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FROGS

Brown Mantella

Mantella betsileo

Mantella betsileo is a small, diurnal frog from Madagascar with a brown to coppery back, often with a pale X-shaped pattern, black flanks and a blue-marbled belly. It grows to 2-3 cm, feeds on ants and other small arthropods and is robust and easy to keep in a group. Many animals in the trade are in fact the almost identical *Mantella ebenaui*.

Family: Mantellidae

KEY FACTS

THE ANIMAL

Adult size	**2-3 cm** snout-vent length
Lifespan	**5-10 years**
Active	**By day**
Lifestyle	**Terrestrial**
Habitat	**Savanna and dry 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	**Beginner**

CARE

Min. enclosure	**45 × 45 × 30 cm** L × W × H for 4 adults
Temperature, day	**20-25 °C**
Temperature, night	**16-20 °C**
Humidity	**60-80%**
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	**25-30**
Larval period	**42-56 days** from hatching to metamorphosis
Larval diet	**Algae/plants and complete diet**
Parental care	**None**

PROTECTION AND PAPERWORK

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

About the species

Mantella betsileo is a small, brown frog. The back is reddish brown, bronze or copper-coloured, often with a pale X-shaped pattern, the flanks are black, and the legs are greyish to brown. The belly is black with blue marbling. The colours vary, and many animals lack the X-shaped pattern.

The species grows to 2-3 cm from snout to vent. Males are usually about 2 cm, while the largest females reach 3 cm. The difference between the sexes becomes clear when the animals are 10-12 months old: the females become about a fifth larger and are much plumper. Males call with a peeping call, especially when the air is humid.

The species is easily confused with *Mantella ebenaui*, which lives in northern Madagascar and looks almost identical. Until 2006 the northern species went under the name *M. betsileo*, while the actual *M. betsileo* long remained unnamed. The original name *M. betsileo* refers to the Betsileo area in central Madagascar, where the northern species does not occur, and so the northern species regained the name *M. ebenaui*. Older literature on *M. betsileo* therefore often deals with *M. ebenaui*. *M. betsileo* grows slightly larger and more often has reddish-brown flanks and legs and less often the strongly blue and black chest, but the two species cannot be reliably told apart by appearance, only by locality or genetic analysis. Brown mantellas in the trade are therefore often *M. ebenaui*, even when sold as *M. betsileo*. Care is the same.

The frogs take up toxins (alkaloids) from the ants and mites they eat and do not produce them themselves. 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 feeder insects the poison disappears over time, and captive-bred animals are regarded as non-toxic; wild-caught animals may still carry poison. The average lifespan is not known, but wild-caught animals live more than 5 years in captivity, and the species probably can live longer.

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

Distribution and habitat

Mantella betsileo occurs only in Madagascar, and the distribution is not fully mapped. The species is known from western, south-western and eastern Madagascar from sea level to about 925 metres altitude, with records including Isalo and the highlands around Antsirabe. Most known populations are in the west, and they are few. The boundary with *M. ebenaui* in the north has not been established.

The species is listed as Least Concern (LC) on the IUCN Red List, but it is under pressure from habitat loss. The species is on CITES Appendix II.

> **Native range:** Madagascar.

HABITAT

The species lives in both dry and humid forests, in savanna and scrub, in degraded and former forest, in village gardens and along streams, ponds, marshes and ditches. It is diurnal and stays in leaf litter, under stones and in damp crevices.

The year is divided into a rainy season and a cooler dry season. The mantellas are most active in the wettest period from December to February, when the males call to defend territories and the females feed up on ants and mites. The eggs are laid on land close to water, and the rain washes the developed tadpoles into the water. When the rain stops, the animals become less visible.

Read more: Rearing tadpoles

Care

THE ENCLOSURE

A small group of four adults needs an enclosure of at least 45 × 45 × 30 cm (length × width × height), and more animals require more floor area. The frog lives on the ground, so floor area is more important than height, and 30 cm in height is plenty. The enclosure must be densely planted and have many hides and visual barriers, so the animals can retreat from each other. Outside the breeding season the animals are largely peaceful, but the females may fight in the breeding season.

A simple setup is a base of coconut fibre or long-fibre sphagnum with leaf litter, pieces of cork bark and live or artificial plants. For a living enclosure, first lay a drainage layer of expanded clay pebbles, then a mesh, and on top several centimetres of soil. Do not use potting compost with fertiliser, and rinse the plants for pesticides. A small piece of wood or branches provides some climbing space, but the species is not arboreal. The lid must fit tightly enough to retain humidity, but with mesh so the air does not stand still. The species hides a great deal under cover, so give them space.

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

TEMPERATURE

Mantella betsileo thrives at room temperature, 20-25 °C by day, and at night the temperature may fall to 16-20 °C. The night temperature is borrowed from related species. Brown mantellas from the lowlands tolerate heat better than most in the genus, but longer periods above about 26 °C should be avoided. Use LED or other lighting that does not give off heat, and measure

the temperature at the animals' level. A south-facing windowsill is not suitable.

The species has no winter rest, but an artificial dry season is used for breeding (see Mating).

HUMIDITY AND MISTING

Humidity should be around 60-70 % day to day and up to 80 % in the breeding season, but the species tolerates a wide range. Mist the enclosure daily with decalcified water. The substrate should be damp, but not waterlogged. A mesh lid with parts covered by glass or plastic holds the humidity and still allows air exchange. The shallow water dish ensures that the animals do not dry out when the air is dry. Watch that the animals do not lose weight during a longer dry season.

WATER AND WATER QUALITY

Put a shallow water dish in the enclosure, and keep it always full. Frogs are poor swimmers, so the dish should be shallow enough for them to climb out easily, and it must not take up much of the floor; no more than a couple of centimetres of water is plenty. Use rainwater, reverse-osmosis water with added minerals or tap water treated against chlorine, chloramine and heavy metals, because amphibians absorb substances through the skin. Change the water every day or every other day, and scrub the dish clean without detergents.

LIGHTING AND UVB

A need for UVB is not known in the species. It is, however, active in partial sunlight in the wild, so a weak UVB light (Ferguson zone 1) is probably an advantage, as long as there is shade and plants so that the animals can choose. Lighting for the plants must not give off heat. Keep the light on 10-12 hours a day, and let it be dark at night.

Read more: Lighting and UVB

FEEDING

The species is an eager hunter but eats only small feeders. In the wild it feeds on ants, mites and other small arthropods. In the enclosure it is fed springtails, wingless fruit flies, small isopods, termites, 3 mm crickets and small black soldier fly larvae. Juveniles start with newly hatched springtails. Variety prevents deficiencies.

Give 2-10 feeders per frog twice a week, and adjust according to how plump the animals are. The amounts apply to the genus in general. Spread the food in several places so that weak animals are not kept away by the strong ones. Dust the feeders with calcium and vitamins at most feedings and at every feeding for juveniles.

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

BEHAVIOUR AND HANDLING

Mantella betsileo is diurnal, but spends a great deal of time under cover. The animals are somewhat shy, and it helps if the enclosure is densely planted. The males call with a peeping call and defend small territories. The species thrives in a small group; the females can fight in the breeding season, so provide space and many visual barriers.

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 make sure your hands are wet and clean. Newly bought, wild-caught animals are often emaciated and have parasites, so they must be quarantined in a single enclosure for several weeks. Preferably choose captive-bred animals.

Breeding

SEXUAL MATURITY AND SEXING

The males are smaller and slimmer than the females and are recognised by the call. The females are about a fifth larger and much plumper, and the difference shows after 10-12 months. The age at sexual maturity is not known for the species; 12-18 months is borrowed from *Mantella baroni*. The surest way to get both sexes is to buy a small group of juveniles and let them grow up together. A group of ten or more animals with more males than females breeds most easily.

MATING

Breeding is moderately difficult and requires patience and an artificial dry season. Misting and feeding are halved for 3-4 months, while clean water is available at all times in a shallow dish. This is followed by about six months of daily misting and plenty of food. Within a few days of misting being increased, the males begin to call. The dry season can be a strain, so watch the animals' weight, and end it if some look poorly. The females can fight in the breeding season, so provide space and hides.

EGGS AND TADPOLES

The female lays the eggs on land in damp hollows close to water. A clutch typically contains about 25-30 eggs, and often only some of them are fertilised. There is no parental care.

The eggs are lifted out and placed on damp sphagnum in a closed container. When small, whitish-grey tadpoles can be seen wriggling in the jelly, water is poured on so that the egg mass is flooded, and the tadpoles swim freely. After a couple of days they are moved with a pipette to a cycled aquarium with a sponge filter. The tadpoles feed eagerly at about 23 °C and take a wide range of food, from fish flakes to algae tablets. Give them Java moss as cover, feed daily, and change the water regularly. The water must be treated against chlorine and heavy metals. Do not overfeed, because the water then goes bad.

METAMORPHOSIS

The hatching time is not known for the species; in *Mantella baroni* the eggs hatch after 3-12 days. At about 23 °C the tadpoles grow legs after 6-8 weeks and begin to leave the water. Tadpoles from the same clutch develop at different rates.

When the front legs appear, the tadpole is moved to a container with no more than 1 cm of water, easy access to land and a tight-fitting lid. As soon as the tail is being absorbed, the little frog is moved to a rearing box with damp kitchen paper and a hide, for example a pothos leaf, a dry oak leaf or a damp napkin.

REARING THE YOUNG

The newly metamorphosed froglets are very small and need plenty of small arthropods. For the first weeks they live on newly hatched springtails, and they grow quickly. When they have grown larger, they take small fruit flies and 3 mm crickets. Keep them in small containers with a damp substrate and hides, always provide 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. Colours and markings change as the animals grow.

Health and common mistakes

Mantella betsileo is robust, but sensitive to heat and drought. The typical mistakes are:

- Too high a temperature. Longer periods above about 26 °C cause 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 are not dusted. This causes poor growth and crooked legs.
- Weak animals that are kept away from the food by the strong ones. Feed in several places, and divide the animals if some are badly bullied.
- A dirty substrate and still air, which cause bacteria and fungus. Replace the substrate, and clean the water dish regularly.
- Wild-caught animals, which often arrive emaciated and with parasites. Quarantine and a vet are necessary.

See a vet with expertise in 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.