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POISON DART FROGS

Lovely Poison Frog

Phyllobates lugubris

Phyllobates lugubris is a small, black poison frog of 19-24 mm with two yellow, golden or orange stripes along the back. It lives on the forest floor in the lowland rainforest on the Caribbean side of Central America, from Nicaragua to Panama. It is occasionally seen in the trade, but little is known about its care.

Family: Dendrobatidae

KEY FACTS

THE ANIMAL

Adult size	**19-24 mm** snout-vent length
Lifespan	**10-20 years**
Active	**By day**
Lifestyle	**Terrestrial**
Habitat	**Rainforest**
Skin toxins in the wild	**Mild**
Skin toxins in captivity	**None** Captive-bred animals. Wild-caught animals can keep their toxins for a long time
Difficulty	**Intermediate**

CARE

Min. enclosure	**60 × 45 × 45 cm** L × W × H for 3 adults
Temperature, day	**21-25 °C**
Temperature, night	**18-21 °C**
Humidity	**80-100%**
Water	**Water dish** depth 1-3 cm
UVB	**Optional** Ferguson zone 1
Diet	**Small invertebrates (springtails, fruit flies)**
Kept	**In pairs or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles carried to water**
Egg-laying site	**On the ground**
Eggs per clutch	**7-21**
Larval period	**45-80 days** from hatching to metamorphosis
Larval diet	**Complete diet**
Parental care	**Guards the eggs and carries the tadpoles**

PROTECTION AND PAPERWORK

CITES	**Appendix II**
IUCN	**Least Concern (LC)**

About the species

Phyllobates lugubris is a small, compact poison frog. Males are 19-21 mm, females 21-24 mm, so the female is the larger. The ground colour is black with two stripes along the back from the snout to the hind legs. The stripes are typically pale yellow, golden or orange. The legs are often marbled in yellow or greenish yellow, and the belly is so densely marbled with black that it looks almost entirely black.

The species was formerly regarded as including the frogs on the Pacific side of Costa Rica and Panama. They now belong to *Phyllobates vittatus*, which is a close relative. The two species together make up the *P. lugubris* group in the genus, while *Phyllobates terribilis*, *Phyllobates bicolor* and *Phyllobates aurotaenia* belong to the *P. bicolor* group.

The skin toxin is weak. The Colombian species of the genus are among the most toxic frogs in the world, but *P. lugubris* takes up only a little toxin from its food, even though it eats the same ants and mites as other poison frogs. The skin contains low amounts of a few alkaloids, and batrachotoxin has not been found in the species. The toxins come from the food in the wild, and captive-bred animals have none. Wash your hands after contact with wild animals all the same.

Little is known about the species in captivity. The sizes in the specification box are measured on wild animals; lifespan, number of eggs and larval period are borrowed from *P. vittatus* and are approximate.

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

Distribution and habitat

Phyllobates lugubris lives on the Caribbean side of Central America, from south-eastern Nicaragua through Costa Rica's Caribbean lowlands to north-western Panama, where it occurs in the province of Bocas del Toro, among others. There is a single record just west of the Panama Canal.

The species occurs from 10 m to about 600 m above sea level. The populations on the Pacific side, which were previously included, now belong to *Phyllobates vittatus*. The species occurs in several protected areas.

> **Native range:** Nicaragua, Costa Rica and Panama.

HABITAT

Phyllobates lugubris lives in humid lowland rainforest and at the edge of the forest on the lowest mountain slopes, up to about 600 m. It also occurs in secondary forest and on plantations. The frog is diurnal and lives on the ground in the leaf litter. Adults are often seen along the stony stretches of forest streams, where males sit hidden among plants and call. In Bocas del Toro it lives side by side with *Oophaga pumilio* and the tiny *Andinobates claudiae*.

The climate is warm and humid all year without any cool period, and the day is about 12 hours long all year round.

The threats are forest loss, pollution and illegal collecting. The fungus *Batrachochytrium dendrobatidis* has been detected in museum specimens, but its importance for the wild populations is unknown.

Care

THE ENCLOSURE

Little is known about the care of *Phyllobates lugubris*. The closest relative, *Phyllobates vittatus*, is far better known in captivity and lives in the same kind of forest on Costa Rica's Pacific side, so the figures here are borrowed from it. *Oophaga pumilio* and *Dendrobates auratus* live in the same forests as *P. lugubris* and have similar requirements.

Two or three animals need an enclosure of at least 60 × 45 × 45 cm. The frog stays on the ground, so floor area counts for more than height. Build the substrate with a drainage layer of clay balls, a mesh or fibre cloth over it and a moist, draining soil layer with a thin layer of moss and a thick layer of leaf litter. The animals need many hides: cork tubes, half coconut shells, roots and dense ground planting. A background of coconut fibre or cork with moss provides extra surface.

Springtails and isopods in the substrate eat leftovers and mould. Ventilation must give a little air exchange without drying out the enclosure. Do not keep the species together with *P. vittatus*, as the two species can interbreed.

Read more: Terrarium construction and bioactive substrate Read more: Feeder animals: keeping and breeding

TEMPERATURE

The daytime temperature should be 21-25 °C and the night 18-21 °C, as for *Phyllobates vittatus*. Poison frogs are very sensitive to heat: above 27 °C should be avoided, and several hours at around 29 °C can be fatal. The enclosure must therefore not stand in sun or close to a heat source, and the lighting must not heat it up.

There is no hibernation, and the species should not be given a cool period. A slight drop at night is enough. Measure the temperature with a digital thermometer down by the substrate, where the frogs stay.

Read more: Brumation and the seasons

HUMIDITY AND MISTING

Humidity should be 80-100 %, and the soil and leaf litter must always be moist. Mist the enclosure thoroughly 1-2 times a day with rainwater, reverse-osmosis water or dechlorinated water, or use a rain or mist system. The surface may dry off slightly during the day, so the air does not become stagnant.

If it becomes too dry, the frogs retreat into hiding places and become less active, and they can dry out. Ventilation is important, because stagnant, saturated air causes mould and bacterial growth. The plants and a thick layer of leaf litter hold moisture longest.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

Adult frogs do not drink, but absorb water through the skin, and a shallow water bowl with 1-3 cm of water is enough. *Phyllobates vittatus* appreciates a small water feature, and in the wild the tadpoles are carried to streams. Use a flat bowl with a ramp of stones, so the animals can easily climb out. Change the water every other day.

The water should be rainwater, reverse-osmosis water or dechlorinated tap water; amphibians absorb substances through the skin, so avoid chlorine and soap. Tadpoles are raised in small tubs with the same kind of water, without a filter and with frequent water changes.

Read more: Rearing tadpoles

LIGHTING AND UVB

The species lives on the forest floor, where the light is subdued, and UVB is not documented as necessary. A weak UVB lamp in Ferguson zone 1 is optional; if used, always provide shade. The light must first and foremost give the plants enough to grow: LED or T5 for 10-12 hours a day.

The light must not heat the enclosure. The lighting should be even, without strong patches, so the frogs can always retreat into shade.

Read more: Lighting and UVB

FEEDING

In the wild *Phyllobates lugubris* eats mostly ants and mites. In the enclosure, small arthropods are given: wingless fruit flies (*Drosophila melanogaster*), springtails, small isopods and newly hatched crickets. The prey must be under 3 mm long.

Feed adult frogs every other day with so much that everything is eaten within a couple of hours. Dust all feeder animals with a vitamin and mineral supplement. Springtails and fruit flies can be kept in their own cultures so that there is always food.

The newly metamorphosed young must get the smallest springtails and fruit flies.

BEHAVIOUR AND HANDLING

The species is diurnal and lives hidden among leaf litter and plants. Males call from hidden spots and defend their territory against other males, so several males in the same enclosure can cause stress. A pair or a small group with more females than males is the safest way to keep them; *Phyllobates vittatus* does well both in pairs and in groups.

The frogs should not be handled, except when being moved. The skin is delicate, and soap and cream on the hands can harm them. If an animal has to be moved, use a moist plastic container. The species is often shy at first and shows itself only when it feels secure.

Breeding

SEXUAL MATURITY AND SEXING

Males are 19-21 mm and females 21-24 mm, so the female is the larger and has a rounder body. Only the male calls. Age at sexual maturity is not documented; *Phyllobates vittatus* becomes sexually mature at 8-10 months. A pair is most easily obtained by letting several young grow up together.

MATING

The male finds a hidden spot, often among plants close to water, and calls to the female from there. Mating takes place on land in a hide. How mating is set going in the enclosure is not documented for the species; a fixed hide, peace and stable humidity are the best framework, and rain or heavy misting can set off calling.

Do not move the animals more than necessary. Give the pair a fixed hide with subdued light and an area with moist leaf litter.

EGGS AND TADPOLES

The female lays the eggs on dry leaves. The number of eggs is not documented for the species; the figure in the specification box, 7-21 eggs, is borrowed from *Phyllobates vittatus* and is probably at the high end for the smaller *P. lugubris*. The male looks after the eggs and keeps them moist by sitting on them and releasing water from his body.

When the eggs hatch, the male carries the tadpoles on his back to streams. In the enclosure there must be a small water bowl where they can be deposited, or the eggs can be taken out and the tadpoles raised separately in small tubs. They are fed fine tadpole food in small portions, and the water is changed regularly.

METAMORPHOSIS

Hatching time is not documented. The larval period is not known for the species either; the specification box gives 45-80 days, borrowed from *Phyllobates vittatus*.

When the front legs appear, the tadpole stops eating. Lower the water level to 1-2 cm, or put rocks, bark and moist moss at the edge, so the little frog can easily climb out. It lives off its tail until it has been absorbed, and then seeks out the leaf litter.

REARING THE YOUNG

The newly metamorphosed young are small and must be raised in a small container with a damp floor, moss and many hiding places. They must get the smallest springtails and wingless fruit flies every day, dusted with calcium and vitamins.

The young are vulnerable in the first months. When they eat well and have clearly grown, they can be moved to a larger enclosure. Keep humidity and temperature stable, and avoid moving them too often.

Read more: Calcium, vitamins and supplements

Health and common mistakes

No diseases specific to the species have been documented. The typical problems for poison frogs are:

- Air that is too dry or an enclosure that is too warm, which cause dehydration and stress. Keep humidity at 80-100 % and the daytime temperature below 25 °C.
- Lack of calcium and vitamins, which cause weak and stunted legs. Dust the food with supplements.
- Fungal infection from *Batrachochytrium dendrobatidis*, which settles in the skin. The signs are lethargy, loss of appetite and shedding of skin.
- Parasites and bacteria if the enclosure is dirty and stagnant.

See a vet with amphibian expertise if the frog is lethargic, emaciated or has sores or swellings.

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.