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FROGS

Amazon Milk Frog

Trachycephalus resinifictrix

Trachycephalus resinifictrix is a large, powerful, nocturnal tree frog from the Amazon canopy. The juveniles are striped black and white, the adults marbled, and when threatened the frog secretes a milky-white skin secretion. It breeds in water-filled tree holes, is robust to keep and in many ways resembles *Ranoidea caerulea*.

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

KEY FACTS

THE ANIMAL

Adult size	**6-10 cm** snout-vent length
Lifespan	**8-10 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	**75 × 30 × 45 cm** L × W × H for 2 adults
Temperature, day	**21-29 °C**
Temperature, night	**18-21 °C**
Humidity	**50-100%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 2
Diet	**Insects and worms/snails**
Kept	**Singly, in pairs or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**In water**
Sexually mature	**12-18 months**
Eggs per clutch	**100-1,500**
Hatching	**1-2 days**
Larval period	**21-75 days** from hatching to metamorphosis
Larval diet	**Complete diet**
Parental care	**None**

PROTECTION AND PAPERWORK

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

About the species

Trachycephalus resinifictrix is a heavily built tree frog with strong limbs, large hands and thick toe pads that often show a hint of turquoise when the frog climbs the glass at night. Males rarely exceed 6 cm, while females reach 10 cm or slightly more, measured from snout to vent. The males are also slimmer, and they call loudly.

The juveniles are sharply patterned with black and white bands. During the first year or two the colours shift to muted browns and greys with white outlines, and in adults the dark back gradually becomes flecked with pale grey to white dots. With age the skin also becomes slightly warty.

When threatened, the species secretes a white, milky and toxic skin secretion. In captivity this only happens when the animal is badly disturbed or handled roughly. The effect on humans is not known, and the skin toxicity is regarded as mild: touch the frog only when necessary, keep your hands away from your eyes and mouth, and wash them thoroughly afterwards.

The species was described as *Hyla resinifictrix* in 1907 and was also known as *Phrynohyas resinifictrix* before the genus *Phrynohyas* was merged into *Trachycephalus*. Almost all animals in the trade are captive-bred, because the Amazonian countries rarely export wild-caught amphibians. The species was first bred in captivity in 1998. Captive animals live to at least 8 years; 10 years is an estimate.

Care is similar to that of *Ranoidea caerulea*: robust and forgiving, but it helps to have some experience with amphibians first. The frog sleeps during the day, preferably high up in a hide, and comes alive when the lights go out.

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

Distribution and habitat

Trachycephalus resinifictrix lives in the Amazon rainforest in South America. The species was first found at the Maracanã River in Brazil, and most recorded observations come from French Guiana and Brazil, followed by Colombia, Peru, Venezuela, Suriname, Ecuador and Guyana.

The boundary with the close relative *Trachycephalus cunauaru*, which was only described in 2013 and lives in Brazil, Bolivia and Ecuador, is not settled. Some of the western records may therefore belong to that species. The two records from Bolivia are not included on the map.

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

HABITAT

Trachycephalus resinifictrix lives and breeds in the rainforest canopy, up to about 30 m above the ground. Life revolves around water-filled tree holes that face upwards and are kept full by the rain. The males call from the holes and defend them against other males. The holes the frogs use are on average over 40 cm in diameter and hold just under 20 litres of water. The tadpoles grow up in the holes, and the froglets leave them without ever having been down on the ground.

The rainforest has small seasonal shifts, but a distinct rainy season, and that is when the species breeds. The air in the canopy is humid, but never stagnant. The temperature in the wild is around 21-30 °C; the humidity has not been measured.

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

Care

THE ENCLOSURE

An adult pair needs an enclosure of at least 75 × 30 × 45 cm (length × width × height), and that is enough for up to four adults. A group of five needs at least 60 × 45 × 60 cm. The species is a dedicated climber, so height counts for more than floor area. A tight-fitting mesh lid is necessary, both for ventilation and to prevent escapes, and a back covering on all sides except the front makes the animals feel secure.

Furnish with sturdy branches, driftwood, hollow cork tubes, bamboo canes or pieces of PVC pipe. The frog does best with hides high up rather than on the floor: lean curved pieces of bark against the sides, or fasten hides with silicone. Live plants must be robust and broad-leaved, for example *Philodendron* and large *Neoregelia* bromeliads, in whose leaf axils the frogs like to sleep. Artificial plants work just as well.

The substrate can be damp coconut fibre or another safe soil without vermiculite and perlite, damp kitchen roll, which must be changed several times a week, or sphagnum pressed flat over a drainage layer. You can also do without substrate altogether and instead rinse the base clean with water. Avoid gravel and fine bark, which the frog may swallow by accident.

Up to five juveniles can be kept in a terrarium of around 38 litres, where it is easier to keep an eye on them. Do not buy freshly metamorphosed animals; juveniles of 3 cm or more are easier to get thriving. Set up the enclosure at least a week in advance, so you have time to check the conditions before the frogs move in.

Read more: Terrarium construction and bioactive substrate

TEMPERATURE

Trachycephalus resinifictrix tolerates a wide temperature range. During the day the warmest spot near the light source should reach 27-29 °C, while the coolest parts stay at 21-24 °C, so the frog can choose between a cool tree hole and a warm branch. At night the temperature may drop to 18-21 °C. Healthy animals cope with the odd day outside the range, as long as conditions quickly return to normal.

Temperature is where mistakes are most often made, so use an accurate thermometer and measure in several places in the enclosure. If warmth is lacking, a low-wattage incandescent bulb above the mesh lid can provide what is needed, and an infrared or red bulb can be used at night. Avoid heat mats, heat rocks and heat cables, especially without a substrate layer, as they can harm the frogs. If a lamp heats the enclosure, keep an eye on humidity, which falls as the air gets warmer.

HUMIDITY AND MISTING

Humidity is less critical than temperature, but the enclosure should be misted at least once a day. Use dechlorinated tap water or reverse-osmosis water, which also leaves no limescale marks on the glass. If you mist once or twice a day, humidity briefly rises to almost 100% and then drops to an ordinary background of 50-90%. The frogs often wake and move about after misting.

Good ventilation is more important than constantly high humidity: the air in the tree canopy is humid, but never stagnant. A hygrometer shows whether you are hitting the right level, and the substrate and branches may dry out a little between mistings so that mould does not form.

WATER AND WATER QUALITY

Trachycephalus resinifictrix needs a large bowl of clean water, corresponding to the tree hole in the wild. The bowl must be large enough for the frog to sit in, and it is used almost every night, so do not skimp on size. If you stand the base of a large cork tube in a bowl of the same diameter, you get a water-filled tree hole that is easy to clean.

Change the water every day. Tap water must be treated with an aquarium conditioner that removes chlorine, chloramine and heavy metals, and it is best left to stand for a day after treatment. If your tap water is poor, certain brands of bottled spring water can be used. Amphibians absorb water and substances through the skin, so never use soap or cleaning products; clean the bowl and furnishings with hot water. Remove droppings and dead feeder insects daily, and take the whole enclosure apart for a thorough rinse every few weeks.

LIGHTING AND UVB

Trachycephalus resinifictrix is nocturnal and can both live and breed without UVB, but juveniles raised with UVB grow larger and develop a healthier skeleton than juveniles without. A low-output UVB light is therefore recommended.

Use a UVB tube of strength 2.0 or 5.0 (roughly Ferguson zone 2) above a section of mesh, not glass, and place it above a favourite branch or sleeping spot, so the frog gets into the light but can also seek shade. If the tube is more than 30-60 cm from where the frog stays, it gets almost nothing out of it. UVB output declines over time, so replace the tube every 6-12 months, even if it still lights up. An ordinary fluorescent tube of 5,000-6,500 K gives a more natural light than the bluish glow of the UVB tube. Put all lighting on a timer with about 12 hours of daylight.

Read more: Lighting and UVB

FEEDING

T. resinifictrix is greedy and rarely fussy. Crickets can make up most of the diet, and they should be roughly as long as the frog's head is wide. Every third to fifth feeding, switch to something else: houseflies, earthworms, waxworm larvae or small cockroaches. Young frogs also take flightless fruit flies. Large adults can take pinkie mice, but these should be given rarely or not at all.

Juveniles are fed every day, adults twice a week or less often, with 3-10 feeder insects per frog depending on size. Even though the frog is nocturnal, most learn to wake and eat during the day. Dust the feeder insects with a phosphorus-free supplement containing calcium, vitamin D3 and vitamin A: at every feeding for juveniles and at every second feeding for adults.

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

BEHAVIOUR AND HANDLING

T. resinifictrix is not an animal for handling. The skin is permeable and sensitive to oils and salts from human skin, and the skin secretion can be irritating. Pick the frog up only when necessary, for example during cleaning or health checks, and preferably use powder-free disposable gloves. Always wash your hands afterwards.

During the day the frog sleeps, often hidden in a hollow cork tube or a bromeliad, and at night it is active and at its best to watch. Many also wake during the day when you mist or feed. The males call loudly and defend breeding sites in the wild, but several animals can be kept together when there is room and plenty of hides. Keep animals of roughly the same size together, and separate them if the smallest do not get their share of the food.

Breeding

SEXUAL MATURITY AND SEXING

The sexes are most easily told apart by size: males rarely exceed 6 cm and are slimmer, while adult females are large, rounded and up to 10 cm. If you hear calling, it is a male. The animals are sexually mature at around a year and a half, but the sex can usually be seen earlier, and animals as young as one year are also used for breeding.

If you want to breed, a group of five to ten animals with more males than females is often more rewarding than a single pair. The animals should be healthy and well fed for several months beforehand.

MATING

In captivity *Trachycephalus resinifictrix* often breeds, as long as the animals are healthy, well fed and have a suitable water-filled place to lay eggs. The frogs can breed all year round without anything being changed. If no eggs appear, an artificial rainy season starts breeding.

For the artificial rainy season, misting is reduced and less water is used for some weeks. The animals are then moved to a rain chamber: a tall terrarium with 5-8 cm of water on the bottom, where a submersible pump carries the water up to a spray bar or a hose with holes under the ceiling, so that it rains constantly. The temperature should be 27-29 °C, and there should be plenty of plants and hides. Let the animals get used to the chamber for a few days, and feed them well in the meantime. A closed, opaque box measuring 15-20 cm on each side with 3-5 cm of water and an entrance hole works as a tree hole and can give more reliable results.

Mating takes place in the evening or at night, usually 1-3 days after the pump is switched on. The male grips the female behind the shoulders (amplexus) and may hold on for several days. If there are no eggs after five days, the animals are moved back and you wait a few weeks before trying again.

EGGS AND TADPOLES

The eggs are laid on the water surface in a water-filled hole. In the enclosure the frogs often just use a large water bowl, but a cork tube in a bowl, a plastic box with a hole and a couple of centimetres of water, or an enclosure where the whole floor stands under a few centimetres of water with plenty of bark and driftwood above the surface, also works. Change the water often, daily if the volume is small.

A clutch ranges from around 100 to over 1,500 eggs, and a single successful mating can produce hundreds of young, so be prepared for the work. Move the whole bowl or box with eggs to a separate aquarium so the adults do not disturb them. The eggs develop quickly, and the tadpoles hatch after 1-2 days. There is no parental care. In the wild the tadpoles eat a large share of the eggs that females later lay in the same hole, but in captivity they do not need eggs to develop.

The tadpoles can go in an aquarium of at least 75 litres at around 27 °C and stay there after hatching. For the first few days they hang on the side with external gills while they use up the yolk, and once they swim freely, they are given ground fish flakes and sinking pellets once a day, so much that most of it is eaten within a couple of hours. Change 20-30% of the water a couple of times a week and use a sponge filter, or change most of the water daily without a filter. Avoid strong water movement, which can cause gas bubble disease, where the tadpoles float and cannot dive. Up to about 16 tadpoles per litre of water have been found in the wild, but divide them between several aquariums as they grow.

METAMORPHOSIS

At 23-26 °C in the water, the tadpoles have metamorphosed after 38-75 days; at around 27 °C it can take 3-5 weeks. Use an aquarium heater with a thermostat if the water is too cool, and measure the temperature with a thermometer.

When the front legs appear, the tadpole stops eating, because the mouth is being remodelled, and it must now be moved to a container with under 3 cm of water and dead leaves or something else sticking up above the surface so it does not drown. A tilted aquarium with water at one end and land at the other also works. They do not all metamorphose at once, often around

20 at a time. When about 90% of the tail has gone, the froglets, just under 13 mm in size, climb out of the water and are moved to a grow-out enclosure. A first-time breeder can expect 75% of the tadpoles to complete metamorphosis, and with good care over 90% can make it.

Read more: Heat and temperature

REARING THE YOUNG

The young do best in a simple set-up with damp kitchen roll, a few live or artificial plants and a water bowl, so it is easy to follow their growth. 20 or more newly metamorphosed froglets can be kept in a 19-litre terrarium, but sort them by size as they grow so the smallest are not outcompeted.

Feed at least once a day with flightless fruit flies and small crickets, always dusted with supplements. In a large enclosure, where the flies are not always within reach, around 20 flies per froglet may be needed. Provide a low-output UVB light (2.0 or 5.0) and 24-29 °C. The young grow quickly and can be sold when they are 1.5-3 months old.

Health and common mistakes

Trachycephalus resinifictrix is hardy, and most problems are caused by husbandry. The typical mistakes are:

- Poor hygiene and old water in the bowl. Change the water daily, and remove droppings and dead feeder insects.
- Too little calcium, vitamin D3 and UVB, especially in juveniles. This causes metabolic bone disease with a soft skeleton and crooked legs.
- Chlorine, chloramine and heavy metals in the water, or residues of soap and cleaning products.
- Wrong temperature over a long period, or a heat source that dries out the air or causes burns.
- Unnecessary handling. The skin is sensitive, and the skin secretion can be irritating.
- Gas bubble disease and poor water quality in the tadpoles.

A healthy animal is round and plump, sleeps during the day up in the enclosure and has clear eyes. Take each frog out and examine it every few weeks, and see a vet with amphibian experience if it loses weight, stops eating, seems limp or develops sores or discoloured skin.

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.