herpy

MONITOR LIZARDS

Storr's Monitor

Varanus storri

A small, fast, ground-dwelling dwarf monitor from Queensland in Australia that grows to about 30 cm and lives on insects. It needs a long, warm enclosure with deep substrate to dig in, UVB and hides under stones, and it is an animal for observation, not for daily handling. The animals can live for at least 12 years.

Family: Varanidae

KEY FACTS

THE ANIMAL

Adult size	**25-33 cm** total length incl. tail
Lifespan	**12 years**
Active	**By day**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Semi-desert and savanna**
Difficulty	**Intermediate**

CARE

Min. enclosure	**80 × 50 × 60 cm** L × W × H for 1 adult
Temperature, day	**24-30 °C**
Basking spot	**45 °C**
Temperature, night	**20-23 °C**
Humidity	**50-60%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 3
Diet	**Insects**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**2-6 eggs**
Incubation	**100 days** at 28-29 °C

PROTECTION AND PAPERWORK

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

About the species

Varanus storri is a small, ground-dwelling monitor in the subgenus *Odatria*, the so-called pygmy monitors. It was described in 1966 by Robert Mertens and is named after the Australian herpetologist Glen M. Storr (1921-1990). It has a relatively short tail with strong, spiny scales on the upper side, and the pattern is even, without distinct eye spots. The species is regarded as most closely related to *Varanus primordius* and *Varanus acanthurus*.

Adults typically reach about 30 cm including the tail, and 33 cm at most. A larger form of about 40 cm is also known, but it is unclear whether it belongs to *V. storri* or to *Varanus ocreatus*, which was formerly regarded as a subspecies (*V. s. ocreatus*) and is now a separate species. Weight is not documented. Older husbandry reports do not distinguish between the two species, so know the origin of your animals and do not mix lines.

The species is quick, watchful and active during the day. It constantly uses its tongue to explore its surroundings and marks its territory by rubbing the cloaca against the substrate. A new conspecific in the enclosure is noticed at once. It is therefore an animal that is fascinating to watch but not suited to being picked up daily.

The commitment is long: *V. storri* takes up far less space than the large monitors, but still needs a long enclosure of at least 80 cm, strong heat and UVB, weekly feeding of live insects and an animal that must be cared for over at least 12 years. It is not a beginner's animal. All animals in the trade are captive-bred. This is good for their health.

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

Distribution and habitat

Varanus storri is found only in Australia, in northern and central Queensland. The type locality is Charters Towers. The populations in the Northern Territory and Western Australia, which were formerly counted as the subspecies *V. s. ocreatus*, are now regarded as a separate species, *Varanus ocreatus*.

The introduced, poisonous *Rhinella marina* is believed to have hit the population hard in parts of Queensland, but the species is listed as Least Concern (LC) on the IUCN Red List.

> **Native range:** Australia.

HABITAT

Varanus storri lives on dry land: in semi-desert and open, dry forest, often under stones and along dry watercourses. It uses crevices, hollows and holes in the ground as hides and goes under stones when it becomes too hot or too cold.

The climate is warm with a distinct dry season. The animal is diurnal and alternates between sunny spots and shade to regulate its body temperature. This is the behaviour you must make possible in the enclosure: a warm spot in full light, a cool spot and a damp hide where the soil is not completely dry. The humidity in the wild is not documented in detail.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

An adult needs an enclosure of at least 80 × 50 × 60 cm (length × width × height), and a larger one is better. The species lives on the ground, so floor area counts for more than height. As a rule of thumb for ground-dwelling monitors, the enclosure should be at least five times as long and twice as wide and high as the animal's snout-vent length, and the 80 cm clearly exceeds that. Adults are kept singly or as a settled pair (see Behaviour). Juveniles bite each other and can kill each other, so they must be raised separately, and a new conspecific that is put in is immediately noticed and pursued.

A sand and clay mix works as substrate and should be deep enough for the animal to dig. Choose dust-free sand, which does not need to be sterilised. Build a back wall of polystyrene foam and epoxy sprinkled with sand, or of cork, which the animal can climb, and lay out flat stones and cork tubes as hides at several heights. One of the hides must be damp, for example a small box with slightly damp sand or sphagnum, so that there is a place with higher humidity. Live plants seldom survive, because the animal digs them up, and artificial plants must not be swallowable.

Heat sources must be shielded, so that the animal cannot touch the bulbs and burn itself. The heat should cover only one half of the enclosure, so that the other half stays cool. The lid must be tight, because the species is fast and escapes easily. During a cool period a smaller enclosure can be used, and juveniles can initially be kept in a smaller one, so that they easily find the food and water.

TEMPERATURE

There must be a large temperature gradient so the animal can choose for itself. The gradient should run from about 24 °C at the cool end to about 45 °C at the basking spot. This is the surface temperature at the basking spot, measured with an IR thermometer, not the air temperature. The background temperature should be 24-30 °C by day (the upper limit is borrowed from another pygmy monitor) and 20-23 °C at night.

Provide a cool period of about two months with shorter lighting and less use of the basking spot. This synchronises the reproductive cycle and is part of breeding. A true winter rest without light and heat is not recommended for monitors. Measure the temperature at several places with a digital thermometer. If the animal hides all day or stops eating, check the gradient.

Read more: Heat and temperature

HUMIDITY AND WATER

The humidity in the enclosure is moderate, about 50-60 %. The enclosure itself should be relatively dry, but the animal must have at least one place with damp substrate that it can retreat to, for example under a stone or in a box with slightly damp sand. Do not mist the whole enclosure.

A bowl of fresh water must always be available and changed often, also during a cool period.

LIGHTING AND UVB

The species is diurnal and dependent on strong light and UVB. Use daylight tubes or LED light, combined with a powerful light source with UVB, for example a mercury vapour lamp or a metal halide lamp, which provides both heat and UV. The UV light must have direct access to the animal, with no glass in between, because glass blocks UV. Weak light and ordinary fluorescent tubes are not enough and quickly cause health problems.

The UVB recommendation is Ferguson zone 3, which is the usual one for diurnal, sun-loving species. The zone is not specified for this particular species. Keep the light on for 10-12 hours a day and for less time during the cool period, ideally controlled by a timer.

FEEDING

V. storri lives mostly on insects and other invertebrates. Offer crickets, grasshoppers, roaches and superworm larvae, in a size the animal can easily catch. Newborn mice can be given occasionally for variety, but the species has no need for rodents, and too much fat makes it overweight. Obesity is a known problem in dwarf monitors, so adults must not be overfed.

Dust the food with a mineral and vitamin supplement with calcium and D3, because a captive diet lacks the balance the animal gets in the wild. Do not give more than the animal eats up, because crickets and roaches hide in the furnishings and can disturb the animal when it sleeps. Precise amounts and frequency are not documented for the species; a reasonable starting point is small insects almost daily for juveniles and a couple of feedings a week for adults.

Read more: Feeder animals: keeping and breeding Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

V. storri is quick and watchful. It is small, and bites from an animal of 30 cm are not serious as with the large monitors, but the sharp claws and pointed teeth can cause wounds that must be cleaned thoroughly. Serious injuries are not documented for the species, and tail shedding is not described.

Get the animal used to you by always bringing the hand in calmly from the side and never grabbing from above, and by letting it adjust to you over a long time. It is, however, a species for observation and not for daily handling. Keep handling short. Reptiles often carry salmonella: wash your hands after every visit to the enclosure and after feeding, and do not let the animal roam freely on kitchen worktops.

The animals fight easily, especially when a new animal is introduced to animals that already live together. Therefore keep one animal per enclosure, or a fixed pair in a spacious enclosure under supervision, and never introduce new animals to them.

Read more: Quarantine and hygiene

Breeding

SEXUAL MATURITY AND SEXING

The sex is almost impossible to see from the outside in monitors. The female has a hemiclitoris that looks like the male's hemipenis pouch, so probing does not work. Reliable sexing requires endoscopy by a vet experienced with reptiles. Age and weight for breeding are not documented, but the animals should be adult and in good condition before they are put together.

MATING

Put the pair together after a cool period of about two months with shorter lighting and less heat, and then raise the temperature and light gradually. Keep a close eye on the animals, because the species bites, and remove the male if the female is under severe pressure. Males must not be put together. Periods of separation of four weeks to three months can be repeated several times a year and can synchronise the animals.

The time from the last mating to egg laying is four to eight weeks in most monitors. After mating, the male should be taken out.

EGG-LAYING AND CLUTCHES

The female can lay several clutches during a year, each of 2-6 eggs. The number of clutches per year is not documented. Give her a lay box with a slightly damp sand and soil mixture, which is light-proof and can be reached from above. She often digs trial holes in the days before and does not eat just before she lays. Give her food and water straight after laying, because she is exhausted.

If laying lasts unusually long, or she digs for a long time and then stops completely, a vet must be contacted. It may be a sign of egg binding. The male must not be with the female when she is close to laying, because he may eat the eggs.

Read more: Common diseases and signs of illness

INCUBATION

Remove the eggs straight after laying, because monitors readily eat eggs. Mark the upper side with a pencil and do not turn them. Place them in a box with perlite or vermiculite or with no substrate at all. The species should not be incubated too damp.

The temperature is 28-29 °C, and the eggs hatch after about 100 days. The substrate must be damp enough that the eggs do not dry out, but avoid water on the egg itself. If an egg sweats so that water seeps out of it, a small cut in the upper side can relieve the pressure on the embryo. Eggs that are late but still look healthy should not be opened, because the hatchling is often not fully developed and seldom survives.

REARING THE YOUNG

The hatchlings are fast and active from the first hours. Put each hatchling in its own small enclosure, because they bite each other and can kill each other. The furnishings are like those of the adults, only smaller, with a small water bowl and hides under stones. Make sure the hides are secured, so that stones cannot topple over onto the animal.

Give small insects, for example small crickets, dusted with calcium and D3. Surplus insects must be removed, because they can harm a sleeping hatchling. Measure and weigh the hatchlings at hatching and regularly afterwards.

Health and common mistakes

Animals in the trade are normally captive bred, which means fewer parasites and less stress than wild-caught animals. Even so, quarantine a new animal for at least six weeks, and have a vet experienced with reptiles examine the droppings for parasites. Never give medicine without a vet's instructions.

Typical husbandry errors:

- Obesity from overfeeding, especially if mice are given.
- Lack of UVB and calcium, which causes soft bones and tremors. Direct UV without glass and calcium with D3 on the food prevent this.
- Burns from unshielded lamps.
- Stress and bite injuries when animals are kept together or given a new conspecific.
- Egg binding in females that do not have a suitable lay box.

See a vet if the animal will not eat or loses weight, if a female goes a long time carrying eggs without laying them, or if the animal has bite injuries.

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.