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AGAMAS

Giant Forest Dragon

Gonocephalus grandis

Gonocephalus grandis is a large, slender forest dragon from the rainforests of South-East Asia, where the male shifts between bright green, blue and almost black. It reaches 50-60 cm and lives in the trees along streams. The species requires a tall, humid and well-ventilated enclosure with running water, and the animals sold are usually wild-caught and delicate. It is only for experienced keepers.

Family: Agamidae Former name: *Dilophyrus grandis; Goniocephalus grandis; Gonyocephalus grandis*

KEY FACTS

THE ANIMAL

Adult size	**50-60 cm** total length incl. tail
Lifespan	**8-15 years**
Active	**By day**
Lifestyle	**Arboreal and semi-aquatic**
Habitat	**Rainforest and wetland**
Difficulty	**Expert**

CARE

Min. enclosure	**120 × 60 × 150 cm** L × W × H for 1 adult
Temperature, day	**22-28 °C**
Basking spot	**30-32 °C**
Temperature, night	**18-22 °C**
Humidity	**80-95%**
Water	**Water section**
UVB	**Recommended** Ferguson zone 2
Diet	**Insects and worms/snails**
Kept	**Singly, in pairs or one male with several females**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**6-12 eggs**
Incubation	**60-120 days** at 26-28 °C

PROTECTION AND PAPERWORK

CITES	**Not listed**
EU annex	**Not listed**
IUCN	**Least Concern (LC)**

About the species

Gonocephalus grandis is a slender agamid, laterally compressed, with a long tail, strong claws and a distinct crest of spines on the nape and along the back. The head is triangular with sharp bony ridges above the eyes. The male has a well-developed gular pouch, a taller crest and the strongest colours: green with blue and yellow spots on the flanks. The colour can change from bright green to almost black within minutes, and the change depends on temperature, mood and stress. The female is more subdued, with brown stripes and marbling that make her hard to see among leaves and branches.

The male reaches up to 60 cm in total length, of which about 16 cm is body and the rest tail. The female is slightly smaller, up to 52 cm. The species name comes from the Latin grandis, large, and refers to the size of the species. The species was described in 1845 by John Edward Gray. The genus *Gonocephalus* was formerly used more broadly than today, and several relatives from New Guinea and Australia are now placed in other genera, so older literature often mixes the species together.

The animal is shy and fast. When startled, it leaps into the air or directly into the water and swims away. Males are territorial and threaten with an inflated body, open mouth and strong colours. In the trade the great majority of animals are wild-caught, and they are stressed, thirsty and often full of intestinal parasites when they arrive. The species is therefore not for beginners, and captive breeding is rare.

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

Distribution and habitat

Gonocephalus grandis lives in South-East Asia. It is found in southern Thailand, in Laos and Vietnam, on the Malay Peninsula and the nearby islands of Penang and Tioman, on Sumatra and the small islands off its west coast, on Borneo and in Brunei. The type locality is given as Rangoon in Myanmar.

In the wild the species is common enough to be assessed as Least Concern.

> **Native range:** Thailand, Laos, Vietnam, Malaysia, Indonesia and Brunei.

HABITAT

The species inhabits tropical rainforest in the lowlands and in hill country and in swamp forest, especially in dense vegetation along brooks and rivers. Here it is warm and humid all year, with small temperature fluctuations between day and night.

Adult males can sit high, up to 15 m up on trunks and branches. Females and young animals stay lower and may sit on large rocks by the watercourse. The animal is diurnal and basks only briefly, because it gets most of its warmth from the air. The food is mainly insects, larvae and spiders, but animals have been seen eating young leaves, flowers and fruit. When a predator approaches, the animal throws itself into the water and can hide on the bottom while holding on to stones.

Care

THE ENCLOSURE

An adult needs an enclosure of at least 120 × 60 × 150 cm (length × width × height). Height is more important than floor area, because the species is arboreal and the male will sit high. A height of 150 cm gives the animal peace to withdraw from you. Large animals do best in a custom-made enclosure of glass or board with good ventilation.

Furnish with thick, crossing branches 5-10 cm in diameter, so that the animal can climb at several heights, and with live plants such as ficus, ferns and other robust tropical plants. They provide hiding places and keep the humidity up. The substrate can be a mix of coco fibre, sphagnum and a little sand with a layer of leaf litter. A water section at the bottom of the enclosure is necessary (see water). Humidity is the species' greatest challenge: the air must be humid, but never stagnant, and a closed enclosure causes respiratory infection and mouth rot. Use mesh ventilation in the top and on one side, and make sure the animal cannot rub its snout against the mesh.

A pair can be kept together in a larger enclosure if both animals have plenty of hides and perches. Two males must never be put together. The animals are fast and readily escape, so the door must close tightly.

Read more: Humidity, misting and ventilation Read more: Common diseases and signs of illness

TEMPERATURE

The air should be 22-28 °C by day and must not exceed 30 °C. Under a spotlight there can be a warmer patch of 30-32 °C where the animal can bask briefly. The night should be cooler, 18-22 °C and preferably down to 16 °C in winter. The species comes from shaded forest along streams, and heat is a greater danger than cold.

The most important temperature is that of the air, because the species basks only a little. Use a thermostat, and measure at several heights, because warm air collects at the top of a tall enclosure. An animal sitting with its mouth open and pale colour, or constantly seeking the water, is too hot and must immediately be cooled. In a warm summer it may be necessary to cool the room.

Read more: Heat and temperature

HUMIDITY AND WATER

Humidity should be 80-95 %. Mist the enclosure thoroughly morning and evening, or use a fogger or rain system on timers. The plants must have time to dry a little between mistings, and ventilation must be good, so that the moisture does not turn into stagnant, clammy air.

The animal drinks droplets from leaves and branches and from the water surface, so make sure there is always water to drink. If humidity is too low, sunken eyes, wrinkled skin and difficult shedding are seen.

WATER AND WATER QUALITY

The species likes to sit in slowly flowing water, and it almost always deposits its droppings in the water. A tub or pool in the bottom of the enclosure with a small waterfall or a pump is therefore necessary. Over part of the pool the water must be deep enough for the animal to swim and dive, and the edge must give easy access. Use a filter or a tub that is easy to take out and empty. Change a large part of the water every day or every other day, because droppings in the water quickly cause bacterial growth.

LIGHTING AND UVB

The species needs UVB and full-spectrum light. It belongs to Ferguson zone 2, a lizard that basks in partial sun or occasionally. Mount the UVB tube so that the animal can get close, but can also hide in shade. The plants in the enclosure also need light, so a plant-growth tube is an advantage. The light should be on for about 13 hours a day in summer and 11 hours in winter. Replace UVB tubes according to the manufacturer's instructions.

Read more: Lighting and UVB

FEEDING

The species is mainly insectivorous. The food must be live and varied: crickets, cockroaches, grasshoppers, mealworms, larvae, snails and earthworms. Some animals occasionally take a small newborn mouse, but it is not necessary. The animal does not go for stationary food and can be hard to get to eat after purchase. Newly arrived animals may need to have the insects offered with tweezers, and an emaciated animal must be fed in peace.

Small amounts of plant food can be offered: young leaves, edible flowers and a little soft fruit. It should be a supplement and not the main food. All feeder insects are dusted with calcium and regularly with a vitamin supplement with D3, and they are fed well before being given. Young animals are fed daily, adults every second or third day with what they eat in 10-15 minutes.

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

BEHAVIOUR AND HANDLING

The animal is shy, fast and can bite hard. It is suited to being watched, not to being picked up. Every time you open the enclosure, you risk the animal throwing itself out of the door or running in panic towards the glass and injuring its snout. Work calmly, and stick to what is necessary: food, water and cleaning.

The male is territorial and threatens another male by inflating the body, opening the mouth and showing strong colours. Animals that rub their snout against glass or mesh should be given more visual screening, for example a back wall and plants all the way down to the floor. Newly bought animals need peace and a faecal sample for the vet to check for parasites.

Breeding

SEXUAL MATURITY AND SEXING

The male has a taller crest, a larger gular pouch and stronger colours than the female, and he is slightly larger. In half-grown animals the sex is hard to see, and they should be assessed by someone with experience. Age and size at sexual maturity are not documented.

MATING

In the wild mating takes place in the rainy season, and the male colours up more strongly and defends his territory. A cool period in winter with 20-24 °C by day, 16-20 °C at night and shorter days mimics the seasons. In the enclosure a pair can be kept together if there is space and many hides; otherwise the female is put in with the male for a short time at once. One male can also be kept with two females. Both animals must be in good condition. There is only little experience with breeding, and the figures here are uncertain.

EGG-LAYING AND CLUTCHES

The female lays about 6-12 eggs per clutch in moist, loose soil or humus, preferably between roots. She needs a box with a deep, moist bottom of soil and vermiculite that she can dig in. She may guard the nest for a time after laying. The number of clutches per year is not documented. Egg-laying difficulties (dystocia) can occur in weakened females and require a vet.

INCUBATION

The eggs are laid in a moist medium such as coco fibre and vermiculite at 26-28 °C, and a higher temperature can kill the embryos. The eggs hatch after 60-120 days, most often after 60-90 days. The eggs are not turned, and the medium is kept moist, but not wet.

REARING THE YOUNG

The young are about 10 cm long at hatching and are very delicate. They need it slightly cooler than the adults, stable and high humidity and as little disturbance as possible. Give them a simple, clean enclosure with plants, hides and water, and feed daily with small, live feeder insects such as fruit flies and small crickets. Make sure all the young eat, and separate them if they begin to fight.

Health and common mistakes

Most problems are caused by errors in climate and by wild capture. Typical problems are:

- Respiratory infection and pneumonia, when humidity is high without ventilation or the temperature is too low.
- Stomatitis after injuries to snout and jaws, often from rubbing against glass or mesh.
- Intestinal parasites in wild-caught animals. Have a faecal sample examined when the animal is new.
- Metabolic bone disease from too little UVB and calcium.
- Dehydration and emaciation, especially in newly bought animals that will not eat.
- Egg-laying difficulties (dystocia) in females.

Go to a vet with reptile experience if the animal stops eating, develops an open mouth, mucus or wheezing breathing, or has sores in the mouth.

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.