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MONITOR LIZARDS

Black-tailed Monitor

Varanus tristis

Varanus tristis is a small, fast, tree-climbing monitor from Australia's dry interior with a black head and tail and a fine reddish-brown net pattern on the back. It grows to 75 cm, is diurnal and needs a tall, warm and sunny enclosure. It is rare in captivity, and only a few reliable experiences with care and breeding exist.

Family: Varanidae Former name: *Varanus punctatus; Varanus timorensis tristis; Odatria punctata*

KEY FACTS

THE ANIMAL

Adult size	**50-75 cm** total length incl. tail
Weight	**150-330 g**
Lifespan	**8-12 years**
Active	**By day**
Lifestyle	**Arboreal and terrestrial**
Habitat	**Semi-desert and savanna**
Difficulty	**Experienced**

CARE

Min. enclosure	**150 × 60 × 120 cm** L × W × H for 1 adult
Temperature, day	**26-32 °C**
Basking spot	**42-50 °C**
Temperature, night	**18-22 °C**
Humidity	**30-50%**
Water	**Water dish**
UVB	**Essential** Ferguson zone 3
Diet	**Insects and vertebrates**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**8-12 eggs**
Incubation	**114-117 days** at 29 °C

PROTECTION AND PAPERWORK

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

About the species

Varanus tristis is a medium-sized species in the subgenus *Odatria*, the so-called dwarf monitors. Adults grow to 75 cm including the tail. Adult females measure on average about 25 cm from snout to vent and weigh about 200 g, while large males can weigh over 300 g. The head, neck, forelimbs and most of the tail are dark grey to black. The back has a fine net of elongated, black-centred reddish-brown rings, and the scales at the base of the tail have greyish-white spots that fade with age. At the base of the tail there is a group of large, black or black-and-white scales on each side. They are distinct in males and small and less pointed in females, so they are a good but not a certain sign of sex.

The juveniles look completely different from the adults. They have a grey head with a broad black band through the eye, and from the nape to halfway down the tail the body is encircled by dense rings of small white to yellow dots. The pattern changes to the adult pattern during the first couple of months.

The scientific name is Latin for "sad" and probably refers to the dark colour of the animals in the western population. The eastern and northern, spotted form was described as the subspecies *V. t. orientalis*. It is now treated by some as a separate species, *Varanus orientalis*, and has its own guide here, while others still list it as a subspecies. In the trade it can therefore

appear under both names. The forms have different breeding seasons and climates, so it is important to know which one you have.

V. tristis is fast, alert and diurnal. It is not a pet to be picked up and cuddled, and it is not for beginners. Its care broadly matches that of related *Odatria* species, and several of the figures below are borrowed from them.

An adult monitor of this size is a commitment for its whole life, but it is far more manageable than the large species. It needs a large, tall and warm enclosure with good lighting, daily feeding with insects and a keeper who can spend time observing a shy animal. Lifespan in captivity is not known, but is estimated to match that of other small monitors.

Distribution and habitat

Varanus tristis is found only in Australia, in the western and central part of the country: Western Australia, South Australia and the Northern Territory, with scattered records into western New South Wales and Queensland. The type locality is the Swan River in Western Australia. The eastern and northern form in Queensland and northern Australia is regarded here as a separate species, *Varanus orientalis*, and is not included on the map as part of this species, even though the boundary between the two has not been sharply settled.

In the western Great Victoria Desert the species is common. The species is listed as Least Concern (LC) on the IUCN Red List.

> **Native range:** Australia.

HABITAT

In the western part of its range the species lives in a landscape of sand ridges and low flats between them, covered with spinifex (hard tussock grass), marble gum, mallee scrub and acacias. It climbs most trees it meets, and the tracks from its dragging tail often run directly from tree to tree while it searches for food. It sleeps and hides in hollow trees, in fallen trunks and in holes in the ground, and in dry spells it can remain for a long time in a burnt-out, hollow tree.

The animals are strongly seasonal. In good periods they build up fat reserves that they can live on when food is scarce. In the wild the species takes other lizards, including agamids, geckos and skinks, as well as nestling birds and probably eggs. It can swallow lizards weighing a fifth of its own body weight. The climate is dry with hot summers and cold winters: in July and August the night temperature averages 3-8 °C and the day temperature 17-24 °C. In winter the animals are inactive and hide, and they reappear in early spring.

Care

THE ENCLOSURE

One adult needs an enclosure of at least 150 × 60 × 120 cm (length × width × height). This is somewhat more than the rule of thumb for arboreal monitors (5 × 2 × 4 times the snout-vent length), because the species both climbs and digs, and because more space gives a better temperature gradient. It can be a home-built enclosure of boards or wood with a glass front. Juveniles can start in a smaller enclosure of 60 × 40 × 50 cm so that they find their food easily, but they grow very quickly and soon need more space.

The substrate must be diggable: a mixture of dust-free sand and a little soil, as deep a layer as the enclosure can hold, preferably 20-30 cm. Build a background of cork, or of foam and epoxy with sand, that the animal can climb. Fit strong, rough branches and cork tubes at several heights, flat stones for basking and many hiding places on both the warm and the cool side. Hollow logs and cork tubes that the animal can squeeze into suit its habits in the wild. Live plants rarely survive, and artificial plants are a good alternative if you want cover.

Doors must be secure and close tightly, because the species is quick and climbs well. All heat sources must be shielded so that the animal cannot touch the bulb, and the heating must always provide light, not only heat. A ceramic heater without light is not recommended, because the animal cannot sense how hot it gets and can burn itself. Provide good ventilation.

Read more: Heat and temperature

TEMPERATURE

The temperatures for *Varanus tristis* are borrowed from related, dry-living Australian pygmy monitors and are a cautious starting point. Always measure the surface temperature at the basking spot with an IR thermometer.

By day the background temperature should be about 26-32 °C, and under a spot on a flat stone the surface should reach about 42-50 °C. The spot should heat only one half of the enclosure and be mounted high enough for the animal to choose its own distance. This gives a large temperature gradient, so the animal can switch between warm and cool. At night the temperature may fall to about 18-22 °C.

In the wild the species is inactive in winter, but whether *V. tristis* needs a winter rest in captivity is not known. Animals from cooler regions, for example southern Australia, can be given a cool rest period of one to three months at about 15 °C, which synchronises breeding. Animals that are to be rested must be healthy and well fed, and a vet experienced with reptiles should be consulted.

HUMIDITY AND WATER

The species comes from dry regions and should not have high humidity. Humidity should be 30-50 %. The sand substrate should be dry, but the bottom layer in the digging area may be slightly moist so that the animal can dig burrows without them collapsing. A hygrometer shows whether the air stays dry.

Provide a shallow, stable water bowl that the animal can reach, and change the water daily. Whether the species bathes is not known. The moisture in the egg-laying box and in the incubator is another matter and is described under breeding.

Read more: Humidity, misting and ventilation Read more: Incubating eggs

LIGHTING AND UVB

UVB is important for diurnal monitors that bask a lot. Use a UVB source that gives Ferguson zone 3, for example a strong metal halide or mercury vapour lamp or a powerful T5 tube, and mount it so that the animal has direct access with no glass or mesh in between. The lamp's distance depends on the model and must be checked with a UV meter. Make sure the animal can withdraw into shade.

Keep the light on for 12-13 hours in summer and 10-11 hours in winter, preferably on a timer. Fluorescent tubes and weak bulbs are not enough: they often give too little for diurnal monitors, and over time that can cause bone disease. Replace the UVB source according to the manufacturer's instructions, even if it still lights up.

Read more: Lighting and UVB

FEEDING

In the wild the species is a predator of lizards, nestling birds and eggs and probably also takes insects. In captivity insects are the natural staple: crickets, grasshoppers, cockroaches and giant mealworm larvae. For variety, thawed newborn mice can be given now and then, and eggs can be given as a treat. Rodents should not be the main food, because monitors easily become overweight, and the species is not adapted to a fatty diet.

All food must be dusted with calcium and a vitamin and mineral supplement. Do not give too much at a time, because insects that hide in the enclosure can disturb or injure a sleeping animal. Feed the feeder insects well before passing them on. Freshly caught grasshoppers from untouched nature are a good addition, but never from fields or roadsides, where there may be pesticides.

As a starting point juveniles are fed daily and adult animals every 2nd-3rd day, and the amount is adjusted to body shape: the species stores fat in the base of the tail and should be well trimmed, not round. If the animal pauses its eating, it is often a natural seasonal rhythm, but weight loss must be taken seriously.

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

BEHAVIOUR AND HANDLING

Varanus tristis is a fast, nervous species, and wild-caught animals are often defensive and stressed. The animals bite if they are grabbed, and the claws are long and sharp and can cause deep tears. The injuries from so small an animal are limited compared with the large monitors, but all wounds must be washed thoroughly and disinfected. Never grab the tail. Salmonella is found in reptiles, so wash your hands thoroughly after any contact with the animal, enclosure and furnishings, and do not let the animal into the kitchen.

Taming happens slowly: keep the animal calm and predictable, always enter the enclosure slowly and from the side, and let it climb onto your hand by itself. Captive-bred animals that have grown up with a keeper get used to handling best. Short sessions are enough, and stress shows as hissing, an inflated throat and flight.

Monitors usually live alone, and the species should be kept singly or at most as a pair. In the wild the males seek out several females in the breeding season. For breeding, the animals can be separated at intervals for four weeks to three months so that they are ready to be mated again. A pair needs a large enclosure with many hides and must be followed closely. Several females in the same enclosure cannot be recommended.

Juveniles of related species can be aggressive towards each other and must be kept separately, especially if one animal becomes dominant and takes the food from the others.

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

Breeding

SEXUAL MATURITY AND SEXING

Males and females become sexually mature at a snout-vent length of about 20 cm, and females can be gravid at just under 20 cm and 86 g. The age at sexual maturity is not known.

Sexing by probing does not work in monitors, because the females have a mirror-image hemiclitoris pocket. In *Varanus tristis* the group of large, black scales on each side of the base of the tail can help: they are distinct and pointed in males and small in females. If the sex must be completely certain, a vet with reptile experience can carry out an endoscopic examination.

MATING

In the western Great Victoria Desert the animals mate in September to November, and the eggs are laid in October and November. The pairs often stay together in hollow trunks, and a female that is with a male often has a white, powdery patch on the back. The testes of males are largest from August to November and then shrink.

The breeding season depends on where the animals come from. Animals from southern Australia mate at a different time from animals from the tropical north, so two animals of the same species can have difficulty synchronising, unless they have been in captivity for several years or are captive bred. If the animals' origin is known, a cool resting period of one to three months at about 15 °C can be tried for animals from cooler regions. The female must have plenty of food before the season. When mating is finished, the male must be taken out so that the female can bask and eat in peace.

EGG-LAYING AND CLUTCHES

The species is rarely bred in captivity. A clutch is typically 8-12 eggs, on average about 10, and the number rises with the female's body weight; only a few females have 7 eggs or fewer. Whether the species lays more than one clutch a year is not known.

In the wild the female buries the eggs about 20 cm down in the soil, for example between a dead root and the trunk of a burnt tree. The time from mating to egg laying is four to eight weeks for most monitors. Provide an egg-laying box before the female becomes round: a dark, closed box, for example 40 × 25 × 20 cm, that she can get down into from above, filled with slightly damp sand or vermiculite, and with a temperature gradient from about 25 °C at the bottom to 30 °C at the top. Many monitors stop eating before laying, but there must be food and access to the box. Eggs that are not laid are an emergency that requires a vet.

INCUBATION

Take the eggs out of the enclosure as soon as they are laid, because monitors can eat or destroy them. They must not be turned or rotated. Carefully mark the top with a pencil and place them in a box with vermiculite or perlite mixed with an equal amount of water by weight (1:1). The box must have a couple of small air holes.

At about 29 °C the eggs hatch after 114-117 days; the figure is based on one clutch from the western population. Damaged eggs hatch prematurely, and the juveniles may die within a day. In general 26.5-29.5 °C and 80-90 % humidity suit monitor eggs, and lower temperatures probably give a longer incubation period. Eggs that swell and sweat may have too much water. Proceed carefully and wait, instead of cutting eggs open too early.

REARING THE YOUNG

Newly hatched juveniles weigh about 4.3 g and measure about 18 cm in total, of which about 7 cm is from snout to vent. For the first two to ten days they live off the yolk and must then have small insects that they can overpower, for example small crickets and cockroaches, dusted with calcium and vitamins. The juveniles grow quickly, and the snout-vent length can increase by 40 % in 17 weeks.

Keep the juveniles singly or in very small groups of the same size with many hides, and watch that all get enough to eat. Dominant animals take the food from the others and must be moved. Let the juveniles experience a dry substrate, a warm basking spot with UVB and the opportunity to climb. Remember that they become a fast, shy and energetic adult that requires a lot of space.

Health and common mistakes

The following applies to monitors in captivity in general and probably also to *Varanus tristis*.

- Lack of UVB and calcium causes bone fragility and deformities, especially in juveniles. Use strong UVB, and dust the food.
- Too low a temperature causes poor digestion and loss of appetite. Measure the surface temperature at the basking spot with an IR thermometer.
- Burns from unshielded bulbs and heating elements without light. Shield all heat sources.
- Overweight and fatty liver when too much fatty food is given, for example too many mice or eggs.
- Parasites, especially in wild-caught animals. Have a faecal sample examined, and keep new animals in quarantine for at least six weeks.
- Egg-laying difficulty: the female becomes round but does not lay. Provide access to a suitable egg-laying box and contact a vet if she is several weeks overdue.

Animals in the trade are rare and come in large part from captive breeding. Captive-bred animals are generally healthier and more stable than wild-caught ones, which are often stressed, weakened and burdened with parasites. Look for clear eyes, a full tail, a clean vent and an animal that reacts to its surroundings. Confusion between the western and the eastern form in the trade is common, so ask about the animals' origin. See a vet with reptile experience if the animal loses weight, does not eat for several weeks, has swellings or if the skin becomes fragile.

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.