herpy

MONITOR LIZARDS

Spotted Tree Monitor

Varanus similis

Varanus similis is a small, diurnal tree monitor from northern Australia and New Guinea. It is kept in a tall enclosure with cork, hides and a warm basking spot, lives on feeder insects and is a rare, tree-dwelling alternative to the ground-dwelling small monitors. Experience with its care is limited, though.

Family: Varanidae Former name: *Varanus timorensis similis; Varanus scalaris similis*

KEY FACTS

THE ANIMAL

Adult size	**45-60 cm** total length incl. tail
Lifespan	**8-12 years**
Active	**By day**
Lifestyle	**Arboreal**
Habitat	**Savanna and dry forest**
Difficulty	**Intermediate**

CARE

Min. enclosure	**80 × 80 × 130 cm** L × W × H for 1 adult
Temperature, day	**25-30 °C**
Basking spot	**40-42 °C**
Temperature, night	**22-25 °C**
Humidity	**60-80%**
UVB	**Recommended** Ferguson zone 3
Diet	**Insects**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**24 months**
Clutch size	**3-18 eggs**
Incubation	**120-136 days** at 28-29 °C

PROTECTION AND PAPERWORK

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

About the species

Varanus similis is a small monitor of 45-60 cm in total, more than half of which is tail. It belongs to the subgenus *Odatria* and lives in trees. Adult males reach about 50 cm and females about 45 cm. The male is slightly larger and has a broader head and a stouter neck. Otherwise the sexes are hard to tell apart: the small spiny scales behind the vent that the species description gives for males are not a reliable feature, and colour and pattern do not reveal the sex either.

The species was described in 1958 as a subspecies of *V. timorensis* and has been moved back and forth since; several more recent works do not recognise it as a separate species at all. It is very similar to *V. scalaris*, and some authors regard it only as an eastern variant of it. The scientific name probably means "similar" and points to the likeness to *V. timorensis*. The delimitation from *V. scalaris* and *V. timorensis* is still unresolved, and animals in the trade may be sold under several of these names. Ask about origin before you buy.

Experience in keeping the species is sparse and based on few animals, supplemented by experience with closely related small monitors. Anyone who chooses the species must watch their animals closely and adjust the care along the way.

As an adult it is a manageable monitor that eats insects and can live in an enclosure that fits in a living room. The commitment is real all the same. The animal probably lives for eight to twelve years, and during that time live food must be bought every week, calcium and vitamins added, UVB tubes and lamps replaced, and a tall enclosure of at least 80 × 80 × 130 cm must have room in the home.

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

Distribution and habitat

Varanus similis is found in northern Australia (Northern Territory and Queensland) and Papua New Guinea. The type locality is Groote Eylandt off the north coast of the Northern Territory. The distribution in Australia and especially the relationship to *V. scalaris* is disputed. Whether it occurs in Papua New Guinea depends on how the species is delimited.

The map therefore shows first and foremost records of animals reported under the species name. They may come from both sides of the delimitation against *V. scalaris*. A few records from Indonesia are not included.

> **Native range:** Australia and Papua New Guinea.

HABITAT

The habitat is not well described for this particular species. It is a tree-dwelling, diurnal monitor that in the wild prefers hollow tree trunks and crevices as hiding places and hunts from ambush instead of actively searching for food. It stays up in the trees and near its hiding place.

Northern Australia has a distinct wet season and dry season. In captivity the animals are less active and very withdrawn in the dry season from November to January and become active again when the wet season sets in in February. Whether this is an adaptation to the seasons or simply follows the room temperature has not been established. Climate data from the species' habitats are lacking.

Care

THE ENCLOSURE

An adult needs a tall terrarium of at least 80 × 80 × 130 cm (length × width × height). A pair needs more space, preferably 100 × 100 × 200 cm. As the species is arboreal, height counts for more than floor area.

The back wall and sides are lined with cork so that the animals can climb. Hollow cork tubes at several heights are the hides the animals prefer, and there must be several. The floor is a 5 cm thick layer of bark chips mixed with potting soil, which holds a little moisture. Digging behaviour has not been described for the species. A laying box (a small wooden box filled with half soil and half sand) can sit high up on the back wall. Potted plants, e.g. yucca and philodendron, supplemented with artificial plants, provide cover and structure.

All heat sources must be shielded so that the animal cannot touch the bulb or the cable: burns from lamps can be serious. The doors must be lockable, because a monitor quickly finds weaknesses. The young are started in a smaller glass terrarium of about 60 × 30 × 30 cm with cork tubes, a shallow water bowl and paper on the floor until the navel has healed. They are moved to a tall terrarium after about six months.

TEMPERATURE

The daytime temperature in the terrarium is 25-30 °C, with 30 °C in the upper parts and 25 °C down at the bottom. The basking spot is a branch or stone under a spotlight that gives a local surface temperature of 40-42 °C. This is surface temperature measured with an IR thermometer, not air temperature.

The gradient must be large, so that the animal can choose for itself: a warm zone and cool corners further away. The bulb must be shielded so that the animal cannot touch it. The night temperature is not known; 22-25 °C suits closely related small monitors. In the quiet period in winter the room temperature is 25-28 °C.

A cold, damp room and draughts produce sluggish animals with poor digestion. Measure the temperature at the basking spot and at the bottom with digital thermometers.

Read more: Heat and temperature

HUMIDITY AND WATER

Relative humidity is kept at 60-80 %. This is achieved by misting the enclosure with water in the evening and letting the substrate hold moisture, possibly with a weak heating cable under the floor. Mist less in the dry season from November to January and more again from February, when the wet season sets in.

A bowl of fresh water is a fixture in the enclosure and is changed daily. The species is not aquatic, but the animals drink and can bathe in a shallow bowl. Avoid a permanently wet substrate: it causes mould and skin problems. A hygrometer measures whether the humidity stays stable over the day.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

The species is diurnal and needs bright light and UVB. Over the basking spot a 150 W HQI floodlight of daylight quality (5000 K) can be combined with a 150 W halogen spotlight. A UVB tube 30 cm above a favourite spot gives constant UV light, and a powerful 300 W UV floodlight can be switched on for about 20 minutes every day. UV must reach the animal directly, with no glass in between.

Ferguson zone 3 is an estimate based on other diurnal, sun-loving small monitors. Provide a UVB tube of a reliable make and measure the UV index at the basking spot. The light is on for about 12 hours a day, and the night is dark. Replace tubes and lamps as the manufacturer recommends, even if they still light up.

FEEDING

The animals take all common feeder insects and are not fussy. Cockroaches (*Blaptica dubia* and *Blaberus atropus*) of a suitable size make a good staple, and locusts are a popular change. Desert locusts (*Schistocerca gregaria*) are more sought after than migratory locusts (*Locusta migratoria*), especially when they flap their wings. The wingbeats trigger a strong hunting instinct. If a locust is held in tongs by the abdomen, it immediately starts flapping.

Supplement with the occasional pinkie mouse, small fish and mussel meat, especially for females carrying eggs. Everything is dusted with a multivitamin and mineral supplement, and once a week each animal gets a single insect or pinkie with a drop of liquid vitamin. Small pieces of cuttlebone in a pinkie are an easy source of calcium. Females carrying eggs need more protein, vitamins and minerals. On such a diet a female can lay clutches of 15-18 eggs.

The species is opportunistic and eats as long as there is food, so weight must be monitored to avoid obesity. Rodents as a staple are not relevant for a species that lives on insects. How often adults should be fed is not known: adjust the amount according to how the animals' bodies develop.

BEHAVIOUR AND HANDLING

Wild-caught animals are shy at first, but that is natural behaviour: the species flees or hides until the threat has passed, and hunts from ambush. It does not mean the species is especially timid. Captive-bred animals are trusting and come out of their hides every morning to bask. Do not remove the hides to make the animal show itself, as that stresses it. Captive-bred animals are recommended for new keepers.

At feeding time the animals leap at the tongs and can get quite wild. Handle them calmly and slowly, and let them get used to your hand before you pick them up. The species is small, but the claws are sharp and a bite can cause wounds. Keep your hand out of the enclosure when the animal is excited. The tail is not used as a weapon, but never grab it.

As with all reptiles there is a risk of salmonella: wash your hands thoroughly after contact with the animal, enclosure and food. A pair can be kept together all year round without disputes. Otherwise keep the animals singly; two males together have not been tried.

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

Breeding

SEXUAL MATURITY AND SEXING

The sexes can be hard to tell apart. The male is slightly larger and has a broader head and a stouter neck, but colour and pattern are the same, the hemipenal bulges are not obvious, and the small spiny scales behind the vent that the species description gives for males may be absent. Reliable sexing therefore requires a vet or an experienced keeper.

Animals that are fed well can become sexually mature at around two years of age. Weight and length of breeding animals are not documented.

MATING

Mating follows the seasons. From November to January there is a quiet period when the animals are less active and hide. The photoperiod and the enclosure temperature stay the same, but the room temperature is lower (25-28 °C in winter against 30-35 °C in summer). In February, when the wet season begins, misting and feeding are increased and the animals become more active. After 4-5 weeks, around mid-March, the male pursues the female in the evening, tongue-flicks her and scratches her back to make her raise her tail.

The mating itself probably takes place in the cork tubes and is rarely seen. The male can stay with the female throughout gravidity and after egg-laying without aggression.

EGG-LAYING AND CLUTCHES

The female lays the eggs 4-6 weeks after mating, depending on the size of the clutch, mostly at night, e.g. in a wooden box filled with half soil and half sand high up on the back wall. She buries the eggs deep and covers the nest carefully. Just before laying, the hip bones can be seen through the skin. The species is not fussy about the nest site, and several boxes in different places give the female a choice.

A clutch is 3-12 eggs, and a well-fed female can lay 15-18 eggs. Such large clutches are probably an exception and larger than in animals in the wild. After laying, the female is fed as during gestation, so that she can recover. The number of clutches a year is not known.

INCUBATION

Take the whole nest box out of the enclosure so the eggs can be removed without disturbing the animals. Incubate the eggs at 28-29 °C, 3-4 together in closed plastic boxes with small air holes, only half buried in damp perlite. This gives a stable microclimate. By burying the eggs only halfway you can see whether they sweat (too damp) or collapse (too dry).

Monitor eggs are more sensitive to too much moisture than to a short dry spell. After 2-3 weeks add a little water at the edges of the box without it touching the eggs. The young hatch after 120-136 days, within a day of slitting the shell, and without a yolk sac. The hatch rate can be 100 %. Mark the top of the eggs so they are not turned, and remove the hatchlings from the box as soon as they are out.

REARING THE YOUNG

For the first six months the young live in a small glass enclosure of about 60 × 30 × 30 cm with cork tubes, a shallow water dish, a 40 W halogen lamp and an 18 W UVB tube. Use paper as substrate until the navel has healed, so it does not become infected. From the fourth day the young take small crickets, cockroaches and pieces of small fish and pinkie mice from tongs. Dust everything with a vitamin and mineral supplement.

The young are greedy and hard to keep track of in a large group of 15-18, so split them up to monitor each animal's feeding. Rearing is normally trouble-free, and well-fed animals can become sexually mature after two years.

Read more: Feeder animals: keeping and breeding

Health and common mistakes

Varanus similis is hardy and can be kept without problems, but experience is based on few animals. The typical mistakes are:

- Obesity, because the species eats as long as there is food. Weigh the animals and hold back on the food.
- Too little calcium and vitamins, especially in females with eggs. Give supplements and calcium with the food, but document the amount so that it does not become too much.
- Burns from lamps when the animal can touch the bulb. Shield all heat sources.
- Eggs that swell or collapse during incubation. This is caused by too much or too little moisture.
- Parasites and stress in wild-caught animals. Have a faecal sample examined by a vet with reptile experience.

Animals in the trade may be wild-caught, and then stress and parasites are more likely than in captive-bred animals. See a vet if the animal stops eating, loses weight, has sluggish breathing, swellings or wounds, or if a female tries to lay eggs without success.

Read more: Incubating eggs

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.

The full guide with map and updates: herpy.org/en/monitor-lizards/varanus-similis