herpy

FROGS

## Green Mantella

# *Mantella viridis*

*Mantella viridis* is a small, diurnal frog of 2-3 cm with a sharp green colour, a black face mask and a blue and white marbled belly. It lives only in the far north of Madagascar, tolerates heat poorly and is threatened in the wild, so only captive-bred animals should be considered.

Family: Mantellidae

KEY FACTS

### THE ANIMAL

| | |
|---|---|
| Adult size | **2-3 cm**<br>snout-vent length |
| Lifespan | **5-8 years** |
| Active | **By day** |
| Lifestyle | **Terrestrial** |
| Habitat | **Dry forest and wetland** |
| Skin toxins in the wild | **Mild** |
| Skin toxins in captivity | **None**<br>Captive-bred animals. Wild-caught animals can keep their toxins for a long time |
| Difficulty | **Beginner** |

### CARE

| | |
|---|---|
| Min. enclosure | **45 × 45 × 30 cm**<br>L × W × H for 4 adults |
| Temperature, day | **20-24 °C** |
| Temperature, night | **17-20 °C** |
| Humidity | **60-80%** |
| Water | **Water dish** |
| UVB | **Optional**<br>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** |
| Eggs per clutch | **40-115** |
| Larval period | **42-56 days**<br>from hatching to metamorphosis |
| Larval diet | **Algae/plants and complete diet** |
| Parental care | **None** |

### PROTECTION AND PAPERWORK

| | |
|---|---|
| CITES | **Appendix II** |
| IUCN | **Endangered (EN)** |

## About the species

*Mantella viridis* is one of the largest in the genus, but still a small frog: the males are 22-25 mm from snout to vent, the females 25-30 mm and clearly heavier and more pear-shaped. Adults are distinctly green, some with a hint of yellow, and two colour variants appear to occur, probably from different populations. Most have a black half-mask on the face with a white band along the upper lip, a black or dark brown belly with blue and white spots and a horseshoe-shaped marking along the lower jaw. Young animals are yellow, brown or almost red with a dark X on the back and only acquire the adult colour 8-12 months after metamorphosis.

The species was described in 1988 by Pintak and Böhme and belongs to the family Mantellidae, which is found only in Madagascar. The sexes can only be reliably told apart when the animals are 10-12 months old. The males are slimmer and call with a melodic, bird-like trill.

The colours are a warning signal, and the genus *Mantella* is known for having poisonous skin, which allows the animals to be active during the day. How strong the skin toxicity is in *M. viridis* specifically is not documented. In related species the frogs take up the toxins from small arthropods in the diet, and captive-bred animals that do not get these prey are therefore regarded as non-poisonous. Mucous membranes and eyes should nevertheless be kept free from contact, so wash your hands after touching.

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

## Distribution and habitat

*Mantella viridis* is found only in Madagascar, in the far northern part of the island. One known breeding area is Montagne des Français near Antsiranana (Diego Suarez). The species lives by small streams, including those that dry out in the dry season.

The species is listed as Endangered (EN) on the IUCN Red List. The threats are forest fires, felling of forest, overgrazing by cattle and formerly heavy collection for the pet trade. A project from 2021 was to map the species and its threats at Montagne des Français and build up a conservation breeding programme in Madagascar.

> **Native range:** Madagascar.

### HABITAT

*Mantella viridis* lives in dry, deciduous lowland forest, at altitudes of about 50-300 m above sea level. It tolerates heavily altered forest, but needs shade, dense vegetation and hiding places in leaf litter and among stones. The frogs are diurnal and are seen in partly sunny spots by small streams.

The year follows the rainy season. When the first rain showers arrive, the frogs breed, and the eggs are eventually washed out into pools and brooks. During the dry season the animals keep hidden. Precise measurements of temperature and humidity at the localities are not documented, so the figures under care are based on experience from enclosures. The species tolerates heat poorly, unlike many other species in the genus.

Read more: Humidity, misting and ventilation

## Care

### THE ENCLOSURE

The set-up can be simple. Floor area matters more than height, because *M. viridis* lives almost exclusively on the ground. An enclosure of 45 × 45 × 30 cm is enough for four animals, and a wider one, for example 90 × 45 × 30 cm, holds a group of eight to ten. The more space and the more visual barriers, the less unrest, especially between the females in the breeding season.

The substrate can be a drainage layer of clay pebbles, a mesh and on top 2-5 cm of long-fibre sphagnum or a well-draining soil mix with leaves and harmless plants free of pesticides. For breeding, a simpler build with sphagnum, cork bark and tubes is easier, because eggs and tadpoles are then easy to find. Provide many hiding places under cork bark and leaf litter, and a little root or low plants to sit on. A mesh lid partly covered with glass gives air exchange without the humidity disappearing. Keep only animals from the same population together, and do not mix colour variants.

Read more: Terrarium construction and bioactive substrate

### TEMPERATURE

During the day the enclosure is kept at 20-24 °C with a drop to 17-20 °C at night. Above 27 °C *M. viridis* is quickly stressed, and in the genus temperatures above 27 °C can quickly become fatal, especially for young animals. The night temperature is not documented for the species and is borrowed from related species in the genus.

Use no heat lamp or heat mat, which can cook the frogs. Place the enclosure somewhere cool and out of direct sun, and measure the temperature at the bottom with a digital thermometer. If the room cannot be kept below 24 °C in summer, the species is a bad idea. A proper winter rest is not documented. The artificial dry season for breeding is described under Mating.

Read more: Heat and temperature

### HUMIDITY AND MISTING

Humidity is kept at 60-70 % day to day and up to 80 % in the breeding season, with more humidity down at the bottom and in the moss. The species tolerates a fairly wide range, as long as clean water is always available. Mist the enclosure daily with reverse osmosis water, rainwater or tap water treated against chlorine and heavy metals, and let the surface dry a little between sprayings.

A mesh lid partly covered with glass keeps the humidity in and lets the air change, so that no stagnant air and mould develop. If it becomes too dry, the animals seek cover and stop eating.

### WATER AND WATER QUALITY

There must always be a shallow water bowl or a shallow area of water, so the frogs do not dry out at lower humidity. The water must be so shallow that small animals easily get out, and the depth is not documented. A corner area with cork bark as a dam gives a shallow pool with more water, which is easier to keep clean.

Use rainwater, reverse osmosis water or tap water treated against chlorine, chloramine and heavy metals. Amphibians absorb water and substances through the skin, so soap, cleaning products and hand cream must not come near. Change the water often, and scrub the bowl with hot water without soap.

### LIGHTING AND UVB

Light is first and foremost for the plants. There is no documentation that *M. viridis* needs UVB, but because the species is active in partial sun in the wild, a weak UVB tube is probably an advantage. UVB has therefore been set to optional, in Ferguson zone 1 with shade in the rest of the enclosure. Provide 10-12 hours of light a day.

Read more: Lighting and UVB

### FEEDING

*M. viridis* is a small insectivore that takes small prey. Flying fruit flies (*Drosophila hydei*) can make up most of the diet for adults, supplemented with springtails, small woodlice, very small black soldier fly larvae and very small crickets of about 3 mm. Juveniles start on newly hatched springtails and gradually get smaller fruit flies (*D. melanogaster*) and small crickets.

Dust the food with a good vitamin and mineral supplement, at every feeding for juveniles and every second or third time for adults. Feed every other day or daily with a small portion, and feed in several places so weaker animals are not kept away from the food. Cultures of fruit flies and springtails are easy to keep yourself.

Read more: Feeder animals: keeping and breeding

### BEHAVIOUR AND HANDLING

*M. viridis* is diurnal and best kept as a group. Outside the breeding season the animals are practically passive towards one another, but adult females may fight in the breeding season. A large enclosure with many visual barriers dampens this. The males are shyer than the females and prefer to call when it is humid.

Avoid handling the frogs: the skin is thin and is damaged by grease, soap and heat from the hands. If a frog has to be moved, lure it down into a clean plastic tub, and wash your hands before and after.

## Breeding

### SEXUAL MATURITY AND SEXING

The females are about a fifth larger than the males and much more pear-shaped, while the males are slimmer and call. The differences become clear when the animals are 10-12 months old, and are hard to see in younger animals. Age at sexual maturity is not documented. The surest way to a pair is to buy a group of juveniles and let them grow up together, preferably with more females than males.

### MATING

Captive breeding is rare and regarded as challenging, so patience and a group with more females than males are important. Breeding is triggered by an artificial dry season: misting is cut to half, and food is halved, while clean water is available at all times. The dry season lasts 3-4 months and is followed by a wet period of about six months with daily misting and plenty of food.

After a few days of more frequent misting the male can be heard calling, and the first eggs may appear within two weeks. Mating takes place hidden under cork bark or stones.

### EGGS AND TADPOLES

The females lay the eggs on land, typically in damp sphagnum under a piece of cork bark, about 2-3 cm down. Each clutch is about 40-115 eggs. In the wild the eggs are eventually washed into water by the rain. In a group two to three females may lay eggs, and the group can produce up to ten clutches in a season.

The eggs are lifted out and placed on damp sphagnum until small whitish tadpoles can be seen wriggling in the jelly. Then water is added so that the egg mass is flooded and the tadpoles swim freely. After a couple of days they are moved with a pipette to an aquarium with a sponge filter. At 23 °C the tadpoles eat a wide range of foods, from fish flakes to prepared diet. The parents do not care for the young.

### METAMORPHOSIS

The hatching time is not documented for the species. The larval period is about 6-8 weeks at 23 °C, after which the hind legs and then the front legs appear, and the tadpoles begin to leave the water. Lower the water level, and give easy access to land with cork bark and damp moss so they do not drown. Newly metamorphosed young quickly eat springtails.

### REARING THE YOUNG

Newly metamorphosed young are very small. The size at metamorphosis is not documented, but young animals 2-3 months old measure 12-19 mm. They immediately eat springtails and newly hatched fruit flies and grow very fast. Keep them cool, under 21 °C, because young animals in the genus are particularly sensitive to heat. Dust the food with a vitamin and mineral supplement, and give them a humid enclosure with many hiding places. The colours change, and the adult colour comes only after 8-12 months.

## Health and common mistakes

*M. viridis* is hardy when the temperature is kept down and the water is clean. The typical mistakes are:

- Heat above 27 °C, which stresses and can kill. Place the enclosure somewhere cool, and do not use heat lamps.
- Stagnant, dirty water or poor air circulation, which causes fungal and bacterial infections.
- One-sided food without supplements, which causes deficiency diseases and poor growth.
- Females that lose a lot of weight after the dry season or in the breeding season. Move them to a separate enclosure.

See a vet with knowledge of amphibians if an animal loses weight, becomes lethargic, sits in water all the time or gets red spots on the skin.

Read more: Calcium, vitamins and supplements

### 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.