.
- b) Cage walls, floor and fittings shall be made of impervious materials that can be efficiently disinfected and cleaned.
- c) Indoor enclosures shall be escape-proof and:
 - have all ventilation holes securely screened;
 - have all doors and lids fitted with latches, hooks or clasps to securely fasten the door or lid;
 - be designed to facilitate ease of maintenance and keeper safety;
 - have smooth walls to reduce the likelihood of injury.

3.3.1. Temperature

- a) Reptiles are ectothermic and maintain their preferred body temperature through behavioural means, such as the selection of micro-environments so that heat gain or loss occurs as required. Reptile activity, physiological functions and feeding occur within a narrow range of the species' preferred body temperature. Consequently, it is critical that optimal body temperatures be accommodated by the creation of a thermal gradient across the floor of the enclosure for terrestrial reptiles, or the depth of the enclosure for arboreal species.
Therefore, a heat source shall be provided within each reptile enclosure sufficient to provide the opportunity for effective thermo-regulation.
- b) Heating devices must be designed and positioned so that parts of the enclosure floor are not heated, thereby providing a range of temperatures.

A daytime temperature gradient of 25–30°C will accommodate the thermal requirements for the majority of species. Natural daily and seasonal variations should be provided.

- c) Temperature readings must be taken regularly at the site where the reptile spends substantial amounts of time, or be constantly monitored using a maximum–minimum thermometer to ensure that extremes of temperature are prevented. Heating sources must be thermostatically controlled to remove the potential for overheating.
- d) Light globes, exposed heatpads, aquarium heaters, or other heat sources must be designed and constructed to prevent access by reptiles, if there is a possibility of the animals being burnt.
- e) Water temperature in enclosures where crocodiles are held should be within the range of 26–28°C.

3.3.2. Ventilation

Adequate ventilation, sufficient to allow movement of air without causing a draught, is essential in reducing humidity, and consequently fungal and bacterial infections. Air exchange and circulation within the enclosure should be supplemented by control of ventilation within the room as a whole.

3.3.3. Humidity

- a) Suitable humidity is essential for reptile husbandry. In their natural habitat reptiles are adapted to micro-climates that are very different from those perceived by humans.
- b) Diurnal desert species require a relative humidity of 50%, while 50–70% relative humidity is suitable for most coastal and montane species. Snake species found in humid tropical environments require a relative humidity greater than 60%. However, the accumulation of moisture should be avoided as humidity extremes and constant contact with wet substrates cause respiratory and skin infections in reptiles.
- c) Where live plants are used to decorate the exhibit, care must be taken to ensure that the relative humidity does not become excessively high. Artificial plants may be used as an alternative.
- d) Floor substrate may also be adjusted to vary humidity.

3.3.4. Lighting

- a) Reptiles must be provided with a light cycle that allows for the normal physiological functioning and behaviour of the species.
- b) Where reptiles, particularly diurnal lizards, tortoises and crocodylians, are not exposed to unfiltered natural sunlight, lighting must include an ultraviolet spectrum due to the known importance of ultraviolet light in the absorption and synthesis of certain vitamins and minerals. Nocturnal or fossorial reptiles are exempt from this requirement.

- c) Lighting must be as unobtrusive as possible. It should allow for seasonal variation to stimulate breeding behaviour if required.
- d) Most reptiles respond to local photoperiod and therefore lighting should be restricted during the day to allow the natural arrival of dawn and dusk. Where there is insufficient natural light to allow this, it is preferable that a regular day/night light cycle similar to local conditions be provided. Alternatively, not less than 8 hours lighting shall be provided daily.

4. Substrate

- a) The substrate must keep the reptiles dry, and therefore must be deep enough to achieve this.
- b) A variety of substrates may be used, including gravel, sand, peat, exfoliated bark and leaf litter. Soil is not recommended. When choosing the substrate, consideration should be made of the possibility that small particulate substrate may be consumed with the diet and cause serious internal problems. Materials that swell when they are swallowed should not be used.
- c) The edges of pools provided for turtles and crocodiles should have smooth, rounded edges to prevent abrasion or injury to their ventral surfaces.
- d) Natural substrates may be chosen which reflect the known habitat of the species in the wild. However, the collection of rocks and logs from protected natural areas is not recommended.

5. Cage furniture

- a) The interior design of enclosures must be consistent with the environmental needs of the inhabitants.
- b) A basking site, such as a rock slab or log, should be provided under the heat source in all reptile enclosures.
- c) Snakes must be provided with a rough object, such as a rock or log, to provide a sloughing aid.
- d) The enclosure should be landscaped to allow for the reptile(s) to feel secure. This may involve a hollow log, shelter box, plant pot or angled piece of bark or rock. These should not be located in an area at the low end of the temperature range. They may be positioned in such a way as to allow the reptile(s) to still be seen by the keeper.
- e) Where semi-aquatic reptiles are kept, such as turtles and crocodiles, a dry area must be provided to allow the reptiles to dry out.
- f) Climbing branches must be provided for arboreal species.
- g) Where a reptile is allowed to hibernate, adequate facilities must be provided to:
 - keep the animals dry and out of draughts;
 - keep the temperature above the species' minimum;

- allow regular checks, while keeping handling to a minimum.

6. Hygiene

- Faecal and urine wastes and uneaten food must be removed daily, and the substrate regularly replaced or be able to be easily cleaned.
- A small amount of faeces may be left each time the cage is cleaned as the pheromones which are released mark the cage with the animal's scent. Faeces should not be left in the enclosure if the animal is unwell or has diarrhoea.
- If it is not filtered, the water in ponds and other aquatic enclosures must be changed regularly to maintain a clean water environment. If a recirculating water system is used, each tank should have a self-contained filtration system to minimise the chances of cross-contamination.
- Facilities for washing hands are to be provided for keepers after working with reptiles or their faeces. A dust mask should be worn when cages containing dry faecal material are being cleaned. This is to reduce the risk of transmission of disease from the reptiles to the keeper.

7. Housing of dangerous reptiles

- It is the responsibility of the licensee to ensure against the possibility of dangerous reptiles escaping. Enclosures containing dangerous reptiles must be designed so that the enclosure may be cleaned without endangering the keeper.
- In addition to other requirements, the following security precautions shall be met for the housing of dangerous reptiles:
 - Rooms containing dangerous reptiles must be constructed such that, in the event of an escape, the reptile will be contained within the room. Consequently, gaps or holes in the floor, walls, or around closed doors must be eliminated. Windows must be locked or be properly fitted with suitable non-detachable wire gauze screens. Human access points to the room must be lockable. It is highly recommended that night security systems, such as sensors, be fitted to rooms containing dangerous reptiles.
 - A formalised security and inspection system must be implemented to ensure that access doors and enclosure lids are kept locked at all times.
 - The keeper of the animals should be aware of a 'duty of care' to keep visitors informed of the dangers.
 - Windows/screens must allow the keeper to visually locate dangerous reptiles before opening the door to enclosures.

- Enclosures and rooms containing dangerous reptiles should have signs alerting visitors of the danger.
- Keepers must familiarise themselves with first-aid treatment of bites from venomous reptiles.
- Appropriate precautions must be provided in advance of any possible emergency. Such precautions must include notification to the nearest hospital of the species of venomous reptiles kept by the keeper, so that a stock of appropriate antivenoms may be kept on hand.
- A fully equipped first-aid kit, which includes bandages for the treatment of bites from venomous reptiles, must be available at all times where such reptiles are kept.

8. Water

- Clean drinking water must be provided at all times, and must be replaced, and the container cleaned, not less than three times weekly. Exemptions from this requirement may be considered where appropriate to the needs of a particular species (e.g. arid zone species).
- Water may be provided in impervious non-spillable containers or in the form of a natural pool. Containers should be heavy enough that the largest inhabitant is unable to tip the container. Semi-aquatic lizards need water in which they can entirely immerse themselves.
- Snakes, particularly pythons, must be provided with a water container large enough to allow the snake to coil up and submerge to facilitate sloughing as required.
- An appropriate water source for very small snakes or lizards, as well as desert adapted forms, is a shallow container holding a water-soaked sponge.
- Many tropical reptiles only lap water off vegetation, so for these species the cage foliage should be mist-sprayed with water twice daily. This practice however may raise the humidity to detrimental levels. Humidity levels and the condition of the reptile should be closely monitored if mist spraying is used.
- In aquatic enclosures, water must be cleaned by filtration or frequently changed to prevent the accumulation of faecal matter and food waste. Faecal material should be eliminated when sighted.

9. Food

- All reptiles must be offered a variety of wholesome foods in sufficient quantities to ensure normal growth and good health unless otherwise dictated by veterinary advice or approved scientific research. The feeding regime must take care to avoid obesity, as disease problems are associated with this condition.
- Food for omnivorous lizards and turtles must be varied and periodically enriched with vitamins and calcium phosphate. Care should be taken to avoid vitamin/mineral overdosing and to ensure that the calcium-phosphorous ratio is appropriate for the species concerned. Publications listed in the

bibliography or appropriately experienced veterinarians should be consulted.

- c) Snakes, most varanids and many other lizard species must be offered a natural whole animal diet. Freshly collected insects must be offered to insectivorous species of lizard during the appropriate season (taking care to avoid those likely to be affected by insecticides). Insect food can be easily bred and maintained for consumption.
- d) Reptiles should not be fed live food for their own protection. All vertebrate-eating reptiles must be encouraged to take dead food.
- e) Several feeding stations shall be provided where reptiles are kept in groups and intragroup aggression occurs. Feeding observations should be made in these situations to ensure undue dominance is avoided.
- f) Food for turtles should be placed in the water.
- g) Isolating some animals, particularly snakes, immediately before feeding may be necessary to prevent accidental ingestion of cage-mates. It is important to observe feeding, particularly with snakes.
- h) Food should only be offered when the appropriate temperature required to metabolise the food is available before, during and at least 48–120 hours (depending on the species) after feeding.
- i) Handling should be restricted for up to 24 hours after feeding.
- j) Crocodiles are entirely carnivorous – their foods range from live insects and small pieces of fish/meat for hatchlings and juveniles, to small mammals, birds or larger fish for adult crocodiles.

10. Records

- a) Records must be maintained for all reptile species and include reproduction, sloughing and medical problems. Feeding records should be kept and include feeding date, stating quantities and type of food offered and eaten.
- b) For all reptile species for which a licence is required under the Wildlife Regulations 2002, a licensee is required to keep the following information:
 - the dates of acquisition and disposal, with details of circumstances and addresses;
 - the date or estimated date of egg laying and/or birth;
 - breeding and details of any offspring;
 - the date of death.

In addition, it is recommended that the following information should be kept to monitor the health of reptiles:

- the date of occurrence of skin shedding and any problems encountered;
- clinical data, including results of physical examination by a qualified veterinarian and details of, and date when, any form of treatment was given;

- opportunistic measurements of body weight and lengths;
 - results of post mortem (where performed).
- f) All relevant records *must* accompany an animal when it is transferred to another person.

11. Quarantine

It is good practice to quarantine animals on arrival when they are to be added to the existing collection. As a guide, zoos would provide a 30-day quarantine period for most species and 12-month quarantine period for pythons. It is recommended that the animals are housed in separate enclosures and preferably in a separate room.

Particular care should be taken with pythons due to the possibility of them being infected with Inclusion Body Disease.

12. Transporting reptiles

- a) Care must be taken to avoid exposure of reptiles to extreme temperatures during transport.
- b) Reptiles must not be transported unless they have been maintained for a sufficient time prior to departure at a temperature that will ensure complete digestion of any ingested food.
- c) Reptiles must not be fed during transport.
- d) Reptiles must have access to water prior to transport to prevent dehydration. This may involve placing the reptile(s) in shallow tepid water for 10 to 15 minutes.
- e) Transport containers must not be placed in direct sunlight, water or draughts.
- f) A person who consigns a live reptile must:
 - i) enclose the reptile (except crocodylians) within a strong, dry, durable, porous linen bag which shall, in turn, be enclosed by a sufficiently ventilated, escape-proof, rigid container. Moistened bags may be used for crocodiles and turtles. A cardboard box is not a suitable container. Any empty space should be padded with shredded paper to prevent excessive movement within the container;
 - ii) attach appropriate labels to the container which clearly identifies the type of reptile being consigned and if the reptile is dangerous or venomous. The container should also be marked 'fragile', 'this way up', 'keep in cool place' (if appropriate);
 - iii) attach to the outside of the container an envelope containing a consignment note showing the consignor's name and address, the consignee's name and address, wildlife licence details (if required for the species being consigned), the date of dispatch, the number of reptiles dispatched, and the common name and scientific names of the species of reptile;

- iv) write the name and address of the consignee and consignor on a label fixed to the container;
- v) not place specimens of different species, or specimens of greatly differing size of the same species within the same bag for transportation;
- vi) keep bagged venomous snakes separate from all other transported animals, preferably by solid partitions in the transport containers;
- vii) place crocodiles separately in ventilated, strong, rigid boxes for transport; the container should be just large enough to accommodate the animal, while preventing it from being able to turn around, and the inside of the container must be smooth to prevent injury to the animal.

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The biannual journal of the Australasian Affiliation of Herpetological Societies, *Herpetofauna*, is a good source of current information on captive reptile management. The Association can be contacted at PO Box R307, Royal Exchange, Sydney, NSW, 2000.

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