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FROGS

Giant Monkey Frog

Phyllomedusa bicolor

Phyllomedusa bicolor is one of the largest tree frogs in the world: a calm, wax-coated climber from the Amazon that walks slowly along branches instead of hopping. It is nocturnal, feeds on insects and needs a tall, airy enclosure with moderate humidity, not the wet rainforest air that most other tree frogs get.

Family: Phyllomedusidae

Mild skin toxins

KEY FACTS

THE ANIMAL

Adult size	**9-12 cm** snout-vent length
Lifespan	**10-15 years**
Active	**At night**
Lifestyle	**Arboreal**
Habitat	**Rainforest**
Skin toxins	**Mild** Wash your hands after contact and keep your fingers away from your eyes and mouth
Difficulty	**Intermediate**

CARE

Min. enclosure	**45 × 45 × 60 cm** L × W × H for 2 adults
Temperature, day	**22-27 °C**
Temperature, night	**18-22 °C**
Humidity	**50-70%**
Water	**Water dish** depth 2-4 cm
UVB	**Optional**
Diet	**Insects**
Kept	**In pairs or one male with several females**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**On leaves over water**
Eggs per clutch	**600**
Hatching	**7-14 days** at 24 °C
Larval period	**80-100 days** from hatching to metamorphosis
Larval diet	**Algae/plants and complete diet**
Parental care	**None**

PROTECTION AND PAPERWORK

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

About the species

Phyllomedusa bicolor is a robust, lime-green tree frog with a white to cream-yellow belly. Lips, chest and forelegs have a few white spots with a dark edge, and the spots become denser on the flanks and thighs. The fingers are translucent brown with large green adhesive discs, and behind each eye is a distinct glandular ridge. The iris is dark grey. The females reach 11-12 cm and the males 9-10 cm from snout to vent, and the females are heavier and plumper. A few populations reach up to 15 cm.

The frog walks instead of hopping. It climbs slowly and carefully, hand over hand, and can sit motionless on a branch or on top of a leaf, even in the daytime. The skin is covered with a thin layer of waxy lipids, which it spreads itself with its hind legs and which protects against drying out and strong light. That is why the species tolerates far more sun and dry periods than other tree frogs.

The skin also contains bioactive peptides, including opioid substances such as dermorphin and deltorphins, which are a chemical defence. The secretion is used in certain rituals in the Amazon and can cause powerful bodily reactions when it enters the bloodstream, e.g. through burns. With normal handling of the animal, harm has not been documented, but handling the frog should be avoided, and hands washed afterwards. The poison comes from the frog's own glands and not from its food, and it has not been documented whether animals in captivity have a weaker secretion.

The species was described in 1772 by Pieter Boddaert as *Rana bicolor*. It long belonged to the family Hylidae and is now placed in Phyllomedusidae. There are no known colour variants, but the number of spots varies from animal to animal. The males develop nuptial pads in the breeding season. The species lives at least 10 years and probably 15 years or more.

Read more: Terrarium construction and bioactive substrate

Distribution and habitat

Phyllomedusa bicolor lives in the Amazon basin and the surrounding lowlands: in northern and western Brazil, south-eastern Colombia (Amazonas), northern Bolivia, southern and eastern Peru and parts of Venezuela. It is also found in Guyana, Suriname and French Guiana, and there is an isolated population in cerrado in the state of Maranhão in eastern Brazil.

The range is large and continuous, and the species is common within its range.

> **Native range:** Brazil, Colombia, Bolivia, Peru, Venezuela, Guyana, Suriname and French Guiana.

HABITAT

The frog lives in the upper and middle layers of the rainforest and in gallery forest along streams, where it sits on leaves, bark and branches at all heights. It stays near streams, ponds and other standing water, because the eggs must be laid over water. Unlike many other tree frogs, it often sits openly and high up, where there is sun and a lot of air movement.

The climate is warm and humid with a distinct rainy season, and breeding peaks in the rainy season. Males call from the trees, especially in connection with heavy downpours and pressure changes. It is warm by day and a little cooler at night. It is precisely the shift between a dry period and a sudden rainy season that prompts the frogs to breed in captivity.

Care

THE ENCLOSURE

The frog uses height and needs a tall, well-ventilated enclosure. For two adults, a male and a female, 45 × 45 × 60 cm (length × width × height) is the minimum, and taller is better. Each additional adult frog requires 40-75 litres more, and a group of five adults needs at least 90 × 45 × 90 cm, often in a custom-built enclosure. Mesh or large ventilation areas in the sides and the top are important, because still air is a risk for a frog that sits high in the canopy in the wild. Juveniles under 4-5 cm, on the other hand, need a smaller enclosure with limited ventilation, because they tolerate dryness less well than the adults.

Furnish with many horizontal and sloping branches at different heights so that the frog can climb, and with broad, sturdy leaves, e.g. pothos, philodendron or heliconia, that it can sit on. The branches must be thick enough for the frog to grip them securely. For substrate, a bioactive build-up works: a drainage layer of clay pebbles, a barrier, a moisture-retaining soil mix, a layer of sphagnum and leaf litter on top, with springtails and woodlice as the clean-up crew. For juveniles and quarantine, damp kitchen roll can be used. Clean with hot water and without detergent.

Read more: Feeder animals: keeping and breeding Read more: Quarantine and hygiene

TEMPERATURE

During the day it should be 22-27 °C in the enclosure, and about 24 °C is ideal. At night the temperature may fall to 18-22 °C, and a drop of a few degrees is beneficial. A small warm spot on a branch may reach about 29 °C, but the temperature must not exceed 30 °C, because heat is dangerous to the species. Measure with a digital thermometer at several heights and an infrared thermometer at the warmest spot.

Heat is the greatest risk. Do not place the enclosure in sun behind glass, where the temperature rises quickly. Most living rooms need extra heat only in the winter half-year, e.g. from a heat bulb or a heat mat, controlled by a thermostat and always out of reach, so that the frog cannot burn itself. A winter rest is not documented as necessary, but a cool, drier period with shorter days is used to stimulate breeding (see Breeding).

Read more: Heat and temperature

HUMIDITY AND MISTING

Humidity should be moderate and not tropically wet. Adult animals thrive at 50-60 %, and 40-70 % is tolerated. Below 40 % there is a risk of desiccation, and above 70 % for a long time can cause respiratory infections. Juveniles need higher humidity and a closed enclosure, and they should be kept at 70 % or more until they are about 4-5 cm.

Mist lightly in the evening with lukewarm water, so that the humidity rises to 60-70 %, and let the enclosure dry out during the day. There must not be water on the leaves all day. A rain system or a fogger can be set to run at night. Many animals dislike direct misting, so hit the leaves and walls more than the frog. Keep an eye on a hygrometer, and make sure that the air is always moving.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

Put a large but shallow water bowl on the floor, so that the frog can lie down and absorb water. The water depth should be 2-4 cm and never so deep that a small frog cannot sit with its head and upper body above water. The species is not a good swimmer, and the bowl needs an easy ramp out, e.g. stones or a branch. Change the water every day.

Amphibians absorb water and substances through the skin. Therefore use rainwater, reverse osmosis water with added minerals or dechlorinated tap water, and avoid soap, cleaning products and chemicals on hands and equipment. For breeding there must be a deeper water section or an aquarium beneath the branches where the eggs are laid (see Breeding).

LIGHTING AND UVB

The plants and the day rhythm are the most important. Use an LED light or a tube suited to plants, 12 hours a day and darkness at night. The frog is nocturnal, but often sits openly by day and tolerates light far better than other tree frogs.

There is no evidence that *P. bicolor* needs UVB, but weak UVB at one end of the enclosure probably does no harm, because the species sits openly in the wild. If you do, use a low dose, and always offer shade and leaves to hide behind. Hot spotlights should be used with caution, because they both raise the temperature and dry the air.

Read more: Lighting and UVB

FEEDING

The frog is a nocturnal hunter that lies in wait and takes live insects that move. Adults are given crickets of a suitable size (3-5 weeks old), dubia roaches, silkworms, hornworms and waxworm larvae. For newly metamorphosed froglets, *Drosophila hydei* or fruit flies and 3-4 mm crickets are suitable. The insects must be smaller than the distance between the frog's eyes, and prey that is too large can cause cloacal prolapse.

Feed adults 2-3 times a week and juveniles more often, every other day. The insects are dusted alternately with calcium with vitamin D3 and a multivitamin, and the feeder insects are well fed beforehand. In time the frog can learn to take food from tweezers. Large adults take small pinkie mice, but they are unnecessary and should be given only rarely, if at all.

Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

P. bicolor is a calm frog that can sit still for hours, and it is rarely stressed by daylight. It should still not be handled more than necessary: the skin is thin and permeable, and the skin secretion is bioactive, so wash your hands afterwards. If the frog has to be moved, approach from the side with a moistened, clean hand or a plastic cup.

The species can be kept in pairs or in a small group with several females, as long as the enclosure is large enough. Males must not be kept together, because they fight over territory and females. The only exception is when trying to get them to breed, where you must watch for injuries. Males call loudly, especially in connection with pressure changes and rain.

Breeding

SEXUAL MATURITY AND SEXING

The sexes are hard to tell apart when young. It typically takes 12-18 months before the differences are clear. Females are larger and plumper, up to 11-12 cm, while males reach 9-10 cm. Males develop nuptial pads in the breeding season and call loudly. Age at sexual maturity is not documented. Since the sex is hard to determine, you should acquire several animals if

you want a pair.

MATING

The species breeds in captivity only if a distinct annual rhythm is created. Provide a dry period of about one to two months with less misting, slightly cooler nights and fewer feedings, and follow it with a sudden, heavy rainy season: massive misting, a rain system and more humidity for several weeks. Males that are ready sit openly and call loudly. The male goes down to the female and climbs onto her back in amplexus. Males fight over the female with the head and hind legs, so watch for injuries.

EGGS AND TADPOLES

The female lays the eggs in a jelly mass in a nest of folded leaves over water, in the wild about 70 cm up and in the enclosure often about 30 cm. That makes around 600 clear eggs per clutch. The male helps to gather the leaves. There is no documented care of the eggs beyond that.

Provide large, strong leaves over a water section or an aquarium with a low water level. When the eggs hatch, the tadpoles drop into the water. The tadpoles are free-swimming and need a sufficiently large, filtered body of water or a separate aquarium (e.g. 40-75 litres for up to 30 tadpoles). Keep the water at about 24 °C, change 25-30 % weekly and more for large tadpoles. Feed with algae tablets, fish flakes and leaves, e.g. dandelion leaves.

Read more: Rearing tadpoles

METAMORPHOSIS

The eggs hatch after about 7-14 days, depending on the temperature. If the leaf with the eggs is taken out, it is placed in a closed box over a little water at about 24 °C, so that the eggs are not completely under water. The tadpoles undergo metamorphosis after about 80-100 days.

When the forelegs appear, the tadpoles must be moved to shallow water, 1-2 cm, with a sloping leaf or branch so that they can get onto land. When the tail has been absorbed, the young are moved to a small, damp enclosure with kitchen roll or sphagnum.

REARING THE YOUNG

The newly metamorphosed froglets are small and delicate. Keep them in a small, damp container with kitchen paper or sphagnum, hiding places and small branches, and mist daily. Give 2-3 fruit flies or *Drosophila hydei* at the first meal, and feed every other day. Do not give too many flies at once, and offer small crickets (3-4 mm) only after one to two weeks, as prey that is too large can cause cloacal prolapse.

The froglets should be kept humid and not too ventilated until they are 4-5 cm. After that they are moved to a more ventilated enclosure. Groups of the same size can be kept together for some weeks.

Health and common mistakes

The species is hardy when temperature and humidity are right. The typical problems are:

- Humidity too low, below 40 %, which causes desiccation, especially in juveniles.
- Humidity too high and still air, which cause respiratory infections.
- Temperatures above 30 °C, which can be life-threatening.
- Snout abrasions in enclosures that are too small or after transport. They are treated as directed by the vet.
- Cloacal prolapse in juveniles that are given feeder insects that are too large or too many.
- Lungworm (*Rhabdias*) and other roundworms, which are seen especially in wild-caught animals and must be treated by a vet. Ivermectin on the skin has proved fatal to related tree frogs, so never use medication without a vet's advice.

Wild-caught animals are often stressed and have parasites. Buy captive-bred animals if possible. A healthy animal is plump, has clear eyes and a good grip. See a vet with experience in amphibians if the frog loses weight, stops eating or becomes limp.

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

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.