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MONITOR LIZARDS

Perentie

Varanus giganteus

Varanus giganteus is Australia's largest lizard: a slender, long-necked desert monitor of up to 250 cm with a pale, net-patterned head and transverse rows of large, pale spots on the back. It is fast, diurnal and feeds on reptiles, mammals and carrion. Little is known about its care. The species needs an entire room, intense heat and UVB, and can bite hard and lash with its tail.

Family: Varanidae

KEY FACTS

THE ANIMAL

Adult size	**150-250 cm** total length incl. tail
Lifespan	**10-20 years**
Active	**By day**
Lifestyle	**Rock-dwelling, terrestrial and burrowing**
Habitat	**Desert, semi-desert and rocky terrain**
Difficulty	**Expert**

CARE

Min. enclosure	**500 × 200 × 200 cm** L × W × H for 1 adult
Temperature, day	**25-35 °C**
Basking spot	**50-58 °C**
Temperature, night	**20-24 °C**
Humidity	**30-60%**
Water	**Water dish**
UVB	**Essential** Ferguson zone 3
Diet	**Insects and vertebrates**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**5-17 eggs**
Incubation	**180-190 days** at 28-31 °C

PROTECTION AND PAPERWORK

CITES	**Appendix II**
EU annex	**Annex B**
IUCN	**Least Concern (LC)**

About the species

Varanus giganteus is the largest lizard in Australia and the fourth largest living lizard in the world. Adults reach 150-250 cm including the tail and can weigh up to 20 kg. The species is slender compared with other large monitors and has a narrow head with a long, parallel-sided snout, long legs and a tail that is strongly compressed from the sides. The head and neck are creamy white with a net of black lines and spots. The body is yellow to cream with transverse rows of large, pale spots and brown rosettes, and the legs are dark with white spots. The underside has a dark net pattern.

The species was described in 1845 and belongs to the subgenus *Varanus* together with the large Australian ground monitors. It is distinguished from *Varanus gouldii*, *Varanus panoptes* and *Varanus rosenbergi* by its narrow, parallel-sided snout, by the nostrils, which sit twice as far from the eye as from the tip of the snout, and by more scale rows at midbody.

The species is shy and usually withdraws before it is seen. When discovered, it either lies completely still or flees quickly, and if cornered it rears up, inflates its throat, hisses, lashes with its tail and can attack with its mouth open. Bites and claws can cause serious injuries, and a bite causes swelling within a few minutes, bleeding that is difficult to stop, and pain that can radiate up to the elbow and last for several hours.

V. giganteus needs an entire room or a large, secure enclosure, and it is best kept by keepers with experience of other large monitors. The species is only rarely bred outside Australia. Lifespan in captivity is not documented; 10-20 years in the box is borrowed from *Varanus gouldii*.

Distribution and habitat

Varanus giganteus lives in the dry parts of central and western Australia, west of the Great Dividing Range: in western Queensland, northern South Australia, the Northern Territory and large parts of Western Australia. The species is seldom seen, because it is shy and because large parts of its range lie far from settlement. It is not found outside Australia.

> **Native range:** Australia.

HABITAT

Varanus giganteus lives in desert, semi-desert and dry scrub, especially in rocky areas with outcrops, gorges and hard-packed soil with loose stones. It uses burrows as shelter and can dig a new burrow in a few minutes. The climate in its range is hot and dry with very hot summers, cool nights and cool winters.

The animal is diurnal and covers long distances when hunting. It climbs easily on rocks and in trees, rises on its hind legs and tail to look out over the terrain and occasionally forages in shallow water. The eggs are laid in the ground or in termite mounds.

Care

THE ENCLOSURE

Little is known about the care of *Varanus giganteus*. Care is based on other large Australian ground monitors such as *Varanus gouldii* and *Varanus panoptes*, which have similar requirements.

An enclosure for a terrestrial monitor must be at least five times as long and twice as wide and high as the animal's snout-vent length. For an adult this means at least 500 × 200 × 200 cm (length × width × height). An entire room or a large, secure outdoor enclosure in the warm part of the year is better still. Young can start in a smaller enclosure, but they grow quickly, and the space for the adult must be ready before the animal is bought. The floor must be able to bear a deep and heavy substrate.

The substrate must be deep, ideally 50 cm, of sand and soil, so that the animal can dig its own tunnels without them collapsing. Live plants will not survive. Furnish with large, stable piles of stones, thick hollow logs and heavy branches, which must be firmly fixed, because the animal is strong and climbs. There must be several large hides at both ends. Doors must close tightly and be lockable, and all heat sources must be shielded, so that the animal can neither burn itself nor tear them down. A bowl of water that the animal can step into is part of the setup.

TEMPERATURE

Varanus giganteus comes from a hot, dry climate and needs a large temperature gradient. The figures for temperature and humidity are borrowed from *Varanus gouldii*. During the day there should be 25-35 °C from the cool to the warm end. The basking spot is a large, flat stone or slab where the surface temperature measured with an IR thermometer is 50-58 °C. At night the temperature falls to 20-24 °C.

Use several lamps over a large area, so that the whole body can lie in the heat and no part of the animal is burned under a single cone of light. The animal must also be able to cool off in shade or in a burrow. The lamps sit in ceramic fittings behind a guard, and all heat sources are controlled by a thermostat. The surface temperature of the basking spot matters more than the air temperature. Brumation is not necessary for keeping; see Breeding.

Read more: Heat and temperature Read more: Humidity, misting and ventilation Read more: Brumation and the seasons

HUMIDITY AND WATER

Humidity should be 30-60 %, and ventilation should be good, so that the air stays dry and the substrate does not go mouldy. More important than the air is the substrate, which should be slightly damp at depth, so that the dug tunnels hold and so that the animal can seek moisture when shedding while the surface is dry. A large, stable bowl of fresh water that the animal can drink from and step into must always be available. Change the water every day.

LIGHTING AND UVB

Varanus giganteus is diurnal and basks in open sun, so it needs strong light and UVB. UVB is necessary for the animal to produce vitamin D3, absorb calcium and avoid bone disease. Use powerful UVB tubes or mercury vapour lamps over the basking spot, with no glass or plastic in between. The species belongs to Ferguson zone 3, which covers diurnal animals that bask a lot. Replace the UVB sources according to the manufacturer's instructions, because UV output falls long before the light goes out.

Read more: Lighting and UVB Read more: Calcium, vitamins and supplements

FEEDING

In the wild, adults eat mostly reptiles, including other monitors, and mammals such as rodents, marsupials and young kangaroos, to a lesser extent birds and eggs, and they also take carrion. Young eat mostly arthropods such as grasshoppers and centipedes.

Adults are fed whole, thawed feeder animals: mice, rats, chicks and quail, supplemented with eggs and large insects. Young get insects and small, thawed mice. The feeding rhythm is borrowed from *Varanus gouldii*: growing young are fed every day, adults every 3-5 days, depending on how large the last meal was. Offer the food with long tweezers or tongs, and place it on a clean surface, so that the animal does not swallow substrate. Obesity is the most common problem in monitors in captivity, especially when rodents are the main food, so alternate between rodents, birds and insects, and keep an eye on weight. Whole prey with bones covers most of the calcium requirement; insects for young are dusted with calcium.

Read more: Feeder animals: keeping and breeding

BEHAVIOUR AND HANDLING

Varanus giganteus is large, strong and fast. A bite causes deep wounds, swelling within a few minutes, bleeding that is difficult to stop, and pain for several hours. The tail is used as a whip, and the claws are long and sharp. If the animal feels threatened, it can rise up, inflate its throat and attack with its mouth open. Injuries to hands and arms can be serious, so an animal is always moved with care and with heavy gloves or in a crate.

The species does not easily become tame. Give a new animal several weeks of peace, and then be calm and predictable. The animal is not handled without reason. Like all reptiles, monitors can carry salmonella, so wash your hands with soap after any contact with the animal, enclosure and food.

The animals are kept singly. Adults are territorial, and large animals eat smaller conspecifics. Male and female are put together only for mating. Enrichment such as live insects, hidden food and new objects keeps the animal active.

Read more: Quarantine and hygiene

Breeding

SEXUAL MATURITY AND SEXING

Sex differences and sexual maturity are not documented for *Varanus giganteus*. In most large monitors, males are larger and sturdier than females, and sex is most reliably determined by a vet, for example with ultrasound or X-ray. An animal is bred only when it is fully grown and in good condition.

MATING

Varanus giganteus is only rarely bred in captivity, and there is no actual breeding guide for the species. In monitors from the cooler parts of Australia, a rest period in winter promotes the urge to breed: 1-3 months at about 15 °C with shorter days and only a short time under the heat lamp. A period in which male and female are kept apart also helps. The male is introduced to the female under supervision, and the animals are separated at signs of fighting. The enclosure must be large enough for the female to get away.

EGG-LAYING AND CLUTCHES

Clutch size is not documented for *Varanus giganteus*; 5-17 eggs in the box is borrowed from *Varanus gouldii*. The female needs a nest box with at least 50 cm of damp, firm sand and soil in which she can dig a chamber. Without a suitable place she may hold the eggs back, and egg binding can be fatal. The female stops eating before she lays and needs plenty of food afterwards.

Read more: Common diseases and signs of illness

INCUBATION

Incubation time and temperature are not documented for *Varanus giganteus*; 180-190 days at 28-31 °C in the box is borrowed from *Varanus gouldii*, and in other large Australian monitors incubation lasts up to 270 days. The eggs are lifted shortly after laying, without being turned, and placed in vermiculite or perlite mixed with the same weight of water at 80-90 % humidity. Do not open eggs that are overdue but still look viable.

Read more: Incubating eggs

REARING THE YOUNG

Almost nothing is known about rearing the young. The young need a secure enclosure with a deep substrate, many hides and UVB and are fed small insects and small, thawed mice. They grow quickly and soon need much more space. Keep them separately, so that they do not harm each other.

Health and common mistakes

Most illnesses are caused by errors in the setup. The typical problems in large monitors are:

- Bone problems from a lack of UVB, calcium and D3.
- Obesity from too many rodents and too little space and exercise.
- Bite and claw wounds, often after incorrect handling. Clean thoroughly, and see a doctor if a person has been bitten and a vet if the animal is injured.
- Intestinal and blood parasites. Have a faecal sample examined when a new animal arrives.
- Egg-laying problems in females, for example egg binding, which can be fatal. Give the female a deep nest box, and see a vet if she is bloated and refuses food for a long time.
- Burns from unshielded heat sources.
- Stress and poor sheds in conditions that are too dry or with too few hides.

Australia does not permit the export of wild reptiles, so animals outside Australia are captive-bred. Always ask about the animal's origin. See a vet with reptile experience if the animal loses weight, does not eat or has sores, swelling or breathing problems.

Read more: Buying animals: captive-bred, wild-caught and transport

Always ask someone who knows

This guide is a good place to start, but it cannot replace experience. Animals differ, and much of what matters most is learned from people who have kept the species for years. Talk to a breeder, an experienced keeper or a vet who knows reptiles and amphibians before you get the animal - and again if anything looks wrong.