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MONITOR LIZARDS

Desert Monitor

Varanus griseus

Varanus griseus is a slender, greyish-brown desert monitor found from North Africa through the Middle East to Pakistan and north-western India. It grows to about 1 m long and has narrow, dark bands on the back and tail. It digs, basks a great deal and feeds on small mammals, eggs, reptiles and insects. Little is known about its care, and the species rarely does well in captivity.

Family: Varanidae

KEY FACTS

THE ANIMAL

Adult size	**90-180 cm** total length incl. tail
Lifespan	**8-17 years**
Active	**By day**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Desert and semi-desert**
Difficulty	**Expert**

CARE

Min. enclosure	**300 × 120 × 120 cm** L × W × H for 1 adult
Temperature, day	**25-35 °C**
Basking spot	**50-58 °C**
Temperature, night	**20-24 °C**
Humidity	**30-60%**
Water	**Water dish**
UVB	**Essential** Ferguson zone 3
Winter rest	**12-18 °C** 13-22 weeks
Diet	**Insects and vertebrates**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**7-20 eggs**
Incubation	**120 days** at 29-31 °C

PROTECTION AND PAPERWORK

CITES	**Appendix I**
EU annex	**Annex A**
IUCN	**Least Concern (LC)**

About the species

Varanus griseus is a slender, short-legged desert monitor with a long neck and a tail that is round in cross-section. The nostrils are slanted slits positioned closer to the eye than to the tip of the snout. The colour varies from light brown and yellow to grey, with narrow, dark crossbands on the back and tail and often yellow spots on the back. In areas with abundant vegetation the animals can be orange. Juveniles are strongly orange with distinct bands, which may fade with age. On average the animals are about 1 m long and can reach almost 2 m, depending on food, season and habitat. Males are larger and more robust than females.

The species was described in 1803 and has had three subspecies. In 2023 all three were proposed as separate species. The populations in Central Asia are now regarded as a species of their own, *Varanus caspius*, while the form in Pakistan and north-western India is still regarded as a subspecies, *V. g. koniecznyi*. Animals in the trade may therefore be listed under several names. In the wild the animals rarely live longer than about 8 years. In captivity they often live only a few years, but some individuals live for more than 17 years when their needs are met.

The species is a demanding monitor that never becomes tame and should only be kept by experienced keepers. An adult needs an enclosure at least 3 m long, a winter rest every year and a varied diet of whole prey animals.

Distribution and habitat

Varanus griseus has a very large range in deserts and semi-deserts from North Africa through the Middle East to Pakistan and north-western India. It occurs from Morocco, Western Sahara and Mauritania eastwards through Algeria, Tunisia, Libya, Egypt and Sudan, and southwards in northern Mali, Niger, western Chad and northern Nigeria. In the Middle East it lives in Israel, Palestine, Syria, Jordan, Lebanon, Iraq, Saudi Arabia, the United Arab Emirates, Qatar, Oman, Kuwait and south-eastern Turkey, and onwards into Iran. The form in Pakistan and north-western India (*V. g. koniecznyi*) is the smallest. The populations from the Caspian Sea across Turkmenistan, Uzbekistan and Kazakhstan to Afghanistan are now regarded as *Varanus caspius*, and the boundary between the two species in Iran and Afghanistan has not been settled.

> **Native range:** Morocco, Western Sahara, Mauritania, Algeria, Tunisia, Libya, Egypt, Niger, Chad, Nigeria, Mali, Sudan, Israel, Palestinian Territories, Syria, Jordan, Lebanon, Iraq, Saudi Arabia, United Arab Emirates, Qatar, Oman, Kuwait, Turkey, Iran, Pakistan and India.

HABITAT

The species lives in deserts and dry areas with sand or clay, often on bare ground and occasionally in wooded areas. It is active by day but spends the midday heat in its burrow, which it digs itself and which can be several metres long. It emerges in the morning, basks and hunts over long distances. Across most of its range the animals hibernate from September to April; in Pakistan and India they are merely less active in the cool season. The animals often use roads for basking, and many die in traffic. With a body temperature below about 21 °C the animals are sluggish and defend themselves fiercely instead of fleeing.

Care

THE ENCLOSURE

Little is known about the care of *Varanus griseus*, and the species rarely does well in captivity. The enclosure is therefore based on the general rule for terrestrial monitors: at least five times as long, twice as wide and twice as high as the animal's snout-vent length. A fully grown animal has a snout-vent length of 55-65 cm and needs at least 300 × 120 × 120 cm (length × width × height). Larger is better, and a whole room or an outdoor enclosure during the warm part of the year is an advantage. *Varanus gouldii* and *Varanus acanthurus* are terrestrial monitors from dry regions with similar requirements.

Juveniles can start in a smaller enclosure, but they grow and must be moved up within a few years. The species digs and is fast, so the enclosure must be secure, with doors that can be locked.

The substrate must be deep, preferably 50 cm or more, of dust-free sand mixed with soil, so that the animal can dig its own tunnels and retreat from heat and cold. Live plants do not survive. Furnish with stable piles of stones, thick cork tubes and large hides at both ends. Fix stones in place so that they do not collapse onto a digging animal. A rock-like back wall of foam and epoxy, dusted with sand, provides a climbing surface and a natural look. All heat sources must be shielded so that the animal cannot burn itself. There must be a large, stable bowl of water, as the species can both swim and dive.

TEMPERATURE

Varanus griseus comes from deserts with very hot summers and cold winters and needs a large temperature gradient. In the wild its body temperature rarely exceeds 38.5 °C, even when basking. The enclosure temperatures are borrowed from *Varanus gouldii*: the basking spot is a flat stone with a surface temperature of 50-58 °C, measured with an IR thermometer on the stone itself. The daytime air temperature is 25-35 °C from the cool end to the warm end, and at night the heat is switched off so that the temperature falls to 20-24 °C.

Heat only one half of the enclosure, so that the animal can move in and out of the warmth. A spotlight aimed at a flat stone is better than a ceramic heater: it gives off no light, so the animal cannot tell how hot it is. Shield all lamps with guards and control them with a thermostat.

The species needs a winter rest every year for 3-5 months at 12-18 °C. Gradually reduce light and heat over a few weeks before the rest, and slowly turn them up again afterwards. Only healthy animals in good condition should be given a winter rest. Keep the substrate dry and make sure fresh water is always available.

Read more: Heat and temperature

HUMIDITY AND WATER

The air in the enclosure must be dry: 30-60 % (borrowed from *Varanus gouldii*). The substrate must be dry at the top and slightly moist deeper down, so that the dug tunnels hold their shape and the animal can seek out moisture itself when shedding. Adults shed about three times a year, and each shed can take several months. A large, stable bowl of fresh water must always be available, which the animal can drink from and walk into. Change the water every day. Good ventilation keeps the air dry and prevents mould in the substrate.

LIGHTING AND UVB

Varanus griseus is active by day and basks a great deal, so it needs strong light and UVB corresponding to Ferguson zone 3. Use UVB tubes or mercury vapour lamps above the basking spot, so that the animal can get close to them with no glass in between. The UV index for the species is not documented. Replace the UVB bulbs according to the manufacturer's instructions, as UV output declines long before the bulb fails. No artificial light replaces sunlight, and an outdoor enclosure during the warm part of the year is an advantage.

Read more: Lighting and UVB

FEEDING

In the wild *Varanus griseus* eats mainly mice, eggs and fish, but also other small mammals (gerbils, young hares), reptiles, birds, toads, insects, snails, centipedes, scorpions and carrion. The young feed mostly on arthropods.

Adults are given thawed mice, chicks, quail, eggs and large insects such as locusts and cockroaches. Offer the food with long tweezers and place it on a clean surface so that the animal does not swallow sand. Juveniles are given insects and small mice. The feeding frequency is borrowed from *Varanus gouldii*: growing juveniles are fed every day, adults every 3-5 days. Rodents are fatty, and monitors fed mostly on rodents quickly become too fat, so alternate between rodents, birds, eggs and insects. During the winter rest the animal does not eat. Dust insects with calcium and vitamins.

Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

Varanus griseus is shy and fast and remains wild. It never becomes tame or accustomed to handling, and an animal that is frightened and cold stands its ground and becomes very aggressive. Bites, tail whips and the strong claws can cause injuries. Bites from the closely related *Varanus caspius* cause nausea, vomiting, dizziness, muscle pain, a rapid pulse and diarrhoea, which can begin after 20 minutes and subside after about a day. See a doctor after a bite.

Only open the enclosure when there is plenty of room around it, and do not handle the animal without reason. Fleeing, hissing and an inflated throat are signs of stress. Like all reptiles, monitors can carry salmonella. Wash your hands with soap after any contact with the animal, the enclosure and the food.

The animals are kept singly. Keeping two animals together is not documented for the species. Live insects and hidden food keep the animal active.

Read more: Quarantine and hygiene

Breeding

SEXUAL MATURITY AND SEXING

Males are larger and more robust than females. The animals reach sexual maturity after at least three winter rests and attain full size (55-65 cm without the tail) after 3-4 winter rests. The sex can be estimated from size and build, but is most reliably determined by a vet, for example with ultrasound or X-ray. Use only fully grown animals in good condition for breeding.

MATING

In the wild the animals emerge in April, and mating takes place in May and June. Breeding in the enclosure requires a winter rest with lower temperatures and shorter days, followed by gradually more heat and light. Keep the male and the female separately, and introduce the male to the female under supervision after the winter rest. Separate the animals at any sign of fighting.

EGG-LAYING AND CLUTCHES

The female lays 7-20 eggs per clutch, in the wild from late June to early July. The number of clutches per year is not documented. She needs a laying box with at least 50 cm of moist, firm sand and soil, where she can dig a deep nest. If the substrate is too shallow, she may retain the eggs and die of egg binding. The female stops eating before laying.

Read more: Common diseases and signs of illness

INCUBATION

The eggs are removed shortly after laying and placed in an egg box with perlite or vermiculite mixed with an equal weight of water. Do not turn them: mark the top with a pencil. At 29-31 °C the eggs hatch after about 120 days. The humidity in the egg box must be 80-90 %. Do not open eggs that are overdue but still look viable.

Read more: Humidity, misting and ventilation

REARING THE YOUNG

The hatchlings are about 25 cm long at hatching, of which 10 cm is without the tail. They grow slowly and must go through several winter rests before they are fully grown. Juveniles need a secure enclosure with a deep, dry substrate, hides, a basking spot and UVB, and are fed insects and small mice. Keep the young separately so that they do not injure each other.

Health and common mistakes

Varanus griseus rarely does well in captivity, and most illnesses result from mistakes in the setup. The typical problems are:

- Gout at too low a temperature and with too little water. Keep the basking spot warm, and make sure fresh water is available.
- Bone problems from a lack of UVB, calcium and D3.
- Obesity from too many rodents and too little space and exercise.
- Bite and claw wounds, often after incorrect handling. Clean wounds thoroughly, and see a vet if the animal is injured.
- Intestinal and blood parasites, especially in wild-caught animals. Have a faecal sample examined when a new animal arrives, and quarantine it for at least six weeks.
- Egg binding in females, which can be fatal. See a vet if the female is bloated and refuses food for a long time.
- Burns from unshielded heat sources.
- Poor sheds if the substrate is dry all the way down.

Always ask about the animal's origin, and preferably buy captive-bred animals. See a vet with reptile experience if the animal loses weight, does not eat, or has wounds, swellings or breathing problems.

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

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.