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FROGS

Climbing Mantella

Mantella laevigata

Mantella laevigata is a small, diurnal frog from the north-eastern rainforests of Madagascar and the only one in the genus that climbs. It is black with a yellow to pale green back and blue spots on the limbs, grows to 2-3 cm and breeds in water-filled bamboo stems and tree holes, where the female feeds the tadpole with unfertilised eggs. It needs a tall, humid and warm terrarium with plenty of branches.

Family: Mantellidae

KEY FACTS

THE ANIMAL

Adult size	**2-3 cm** snout-vent length
Weight	**1.2-2 g**
Lifespan	**4-8 years**
Active	**By day**
Lifestyle	**Arboreal and terrestrial**
Habitat	**Rainforest**
Skin toxins in the wild	**Mild**
Skin toxins in captivity	**None** Captive-bred animals. Wild-caught animals can keep their toxins for a long time
Difficulty	**Intermediate**

CARE

Min. enclosure	**60 × 50 × 100 cm** L × W × H for 4 adults
Temperature, day	**20-26 °C**
Temperature, night	**17-22 °C**
Humidity	**80-100%**
Water	**Water dish** depth 1-2 cm
UVB	**Optional** Ferguson zone 1
Diet	**Small invertebrates (springtails, fruit flies)**
Kept	**In pairs or one male with several females**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**In leaf axils (e.g. bromeliads)**
Eggs per clutch	**1-3**
Hatching	**2-7 days**
Larval period	**90 days** from hatching to metamorphosis
Larval diet	**Algae/plants, unfertilised eggs from the female and other tadpoles**
Parental care	**Guards the eggs and feeds the tadpoles with eggs**

PROTECTION AND PAPERWORK

CITES	**Appendix II**
IUCN	**Least Concern (LC)**

About the species

Mantella laevigata is a small, slender frog of 24-30 mm from snout to vent and 1.2-2 g. The front part of the back is lemon yellow to pale green, and the yellow either ends in a semicircle or narrows to a thin line towards the vent. Arms, legs, belly and flanks are black with blue spots on the hands and feet and on the whole underside except the throat. The eyes are completely black, and the pattern varies slightly from animal to animal.

The species differs from the others in the genus in its enlarged discs on the fingers and toes, which enable it to climb. It is the only climbing *Mantella*, but not truly arboreal. *M. betsileo*, *M. viridis* and *M. expectata* resemble it, but have blue spots on the throat, smaller discs on the fingers and usually a pale line along the upper lip.

Males are a little smaller and slimmer than females, but sex is difficult to see from appearance alone. Males are best recognised by their call, and a silent male is easily mistaken for a female. The species was described in 1913 and is regarded as most closely related to *M. viridis*.

As in the whole genus, toxic alkaloids in the skin serve as a warning to predators. The frogs do not make them themselves, but take up the building blocks from the arthropods they eat in the wild. In animals fed cultured feeder insects, the toxicity disappears over time, so captive-bred animals are regarded as non-toxic. The toxin is not dangerous to humans, but the skin is very sensitive, so the animals should be handled as little as possible. Lifespan in captivity is not documented for the species itself; the figure in the box is borrowed from other species in the genus.

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

Distribution and habitat

Mantella laevigata occurs only in Madagascar, in the north-eastern coastal region, from Marojejy in the north and south through Masoala and Mananara-Nord to Betampona. The species lives from sea level up to about 600 m and is known from a number of localities. It occurs in several national parks and reserves, including Marojejy, Masoala, Mananara-Nord, Nosy Mangabe and Betampona.

The species is regarded as Least Concern (LC) on the IUCN Red List and is locally common, but the population is declining. Deforestation for cattle farming, agriculture and towns outside the protected areas is the greatest threat. The whole genus is on CITES Appendix II.

> **Native range:** Madagascar.

HABITAT

M. laevigata lives in lowland rainforest and in disturbed forest such as bamboo groves. It moves on the forest floor and climbs up to about 4 m into the trees, where it uses water-filled tree holes and hollow bamboo internodes as retreats and breeding sites. The holes sit 10-350 cm above the ground, are 3-12 cm wide and up to 30 cm deep. The species is exclusively diurnal, and the males call throughout the day, but not at night.

The climate is warm and humid with a humidity of 80-100 %. The species tolerates 17-30 °C, but does best at 20-26 °C. The main breeding season is October to March, when the rain is heaviest, and each male defends a territory of about 2 m², which contains at least one water-filled hole. Diet varies with the season: in the dry season ants make up about 84 % of the food, in the rainy season only about 35 %, when it also eats more larvae, mites and small beetles.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

Mantella laevigata climbs, so the terrarium must be tall and arranged vertically. The minimum size for a group of four adults is 60 × 50 × 100 cm (length × width × height). Height matters more than floor area. More animals require a larger terrarium, and the males are territorial, so a single male with two or three females works better than several males together.

Build the bottom with a drainage layer of small lava stones or expanded clay balls, a mesh and a few centimetres of soil covered with moss and leaf litter, so the water can drain freely. Furnish the terrarium with many leafy plants, branches, roots and bamboo tubes where the animals can hunt and hide. Bamboo tubes and plastic tubes stand vertically or at an angle, and they also serve as hides and breeding sites. For breeding, small moist plastic cups or film canisters are fixed to the glass, so they are easy to check. Do not use garden soil with fertiliser, and rinse all plants thoroughly to remove pesticides.

The lid should retain humidity, but part of it should be mesh, so the air does not stand still. The species should not be mixed with other species.

Read more: Terrarium construction and bioactive substrate

TEMPERATURE

During the day the temperature should be 20-26 °C, and at night it falls 2-4 degrees to 17-22 °C. The daytime temperature may reach 27 °C, and for shorter periods the species tolerates up to 30 °C and down to 17-18 °C. It copes with heat better than most others in the genus, because it comes from the lowlands.

In an ordinary living room it is often enough to keep the terrarium away from the sun and the radiator. Use LED or another light source that does not heat, especially over live plants, and measure the temperature with a digital thermometer at the animals' level. A true brumation is not documented.

Read more: Brumation and the seasons

HUMIDITY AND MISTING

The humidity should be 80-100 %. Mist the terrarium with dechlorinated water or rainwater every day, especially in the period when the species is to breed. The bottom should be damp, but never waterlogged. Use a fogger or rain system if there is a need to keep humidity high, and cover parts of the mesh lid with glass or plastic, but let the air move.

If the air becomes too dry for a longer time, the skin dries out and the animals lose weight. Stagnant air and constantly wet surfaces, on the other hand, cause bacteria and fungus.

WATER AND WATER QUALITY

Place one or more shallow water bowls in the terrarium, and keep them filled at all times. The depth is 1-2 cm, so the animals can easily climb out. Many small water-filled cups, film canisters or bamboo tubes at different heights serve as breeding sites and must always contain fresh water. Use dechlorinated tap water, rainwater or reverse-osmosis water, and change the water regularly so it stays clean. Amphibians absorb substances through the skin, so avoid soap, cleaning products and chlorine.

LIGHTING AND UVB

The light should suit the plants, but must not heat up the terrarium. Provide a 10-12 hour day and darkness at night. There is no evidence that the species needs UVB; a weak UVB lamp (Ferguson zone 1) is optional and requires shade and hides.

Read more: Lighting and UVB

FEEDING

The staple food is small arthropods: springtails, fruit flies, newly hatched crickets, termites and small ants. Juveniles get springtails. Feed three times a week and give enough that the animals have eaten it all after a couple of hours. A small dish of ripe fruit in the terrarium attracts fruit flies, so there is always food to hunt.

Dust the food lightly with vitamin and mineral powder once a week and with calcium at the other feedings. The species is not an ant specialist, but eats the small arthropods found in the leaf litter and has a large appetite.

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

BEHAVIOUR AND HANDLING

Males are relatively bold and call openly to defend their territory, while females are more withdrawn. Males fight over territories with wrestling, chasing and leaping. The fights last from 10 seconds to over an hour and a half, and the resident of the territory usually wins. Provide many hides and vertical surfaces, so the weaker animals can get away.

The frogs should be handled as little as possible, since the skin is sensitive. If an animal has to be moved, catch it with a plastic box, and use wet gloves if it has to be touched.

Breeding

SEXUAL MATURITY AND SEXING

Females are slightly larger than males, but sex is difficult to determine from appearance. Males are recognised by the call, a two-tone call. Silent males are easily mistaken for females. The age at sexual maturity is not documented. Keep one male with two or three females, so there is only one territory to fight over.

MATING

The main season is October to March. The trigger is unclear, but small changes in temperature, rain and the temperature of the rain as well as more food can trigger mating. The male calls from an elevated perch, and the female approaches. He then places his throat on the female's head or back and switches to a softer call, and after a few minutes he leads the female to a

water-filled hole. If she accepts it, she stays there, and the male grasps her, after which a single egg is laid above the waterline.

The female chooses according to the quality of the hole, not the male, and often leaves the male once she has inspected the site. There is therefore a need for many suitable holes, so there is no fighting over the few.

EGGS AND TADPOLES

The eggs are laid one at a time on the side of a water-filled hole, bamboo internode or cup, just above the waterline. A clutch is 1-3 eggs, on average about 1.3, so the species produces only a few young. The eggs are large, 3-3.5 mm. The male guards the hole and keeps other frogs away, and the female later returns to lay unfertilised eggs in the water, which the tadpole eats.

The tadpoles also eat other eggs and embryos, and they are not dependent on eggs. They can grow on algae tablets and the food used for tadpoles of other species in the genus. Tadpoles of the species eat each other, so each tadpole must be kept on its own if you remove them. Keep the water in the holes clean, and avoid disturbing the eggs.

Read more: Rearing tadpoles

METAMORPHOSIS

Freshly laid eggs are very sensitive to disturbance and must not be dipped in water before the tadpole has hatched, otherwise mortality is high. The eggs stay in place while they develop. Embryonic development takes up to about a week, and at 25-26 °C the tadpole can hatch after just two days. When the embryo has reached the hatching stage, the egg can be moved to a rearing box.

Each tadpole sits alone in a cup with water and leaf litter, and the water is changed twice a week. Feed three times a week with an algae or spirulina tablet. Metamorphosis takes place about 90 days after hatching. When the tadpole has acquired the frog's colour, it is moved to a small aquarium where three quarters of the bottom is water and the rest is stones and moss, so it can easily climb out of the water.

REARING THE YOUNG

The newly metamorphosed froglets are placed in a small terrarium with damp moss, hides and a shallow water bowl that they can easily climb out of. Feed them springtails and the smallest fruit flies, and dust the food lightly with vitamin and mineral powder. The froglets are sensitive to desiccation, so keep the humidity high. When they are big enough to take larger feeder insects, they can be moved to a larger terrarium. Growth and the timing of sexual maturity are not documented.

Health and common mistakes

Captive-bred animals are rarely ill, and when they are, it is usually due to errors in husbandry:

- Wrong climate: too warm, too dry or stagnant air causes heat and desiccation problems. Do not let the temperature exceed 27 °C for any length of time.
- Poor hygiene: a dirty bottom and water cause bacteria and skin diseases.
- One-sided or too fatty food: causes B-vitamin deficiency and obesity. Vary the food and dust it with vitamins and calcium.
- Stress, e.g. during transport or with too many males, weakens the animals.
- Wild-caught animals often arrive emaciated and with parasites and should be quarantined for several weeks before they are moved to the final terrarium.

In case of emaciation, lethargy, loose stools or sores on the skin, you should contact a vet with amphibian expertise.

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.