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FROGS

Amani Forest Treefrog

Leptopelis vermiculatus

A large, big-eyed tree frog from the rainforest of eastern Tanzania that occurs in a green and a brown phase: green with fine black spots or brown with a dark triangle on the back. *Leptopelis vermiculatus* is nocturnal, reaches up to 9 cm and is rare in captivity. The species is threatened in the wild and needs a humid, tall terrarium with cool nights.

Family: Arthroleptidae Former name: *Hylambates vermiculatus*

KEY FACTS

THE ANIMAL

Adult size	**3-9 cm** snout-vent length
Lifespan	**4-8 years**
Active	**At dusk and at night**
Lifestyle	**Arboreal**
Habitat	**Rainforest and montane forest**
Skin toxins	**None known**
Difficulty	**Experienced**

CARE

Min. enclosure	**45 × 45 × 60 cm** L × W × H for 2 adults
Temperature, day	**22-27 °C**
Temperature, night	**18-21 °C**
Humidity	**65-85%**
Water	**Water dish** depth 3-5 cm
UVB	**Optional** Ferguson zone 1
Diet	**Insects**
Kept	**In pairs**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**On the ground**
Eggs per clutch	**50-200**
Larval period	**60-120 days** from hatching to metamorphosis
Larval diet	**Algae/plants and complete diet**
Parental care	**None**

PROTECTION AND PAPERWORK

CITES	**Not listed**
IUCN	**Endangered (EN)**

About the species

Leptopelis vermiculatus is a large tree frog in the family Arthroleptidae. Females reach up to about 9 cm from snout to vent, while males are far smaller, most often 3-5 cm. The eyes are large and golden with brown streaks and spots, and the toe pads are broad, so the frog climbs easily. The eardrum is distinct.

The species has two very different colour phases. In the green phase the back is strongly green with scattered, fine black spots, while the sides are marbled in black and white. In some animals the lower legs, forearms and upper lip have white spots with a dark edge. In the brown phase the animal is brown with an irregular, darker triangle on the back, random light and dark spots on the back and legs and often a dark stripe from the eardrum and halfway down the side. The belly is cream-white in both phases. Many young animals are green and change to brown as they become adults, so the green phase is often a juvenile feature.

The species was described in 1909 by George Albert Boulenger under the name *Hylambates vermiculatus*. It resembles *Leptopelis flavomaculatus*, which in the green phase lacks the fine black spots on the back and which in the brown phase has a white spot on the elbow.

Skin toxins have not been documented in the species, and it is not regarded as poisonous. Frogs should nevertheless be handled as little as possible, and hands are washed after contact with the animals and terrarium (see the section on health). Lifespan is not documented. Animals of at least four years are known from captivity, and 4-8 years is an estimate.

Distribution and habitat

Leptopelis vermiculatus is endemic to Tanzania and is found in the mountain forests of the eastern part of the country. Most records come from the Usambara Mountains in north-eastern Tanzania, especially around Amani in the East Usambara, but the species has also been found further south in the central and southern parts of Tanzania's forested mountains.

The range is scattered and tied to fragments of forest, and the species is listed as threatened in the wild. Loss of forest is the greatest threat to species that are bound to mountain forest.

> **Native range:** Tanzania.

HABITAT

The species lives in closed, humid tropical rainforest with a dense canopy between about 900 and 1,800 metres. The forests in the Usambara Mountains are humid, and at that altitude the air is cooler than on the coastal plain. The animals are most active at dusk and at night and live mainly in bushes and trees, where they hunt insects.

The males call while sitting in water and are very territorial. They have two calls: a repeated "ga-ga-ga", which attracts the females, and a rolling "rrrrrrr-ga", which keeps other males at a distance. Where and how the species breeds is not documented in detail. In the genus *Leptopelis* the breeding season normally begins with the heavy downpours at the start of the rainy season. The eggs are laid in a nest in the soil or mud near water and not directly in the water, and the tadpoles enter the water when the rain floods the nest.

Read more: Rearing tadpoles

Care

THE ENCLOSURE

Little is known about the care of *Leptopelis vermiculatus*, and animals in the trade are often wild-caught. The climate in the mountain forests where it lives is humid and relatively cool, so the terrarium must be humid and have cooler nights. Figures not documented for the species are set from the habitat or borrowed from the genus.

Two adults need a terrarium of at least 45 × 45 × 60 cm (length × width × height). For a female with two males the terrarium must be at least 60 × 45 × 60 cm. Females are aggressive towards one another and often towards other species too, so keep only one female per terrarium and only together with one or two males. The species cannot be kept with other species of the genus *Leptopelis*.

Make the terrarium tall and densely planted, so the animals have climbing routes and cover at several heights. Suitable plants are philodendron, golden pothos, ferns and bromeliads. Add branches of driftwood, bamboo and cork bark across and at an angle as perches. The substrate can be coconut fibre mixed with bark and a layer of leaves on the surface. Provide a wide, shallow water area (see the section on water). Ventilation must be fine, but not so strong that the humidity falls. The lid must fit tightly, because the species jumps well.

Wild-caught animals are kept for the first month in a simply furnished quarantine terrarium with kitchen paper and a couple of hides. This makes it easier to monitor them, and they do not infect any other animals.

Read more: Humidity, misting and ventilation Read more: Quarantine and hygiene Read more: Buying animals: captive-bred, wild-caught and transport

TEMPERATURE

By day the temperature in the terrarium should be 22-27 °C, and at night it should fall to 18-21 °C. The night-time drop corresponds to a highland climate and is healthy. The species lives between 900 and 1,800 metres in the shade under a dense canopy and needs no warm spot under a bulb.

The temperature must not exceed 28 °C for any length of time. Keep the terrarium away from south-facing windows, and measure the temperature in several places with a digital thermometer. If the room is cold in winter, a weak heat mat on the side of the terrarium or a low bulb on a thermostat can raise the temperature.

A cooler period of about three months, in which the temperature is lowered by about 5 °C, can be given but is not necessary. Feed a little less during that period.

Read more: Heat and temperature

HUMIDITY AND MISTING

Humidity should be 65-85%. Mist the terrarium with lukewarm, clean water once in the evening and preferably lightly again in the morning, so leaves and walls are wet and the air becomes humid. The frogs drink and absorb water from leaves, so wet leaves are important. Let the terrarium dry out a little during the day, and keep the air moving with fine mesh openings, so it does not become stagnant and musty.

If the air is too dry, the frogs sit hunched up and do not go hunting, and the skin becomes dull. If the air is too humid and stagnant, the risk of skin and fungal problems increases.

WATER AND WATER QUALITY

Give the animals a wide, shallow water dish with 3-5 cm of water, kept full at all times. The males call while sitting in water, so the dish must be large enough for a female and two males to sit there. Give them an easy way up and down with stones, bark or a plant, so they do not drown.

The frogs void droppings in the water, so the dish must be emptied and rinsed every day. Use tap water with a water conditioner, rainwater or reverse-osmosis water with added minerals for aquariums. The water must not contain chlorine or chloramine.

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

LIGHTING AND UVB

The species is most active at dusk and at night and lives in the shade under dense forest. It needs a fluorescent tube or an LED lamp with a colour temperature of 5,000-6,500 K that covers the whole terrarium, so the plants thrive. Switch the light on 12 hours a day on a timer, and switch it off completely at night.

UVB is not necessary, and how the species is affected by UVB has not been investigated. A fluorescent tube with low UVB output (Ferguson zone 1) is a reasonable addition and can be placed over the mesh on one side, so the animals can choose shade themselves. Always offer plants and hides, so the animals can retreat from the light.

Read more: Lighting and UVB

FEEDING

The species takes all insects it can overpower and is a voracious hunter. The staple is medium to large crickets. Tropical cockroaches are a good supplement and are easily kept as feeder cultures of their own. For young animals use small crickets, fruit flies and springtails, depending on size.

Adults are fed every second day with 4-6 crickets or equivalent per animal. In the cooler period the amount is cut back. Do not give more than the animals eat during the night. Young animals are fed every day. Remove dead and uneaten feeder insects in the morning, so they do not contaminate the water.

Dust the food with a phosphorus-free supplement with calcium and D3 every second feeding and with a multivitamin supplement with vitamin A in the form of retinol once a week. Young animals get supplements more often, for example every fourth day. Discard 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

Leptopelis vermiculatus is nocturnal and territorial. By day the animals sit still and hidden in plants, and at dusk and at night they hunt and call. The males are loud and defend their spot, especially by the water, so the terrarium does not belong in a bedroom.

Females are aggressive towards other females and other species, and therefore only one female is kept together with one or two males. If there are too many males in too little space, they become stressed, and the animals must be moved. Give them many hides and perches at different heights, so they can keep out of one another's way.

The frogs should preferably not be handled. The skin absorbs substances from the hands, and the animals are easily stressed. If it is necessary, use wet, clean hands without soap and cream. Move the animals with a small plastic container when cleaning, and open the terrarium slowly, because the animals easily hop out.

Breeding

SEXUAL MATURITY AND SEXING

The males are recognised by their call, and they are smaller than the females. Females are sexually mature at 5-6 cm and then have the brown dress. Males are normally 3-5 cm and occasionally keep the green juvenile dress. Age at sexual maturity is not documented. For breeding, one female is kept with one or two males.

MATING

In the genus *Leptopelis* the breeding season normally begins with the heavy downpours at the start of the rainy season. Breeding of *L. vermiculatus* in captivity is not documented. The best bet is a period of slightly cooler and drier conditions followed by heavy daily misting that imitates the rainy season. The males call from the water and defend their spot.

EGGS AND TADPOLES

In the genus *Leptopelis* the eggs are laid in a nest in the soil or mud near water, and the tadpoles enter the water when the rain floods the nest. The number of eggs per laying is not documented for *L. vermiculatus*; the figure in the box is an estimate based on the genus.

For breeding, the terrarium needs a layer of moist soil or mud by the water, where the female can dig a nest, and a water area where the tadpoles can live. Parental care is not documented, and the parents are assumed not to look after eggs or tadpoles.

METAMORPHOSIS

Hatching time and larval period are not documented for the species. In the genus the eggs hatch when the rain floods the nest, and the tadpoles must live in water with access to food. The figure for the larval period in the box is an estimate and is borrowed from the genus. When the forelegs appear, the young animals are moved to a shallow water container with easy access to land and moist hides. Only once the tail is gone should they be fed.

REARING THE YOUNG

The newly metamorphosed young are raised in ventilated plastic boxes with a moist substrate, leaves and light misting. Feed them every day with fruit flies and small crickets, dusted with calcium and D3. Sort the young by size, because the larger ones eat the smaller, and keep young animals apart until they have gained size. The green young often change to brown as they grow.

Health and common mistakes

Wild-caught animals often have a hard time behind them, so the species is not for beginners. The typical problems are:

- Illness and emaciation after transport. Choose animals with a plump body and clear eyes, keep them in quarantine for at least a month, and feed regularly for the first weeks.
- Bacteria in the skin. Abscesses on the back may be caused by a bacterium resembling *Brucella inopinata* that can potentially infect humans. Always wash your hands after contact with frogs and the terrarium, and contact a vet if you see lumps.
- Poor water quality, which can cause skin and fungal problems. Change the water daily, and avoid chlorine, soap and other chemicals.
- Too high a temperature or too low humidity, which dries out the skin. Keep the temperature below 28 °C and the humidity at 65-85%.
- Lack of calcium and vitamins, which shows as weakness and bent legs. Use a supplement as described under food.

A healthy animal is watchful and has smooth skin without sores. See a vet with amphibian expertise if a frog loses weight, does not eat, has sores, lumps, swellings or red skin, or sits limp and sluggish.

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.