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FROGS

Madagascan Mantella

Mantella madagascariensis

Mantella madagascariensis is a small, diurnal frog from the rainforests of east-central Madagascar: black with red-orange, black-spotted hind legs, pale green spots at the forelegs and a sky-blue, horseshoe-shaped marking on the throat. It grows to only 21-25 mm, feeds on ants and other small arthropods and needs a cool, humid enclosure. The species is vulnerable in the wild, so preferably choose captive-bred animals.

Family: Mantellidae

KEY FACTS

THE ANIMAL

Adult size	**21-25 mm** snout-vent length
Lifespan	**4-8 years**
Active	**By day**
Lifestyle	**Terrestrial**
Habitat	**Rainforest and montane forest**
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 × 30 × 30 cm** L × W × H for 4 adults
Temperature, day	**20-23 °C**
Temperature, night	**16-18 °C**
Humidity	**70-100%**
Water	**Water dish**
UVB	**Optional** Ferguson zone 1
Diet	**Small invertebrates (springtails, fruit flies)**
Kept	**In groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**On the ground**
Sexually mature	**12-18 months**
Eggs per clutch	**12-30**
Hatching	**3-12 days**
Larval period	**56-112 days** from hatching to metamorphosis
Larval diet	**Algae/plants and complete diet**
Parental care	**None**

PROTECTION AND PAPERWORK

CITES	**Appendix II**
IUCN	**Vulnerable (VU)**

About the species

Mantella madagascariensis is a small, sturdily built frog with a black back and strongly coloured limbs. A green or yellow stripe runs along the head over the snout. The upper arms and thighs are yellow to green, while the lower legs and feet are red-orange with black spots. Pale green to yellow spots continue onto the sides close to the forelimbs. The pattern varies from animal to animal. The strong colour is a warning coloration: the frog is poisonous to predators.

The males are 21-22 mm and the females 24-25 mm from snout to vent, and a few animals measure from 20 to 28 mm. The males are also slimmer. The species was described in 1872 as *Dendrobates madagascariensis*, and it may hide several cryptic species.

M. madagascariensis is easily confused with *M. baroni*, which has almost the same pattern, and with *M. pulchra*, which looks like a browner and more washed-out version. The surest difference from *M. baroni* is the throat: *M. madagascariensis* has a sky-blue, horseshoe-shaped marking, while *M. baroni* has a single black patch or an entirely black throat. The red on the hind legs runs right through the thigh in *M. madagascariensis* but stops at the joint in *M. baroni*. Animals in the trade are therefore often mixed up.

As in the whole genus, there are toxic alkaloids in the skin. The frogs do not produce them themselves but take them up from the ants and mites they eat in the wild. The poison is not particularly dangerous to humans, but contact should be avoided, and hands washed after any contact with animals and enclosure. In animals fed on cultured feeders the poison appears to disappear, so captive-bred animals are regarded as non-poisonous. The species rarely breeds in captivity. Lifespan, enclosure dimensions and several other husbandry figures are not documented for it and are borrowed from other species of the genus *Mantella*; this is marked in the text.

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

Distribution and habitat

Mantella madagascariensis is found only in Madagascar, where the whole genus is native. The species lives in east-central Madagascar, in mountain regions from the area around Niagarakely in the north to Ranomafana in the south, at about 700-1,050 metres above sea level. The range is relatively small, and the species keeps to rainforest that has not been degraded.

The species is Vulnerable (VU) on the IUCN Red List. The threats are loss of forest to agriculture, logging and charcoal burning, and collection for trade may also matter. It is on CITES Appendix II together with the rest of the genus.

> **Native range:** Madagascar.

HABITAT

The frog lives on the forest floor in humid tropical and subtropical forest, both in the lowlands and in mountain forest, and it prefers to stay in the forest and at the forest edge along streams. It moves among leaf litter, stones and moss and is active during the day, when it hunts small arthropods and patrols its area.

The year is divided into a rainy season and a cooler dry season. The genus is most active in the wettest period from December to February, when the males call loudly to defend territories, and the females feed themselves up on ants and mites before breeding. When the rain stops and the cooler months arrive, the animals become less visible and live hidden in the leaf litter. The species breeds by streams. The eggs are laid on land in damp hollows, and heavy rain washes the developed tadpoles into the water. Day and night are relatively cool in the mountain forest, and the enclosure should imitate this.

Read more: Rearing tadpoles

Care

THE ENCLOSURE

A low, flat enclosure of at least 60 × 30 × 30 cm (length × width × height) holds a group of four adults. The frog lives on the ground, so floor area is more important than height. The dimensions are borrowed from related species, because there are no dimensions for the species itself. The males are territorial and fight over spots, so choose a larger rather than a smaller enclosure, and provide many hiding places so that all animals can withdraw.

A simple set-up is a floor of damp sphagnum, a few pieces of cork bark, artificial or live plants and a small, shallow water bowl. Damp kitchen paper can be used instead, but must be changed often, sometimes daily. For a planted enclosure, first lay a drainage layer of gravel or clay pebbles, then a mesh and on top several centimetres of soil and leaves. Do not use ordinary garden soil with fertiliser, and rinse the plants thoroughly of pesticide. The lid must hold the humidity, but part of it must be mesh so the air does not stand still.

Read more: Humidity, misting and ventilation Read more: Terrarium construction and bioactive substrate

TEMPERATURE

Mantella madagascariensis thrives cool. During the day it should be 20-23 °C, and at night the temperature may fall to 16-18 °C. Short periods up to about 24 °C can be tolerated, but a longer time in the heat causes illness and can kill the animals. The figures are borrowed from the genus and from related species and are not documented for the species itself.

Most ordinary living rooms are suitable all year round, but a south-facing windowsill is not. Be careful with lamps over the enclosure, especially if there are live plants: use LED or other light that does not give off heat. Measure the temperature with a digital thermometer at the animals' level. A proper winter rest is not documented, but a cooler and slightly drier period is used to trigger breeding behaviour (see Breeding).

HUMIDITY AND MISTING

Humidity should be high most of the time, 70-100 %, especially when it is warm. Mist the enclosure with dechlorinated water every day, heavily in warm weather and a little less when it is cold. The substrate should be damp, but not waterlogged. Put glass or plastic over parts of the mesh lid to hold the humidity, and make sure that the air can still move.

Weeks or months of drier conditions followed by heavy misting can trigger breeding behaviour in the genus. If the air is too dry for a longer time, the skin dries out and the animals lose weight.

WATER AND WATER QUALITY

Place a shallow water bowl in the enclosure, and keep it full at all times. The frogs are poor swimmers, so the bowl must be so shallow that they can easily get out, and it must not take up much of the floor. The depth is not documented, but at most a couple of centimetres is plenty.

Amphibians absorb water and substances through the skin, so use only rainwater, reverse osmosis water with added minerals or tap water treated against chlorine, chloramine and heavy metals. Change the water every day or every other day, and scrub the bowl clean when there is a film. Use no cleaning products.

LIGHTING AND UVB

No UVB requirement is documented for the species, and the frogs manage without. A weak UVB light (Ferguson zone 1) can be used as an optional extra, provided there is shade and plants so the animals can choose. Light for the plants must not give off heat. Keep the light on for about 10-12 hours a day, and keep it dark at night.

Read more: Lighting and UVB

FEEDING

The frog is an eager hunter and can eat relatively large prey for its size. In the wild it feeds mostly on ants and mites. In the enclosure it is fed small arthropods, and most take feeders up to about 6 mm: cultured wingless fruit flies, springtails, newly hatched crickets, aphids, small cockroach nymphs, termites, small spiders and lesser mealworm larvae. Very small wax moth larvae can be used for variety. Variety prevents deficiencies.

Give 5-15 feeders per frog every second day, and adjust according to how plump the animals are. In cool weather one feeding a week is enough. Spread the food in several places, otherwise weak males are chased away from the food by the strong ones. Dust the feeders with a good calcium and vitamin powder at every second or third feeding, and at every feeding for juveniles. The amounts are borrowed from related species. Fruit flies and newly hatched crickets are seldom available in ordinary pet shops, so they should be cultured yourself or ordered from a large supplier.

Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

Mantella madagascariensis is diurnal and can be seen patrolling its area and hunting for food for most of the day. The males call from the leaf litter to defend the area and attract females, and they may wrestle with one another. The animals are best kept in a small group with many hiding places and plenty of space.

Frogs should as far as possible not be handled. The skin is delicate and absorbs substances from the hands. If a frog has to be moved, for example during cleaning, use a small, clean plastic container, and do not touch it with dry hands. Newly bought, wild-caught animals are often emaciated and have parasites, so they must be quarantined for several weeks or months in a single, simple enclosure. Preferably choose captive-bred animals.

Breeding

SEXUAL MATURITY AND SEXING

The males are smaller and slimmer than the females and are recognised by their call. In the genus the males also have visible glandular pads on the inside of the thighs. The females grow slightly larger (24-25 mm against 21-22 mm). Sexual maturity is assumed to occur at about 12-18 months, but the age is not documented for the species itself. In the similar *M. baroni*, breeding has succeeded in groups of seven animals or more.

It is best to buy a small group of juveniles and let them grow up together, so you can be sure of getting animals of both sexes.

MATING

Mating follows the rainy season. In captivity the method is borrowed from related species: a cooler and slightly drier period of up to three months with about 10 hours of light, less frequent misting, a lower water level and less food, with the temperature rarely rising above 22 °C. After that, light, temperature and food return to normal, and the enclosure is misted heavily. The period can be a strain, so keep an eye on the animals' weight, and move animals that look poorly to a separate enclosure. The method is not documented for the species itself.

Females that are ready swell with eggs a few weeks after the rest period. Plenty of food and humidity is the key.

EGGS AND TADPOLES

The female lays the eggs on land, in damp hollows or crevices. The number is not documented for the species itself; expect 12-30 eggs as in the roughly equally large *M. aurantiaca*. The similar, slightly larger *M. baroni* lays over 50 and up to about 130 eggs. Often only some of the eggs are fertilised, and sometimes none of them.

In related species the eggs are moved after about three days to a closed container, where they lie on a lump of moss so that they just touch the water's edge without being flooded. Under a lid the air is kept damp. There is no parental care. The tadpoles live on the yolk for the first few days. After that they are fed daily or every second day with algae such as spirulina and chlorella, fish flakes, bloodworms and daphnia. Rear them together in large plastic containers with a lump of Java moss or a piece of pothos, which provides cover and keeps the water clean. For the first weeks the water must be 3-5 cm deep, later up to about 10 cm. The water temperature must be 18-26 °C without large fluctuations, and the water must be treated against chlorine and heavy metals. Do not overfeed, because the water then turns bad.

METAMORPHOSIS

The tadpoles break out of the egg about 3-12 days after laying, and the timing is borrowed from related species. The first tadpoles get their front legs about eight weeks after laying, and the rest metamorphose over the following four to eight weeks, so the larval period is about 56-112 days. Tadpoles from the same clutch develop at different rates.

When the front legs appear, the tadpole is moved to a container with at most 1 cm of water and a tight-fitting lid. As soon as the tail is being absorbed, the little frog is moved to a land enclosure with damp kitchen paper and a hiding place of, for example, a pothos leaf, a dry oak leaf or a crumpled damp napkin.

REARING THE YOUNG

The newly metamorphosed frogs are only about 7-10 mm long and need plenty of small arthropods. Fruit flies and newly hatched crickets are taken by most, but are too large for the smallest, which get springtails, aphids or a clump of damp leaf compost with small animals in it. Keep them singly in small containers or two to five together in containers of about 13 × 13 × 8 cm. Always give a little food, and dust it with calcium and vitamins at every feeding.

When they are 2-3 months old, they can be moved to a larger enclosure with moss or soil, bark and plants. The young animals are cared for like the adults. The fully developed colours typically come after 3-8 months, and in a few only after about ten months.

Health and common mistakes

Mantella madagascariensis is sensitive to heat and drought in captivity, and most problems come from the wrong climate or food. The typical mistakes are:

- Too high a temperature. A longer time above about 24 °C causes stress and poor appetite and can kill the animals.
- Air that is too dry or misting that is too infrequent, which dries out the skin. The animals lose weight.
- Lack of calcium and vitamins because the feeder insects have not been dusted. This causes poor growth and crooked legs.
- Weak animals that are chased away from the food by the strong males. Feed in several places, and separate the animals if some are bullied.

- Dirty substrate and stagnant air, which cause bacteria and fungus. Change the substrate and clean the water bowl regularly.
- Wild-caught animals, which often arrive emaciated and with parasites. Quarantine and a vet are necessary.

A healthy animal has clear eyes, a plump body and is active during the day. Seek a vet with knowledge of amphibians if the animal loses weight, does not eat for several weeks or has sores or swellings.

Read more: Quarantine and hygiene

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.