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FROGS

Black-eyed Leaf Frog

Agalychnis moreletii

Agalychnis moreletii is a 6-9 cm leaf frog from the mountain forests of Mexico and Central America: green on the back, with deep black eyes and orange flanks and thighs. It is nocturnal and lives high up in the trees. It needs cooler and drier conditions than most of its relatives: by day the enclosure must be dry and below 24 °C, and only in the evening is it misted damp.

Family: Phyllomedusidae

KEY FACTS

THE ANIMAL

Adult size	**6-9 cm** snout-vent length
Weight	**6-25 g**
Lifespan	**5-11 years**
Active	**At night**
Lifestyle	**Arboreal**
Habitat	**Rainforest and montane forest**
Skin toxins	**None known**
Difficulty	**Intermediate**

CARE

Min. enclosure	**45 × 45 × 60 cm** L × W × H for 4 adults
Temperature, day	**20-24 °C**
Basking spot	**25 °C**
Temperature, night	**15-18 °C**
Humidity	**50-70%**
Water	**Water dish** depth 2-3 cm
UVB	**Recommended** Ferguson zone 3
Diet	**Insects**
Kept	**In pairs or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**On leaves over water**
Eggs per clutch	**23-334**
Hatching	**7-11 days** at 20-24 °C
Larval period	**60-100 days** from hatching to metamorphosis
Larval diet	**Complete diet**
Parental care	**None**

PROTECTION AND PAPERWORK

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

About the species

Agalychnis moreletii is a slender, arboreal leaf frog. Males are 6-7 cm long, females 7-9 cm, measured from snout to vent. Females weigh about 19-25 g, males 6-11 g. The back is uniformly blue-green to pale green, the belly pink to red, and the flanks and thighs become orange or pink with age. The eyes are deep black with a pale blue rim. In some animals the back is covered with white tubercles, and their number grows with age. When the frog is disturbed, and at night, the green back becomes mottled in yellow or blue-green shades. Newly metamorphosed young are at first greyish brown, but turn pale green after a few days.

The feet have strong webbing, so the frog can glide in controlled flight down from the treetops. It moves slowly and climbs hand over hand, but can also make long, explosive leaps. The skin reflects near-infrared light, which protects against overheating and water loss. It is distinguished from the other dark-eyed *Agalychnis* species by the yellowish-white flanks being without stripes and by the white spots on the back having no black edge.

Genetically the species falls into three main groups, which have not yet been described separately: one on the Atlantic side, one on the Pacific side and one in Veracruz in Mexico. Animals from Belize and parts of Guatemala are generally smaller than others.

The frog sleeps by day on leaves, almost motionless, and is then hard to tell apart from other leaf frogs. Skin toxins have not been documented in the species. Lifespan in the wild is not known and is estimated at 4-5 years; in captivity males can reach about 11 years, females slightly less.

Distribution and habitat

Agalychnis moreletii lives in scattered populations on both the Atlantic and Pacific slopes from Veracruz, Puebla and Guerrero through Oaxaca and Chiapas in Mexico to the Maya Mountains in Belize, Guatemala, north-western Honduras and El Salvador, at altitudes of 200-2,130 metres. The species was formerly widespread throughout the area, but the populations have declined sharply, and in Guerrero, Oaxaca and Chiapas it has almost disappeared.

The threats are deforestation, pollution and the fungal disease chytridiomycosis. The species does, however, tolerate an altered habitat to a certain extent and survives in several places in gardens and small private reserves. Some of the best populations are found in Belize.

> **Native range:** Mexico, Belize, Guatemala, Honduras and El Salvador.

HABITAT

Agalychnis moreletii lives in primary and secondary forest, most often near water and especially by temporary ponds. It is a mountain species: the bulk of the populations live in tropical montane forest at altitudes of 600-1,300 metres, and no other *Agalychnis* goes as high. Outside the breeding season the frogs typically sit 6-10 metres up in the trees and often even higher, the females preferably higher than the males.

The climate has a rainy season from June to October and a dry season from November to May. The daily maximum temperature averages about 25 °C all year, and the nights are cool: about 17 °C in the rainy season and 14 °C in the dry season. The frog goes down to the water only to breed and otherwise gets its moisture from rain and dew on the leaves, which it absorbs through the thin skin on its belly. The eggs are laid on leaves over temporary ponds, and the tadpoles drop into the water when they hatch.

Read more: Rearing tadpoles

Care

THE ENCLOSURE

Agalychnis moreletii lives in the trees, so height matters more than floor area. An enclosure of at least 45 × 45 × 60 cm holds a small group of four animals. For breeding, more space is needed: at least 60 × 45 × 90 cm for a breeding group of 4-6 animals and 90 × 90 × 60 cm for eight animals. The frogs jump far, so the larger the better.

Furnish with live plants with large, strong and smooth leaves that can support the whole frog, for example *Ficus elastica*, *Anthurium andreanum*, *Aglaonema commutatum* and *Spathiphyllum*. For egg-laying, *Philodendron*, *Monstera* and *Scindapsus* are especially used. Add horizontal and vertical branches, so that there are sleeping places high up, and let at least one branch run all the way to the floor, so that the frogs can easily reach the water bowl. A substrate layer is not necessary, and soil and coconut fibre stick to the frogs and cause skin problems. Cover any potting soil with leaves, or press it down firmly. Wet kitchen roll, changed daily, or a capillary mat on the floor helps the frogs to absorb moisture; do not use chlorine-bleached or printed paper. Rinse plants from the nursery thoroughly of fertiliser and pesticides, and change the soil before they are put in the enclosure.

Wipe the glass when the paper is changed, as the frogs sit on the panes at night, and dirt irritates the delicate belly skin. The enclosure must have good ventilation, as still, humid air causes disease.

TEMPERATURE

Agalychnis moreletii is a mountain species and must be kept cooler than the better-known *Agalychnis callidryas*. By day the temperature must be 20-24 °C. The background temperature must not exceed 25 °C, not even briefly, as heat wears on the frogs' health. At night the temperature may fall to 15-18 °C.

Provide access to a local warm spot of about 25 °C, for example under a small spotlight above a branch. The warm spot dries the frogs out faster, so ventilation must keep the rest of the enclosure cool. In winter the temperature can be lowered to 15-17 °C by day and 10-12 °C at night.

Before breeding, the temperature is lowered for a few weeks to about 21 °C by day and 12-13 °C at night (see Mating).

HUMIDITY AND MISTING

Dry air by day is essential for *Agalychnis moreletii*. Humidity is kept at 50-70 % by day, while the frogs sleep, outside the breeding season preferably around 60 %. In the evening, when the light goes off, the enclosure is misted so that humidity rises to 80-100 %. Mist only once a day, and let the enclosure dry out again until the next day.

The frogs absorb water through the skin and drink the dew on leaves and glass, so surfaces must be kept clean. Persistent heat and high humidity is the most common cause of disease. A rain chamber with constant high humidity is used only for breeding and for no more than a week at a time.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

There must always be a bowl of clean water in the enclosure. A bowl about 20 cm in diameter with 2-3 cm of water is enough, and the frogs must be able to climb out easily. The frogs often urinate in the water when they drink, so the water is changed every day, even if it looks clean, and the bowl is scrubbed free of deposits.

Use dechlorinated water filtered for heavy metals, or reverse-osmosis water that has had minerals added back, but never pure reverse-osmosis water. Do not use soap or cleaning agents on the bowl.

LIGHTING AND UVB

UVB is recommended, because vitamin D is necessary for calcium metabolism, and insects contain almost none. The species belongs to Ferguson zone 3, corresponding to an average UV index of 1-2.6 and a maximum of 2.9-7.4 in the places where the frogs rest. Create a gradient with branches and leaves, so that the frogs can choose for themselves how much UVB they get, and measure the lamp's output regularly. Too little UVB causes bone disease, too much damages the eyes and skin.

A UVB fluorescent tube (T5) can be combined with LED plant lighting, which provides both plant growth and UVA. Make sure the light does not warm the enclosure above 24 °C.

Read more: Lighting and UVB Read more: Calcium, vitamins and supplements

FEEDING

Agalychnis moreletii eats only insects. Brown crickets (*Acheta domesticus*) are the best staple food when they have been fed nutritious food, for example fruit, vegetables and grated carrot, for 48 hours before the frogs get them. Small nymphs suit young animals. Black crickets and locusts are harder to digest and more often cause vent prolapse; black crickets can also bite sleeping frogs, so they are used only in limited amounts.

An adult frog is given at most 3-4 crickets of about 20 mm, two to three times a week. Feed in the evening after misting, when the frogs wake, and remove uneaten insects the next morning, so that they do not gnaw at the sleeping frogs. Dust the food with calcium, at least once a week with a vitamin and mineral supplement, and let the frogs have it quickly, as the powder falls off within a few minutes. A feeding dish up in the branches keeps the insects in the powder and away from the floor. Live food must not fall into the water bowl.

Read more: Feeder animals: keeping and breeding

BEHAVIOUR AND HANDLING

Agalychnis moreletii sleeps by day on leaves and is active at night. It moves slowly and climbs hand over hand, but jumps far when frightened, so open the enclosure carefully. In the wild it lives mostly alone and gathers only in the breeding season.

In the enclosure the frogs can be kept in groups of both sexes or of the same sex, when there is enough space. Outside the breeding season several males stress neither each other nor the females. In the breeding season the males call and compete, and they may shake leaves and twigs with their forelegs to threaten rivals. This wears on their strength, and many calling males in the same room, even in separate enclosures, can stress each other and cause secondary illness. The frog can share an enclosure with other species, for example poison dart frogs, when the requirements match, but the large crickets can stress small species.

The frog is easy to handle, because it sits completely still, but it is handled only when necessary, and preferably with damp, powder-free disposable gloves.

Breeding

SEXUAL MATURITY AND SEXING

Females are larger and heavier than males and have a broader snout. Males have a blunter snout and develop dark nuptial pads on the first finger in the breeding season. A female is ready for breeding when the eggs can be seen through the thin skin on her sides. The age at sexual maturity is not documented. Females that are never allowed to breed can become egg-bound, and this causes serious health problems.

MATING

Agalychnis moreletii needs a dry period with good feeding and slightly lower humidity, followed by a rainy period. The frogs are cooled for a few weeks to about 21 °C by day and 12-13 °C at night. When the females are full of eggs and the males have nuptial pads, they are moved to a rain chamber, where the water on the floor is first kept cold (15-18 °C) for up to three days without rain. Then the water is warmed to 22-24 °C, ventilation is limited so that humidity rises quickly, and the rain is switched on by day and off at night. The frogs breed after a rain shower, not during it, and constant rain stresses them. The males often begin to call as soon as humidity rises at night, and mating and egg-laying usually take place within three days. The frogs are not fed in the rain chamber. If there is no breeding behaviour after five days, the pump is switched off and the frogs are moved back to the dry enclosure.

Put several males together with one or two females, as competition between the males gets the females going. Long periods in breeding mood wear on the males, so the rain chamber is used for no more than a week at a time.

EGGS AND TADPOLES

The eggs are laid in the evening or early in the morning on smooth, clean leaves or on the glass above the water. They are green, and fertilisation can be seen after two days. A clutch is 23-334 eggs and varies greatly between populations: in Guatemala the average is about 70 eggs, in Belize about 200. In captivity clutches are typically about 145 eggs, and a few females lay over 600. There is no parental care.

Leave the eggs in place until the tadpoles hatch, and collect the tadpoles by placing a container of water under the leaf. The leaf can also be cut off and hung over another container. Eggs on the glass can be scraped off with a piece of thin, laminated card and placed on an artificial leaf over shallow water. Disturbance makes the tadpoles hatch too early, and then they are smaller and die more often.

METAMORPHOSIS

The eggs hatch after 7-10 days at 20-24 °C, in the wild most often after about 11 days. A light misting when hatching begins helps the tadpoles out and down into the water. The tadpoles are easy to rear: a tank of 60 litres per clutch with 15-20 cm of water at 18-22 °C and dead oak leaves or floating plants as cover. They are fed twice a day with finely powdered fish food, as much as they eat in a few minutes, and the leftovers are siphoned off. Change 25 % of the water once or twice a week, and use a sponge filter with gentle flow, as strong current stresses them. They tolerate fluctuations in pH and nitrate, but not nitrite.

Metamorphosis takes place after 60 days at the earliest, most often after 80-100 days, and some tadpoles in a clutch take much longer. The froglets climb out of the water with almost the whole tail retained, so there must be stones or floating plants they can climb onto. They do not eat for the first 3-4 days, while the tail is absorbed.

REARING THE YOUNG

Newly metamorphosed froglets are at first greyish brown and turn pale green after a few days, with a pale belly. Keep them in a small, clean enclosure with branches and leaves, wet kitchen roll as the floor, changed daily, and the same cool temperatures as the adults. When the tail is completely gone, they are fed small brown cricket nymphs and other small insects

dusted with calcium. The air is kept dry by day, and they are misted in the evening.

Health and common mistakes

Illnesses and husbandry errors in the care of *Agalychnis moreletii*:

- Too warm and too humid: most health problems arise when the temperature or humidity is too high for a prolonged period. Keep the daytime temperature below 24 °C and the air dry by day.
- Roundworms (for example *Strongyloides* and *Rhabdias*): leaf frogs are very susceptible, and the worms multiply quickly in soil and dirty water bowls. They can cause rapid weight loss and death, and faecal samples are often negative even though the animal is infected. Keep the enclosure clean, and change paper and water daily. Treatment is difficult.
- Vent prolapse: common, especially in females, and most often linked to calcium deficiency or worms.
- Small, pale dots in the skin that do not change colour: bacterial infection due to humid, still air. Dry surfaces, better ventilation and a slightly higher temperature help if it is caught early.
- Abrasions on the snout: occur when the frogs jump at glass or mesh in enclosures that are too small or too restless.
- Egg binding: females that never breed can become egg-bound.
- Bone disease from too little UVB and calcium. Sprinkle calcium on the food, and measure the UVB lamp.
- Chytrid (*Batrachochytrium dendrobatidis*) is a fungal disease that is fatal to amphibians and can be carried by animals without symptoms. Quarantine new animals.
- Animals that will not eat or have wounds or swellings should see a vet with amphibian expertise.

Read more: Quarantine and hygiene Read more: Common diseases and signs of illness

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.