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MONITOR LIZARDS

Freckled Monitor

Varanus orientalis

Varanus orientalis is a slender, fast dwarf monitor from north-eastern Australia that climbs trees and rocks and feeds on insects and small lizards. It grows to no more than 60-75 cm and is much smaller than the large monitors, but it still needs a tall, custom-built enclosure, plenty of heat and UVB light, and it lives for many years.

Family: Varanidae Former name: *Varanus tristis orientalis*

KEY FACTS

THE ANIMAL

Adult size	**40-75 cm** total length incl. tail
Lifespan	**10-15 years**
Active	**By day**
Lifestyle	**Arboreal and rock-dwelling**
Habitat	**Savanna and rocky terrain**
Difficulty	**Intermediate**

CARE

Min. enclosure	**150 × 75 × 120 cm** L × W × H for 1 adult
Temperature, day	**26-32 °C**
Basking spot	**50-60 °C**
Temperature, night	**20-24 °C**
Humidity	**30-50%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 3
Diet	**Insects and vertebrates**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**14-36 months**
Clutch size	**3-17 eggs**
Clutches per year	**2-5**
Incubation	**93-137 days** at 27-29 °C

PROTECTION AND PAPERWORK

CITES	**Appendix II**
EU annex	**Annex B**
IUCN	**Not Evaluated (NE)**

About the species

Varanus orientalis is a small, slender monitor in the subgenus *Odatria*. It has long limbs, a pointed snout and a long tail, and it is fast and agile. The skin is greyish brown to dark brown and covered with pale spots and flecks, and the young are markedly more strongly patterned than the adults. In males a cluster of large, black or black-and-white, spiny scales sits on each side of the tail base and vent. In females and young males they are smaller and not as spiny, and this is the simplest feature for sexing the animals.

The species is taxonomically very new as a separate species. It was described in 1913 by Fry as a form of *V. punctatus* and has since been treated as a subspecies of *V. timorensis* and later of *V. tristis*, as *V. tristis orientalis*. In 2025 it was raised to species level on the basis of genetic and morphological data. It is recognised by a distinct dark stripe behind the eye and a net pattern on the back that continues forward onto the head. *V. tristis* now comprises all the other mainland populations, both dark- and pale-headed animals. In the trade and in older literature the species is still called *V. tristis orientalis*, but the name has also

been used for pale-headed *V. tristis* from northern and central Australia, so animals sold under that name are not necessarily *V. orientalis*. Many figures and experiences from captivity therefore apply to *V. tristis* in the broad sense; most can be transferred, but not all.

The tail makes up most of the length, and the largest animals reach 60-75 cm in total. The animals are sexually mature at a snout-vent length of about 20 cm, in captivity after 14-36 months (figures for *V. tristis* in the broad sense). Animals in the European trade are captive-bred. Captive-bred animals get used to people to a far greater degree than wild-caught dwarf monitors, which naturally flee or hide, and they less often carry parasites.

Even so, a monitor is never a beginner's animal. The species needs a large terrarium with deep substrate and high temperatures, it lives on live insects daily as a juvenile and every other day as an adult, and it can probably live 10-15 years. Expect many hours of work a week, running costs for food, lamps and electricity, and a plan for who takes care of the animal if you cannot.

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

Distribution and habitat

Varanus orientalis lives in north-eastern and eastern Australia. The type locality is Eidsvold on the upper Burnett River in Queensland, and the form is also known from Magnetic Island off Townsville. Older accounts of the form mention northern and north-eastern Australia, but the boundary with the closely related *V. tristis* has not been fully mapped. Around Lake Buchanan in central Queensland the ranges of the two species may overlap.

The split into two species is so recent that older records and maps often do not distinguish between them. The map therefore shows only a rough area. The Great Dividing Range has probably played a part in the two species evolving separately.

> **Native range:** Australia.

HABITAT

Varanus orientalis is semi-arboreal and lives in open woodland, scrub and dry savanna with scattered trees, often near watercourses, and on rocky slopes and rock outcrops. It shelters in hollow tree trunks, under loose bark, in rock crevices and in gaps between stones. The closely related *V. tristis* is also seen on and around buildings in rural areas.

The species is diurnal and hunts actively in the branches and on the ground for insects, lizards, eggs and other small animals. It is most active in spring and summer. In the cooler months, from June to September in the closely related *V. tristis*, it is far less active and retreats into hiding. Over the day the animal alternates between sun and shade, and it can always retreat into a hollow to cool off.

Care

THE ENCLOSURE

For an adult *Varanus orientalis* you should plan on an enclosure of at least 150 × 75 × 120 cm (length × width × height), and larger is better. The species climbs, so height matters, and a terraced, sand-covered back wall adds extra climbing surface. Enclosures of that size are rarely sold ready-made, so it is usually a home-built enclosure with front doors. The juveniles can easily start in the large enclosure if it is furnished with many hides and they find the food. If you choose a smaller faunarium for the first months instead, it must have the same temperature zones and UVB.

The substrate should be deep, at least 20-30 cm, and a mixture of fertiliser-free garden soil, sand and coconut fibre that can hold burrows. The species is more a climber than a digger, but hollows and tunnels give security and are part of temperature regulation. Give the doors a high lip so that the substrate is not pushed out when the animal digs.

Furnish with plenty of hides on both the warm and the cool side: cork tubes, pieces of bark, hollow tree trunks and stable stacks of stones. Fix everything heavy to the floor so that an animal that digs underneath is not crushed. Provide good climbing opportunities with branches at several heights and vertical cork or wooden surfaces, because the species is semi-arboreal. Keep the doors tight and secure. Heat sources must be shielded with a grille or lamp guard so that the animal cannot burn itself. Ventilation must be good so that the heat does not collect at the top.

Read more: Lighting and UVB

TEMPERATURE

Varanus orientalis is a typical sun-loving animal and needs a large temperature gradient. By day the terrarium should be 26-32 °C, lowest at the cool end, and at night 20-24 °C. Under the heat lamp a basking spot of stone or cork should reach a surface temperature of about 50-60 °C, measured with an IR thermometer. The surface temperature is far higher than the air temperature above it, so measure both. The ground-dwelling *V. acanthurus* is kept with basking spots of 70-78 °C, but for a species that also spends time in the trees, 50-60 °C is a cautious starting point. Watch how long the animal lies on the basking spot, and adjust.

Use at least two halogen spots side by side, so that the whole body is heated evenly, and control them with a thermostat or dimmer. Two mercury vapour lamps and a 60 W spot aimed at the same place are also a solution, and with the ballasts under the terrarium they provide bottom heat at the same time. The animal must always be able to move from the basking spot to a cool hide. If it is warm everywhere, the animal risks overheating. If it is too cold, it becomes sluggish, gains weight and develops digestive problems. Switch off the heat lamps at night. It is a good idea to lower the heat and the day length in the winter months, because in the wild the species is less active in the coolest part of the year. There are no fixed figures for a proper brumation.

Read more: Heat and temperature Read more: Brumation and the seasons

HUMIDITY AND WATER

The relative humidity should be 30-50 %, and the substrate should be dry to slightly damp on the surface. *Varanus orientalis* lives in dry to slightly humid areas and does not tolerate constantly wet conditions. Keep a deeper layer of slightly damp substrate or a humid hide at the cool end so that the animal has somewhere to rest and shed.

Provide a large, stable bowl of fresh water on the cool side and change it daily. The animal drinks regularly and may well take a bath, but the bowl should not be so deep that a young animal risks drowning. Do not use dense misting or constant spraying, because it raises the humidity around the heat sources and can cause skin and respiratory problems. A hygrometer at both ends of the enclosure shows whether the gradient holds.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

The species is diurnal and basks, so UVB is recommended. Use a powerful T5 HO UVB tube for sun-loving species (Ferguson zone 3), covering about half the length of the enclosure over the basking spot. Place it at the distance the manufacturer specifies for the type of mesh or opening you use. Ideally measure with a UV index meter: at head height at the basking spot a UV index of 3-4 is a reasonable start, and there must be shade and a lower UV index in the rest of the enclosure. A precise UV measurement is not documented for *V. orientalis*.

The light should be on for 11-13 hours a day: longest in summer and shortest in winter, controlled by a timer. Replace the UVB tube according to the manufacturer's instructions, typically after 12 months, even if it still lights up. Night lighting is not necessary.

FEEDING

In the wild *Varanus orientalis* feeds mostly on arthropods, lizards and eggs. The staple diet in captivity is well-fed live insects: crickets, grasshoppers, dubia roaches, silverfish, mealworms and silkworms in wide variety. The insects should be about as large as the animal's head. Dust them with calcium without D3 at most feedings and with a multivitamin once a week or every other week. Insects that have themselves been fed vegetables and grain provide better nutrition than hungry insects.

Juveniles and subadults are fed every day and as much as they can eat. Adults get a couple of full meals a week, preferably every other day with smaller portions, because that gives more natural hunting and less risk of obesity. An adult breeding female needs more. Vary the diet with thawed small lizards and quail eggs. A newborn mouse with a vitamin supplement can be used as extra nutrition for a breeding pair, especially during mating and after egg-laying, when the female has drawn on her reserves. Rodents should not be the staple food, because they are too fatty for a small monitor that mostly eats arthropods in the wild, and they easily cause obesity and fatty liver.

Weigh the animal every month. A full tail and a round but not sagging belly are signs of health; a thick, sagging belly fold is a sign of overfeeding.

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

BEHAVIOUR AND HANDLING

Varanus orientalis is alert, fast and inquisitive and can become quite trusting. Captive-bred animals get used to people relatively quickly, whereas wild-caught animals flee or hide and can take a long time to settle in. Juveniles are shy for the first few months and need peace and time to settle in; sit by the enclosure for a few days without touching them, and let them come to your hand. Approach calmly and from the side so that you do not look like a bird of prey from above, and do not grab the animal, but let it climb onto your hand.

The monitor's bite and claws are the greatest risks in handling. The species is small, and bites are seldom serious, but they can cause bleeding lacerations, and the sharp claws scratch the skin. The tail can whip. Hold the animal low over the ground, because a frightened monitor can wriggle free and fall. Never grab an animal that is eating, and be careful right after feeding, when it is extra eager.

Reptiles can carry salmonella. Wash your hands and forearms with soap after every contact with the animal, the enclosure or the food, and do not let the animal into the kitchen or near food. A male and a female can live together and can get along peacefully without threats, chasing or biting. Keep an eye on them anyway, and separate them if there is unrest. Two males must not be kept together because they fight, and females can also quarrel. Larger animals can eat smaller ones, so they should not share with younger or smaller animals.

Read more: Quarantine and hygiene

Breeding

SEXUAL MATURITY AND SEXING

Males are recognised by a cluster of large, spiny scales on each side of the vent, which only becomes distinct in sexually mature animals. In females and young males the scales are smaller and less spiny. *Varanus orientalis* is sexually mature at a snout-vent length of about 20 cm. This typically happens after 14-24 months, occasionally not until after 36 months (figures for *V. tristis* in the broad sense). Do not put a female into breeding until she is fully grown and in good condition, because egg-laying drains the body of calcium.

MATING

In the wild the mating season begins in November, when pairs settle in the same tree. In captivity a short, cool period in winter and a gradual increase in heat and day length in spring can start the season, because it imitates the rhythm of the seasons. Precise temperatures and duration for a winter rest are not documented for the species.

If the pair lives together all year, the male starts following the female restlessly in January and trying to climb onto her, and after a while she accepts him. The male lifts the base of the female's tail with his hind legs and slides his tail underneath, and matings last from a few minutes to several hours over several days. There can be a new round of matings in March. If the animals are kept apart, the male is introduced to the female in her enclosure under supervision. She must be able to retreat, and the male must be removed if he keeps chasing her or she becomes worn out. Give the female extra food during the season.

EGG-LAYING AND CLUTCHES

In the wild the eggs are laid around December. *V. tristis* in the broad sense lays 3-17 eggs per clutch and 2-5 clutches in a season, 28-85 days apart. In *V. orientalis* the first clutch comes about five weeks after the first mating and the next a little over two months later, with 5-6 eggs per clutch, of which a few may be infertile; the figures are based on few animals. Young from a second clutch so close to the first may be smaller, grow more slowly and have stunted or missing tails. Two clutches so close together are a great strain, so give the female time to recover. Provide a laying box or a hide with moist sand and soil, about 20-30 cm deep, so that the female can dig. If she does not find a suitable place, she may retain the eggs and have trouble laying them. The female needs plenty of calcium and food before and after laying. If she is seen restless, digs without laying or becomes lethargic, she must go to a vet.

INCUBATION

Move the eggs carefully to the incubator without turning them, and place them in moist vermiculite or perlite at 27-29 °C. At 27.5 °C and a humidity of about 100 % the eggs hatch after 116-136 days. In *V. tristis* in the broad sense it takes 93-137 days at 27-29 °C. In the wild it takes 114-117 days. Eggs in vermiculite hatch slightly earlier than eggs in perlite, presumably because they absorb more moisture. Keep the humidity in the incubator high, and check the eggs without touching them. Eggs that go mouldy or collapse are usually not fertile.

Read more: Incubating eggs

REARING THE YOUNG

The juveniles are strongly patterned and very fast. At hatching they measure 17-22 cm in total with a snout-vent length of 6-8 cm, and they weigh 4-6 g. They begin eating small crickets and grasshoppers on their own after 2-4 days. Keep each juvenile on its own or in small groups of the same size with plenty of hides, and separate them at once if one is chased or bitten. Set up a small but warm enclosure with hides and climbing branches, a wide temperature range and UVB. They are given small crickets and other small insects every day, dusted with calcium. Feed as much as they want, and weigh often. Captive-bred juveniles get used to you if you are at the enclosure daily without grabbing them. After three months, well-growing juveniles measure 28-31 cm and weigh 13-17 g. When the juveniles can move into the adult enclosure is not known.

Health and common mistakes

Most problems in *Varanus orientalis* are caused by faults in husbandry. The typical ones are:

- Temperatures that are too low, causing sluggishness, poor digestion, obesity and a weakened immune system. Measure the basking spot with an IR thermometer.
- Overheating, if the whole enclosure is hot and the animal cannot get away from the heat.
- A lack of calcium, D3 and UVB, causing soft and bent bones, tremors and poor growth.
- Obesity and fatty liver, if the animal gets too much, too fatty or too one-sided food.
- Constipation or intestinal blockage, if there are loose stones, coarse bark or sand in the substrate and the animal swallows it.
- Problems when shedding, if the humidity is too low, so that skin clings to the toes and tail.
- Egg-laying problems in females without a suitable digging spot.
- Parasites and mites, especially in wild-caught or newly purchased animals. Have a faecal sample examined by a vet and isolate new animals.

Wild-caught animals often have intestinal worms and are stressed and emaciated, and they have more difficulty taking food. Captive-bred animals are clearly preferable. A healthy animal has clear eyes, a full tail and a firm belly and is alert. Contact a vet with experience of reptiles if the animal loses weight, does not eat for several days, has an open mouth or wheezing breathing, swellings or swollen joints.

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.