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MONITOR LIZARDS

Emerald Monitor

Varanus prasinus

Varanus prasinus is a slender, emerald-green, tree-dwelling monitor from the rainforest of New Guinea, with a prehensile tail and black chevrons across the back. It is beautiful but demanding: it dries out easily, needs both high heat and high humidity, and mortality is highest in the first years in captivity.

Family: Varanidae

KEY FACTS

THE ANIMAL

Adult size	**60-90 cm** total length incl. tail
Weight	**110-450 g**
Lifespan	**10-15 years**
Active	**By day**
Lifestyle	**Arboreal**
Habitat	**Rainforest**
Difficulty	**Experienced**

CARE

Min. enclosure	**120 × 70 × 150 cm** L × W × H for 2 adults
Temperature, day	**26-30 °C**
Basking spot	**40-54 °C**
Temperature, night	**22-24 °C**
Humidity	**60-80%**
UVB	**Recommended** Ferguson zone 3
Diet	**Insects**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**2-3 eggs**
Incubation	**168-170 days** at 30 °C

PROTECTION AND PAPERWORK

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

About the species

Varanus prasinus is a small to medium-sized monitor built for life in the treetops. The body is elongated, the tail is round in cross-section and can grip branches, and the toes end in strong claws. The base colour is bright emerald green, and across the back run black, chevron-shaped crossbands, which probably camouflage the animal in the foliage.

The species was described in 1839 and belongs to a group of nine closely related, tree-dwelling monitors from New Guinea and the surrounding islands. Most of the relatives live on only one island and are black, blue, yellow or olive green, while *V. prasinus* has by far the largest range. *V. kordensis* was for a long time regarded as a variant of *V. prasinus*, so older accounts of husbandry and breeding may concern one or the other species. It is worth knowing if you compare with older literature or buy animals of uncertain origin. The taxonomy is still in flux, and some populations may require revision.

An adult has a snout-vent length of about 23-27 cm and a total length of 60-90 cm, most of which is tail. The weight is typically 110-300 g, but a male of about 90 cm can weigh up to 450 g. Juveniles can be turquoise, and wild-caught animals that have lived long in captivity can lose the yellow tones and become more blue-green. The cause has not been established, but diet and too little UV light are suspected.

The species is not for beginners. It dries out easily, it needs high temperatures and high humidity at the same time, and it must have live insects several times a week throughout its life. It can live at least 10-13 years in captivity, so expect a tall, furnished enclosure, a steady food bill and daily attention for more than a decade. Mortality in captivity is highest in the first two years, and it is therefore a species for those who already have experience with reptiles and can keep climate and food stable.

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

Distribution and habitat

Varanus prasinus is found on New Guinea and on a number of islands in the Torres Strait between New Guinea and Australia. On New Guinea itself it is known from both Papua New Guinea and the Indonesian part of the island, and the type locality lies on the island's west coast. The southernmost certain records are on the islands of Moa, Badu and Mabuiag in the Torres Strait, which belong to Australia. The species has also been reported from, among others, Boigu, Saibai, Dauan and Mer.

Reports of green monitors on the Cape York Peninsula itself in Queensland have never been confirmed with a photograph or voucher specimen, and another, darker tree-dwelling species, *V. keithhornei*, lives there. The map therefore shows New Guinea and the Torres Strait, and records on the Australian mainland are not regarded as certain range.

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

HABITAT

The species lives in tropical lowland rainforest, where it stays high up in the canopy and on thin branches. On the islands in the Torres Strait it has also been seen in scrub and near settlements. It is hard to spot in the wild, because the green colour and the black chevrons match the light in the foliage, and there are therefore only a few direct observations. Most of what is known about its behaviour comes from animals in captivity.

The climate is warm and humid. There is no known cool period for the species, so there should be no winter rest. The diet is mainly insects and other invertebrates. In captivity the animals also take small fish and crayfish, but these are not known as normal food in the wild. What the enclosure must imitate is a dense, bright canopy with warm sunspots and high humidity for most of the day.

Care

THE ENCLOSURE

A pair or a single adult needs an enclosure of at least 120 × 70 × 150 cm (length × width × height), and larger is better. Height is more important than floor area, because the species uses the vertical space. A hatchling can be kept in a glass enclosure of 60 × 30 × 75 cm until it moves into the large enclosure. How many juveniles can share a smaller enclosure is not known.

Furnish with many branches of different thickness, both sloping and vertical, and cork hollows on the walls so that the animal can sleep hidden. Cork on the back wall is a good, ventilating choice. Live or artificial plants with large leaves provide cover and help with humidity. As substrate, coconut fibre and dry leaves that are sprayed with water every day are suitable. The substrate must be able to hold moisture and dry out again. A water bowl must always be available, and droppings and soiled substrate are removed daily.

Animals that fall from the top can be seriously injured, so branches must be secure and not too high above a hard floor. Doors and hatches must close securely, because the animal is fast and climbs well. All heat sources must be shielded with a guard or sit out of reach, because a climbing monitor can otherwise burn itself on the lamp.

TEMPERATURE

Varanus prasinus needs a large temperature gradient. The air in the terrarium is kept at 26-30 °C by day, cooler below and warmer close to the basking spot. The basking spot under a halogen lamp should be 40-54 °C. This is surface temperature, which is measured with an IR thermometer and not with a thermometer in the air, and the basking spot must sit high enough that the animal can choose its own distance from the lamp.

The night temperature is not known; a drop to 22-24 °C at night suits a tropical climate. There must not be a cool winter period. A lethargic animal that lies on the bottom and avoids the light is a warning sign. Use a thermostat and measure in several places in the terrarium.

Read more: Heat and temperature

HUMIDITY AND WATER

Varanus prasinus is sensitive to drought, and high humidity is one of the most important factors. Aim for 60-80 %, with the highest values in the first part of the day and slightly drier air towards evening, so that the substrate and branches can dry. An automatic system that sprays twice a day can keep the humidity above 70 %, while daily hand spraying often gives only about 50-70 %.

Spray branches, leaves and walls thoroughly enough that there are droplets the animal can lick. Droplets on the leaves are a natural drinking place for a rainforest animal, and a water bowl should be there in addition. Measure with a digital hygrometer, and ensure good ventilation so that the air does not become stagnant and the substrate does not start to go mouldy. Signs of too little water are sunken eyes, slack skin, sticky saliva and dark, hard droppings.

LIGHTING AND UVB

Varanus prasinus is diurnal and needs strong light. Use a strong halogen or spot lamp for the basking spot and a high-output fluorescent tube over the whole enclosure, switched on for about 12 hours a day, corresponding to tropical day length. At night it must be dark.

UVB is recommended. Monitors' need for UV light has been little studied, and the species can breed without it, but a lack of UV light can worsen bone damage in the young, and wild-caught animals that lose their yellow tones in captivity point the same way. Use a UVB tube corresponding to Ferguson zone 3, mounted so that the animal can choose to sit closer or further away. The zone matches other diurnal, sun-loving reptiles. Replace the UVB tube according to the manufacturer's instructions.

Read more: Lighting and UVB

FEEDING

In the wild *Varanus prasinus* lives mainly on insects and other invertebrates. Live insects with dubia roaches as the staple keep adults healthy, supplemented once a week with giant mealworms and larvae of the flower chafer *Pachnoda butana*. Feed three times a week with a supplement at every meal, alternating calcium and a vitamin and mineral preparation with D3. Vary the insects, dust them with supplements, and give only as much as the animal eats up in 15-20 minutes.

Besides insects the species readily takes small fish and crayfish. Vertebrates should make up only a small part of the diet. The species can breed on a diet of almost only mice, but the parents' diet and condition affect the young, and bone damage in the young is a risk. Rats and mice as the staple cause obesity and suit a species that in the wild lives mostly on insects poorly. Give them at most as an occasional treat.

Young are fed small crickets and other small insects, dusted with calcium, and must have food every day. The best guide to how often and how much they should get is the young animal's weight and body shape, so weigh it regularly.

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

BEHAVIOUR AND HANDLING

Varanus prasinus is fast and jumpy and has strong, sharp claws that can tear the skin when the animal clings to hand and arm. A bite from a monitor of this size does not cause serious injury, but a deep bite or claw tear must be washed, disinfected and treated. Never hold the animal by the strong prehensile tail.

Handling stresses the animal, and while it is getting used to its new home it must be left in peace. Once the animal has settled in, you can tame it gently by entering in the same way every day, offering food from tweezers and letting it come to the hand instead of grabbing for it. Keep sessions short, and never let the animal fall. If a vet has to handle the animal, gloves and two people may be necessary. The species is first and foremost an animal to look at, not an animal for daily handling.

Monitors can carry salmonella without being ill. Wash your hands with soap after all contact with the animal, enclosure and furnishings, and keep children and immunocompromised people away from faeces and water. The species can be kept singly or in pairs, and a pair can share the same enclosure. Whether two males can be kept together is not known, and it is advised against.

Read more: Quarantine and hygiene

Breeding

SEXUAL MATURITY AND SEXING

The age and weight at sexual maturity are not known for *Varanus prasinus*, and the sexual differences are small. The female is not necessarily larger than the male, and the male may be a couple of centimetres longer from snout to vent. Sexing requires experience. Have a vet with monitor experience determine the sex before the animals are put together, and wait until both animals are fully grown.

MATING

Varanus prasinus has been bred in captivity several times and needs no cool rest period. Mating can begin in June and be repeated several times a day for a week. Put the animals together in a large enclosure with many hiding places, and watch them closely: the female must be able to avoid the male.

EGG-LAYING AND CLUTCHES

The female *Varanus prasinus* lays a small clutch of 2-3 eggs about a month after the first mating; the figure is based on few animals. She may lay the eggs on top of the nest box instead of in the material, and malformed eggs can end up in the water bowl. The nest box should be about 20 × 20 × 60 cm, filled with coconut fibre and sphagnum and kept at 26-29 °C. How many clutches a female lays per year is not known. Give the female a deep nest box with moist material, so that she is not forced to lay on the floor or in the water.

INCUBATION

The eggs of *Varanus prasinus* are incubated in a closed plastic box of about 7 l, half filled with vermiculite moistened with water 1:1 by weight, and covered with a breathable film. At 30 °C (± 0.5 °C) they hatch after 168-170 days. Shortly before hatching the eggs can become discoloured and sunken, and embryos can die just before hatching. Sunken eggs can mean that the medium is getting too dry, so check the moisture regularly throughout the long incubation. Temperature-dependent sex determination is not known.

Read more: Incubating eggs

REARING THE YOUNG

A hatchling *Varanus prasinus* weighs about 5.7 g and is about 19 cm long; the figures are based on few animals. It can be kept in a small glass enclosure with cork on the walls and branches. Skeletal deformities can occur already at hatching and get worse with age. The cause is unclear, but a lack of UV light can make them worse. So give the juveniles UVB, calcium and D3, moisture and warmth from the start. Juveniles should be fed small insects dusted with calcium and weighed regularly. Keep them singly until it is certain that they do not bite each other. How fast the juveniles grow is not known.

Health and common mistakes

Animals of *Varanus prasinus* in the trade are both captive bred and wild caught. Captive breeding should be preferred. Wild-caught animals can carry parasites and are often dehydrated and stressed after transport, and all newly bought animals should have a faecal test at a vet experienced with reptiles. Mortality is particularly high in the first two years in captivity. The typical problems are:

- Dehydration. The most common husbandry mistake. Prolonged dehydration can cause gout, which is common in monitors. Keep the humidity high, spray daily and offer drinking water.
- Bone disease and calcium deficiency, especially in juveniles and breeding females. Give calcium and D3, vary the insects and use UVB. Signs are soft jaws, bent limbs, tremors and poor grip.
- Too many fatty vertebrates in the diet, which cause obesity. Keep insects as the main food.
- Falls from the top of the enclosure with broken legs or back injuries. Furnish with secure branches and a soft floor.
- Burns on unshielded lamps.
- Parasites and salmonella. Take a faecal test and wash your hands.
- Egg-laying problems in females without a nest box or with calcium deficiency. See a vet if the female sits straining and does not lay.

A healthy animal has clear, open eyes, a full tail, a strong grip and an intense green colour. See a vet if the animal loses weight, does not eat for a couple of weeks, lies limp, has sunken eyes, breathing difficulties or deformities. It can be hard to find a vet who knows monitors, so find one before you need one.

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.