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FROGS

Cinnamon Frog

Nyctixalus pictus

Nyctixalus pictus is a small, nocturnal tree frog from the rainforests of Borneo and Palawan. It is cinnamon to reddish brown with small white to yellow spots and grows to 3-4 cm. The species breeds in water-filled hollows, has no fixed breeding season and is bred fairly easily in a terrarium with a small water section.

Family: Rhacophoridae

KEY FACTS

THE ANIMAL

Adult size	**3-4 cm** snout-vent length
Lifespan	**3-6 years**
Active	**At night**
Lifestyle	**Arboreal**
Habitat	**Rainforest**
Skin toxins	**None known**
Difficulty	**Intermediate**

CARE

Min. enclosure	**45 × 45 × 45 cm** L × W × H for 3 adults
Temperature, day	**24-27 °C**
Temperature, night	**20-23 °C**
Humidity	**80-100%**
Water	**Water section** depth 5-8 cm
UVB	**Optional** Ferguson zone 1
Diet	**Insects**
Kept	**In pairs or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**On leaves over water**
Sexually mature	**8-12 months**
Eggs per clutch	**3-10**
Hatching	**14 days**
Larval period	**50 days** from hatching to metamorphosis
Larval diet	**Algae/plants**
Parental care	**None**

PROTECTION AND PAPERWORK

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

About the species

Nyctixalus pictus is a slender, long-legged tree frog with a pointed snout and a distinct eardrum. The back is cinnamon to reddish brown with small white to yellow spots, and the fingers and toes have broad adhesive discs. The fingers have no webbing, while the toes are partly webbed. The eyes are large.

The species grows to 3-4 cm from snout to vent, and females are slightly longer and broader than males.

The taxonomy has changed in recent years. Populations from the mainland and Singapore, which were previously regarded as belonging to the species, are now treated as *Nyctixalus crypticus*, and populations from Sumatra as *Nyctixalus anodon*. Animals in the trade are not always reliably identified, and the care described here is based on animals in captivity that may belong to

one of the closely related species. The requirements are, however, the same.

The species has no known toxic skin secretion, but as always, wash your hands before and after working in the terrarium.

Lifespan is not documented; 3-6 years in captivity is an estimate based on other small tree frogs.

Distribution and habitat

Nyctixalus pictus is found on Borneo, where it is known from Brunei, Malaysia (Sarawak and Sabah) and Indonesia (Kalimantan), and on Palawan in the Philippines. It is also found on Bunguran in the Natuna Islands. Populations on the mainland and on Sumatra now belong to other species, and records from India, Peninsular Malaysia and Vietnam are doubtful.

> **Native range:** Brunei, Indonesia, Malaysia and Philippines.

HABITAT

Nyctixalus pictus lives in the shrub layer and understorey of primary and secondary rainforest, mostly below 700 m above sea level. On Borneo the species has been found up to 1,650 m. It is nocturnal and hides on leaves and branches by day.

The species breeds in water-filled hollows in trees and in rotting trunks, where the tadpoles develop in small, fish-free pools of water. The species is widespread, but not common. The threats are loss of forest to agriculture and logging.

The climate in the lowland forests of Borneo is warm and humid all year.

Read more: Rearing tadpoles

Care

THE ENCLOSURE

A terrarium of 45 × 45 × 45 cm is enough for three adults, but a larger, richly planted paludarium is the best home. The species thrives in a semi-aquatic set-up, where part of the floor is water, and the rest is moist substrate with branches and plants.

Provide many vertical and sloping branches, plants with large leaves and bromeliads, which imitate the water-filled hollows the species breeds in. The substrate can be a moisture-retaining, living substrate with sphagnum and dead leaves. Set a smooth piece of wood, softened from lying in water, at a slant out of the water against a side wall, so that the female can lay eggs just above the waterline. The lid must be mesh, so that the air does not stand still.

TEMPERATURE

Keep the terrarium at 24-27 °C by day, and let it fall to 20-23 °C at night. The species tolerates a night-time drop of up to 10 °C, so ordinary room temperature at night is fine. Avoid the temperature exceeding 28 °C for any length of time, and measure with a digital thermometer. A fluorescent tube over the terrarium usually provides the extra warmth needed by day; heat lamps are rarely necessary. The species does not need a cool rest period.

HUMIDITY AND MISTING

Humidity must be very high, 80-100 %. Mist the terrarium every day, preferably late in the day just before or after the light goes off, with dechlorinated tap water, rainwater or reverse-osmosis water. The daily misting is also what gets the species to breed. Let the leaves dry off a little during the day, so that the air does not become stagnant.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

The terrarium must have a permanent water section 5-8 cm deep, taking up a good part of the floor. The water must be clean and dechlorinated and at the same temperature as the air. Change part of the water regularly, and change all of it as soon as it becomes dirty. Never use soap or cleaning products near the water, because amphibians absorb substances through the skin. Provide exits from the water in the form of branches and cork, so that the newly metamorphosed frogs can climb out easily.

LIGHTING AND UVB

The species is nocturnal, and UVB is optional. A weak UVB tube with shaded places to retreat to is a good choice: it gives a little warmth and supports the daily rhythm. In addition use LED lighting strong enough for the plants, and keep a fixed daily rhythm with about 12 hours of light.

Read more: Lighting and UVB

FEEDING

Nyctixalus pictus eats live insects. Adults take small crickets and other feeder insects of a suitable size, and young frogs take crickets of about 6 mm. Offer small portions several times a week, and remove feeder insects that are not eaten. Dust the food with calcium, and give a vitamin supplement with D3 a few times a month. Floating feeding dishes prevent the feeder insects from hiding in the substrate or drowning.

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

BEHAVIOUR AND HANDLING

The species is nocturnal and shy. By day it sits hidden among the leaves, and at night it is active on branches and leaves. The males call. A pair or a small group can be kept together in a roomy terrarium with many perches. Buy several young animals, since the sexes cannot be told apart.

The frog should be handled as little as possible, because the skin is thin and sensitive. If it must be moved, use a moist plastic tub.

Breeding

SEXUAL MATURITY AND SEXING

Females are slightly longer and broader than males. Young animals cannot be sexed, but males can begin calling as early as four months after leaving the water, long before they breed. Buy several animals, therefore, so that both sexes are included. If a frog calls, it can be moved to a temporary terrarium, and the animals that remain without calling are probably females. Breeding is unlikely before about 8 months of age.

MATING

The species has no fixed breeding season and breeds when the animals are in good condition and both sexes are present. Daily misting late in the day, around the time the light goes off, encourages breeding. A rain chamber and misting for several hours are unnecessary and burden the frogs. Mating takes place at night in amplexus.

EGGS AND TADPOLES

The female lays 3-10 sticky eggs at night, preferably on a smooth, soft piece of wood set at a slant out of the water against a side wall. The eggs sit just above the waterline. Remove them with tweezers, a spoon or a stiff piece of plastic, and place them in a Petri dish with enough water that the eggs are surrounded but not covered. Cover the dish so that the eggs do not dry out.

The eggs hatch after about two weeks, and all the tadpoles are usually out within a day or two. The tadpoles stay in the Petri dish for 2-4 days; remove excess jelly and change part of the water with dechlorinated water.

The tadpoles are moved to a tub of about 40 × 30 × 20 cm with a lid. Start with 2 cm of water, and increase the depth to about 8 cm. The water must be dechlorinated and 21-27 °C, preferably about 24 °C. A couple of dried oak leaves provide cover, and the tannins from the leaves act as an antibacterial. Sprinkle a mixture of powdered spirulina and chlorella on the water, and mist so that it sinks. The water should be light green once the algae have been added. Check the food every third or fourth day, and give more as needed. At the start a little water is topped up at each feeding; from the third week a couple of litres are changed at each feeding instead.

METAMORPHOSIS

The tadpoles complete metamorphosis after about 50 days. The figure varies with temperature and with the individual tadpoles. If the tadpoles are raised together, metamorphosis is spread over a couple of weeks.

When the forelegs appear, the tadpoles stop eating. Lower the water level, place cork or branches in the water, and keep a lid on, so that the newly metamorphosed frogs do not escape.

REARING THE YOUNG

The newly metamorphosed froglets can be kept together in plastic trays of about 20 litres with a couple of centimetres of water, branches and floating cork bark. Give small crickets of about 6 mm in floating feeding stations, dusted with calcium and vitamins. Sort by size, so that the smallest are not outcompeted.

Health and common mistakes

Common problems in small tree frogs in terrariums are:

- Dehydration and too high a temperature. The signs are lethargy and wrinkled skin. Keep an eye on the thermometer and hygrometer.
- Infectious diseases and parasites, especially in wild-caught animals. Quarantine new animals, and use separate equipment.
- A one-sided diet or a lack of calcium and D3, which can cause weak bones. Vary the food.
- Dirty water in the water section, which causes skin infections. Change the water regularly.

Seek a vet with knowledge of amphibians if the frog stops eating, has sores or swellings, or sits listlessly on the substrate.

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.