herpy

POISON DART FROGS

Sky-blue Poison Frog

Hyloxalus azureiventris

Hyloxalus azureiventris is a diurnal poison frog of 25-28 mm, black with yellow stripes, blue-green marbling and bright blue markings on the legs and underside. The species is found only in a small area of northern Peru and is classified as threatened. It is rare in the terrarium hobby and requires an experienced keeper, but can be bred in captivity.

Family: Dendrobatidae Former name: *Cryptophyllobates azureiventris; Phyllobates azureiventris*

KEY FACTS

THE ANIMAL

Adult size	**25-28 mm** snout-vent length
Lifespan	**5-10 years**
Active	**By day and at dusk**
Lifestyle	**Rock-dwelling and terrestrial**
Habitat	**Rainforest and rocky terrain**
Skin toxins	**None known**
Difficulty	**Experienced**

CARE

Min. enclosure	**50 × 50 × 50 cm** L × W × H for 2 adults
Temperature, day	**24-26 °C**
Temperature, night	**20-23 °C**
Humidity	**70-100%**
Water	**Water dish** depth 1-2 cm
UVB	**Optional** Ferguson zone 1
Diet	**Small invertebrates (springtails, fruit flies)**
Kept	**In pairs**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles carried to water**
Egg-laying site	**On the ground**
Eggs per clutch	**10-17**
Hatching	**12-14 days**
Larval period	**42 days** from hatching to metamorphosis
Larval diet	**Algae/plants and complete diet**
Parental care	**Guards the eggs and carries the tadpoles**

PROTECTION AND PAPERWORK

CITES	**Appendix II**
IUCN	**Endangered (EN)**

About the species

Hyloxalus azureiventris is a slender, high-contrast poison frog. The base colour is black, and from the tip of the snout yellow stripes run over the eyes and down along the body towards the hind legs, while a shorter yellow stripe runs from the snout towards the forelimbs. The back and the upper side of the limbs are marbled in blue-green, the flanks are black, and the throat, legs and belly have bright blue spots or marbling. The species name *azureiventris* means "blue belly" and refers precisely to the blue pattern on the underside.

Adults measure 25-28 mm from snout to vent, so the species is a medium-sized poison frog. Sex differences and local colour forms are not documented, and there is no known reliable way of telling male from female apart from the male's call.

The species was described in 1985 by Kneller and Henle as *Phyllobates azureiventris* and has since been moved between several genera, including *Epipedobates* and *Cryptophyllobates*, which was created for it. Today it stands in *Hyloxalus*, where it forms a distinct lineage of its own. It is therefore not closely related to the poison frogs most often seen in enclosures.

Despite the clear warning colours, the species is regarded as undefended: no toxins have been detected in the skin of wild animals, and it does not seem able to take up alkaloids from fruit flies. In a laboratory experiment, however, it did take up alkaloids from a solution. Wash your hands before and after working in the enclosure anyway, because the frog's skin is sensitive.

Read more: Feeder animals: keeping and breeding

Distribution and habitat

Hyloxalus azureiventris is found only in Peru. It is known from the lower eastern slope of the Andes in the upper Amazon Basin in the San Martín region, including along the road from Tarapoto towards Yurimaguas. The range is under 5,000 km², and the species is known from fewer than five localities.

Records have been made from about 200 to 1,200 m above sea level. The range includes at least one protected area, Cordillera Escalera, near the town of Tarapoto. The centre of the map lies in this area.

> **Native range:** Peru.

HABITAT

Hyloxalus azureiventris lives in tropical rainforest in the lowlands and on the lower mountain slopes and in moist areas by water. Adults seem to prefer caves and rock piles, while juveniles have been seen in the leaf litter. The males call at dusk from rocks or crevices, and a call can last about 40 seconds. Life is lived in hiding, so the species is rarely seen, and the size of the population is therefore uncertain.

There are no measurements of temperature and humidity at the species' sites. The rainforest on the lower mountain slopes has an evenly warm and very humid climate with cooler nights, and this is the setting the enclosure should imitate. How much the species tolerates of modified habitats is not known. The threats are clearing and burning of forest for settlement and agriculture, and the population has declined.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

A rainforest enclosure of at least 50 × 50 × 50 cm (length, width, height) suits a pair of *Hyloxalus azureiventris*. The species lives on the ground, so floor area matters more than height. Since in the wild it stays among rocks and in caves, there should be plenty of hiding places: stacked flat stones, cork and roots, so the animals can withdraw into half-dark crevices. An automatic rain system and a fogger make it easier to maintain the climate.

Use a bioactive setup with a drainage layer at the bottom (e.g. LECA pellets), a moist, loose substrate and a thick layer of leaf litter. Living plants, including bromeliads, keep the air humid and provide cover and egg-laying sites. Ensure ventilation, so that the air changes without the enclosure drying out. Springtails and small isopods in the substrate break down waste and are extra food at the same time.

Adults are aggressive towards conspecifics of the same sex, both males and females, so the species is kept in pairs. Juveniles can be raised together in small, simple trays. Do not keep the species together with other species.

Read more: Terrarium construction and bioactive substrate

TEMPERATURE

Keep *Hyloxalus azureiventris* at 24-26 °C during the day, and let the temperature fall 3-4 °C at night, to about 20-23 °C. Poison frogs tolerate heat poorly: a couple of hours above 30 °C can be fatal, so always put a thermometer in the enclosure, and do not place it in direct sun or close to a hot lamp.

In a hot summer you can cool with a fan blowing across the enclosure's top ventilation, or move it to a cooler room. In winter a heat mat on the side or back wall can keep the night minimum up. The species should not have a winter rest, but is best kept a little drier in winter.

Read more: Heat and temperature

HUMIDITY AND MISTING

Humidity must not lie below 70-80 % for long. Morning and evening it should rise to almost 100 % with fog or rain, while it may fall to about 70 % in the middle of the day. Mist the enclosure with rain water or reverse-osmosis water morning and evening, or use a rain or fogging system on a timer. A last misting in the evening brings the feeder insects out, so the frogs find them more easily. In winter the enclosure is kept a little drier.

Avoid stagnant air and water standing in the substrate: both cause mould and bacterial growth. Let the surface dry a little between mistings, while the leaf litter and the deeper layers stay moist. If the air becomes too dry, the frogs withdraw into hiding and stop eating.

WATER AND WATER QUALITY

The species needs a small, shallow water dish for drinking and as a possible breeding site. Use a dish with 1-2 cm of water and a flat edge, so the frogs can get in and out and none drowns. Pumps and filters are unnecessary and can quickly fail; change the water every two to three days instead. Use rain water, reverse-osmosis water or dechlorinated tap water. Amphibians absorb water and dissolved substances through the skin, so keep the water free of soap, chlorine and cleaning products.

In the wild the male carries the tadpoles to small streams, water in bromeliads or water-filled fallen palm leaves. If you want to breed them, a water section or a couple of small pools of water, e.g. film canisters or small dishes with clean water, is necessary for the tadpoles.

Read more: Rearing tadpoles

LIGHTING AND UVB

No need for UVB has been documented for the species. A weak UVB bulb (Ferguson zone 1) can be used as an optional supplement if the animals can move away from it. The most important light is LED lighting for plant growth, 10-12 hours a day, which imitates the even day and night of the tropics.

Provide shaded areas with rocks and leaf litter, so the animals can always choose between light and half-darkness. A lamp that heats the enclosure is rarely necessary and can quickly make it too hot.

Read more: Lighting and UVB

FEEDING

Hyloxalus azureiventris needs small, live prey. Adults take springtails, small and large fruit flies (*Drosophila melanogaster* and *Drosophila hydei*), small waxworm larvae, booklice, sifted meadow plankton and crickets up to 5 mm, preferably without the jumping legs. Only animals that move are eaten. Do not catch feeder insects in the wild yourself if they may have been sprayed.

Juveniles are fed daily and adults three to four times a week with as much as they eat within 5-10 minutes. Dust the adults' food with a vitamin and mineral preparation for amphibians once or twice a week, and the juveniles' food daily for the first four weeks. Fruit flies can be vitaminised with a liquid preparation, and young crickets become more nutritious if they are given green food. Give the dusted food on small dishes that are cleaned every two to three days. Your own cultures of fruit flies and springtails are almost a prerequisite.

BEHAVIOUR AND HANDLING

Hyloxalus azureiventris is diurnal and lives in hiding among rocks, roots and leaf litter. Adults are very aggressive towards conspecifics of the same sex: both males and females jump on each other and cling on. Adults are therefore kept only in pairs, while juveniles can be kept in a group.

Poison frogs should not be handled if possible: the skin is thin and sensitive, and stress weakens them. When cleaning, they are best caught in a clean, moist plastic container. Animals that hide all the time or do not eat are stressed, and this is most often a sign that the enclosure is too hot, too dry or too open.

Breeding

SEXUAL MATURITY AND SEXING

Sexual differences are not documented for *Hyloxalus azureiventris*. The surest way to get a pair is to raise a small group of juveniles together and see who calls and which animals seek each other out. When a pair has found each other, the other animals must be moved, because adults of the same sex attack each other.

Age at sexual maturity is not documented.

MATING

The species has been bred in captivity, but experience is limited. In poison frogs, mating is often triggered by a distinct rainy season in the enclosure after a somewhat drier period: more frequent misting and slightly cooler nights. The male calls from a hidden spot, preferably among rocks, and the female follows.

Put the pair together in an enclosure with many hiding places, bromeliads and a couple of half coconut shells, and watch whether the animals seek the same hiding places. If they fight, they must be separated at once.

EGGS AND TADPOLES

The female lays 10-17 eggs on bromeliad leaves, in hollows in the leaf litter or under half a coconut shell. The male guards the eggs until they hatch and then carries the tadpoles on his back to water.

In the enclosure the tadpoles can be raised together; they do not need to be kept separately. Use clean water at the same temperature as the air, and change a third every two to three days. Do not disturb the eggs until they have hatched. The tadpoles grow to up to 11.5 mm.

The tadpoles' food is not documented for the species. Flake fish food, dried spirulina and algae are borrowed from the care of other poison frogs.

METAMORPHOSIS

The eggs of *Hyloxalus azureiventris* hatch after 12-14 days, and the tadpoles take about six weeks, roughly 42 days, to reach metamorphosis. Keep the eggs moist and protected from drying out.

When the front legs appear, the water must be lowered, and the tadpole must be able to get onto land: place a flat stone or a piece of cork at the edge, and keep it moist. The tadpole stops eating while the tail is absorbed. Leave it until the tail is gone, and only then give food.

REARING THE YOUNG

The newly metamorphosed juveniles are about 10 mm long and are raised in groups in small, simple trays with moist sphagnum, a couple of pieces of cork and a layer of leaf litter. For the first two weeks springtails are necessary; only juveniles from very large tadpoles can take the small fruit flies (*D. melanogaster*) from the start. Feed daily, and dust the food with vitamins and minerals every day for the first four weeks.

Keep humidity and temperature even, and watch for animals that fall behind in growth. Juveniles can be raised together until they approach sexual maturity, but sort them by size, and move them to a larger enclosure as they grow.

Health and common mistakes

Poison frogs are sensitive, and most problems are caused by errors in the environment:

- Too high a temperature: above 30 °C for a long time can be fatal. Signs are lethargy, an open mouth and animals lying flat on the ground.
- Lack of calcium and vitamins: causes limp, crooked limbs and a heavy gait. Prevented by dusting the food.
- Fungi and bacteria (including chytrid fungus) in an environment that is too wet and stagnant: signs are skin sloughing, redness on the belly, loss of appetite and emaciation.
- Parasites from wild-caught animals or caught feeder insects: avoid both.
- Stress: often caused by too few hiding places, disturbance or animals of the same sex attacking each other.

Lifespan is not documented for the species; 5-10 years is borrowed from related poison frogs.

Buy only captive-bred animals from a reliable breeder, and keep new animals isolated for several weeks. Contact a vet with amphibian experience if an animal refuses to eat, loses weight or develops skin changes.

Read more: Calcium, vitamins and supplements 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.