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FROGS

Riggenbach's Reed Frog

Hyperolius riggenbachi

A small, brightly coloured highland frog from Cameroon and eastern Nigeria, with intricate patterns in black, red and yellow and an orange to red belly. *Hyperolius riggenbachi* is nocturnal, feeds on small insects, needs a tall, bright enclosure and breeds in water when the rains set in.

Family: Hyperoliidae

KEY FACTS

THE ANIMAL

Adult size	**3-4 cm** snout-vent length
Lifespan	**4-12 years**
Active	**At night**
Lifestyle	**Arboreal**
Habitat	**Montane forest and wetland**
Skin toxins	**None known**
Difficulty	**Intermediate**

CARE

Min. enclosure	**60 × 30 × 40 cm** L × W × H for 4 adults
Temperature, day	**21-26 °C**
Temperature, night	**17-20 °C**
Humidity	**65-80%**
Water	**Water dish** depth 3-5 cm
UVB	**Optional** Ferguson zone 1
Diet	**Insects and small invertebrates (springtails, fruit flies)**
Kept	**In groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**In water**
Sexually mature	**12 months**
Eggs per clutch	**30-300**
Hatching	**6-8 days**
Larval period	**45-120 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

Hyperolius riggenbachi is a small tree frog in the family Hyperoliidae. Males are around 3 cm, while females grow slightly larger and reach around 4 cm. It is a boldly marked species, and its appearance varies from region to region. Two forms are distinguished. In the nominate form the back is covered in an intertwined, worm-like pattern in black, red and yellow, and the belly is orange. In *H. riggenbachi hieroglyphicus* the pattern is either pale yellow on a dark ground or dark on a yellow ground, the belly is strongly orange or red, and the outer sides of the fore and hind legs are shining red. Males and females are also coloured differently.

The species was described in 1910 by Fritz Nieden under the name *Rappia riggenbachi*, and the name honours Fritz Wilhelm Riggenbach (1864-1944). The subspecies *hieroglyphicus* was described in 1931 by Ernst Ahl. In *Hyperolius* the pupil is horizontal, which distinguishes the genus from its Madagascan relatives, whose pupil is vertical.

The frog is active at night, and by day it often sits motionless on a leaf or a pane. Males are loud and defend a favourite spot with their calls, so the species is poorly suited to a bedroom. No skin toxin is documented in the species, but amphibians should, as always, not be handled unnecessarily, and hands should be washed after contact with animals or the enclosure. Size, lifespan and breeding figures for the species are only sparsely documented. Lifespan is not documented; 4-12 years is borrowed from the slightly smaller *Hyperolius pickersgilli*, where males live 4-6 years and females 10-12 years in captivity.

Distribution and habitat

Hyperolius riggenbachi is found in western and northern Cameroon and in south-eastern Nigeria. In Cameroon it lives in the Bamenda Highlands, including at Bamenda, Bafut, Bafoussam and Mount Oku, and further east on the Adamawa Plateau, for example at Tchabal Mbabo and at Mayo Darlé. In Nigeria it occurs on the Mambilla Plateau and the Obudu Plateau and in Gashaka-Gumti National Park.

The range is small and confined to the highlands. By far the majority of records come from Cameroon, and only a smaller share from Nigeria. The species is common within its range, but threatened by habitat loss.

> **Native range:** Cameroon and Nigeria.

HABITAT

The species lives in damp areas and along small, wooded streams in mountainous grassland. Most of the known records lie between about 900 and 1,800 metres above sea level, and it has been seen up to just under 2,000 metres at Elak-Oku on Mount Oku. The climate in the Bamenda Highlands is cooler than in the lowlands, especially at night, and there is a distinct rainy season. Concrete figures for temperature and humidity in the frog's habitat are not documented.

The species copes unusually well in farmland and is one of the few frogs still found in heavily affected areas. Even so, clearance for agriculture, collection of firewood and new settlements put pressure on its habitats. It is not known how well it tolerates pesticides and more intensive farming. During the day it rests on vegetation close to water, and at night the males call from plants at the water's edge.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

Four adults need an enclosure of at least 60 × 30 × 40 cm (length × width × height). *H. riggenbachi* grows larger than the very small reed frogs, and the frogs are fast and use all the space, so larger is better. An enclosure with a front door is better than one that opens from the top, because the frogs readily hop or run upwards when the lid is opened. The lid must fit tightly and have fine mesh, so that the air can change and none escape.

Most *Hyperolius* species sleep on vegetation by day, so planting is important. Suitable plants are mother-in-law's tongue, small bird's nest ferns, philodendron with large leaves and golden pothos. Rinse the plants thoroughly and leave them outside the enclosure for a few weeks, so that traces of fertiliser, leaf shine and pesticides disappear. Artificial plants also work. Add branches of driftwood, bamboo and cork bark as perches.

The substrate does not matter much, because the frogs rarely go on the ground, but it must be easy to keep clean. A layer of gravel under a mesh divider and a layer of damp sphagnum on top keeps the moss from becoming waterlogged, and the moss only needs changing every few months, as long as the enclosure smells fresh. Coconut fibre and soil mixes with plants also work, and damp kitchen roll is a simple solution for a quarantine box, but must be changed several times a week. A newly bought group is kept for about a month in a simply set up enclosure, so that you can keep an eye on the animals.

Read more: Quarantine and hygiene

TEMPERATURE

By day the temperature in the enclosure should be 21-26 °C, and at night it may fall to 17-20 °C. A drop of around 5 °C at night matches a highland species and is healthy. Switch off all lighting at night.

H. riggenbachi lives in cool highlands and should not have a warm spot under a heat bulb. Frogs that sit in the heat for long dry out, and in high heat the risk of bacterial and fungal infections increases. Therefore keep the enclosure away from south-facing windows, and measure the temperature in several places with a digital thermometer.

A room at ordinary room temperature is often enough. If it is cold in winter, a weak heat mat on the side or a low bulb on a thermostat can raise the temperature. Signs of too low a temperature are lack of appetite and animals sitting hunched up.

Read more: Heat and temperature

HUMIDITY AND MISTING

Humidity should be 65-80 %. The figure is not documented for the species, but borrowed from *Hyperolius pickersgilli*. Mist the enclosure with lukewarm, clean water every evening when the frogs wake, and preferably lightly again during the day. The frogs drink and absorb water from leaves and walls, so damp leaves are important. Keep the air moving with mesh openings so the enclosure does not become stagnant and mouldy, and wipe excess water off the glass if it is dripping wet all day.

In the wild the humidity alternates between the rainy season and the dry season, and the enclosure can imitate this by being a little drier for a period and then misting heavily several times a day. A small drop in humidity during the day is normal, but the animals should not dry out. If there is a lot of moisture, the ventilation must be extra good.

WATER AND WATER QUALITY

Place a wide, shallow water bowl 3-5 cm deep in the enclosure, and keep it full at all times. The frogs often sit in the water at night and dive when startled. Give them an easy way up out of the bowl with stones, bark or a plant so they do not drown. The water must not contain chlorine or chloramine. Use dechlorinated tap water with a water conditioner, rainwater or reverse osmosis water with aquarium minerals added. Change the water every day, and remove dead feeder insects and droppings immediately.

Amphibians absorb water and dissolved substances through the skin, so cleaning products, soap, cream and hand sanitiser must not come into contact with the bowl or the enclosure. Rinse the bowl with clean water, and do not use soap.

LIGHTING AND UVB

The frog benefits from strong light, so a bright enclosure is a good starting point. Use fluorescent tubes or LEDs with a colour temperature of 5,000-6,500 K that cover the whole length of the enclosure, and switch them on for 12 hours a day on a timer. Strong white light promotes colours and activity. An ordinary incandescent bulb gives heat, but not good light.

No UVB requirement has been established for the species, so UVB is optional. Reed frogs often sleep on leaves in fairly open terrain, so a fluorescent tube with low UVB output is nevertheless a reasonable addition (Ferguson zone 1). Place it over the mesh on one side so the frogs can choose shade in the rest of the enclosure. Always offer plants that provide cover during the day.

Read more: Lighting and UVB

FEEDING

The frog is a voracious little hunter and takes most insects the size of its head or smaller. The staple food is small crickets of 6-10 mm and flying fruit flies. Vary with houseflies and small moths. Houseflies can be bought as larvae, left to pupate and, as adults, stored in the fridge for up to a month. Sprinkle the cold, stiff flies into the enclosure, where they wake up and give the frogs something to chase.

Feed 2-4 times a week, with so much that everything is eaten during the night. If there are feeder insects left in the morning, you have given too much. If everything is gone in a few minutes, it is too little. Expect 3-6 crickets per frog per feeding. Young frogs are fed every day with fruit flies and very small crickets.

Dust the food with a phosphorus-free supplement with calcium and vitamin D3, and use a supplement with vitamin A in the form of retinol, not beta-carotene, which amphibians cannot always use. Dust every other feeding, and more often for juveniles. Throw out supplements once they have been open for three to six months.

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

BEHAVIOUR AND HANDLING

Hyperolius riggenbachi is nocturnal and fast. During the day the animals sit still on leaves and glass, and at night they hunt, swim in the water bowl and call. The males defend a favourite spot and call loudly, often after misting, so the enclosure does not belong in a bedroom.

The frogs are kept in a group, and the number can be five to ten animals in a larger enclosure. With only a pair, only part of their behaviour is seen, and they rarely breed. Take care that the enclosure does not become overcrowded, so the males can keep their distance.

The frogs should preferably not be handled. They are small and delicate, and the skin absorbs substances from the hands. If it is necessary, you should have wet, clean hands without soap and cream. Move the animals with a small plastic container when cleaning. Open the enclosure slowly, because the animals easily jump up towards the opening.

Breeding

SEXUAL MATURITY AND SEXING

The sexes are easy to tell apart. Males call, their vocal sacs are often coloured after a night of calling, and they are smaller and slimmer than the females. Females grow larger, and when they are ready to lay, the round eggs show through the skin of the belly. The species shows sex differences in colour, so males and females can also be told apart by their markings. The species probably becomes sexually mature during its first year of life, like most hyperoliids; an exact figure is not documented. For breeding, the group should have at least three to four females and as many males or more.

MATING

Species of the genus *Hyperolius* typically breed when the rainy season sets in. The enclosure can imitate this by feeding generously, preferably daily and with variety, until the females are clearly full of eggs, and by misting at least once during the day and once at night. The males call loudly at night, and often also during the day after misting. Slightly less ventilation can raise the humidity to 80-100 %, and this may encourage breeding. How *H. riggenbachi* is induced to breed is not documented, so the experience is borrowed from related species.

The male grasps the female from behind in the mating clasp (amplexus), and the pair seeks a spot in or near the water.

EGGS AND TADPOLES

The eggs are laid in or near water. In species of the genus they sit on aquatic plants or stick over water on leaves and glass, and exactly where *H. riggenbachi* lays its eggs is not documented. The number varies from a few dozen to several hundred eggs per clutch (30-300), and the figure is borrowed from the genus. There is no parental care: the parents do not look after eggs or tadpoles.

A shallow water bowl is seldom enough. A larger body of water with aquatic plants works better. Move the group to an enclosure with 5-13 cm of water on the bottom, or put the existing enclosure under water after removing substrate layers that rot. Let driftwood and cork bark float or stick up out of the water, and cover the water with aquatic plants such as milfoil, hornwort, Java moss and other floating plants. Long tendrils of pothos over the water can also be used.

Water quality is crucial. Remove dead feeder insects and droppings, and change at least half of the water every week, which may also encourage egg laying. If nothing happens after a few weeks, the frogs are moved back to the normal set-up, and a month later the attempt can be repeated.

The tadpoles are not fussy, and flakes or pellets for aquarium fish are enough if the water is kept at 21-24 °C. Use an aquarium heater if necessary. The tadpoles can grow up to about 4 cm long when the tail is included.

Read more: Rearing tadpoles

METAMORPHOSIS

The eggs hatch after 6-8 days (figure from the genus). The tadpoles grow, and after 45-120 days, depending on temperature, food and space, the forelimbs appear. In the related *Hyperolius pickersgilli* development stalls at 17-19 °C, and at 16 °C and below several tadpoles die, so water that is too cold is a risk. Keep the water clean and the water temperature stable, and avoid overfeeding.

When the forelimbs appear, the small frogs climb up the side of the aquarium. They can then be collected and moved to a small ventilated plastic box with less than half a centimetre of water and some leaves to rest on. The tail disappears within a few days, and only then should they be fed. Make sure they can get out of the water, and that the newly metamorphosed frogs do not drown.

REARING THE YOUNG

The newly metamorphosed frogs are very small and need tiny live feeder insects. Fruit flies and small crickets, about a week old, make up the bulk and should be dusted with supplement at every feeding. Feed them every day, and keep an eye on the smallest, which may be outcompeted. Sort them into separate boxes until they have grown.

Keep the young in ventilated plastic containers with a damp substrate, plant leaves and light misting. The adult colours develop during the first months. Sexual maturity is reached about a year after metamorphosis, but this is not documented for the species. Move them to a larger enclosure when they are big enough to take larger prey, and put them together with frogs of the same size.

Health and common mistakes

Hyperolius riggenbachi is hardy once it has settled in, but wild-caught animals often have a hard time behind them. The typical problems are:

- Thin or starved animals after transport. Choose animals with a plump, slightly rounded body, and feed regularly in the first weeks.
- Lack of calcium and vitamins, which shows as weakness, bent legs and tremors. Use a phosphorus-free supplement with calcium, D3 and vitamin A in the form of retinol.
- Poor water quality, which can cause skin and fungal problems. Change the water daily, remove dead feeder insects, and avoid chlorine, soap and other chemicals.
- Too little humidity or too much heat, which dries out the skin. Keep the humidity at 65-80 %, and avoid high heat.
- Stress and frightened animals that injure themselves when they dash around. Use an enclosure with a front door and open it calmly.

A healthy animal is quick, flees when disturbed and has smooth skin without scrapes. Seek a vet with knowledge of amphibians if a frog loses weight, does not eat, has sores, swellings or red skin, or sits limp and lethargic.

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.