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FROGS

Milk Frog

Trachycephalus typhonius

Trachycephalus typhonius is a large, nocturnal tree frog with warty skin and golden eye rims. It lives over an enormous area from Central America to northern Argentina, from rainforest to savanna and gardens. The skin secretes a white substance that stings the mucous membranes, and experience of keeping it is limited.

Family: Hylidae Former name: *Phrynohyas venulosa* **Mild skin toxins**

KEY FACTS

THE ANIMAL

Adult size	**6-8 cm** snout-vent length
Lifespan	**8-10 years**
Active	**At night**
Lifestyle	**Arboreal**
Habitat	**Savanna, dry forest and rainforest**
Skin toxins	**Mild** Wash your hands after contact and keep your fingers away from your eyes and mouth
Difficulty	**Intermediate**

CARE

Min. enclosure	**60 × 40 × 60 cm** L × W × H for 2 adults
Temperature, day	**24-28 °C**
Temperature, night	**18-22 °C**
Humidity	**60-90%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 2
Diet	**Insects**
Kept	**Singly, in pairs or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**In water**
Eggs per clutch	**100-1,500**
Hatching	**1-2 days**
Larval period	**21-75 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

Trachycephalus typhonius is a heavily built tree frog with large eyes, elliptical pupils and a golden rim around the eyes. The body colour varies a great deal, but the back is often grey or light brown with brown spots edged in black. The belly is pale and unmarked, and the skin is granular with glands. Females are larger than males. The species reaches up to about 8 cm from snout to vent, and males are 6-7 cm. Weight is not known.

The taxonomy is in flux. The species was described by Linnaeus in 1758 as *Rana typhonia*, but for many years it went by the name *Phrynohyas venulosa* and later *Trachycephalus venulosus*, before the genera were merged. What was formerly regarded as *T. typhonius* is genetically several species. The populations in western Ecuador and in the Amazon in Ecuador and Peru

have been separated as *Trachycephalus quadrangulum* and *Trachycephalus macrotis*, and females of *T. macrotis* can grow to over 10 cm. The boundaries between the species have not been finally settled, and it is therefore uncertain which of them an animal in the trade belongs to.

Skin toxicity: The skin secretes a white, sticky substance that strongly irritates the mucous membranes and can cause pain and inflammation in the eyes. The frog secretes large amounts when disturbed or handled, and the secretion is toxic to cells. The toxin is produced in the frog's own skin glands. Ordinary skin contact has no known dangerous consequences, and the skin toxicity is regarded as mild: touch the frog only when necessary, use gloves or a glass, keep your hands away from your eyes and mouth, and wash them thoroughly afterwards.

Lifespan in captivity is not known. The 8-10 years in the box is borrowed from the relative *Trachycephalus resinifictrix*, which lives at least 8 years in captivity.

Distribution and habitat

Trachycephalus typhonius has one of the largest ranges among the tree frogs of the Americas. It is found from Mexico through Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama to Colombia and Venezuela, on Trinidad and Tobago, in Guyana, Suriname and French Guiana and on through Brazil and Bolivia to Paraguay and northern Argentina. Most recorded observations come from Brazil, Colombia and Mexico.

The range is drawn according to the current delimitation of the species. Records from Ecuador and Peru are not included, because the animals from there are now assigned to other species. The species is assessed as Least Concern (LC).

> **Native range:** Mexico, Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, Trinidad & Tobago, Guyana, Suriname, French Guiana, Brazil, Bolivia, Paraguay and Argentina.

HABITAT

Trachycephalus typhonius is adaptable and is found in both dry and humid tropical and subtropical forest, in scrubland and dry grassland in the lowlands, by rivers, lakes and swamps and in cultivated land such as fields, pastures, plantations, gardens and towns. It also copes with heavily degraded forest. The frog is nocturnal and sits in branches and dense vegetation.

The tadpoles live in pools and dammed ponds 50-80 cm deep with scrub vegetation along the banks, in north-eastern Brazil during the rainy season. Temperature and humidity in the habitats have not been measured, so the care values below are based on related tree frogs.

Read more: Humidity, misting and ventilation Read more: Rearing tadpoles

Care

THE ENCLOSURE

The care of *Trachycephalus typhonius* is based on the closely related *Trachycephalus resinifictrix*, which is a similarly large, nocturnal tree frog. An enclosure of 60 × 40 × 60 cm (length × width × height) is enough for a pair of adults. The species climbs a lot, so height counts for more than floor area. Use a tight-fitting mesh lid for good ventilation and to prevent escape, and fit a back wall on all sides except the front, so that the animals feel secure.

Furnish with sturdy branches, driftwood, hollow cork tubes and bamboo poles. The frog sleeps by day in hiding, and the hides should be placed high up, not on the floor. Live plants must be robust and large-leaved, e.g. *Philodendron* and larger bromeliads. Artificial plants work just as well.

The substrate can be damp kitchen paper, coconut fibre or sphagnum over a drainage layer, or you can do without substrate and rinse the enclosure clean with water. Avoid gravel and small bark pieces, which the frog may swallow when it snaps at food. Juveniles are best kept in a smaller and simpler enclosure with plain furnishings, so that you can keep an eye on them.

Read more: Terrarium construction and bioactive substrate

TEMPERATURE

Keep the enclosure at 24-28 °C by day and 18-22 °C at night. There is no winter rest period.

The frog tolerates a brief deviation, but the temperature must not stay above 30 °C for long. A small part of the enclosure may be a little warmer than the rest, so that the animal can choose for itself. If the room needs to be heated, a weak incandescent bulb over the mesh lid can be used by day, and an infrared bulb at night if necessary. Measure the temperature with a reliable thermometer both high up and low down in the enclosure.

HUMIDITY AND MISTING

Humidity should be 60-90 % with a rise after misting. The species also lives in dry habitats and is hardy, so the air does not need to be saturated all the time. Mist the enclosure once a day, preferably in the evening when the frog wakes, and let the enclosure dry out a little during the day to counter fungus and bacteria.

Use dechlorinated tap water, rainwater or reverse osmosis water for misting. The frog often wakes at the misting and comes out to drink and hunt. If the air stands still, or the humidity is constantly above 90 %, the risk of skin infections increases. Check with a hygrometer.

WATER AND WATER QUALITY

Put a large, stable water bowl in the enclosure. The bowl must be large enough for the frog to sit in, and the water must be shallow, so that the animal can easily get out again. In the wild the genus breeds in water-filled holes and pools of water, and the bowl corresponds to that. A depth of a few centimetres is enough.

Change the water every day. Tap water must be treated with a water conditioner that removes chlorine, chloramine and heavy metals, or you use rainwater or reverse osmosis water. Amphibians absorb water and substances through the skin, so never use soap or cleaning products for the bowl and furnishings. Clean with hot water, and remove droppings and dead feeder insects daily. The whole enclosure must be emptied and rinsed thoroughly every few weeks.

LIGHTING AND UVB

Provide 10-12 hours of light a day, first and foremost for the plants. The frog sleeps by day and is most active in the dark, so it does not need strong light. A low level of UVB helps the frog absorb the calcium in the food.

Use a weak source, corresponding to Ferguson zone 2, over a meshed part of the lid and not behind glass. Provide plenty of shade and good hides, so that the frog can retreat from the light. Replace the UVB bulb according to the manufacturer's instructions, typically after half a year to a year, because the output falls even though the bulb is still lit.

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

FEEDING

The frog takes most things it can manage: crickets, houseflies, blowflies, cockroaches, worms and other insects. Crickets can make up the bulk of the diet, and the other feeder insects are given in rotation. A feeder insect should be no longer than the frog's head is wide. Juveniles take flightless fruit flies and small crickets. Adults also readily take larger prey, but feeding pinkie mice is unnecessary and makes the frog fat.

Juveniles are fed every day. Adults get 3-8 feeder insects two to three times a week. Give the food just before the light goes out or in the evening. Dust the food with a phosphorus-free calcium powder with vitamin A and D3: at every feeding for juveniles and at every second for adults. Feed the crickets fruit, vegetables and oats before they are served.

The frog is a greedy eater, and animals that get too much food quickly become overweight. Adjust the amount to the body shape. The frog should have a rounded, but not bloated body.

Read more: Feeder animals: keeping and breeding

BEHAVIOUR AND HANDLING

Trachycephalus typhonius is nocturnal and sleeps by day in hiding, often high up, and becomes active when the light is switched off. Like the relative *Trachycephalus resinifictrix*, it is probably calm, not shy and a little more visible by day than other tree frogs.

The species can be kept singly, in pairs or in a small group in an enclosure with space and many perches. Keep together only animals of roughly the same size, because it eats everything it can fit its mouth around, including smaller conspecifics. Males call loudly when they are in breeding condition.

The frog should not be handled. The skin is sensitive to oils and salts from human skin, and the frog's skin secretion irritates the mucous membranes. If a frog has to be moved, use a transparent container or wet, clean gloves.

Breeding

SEXUAL MATURITY AND SEXING

Females are larger than males, and males call when they are ready to breed. That is the surest distinguishing feature. The frogs probably become sexually mature during the first or second year, as in the relative *Trachycephalus resinifictrix*. Breed only fully grown animals in good condition.

MATING

The species comes out and calls after rain, and the males sing from water. Breeding *Trachycephalus typhonius* in captivity is almost unknown. In the relative *Trachycephalus resinifictrix*, a water section in the enclosure and sharply raised humidity trigger calling behaviour and mating.

The same approach can be tried: a period of little misting and less food, then daily rain from a spray system or rain chamber, a large water bowl or a water-filled hole and good food. If it does not succeed within a couple of weeks, return to normal care and try again. Expect noise, because the males call loudly.

EGGS AND TADPOLES

The eggs are laid in water. A clutch can contain 100-1,500 eggs; the figure is borrowed from the relative *Trachycephalus resinifictrix*. This means that even a single successful mating can produce hundreds of tadpoles, so be prepared for the space and the work. There is no parental care.

Move the bowl or box with eggs to a separate aquarium, so that the adults do not disturb them. The eggs develop quickly and hatch after 1-2 days. The tadpoles are omnivorous and in the wild live on algae, plant matter and small particles. In captivity they can be given crushed fish food or spirulina once a day, so much that most of it is eaten within a couple of hours.

Keep the tadpoles in a spacious aquarium at about 24-27 °C with gentle water movement and a sponge filter, and change part of the water a couple of times a week. Avoid overcrowding. Tadpoles of some species eat eggs and smaller tadpoles, so sort them by size if some become much larger than the others.

METAMORPHOSIS

The eggs hatch after 1-2 days, and metamorphosis takes 3-11 weeks (21-75 days) depending on the temperature. Both figures are borrowed from the relative *Trachycephalus resinifictrix*. Late in development, before the legs grow out, the tadpoles are about 4 cm long.

When the front legs appear, the tadpole stops eating, because the mouth is being remodelled. Move it now to a container with less than 3 cm of water and dead leaves, cork or a piece of branch that sticks up above the surface, so that it does not drown. A tilted aquarium with water at one end and land at the other also works. The tadpoles do not all metamorphose at the same time. Put a net over the aquarium, because the little frogs immediately climb up the glass.

REARING THE YOUNG

The newly metamorphosed froglets are moved to a simple set-up with damp kitchen paper, a shallow water bowl and a couple of broad-leaved plants. Froglets dry out easily, so keep them humid and mist daily. The substrate must be easy to keep clean, and small groups of froglets of the same size do well in a smaller enclosure.

When the tail has been absorbed, the froglets take flightless fruit flies and small crickets every day. Dust the food with calcium and vitamins at every feeding. Sort the froglets by size, so that the smallest are not outcompeted, and to prevent the largest from eating the smallest. If you buy froglets, animals of 3 cm or more are easier to get to thrive than newly metamorphosed ones.

Health and common mistakes

Trachycephalus typhonius has the same typical problems as related tree frogs in captivity:

- Skin irritation and inflamed eyes after contact with the frog's skin secretion. Rinse immediately with plenty of clean water, and see a doctor if the pain or redness does not go away.
- Dehydration and excessive temperature. The signs are lethargy, wrinkled skin and stretched legs. Check the thermometer and hygrometer immediately.
- Overweight from too much and too fatty food. Give ordinary insects, and do not let the frog eat itself fat.
- Weakened bones due to too little calcium, D3 and UVB. Use calcium and vitamins, and give low UVB.

- Parasites and infectious diseases such as chytrid fungus, especially in wild-caught animals. Buy captive-bred animals if they are available, quarantine new animals, and use separate equipment.

A healthy frog sits in the upper part of the enclosure by day, has a sturdy, but not bloated body, intact skin without sores, swellings or discoloured areas and a good appetite. See a vet with knowledge of amphibians if the frog stops eating, has tremors, sores, swellings, or reddish or cottony areas on the skin, especially on the belly and the inside of the hind legs.

Read more: Quarantine and hygiene 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.