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## CARE OF AUSTRALIAN FRESHWATER TURTLES IN CAPTIVITY

The main species of turtles kept in captivity include the **long-necked turtles** (*Chelodina spp*) & the **short-necked turtles** (*Emydura spp* & *Elseya spp*).

Australian freshwater turtles can make fantastic pets & provide endless hours of fascination. They do have species specific requirements that must be met in captive conditions for them to lead a healthy life. Below is an outline of some of the basic requirements for keeping Australian freshwater turtles in captivity.

**Please note:** All Australian freshwater turtles are **protected species** in Australia. Seek individual state & territory requirements for legalities on keeping turtles.

### Indoor enclosures

- Australian freshwater turtle species can be adequately housed in **indoor aquarium set-ups**. Their aquatic nature requires the provision of water for swimming. More importantly they **need to be in water** to eat, drink and defecate
- For most adult turtles a standard 1.2m long tank can be used (larger is better). Fill the tank 2/3 to 3/4 with water
- Apart from water, turtles should be provided with an area where they can be **completely dry** (a 'basking' area). For a 1.2 metre tank, make about 30cm into a basking area. Create this by attaching a sloping ramp at one end of the tank.
- The water depth should be at least 2 times the length of the turtle's carapace (the shell length)
- **Substrates** (layer of material on bottom of tank) can be provided by means of a 3-5cm layer of gravel/pebbles (ensure the pieces are large enough so that the turtles can't swallow them). However it is generally much easier to maintain water quality and keep the tank clean if there is no substrate present

### Lighting

- Turtles have strict requirements with respect to **UVB light** supplementation
- Correct lighting may also stimulate natural foraging and feeding behaviours in some species
- Turtles rely on UVB light rays to be able to adequately produce **Vitamin D3** in their skin. Vitamin D3 is essential for proper calcium metabolism in turtles
- UVB light can be provided by artificial 'UV-lights', however, there is **NO** substitute for **natural unfiltered sunlight**
- Turtles should be **placed in sunlight** for 20-30minute periods 2-3 times a week. When doing this ensure the turtle is enclosed safely in an escape proof/predator proof container with shallow water. The sunlight received should not pass through any glass or plastic as this will filter out UVB rays. Make certain that the turtle cannot **overheat**
- Most artificial UV sources designed for reptiles need to be placed at a minimum length from the reptile obtaining the light. Furthermore, the effective UVB emission lifespan of these lights is usually in the vicinity of 3-6 months, so they will need to be **replaced at least every 6 months**
- Recommended day and night cycles for most of the temperate turtle species is 12 hrs light and 12 hrs dark

### Heating

- Turtles require the water to be heated at a temperature of **20-28C** (depending on the turtle species). To achieve this, a thermostatically controlled aquarium water heater will be needed
- Regardless of the water heater's thermostat setting, water temperature should be monitored with an appropriately protected submersible **aquarium thermometer** or adhesive strip thermometer
- Apart from heating the water, also provide them with a basking area at the designated dry end of the tank
- The **basking area** can be heated with a reflector or ceramic globe. Be sure to use a thermometer to check the temperature at the basking area
- Some turtles require a basking area that may reach 35 Celsius

### Water Quality

- Good water quality is vital to maintaining a healthy turtle. The subject of water quality alone occupies much of the time in aquarium maintenance for many aquarium enthusiasts
- There are many factors in water quality that we can influence and affect, namely water pH, water hardness and water cleanliness (often concerning water nitrogen compound levels).

- Turtles can produce a lot of waste. It is a good idea to become familiar with the principles of water quality, especially with the principles of the '**Nitrogen Cycle**'. Understanding this will help with the problem-solving sometimes required when dealing with water quality issues in aquarium set-ups
- Commonly, the cause of illness in captive turtles can be traced back to **poor water quality**. It is the chemicals that you can't see in the water that can potentially be the most harmful
- Any water we use in a tank that contains turtles needs to be **continuously filtered**. If it's not, then it needs to be changed very regularly (this is not the recommended system of water quality assurance to employ)
- For turtles we would ideally use a '**biological**' **water filter** system that helps to remove toxic nitrogen compounds
- A popular type of biological filter type is the external '**canister**' **filter**
- Regardless of the filter efficiency, **weekly 25% water changes** are still recommended
- The level of chlorine in most tap water should not affect the workings of a biological filter. It is still a good idea to use a '**water conditioner**' if using tap water to top up the tank.
- There are advanced commercial aquarium test kits that will measure the level of different nitrogen compounds in the water including ammonium, nitrite and nitrate & also the pH & hardness of the water. Measuring these on a regular basis will give you an idea of how well your tank set up is working
- **Water pH** refers to how acidic or alkaline the water is. Ideally turtles tank water should be kept at a **pH of >7 to 8.4** which is considered neutral to slightly alkaline
- The water hardness refers to the measure of dissolved 'salts' present in the water. Water hardness is measured in 'parts per million' (ppm). For turtles a water hardness of 140 - 210ppm (moderately hard) is suitable
- Adding aquarium conditioning salts can be useful in maintaining hardness. Use the recommended concentration of about 5g aquarium salt per 10L of water

### Feeding Turtles

- In the wild the long-necked turtles (*Chelodina* spp) are mostly carnivorous & will often eat insects, fish, tadpoles, frogs, crustaceans & molluscs
- Short-necked turtles (*Emydura* spp & *Elseya* spp) vary in their eating habits ranging from herbivorous to carnivorous
- Remember that turtles need to be **submerged in water to feed**
- Turtles are prone to **over eating** and will opportunistically eat the 'wrong' foods if given the chance
- For the long-necked turtles offer them a variety of **whole fish** (freshwater fish species, white bait, guppies etc), **shell-fish** (fresh & saltwater prawns, yabbies), **molluscs** (freshwater snails and mussels), **insects** (moths, crickets, roaches, flies, etc), **worms** and very occasional raw offal (liver, etc)
- For short-necked turtles, feed as for the long-necked turtles but also offer them vegetable matter such as freshwater plants including Duckweeds (*Lemna* spp *Wolffia* spp, *Spirodela* spp), Ribbonweed (*Vallisneria* spp) & Nardoo (*Marsilea mutica*). Also include **vegetables & fruits** such as spinach, parsley, dark leafed lettuces, cabbage, broccoli, pumpkin, tomato, apples, pears, stone fruits etc
- Make sure any 'salt water' food item is **soaked in fresh water before feeding** (for at least a few hours). Any prawns offered to turtles should have the spiny head removed for adult turtles and totally shelled for juveniles
- If feeding a lot of thawed **frozen foods**, be aware that some vitamins (especially B Vitamins) may be destroyed by the freezing process. Try to feed a proportion of fresh/non-frozen foods to turtles
- **Avoid** feeding them raw meat or pet foods unless absolutely necessary
- **Feeding rates**; around a portion the size of the turtle's head **1-2x per week** for adults and every 2 days for juveniles
- Supplementation with Calcium/vitamin D3 may not be an issue if turtles are consuming whole fish and have access to unfiltered sunlight. However, it is still a good idea to supplement their food on a monthly basis. Some powder supplements can be made into a 'slurry' and injected into the food item before feeding. Alternatively some liquid multivitamin/mineral preparations can be injected into food items
- **Remove any uneaten food** within a few hours, this will help to keep the water clean
- Alternatively, it is a good idea to place the turtles into **separate containers** out of the tank to feed them. Use water from the tank to place into the feeding containers and discard the water afterwards

### Veterinary & Health Notes

- Have any new turtle examined by a reptile vet. **Parasite** checks and general blood screens can be performed
- It is essential that you **quarantine** any newly introduced turtle. Don't risk introducing disease or parasites. Speak to your reptile vet for details on sound quarantine procedures
- It is recommended that you have your turtles vet-checked annually. This is especially so if you intend to breed them
- **Always wash your hands after handling** any reptile & between handling of different reptiles
- Turtles kept outdoors or those that are intending to go under hibernation need to be closely monitored for health & parasites. It is a good idea to **regularly weigh** & record the body weight of your turtles
- Turtles can be transported in sealed (provide air holes) flat bottom containers on soft & moist towels. Ensure that they can't escape or overheat! **Never transport turtles in water**
- It's a good idea to bring in a sample of their tank water at the vet check. Use a clean jar or obtain a specimen container from the vet beforehand.