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POISON DART FROGS

Harlequin Poison Frog

Oophaga histrionica

Oophaga histrionica is a diurnal poison frog of 3-4 cm from the rainforest of western Colombia, brown to black with large orange spots. The tadpoles live exclusively on infertile eggs that the female lays for them, which makes the species one of the most difficult poison frogs to breed. It is critically endangered, and the delimitation of the species was changed in 2018.

Family: Dendrobatidae Former name: *Dendrobates histrionicus*

KEY FACTS

THE ANIMAL

Adult size	**3-4 cm** snout-vent length
Lifespan	**9 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	**Expert**

CARE

Min. enclosure	**50 × 50 × 50 cm** L × W × H for 2 adults
Temperature, day	**24-26 °C**
Temperature, night	**18-21 °C**
Humidity	**70-100%**
Water	**Water dish** depth 1 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**
Sexually mature	**12 months**
Eggs per clutch	**4-20**
Hatching	**10 days**
Larval period	**90 days** from hatching to metamorphosis
Larval diet	**Unfertilised eggs from the female**
Parental care	**Guards the eggs, carries the tadpoles and feeds the tadpoles with eggs**

PROTECTION AND PAPERWORK

CITES	**Appendix II**
IUCN	**Critically Endangered (CR)**

About the species

Oophaga histrionica is one of the larger poison frogs. It was described by Arnold Adolph Berthold in 1845 as *Dendrobates histrionicus* and for a long time was regarded as a single, widely distributed species with a host of colour forms from the whole of Colombia's Chocó region.

In 2018 Andrés Posso-Terranova and José Andrés split the complex on the basis of genetics, appearance and habitats. Three species were described as new: *Oophaga anchicayensis*, *Oophaga andresi* and *Oophaga solanensis*. The name *O. histrionica* now belongs only to the frogs that live around Santa Cecilia in Risaralda, and which are very similar to the original description. Many of the colour forms that go under the name in the hobby, e.g. 'Bahia Solano', 'Playa de Oro' and 'Anchicayá', come from areas that now belong to the new species. The care information below therefore applies to the old, broad complex. The genus name *Oophaga* means "egg eater" and refers to the tadpoles.

In the narrow delimitation, adults average 33 mm from snout to vent and are smaller than the other species in the complex. Frogs from the whole complex measure 3-4 cm. The body is light brown to black, usually with one or two large orange or red-orange spots on the back; in a few animals the spots are faint or absent. The sexes look alike.

In the wild the skin is poisonous. The poison, histrionicotoxins, is named after this very species and blocks the nervous system's acetylcholine receptors. The frogs do not produce it themselves, but take it up from prey such as ants and mites. Captive-bred animals, which grow up on feeder insects, lack the poison and are regarded as non-poisonous, while wild-caught animals can retain it for a long time and be dangerous to handle. Do not touch the frogs, therefore, and wash your hands after working in the enclosure.

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

Distribution and habitat

In the narrow delimitation from 2018, *Oophaga histrionica* is found only in Colombia, on the Pacific side of the Andes at the upper Río San Juan. The populations lie around Santa Cecilia in the department of Risaralda and together cover less than 30 km².

The other populations that were previously included now belong to other species: *O. solanensis* lives west of the Río Atrato from Bahía Solano through the Serranía de Baudó, *O. andresi* lives east of the Río Atrato around Tutunendo and Playa de Oro, and *O. anchicayensis* lives further south in Valle del Cauca. The records on the map show the old, broad complex and not the distribution of the species after the split. A few records from outside Colombia are probably due to misidentifications.

The species is assessed as critically endangered (CR) on the IUCN Red List. None of the populations lies in a protected area. The threats are deforestation, not least in connection with mining and illegal crops, and collection for the illegal animal trade. In November 2018 Colombian authorities at the airport in Bogotá found 216 poison frogs hidden in small film canisters on their way to Germany, 153 of them identified as *O. histrionica*. Each animal could fetch about 2,000 dollars on the illegal market.

> **Native range:** Colombia.

HABITAT

Oophaga histrionica lives in warm, very humid rainforest at 342-410 m altitude. The mean temperature is around 26 °C all year round, and over 5,000 mm of rain falls per year, so there is no real dry season. The habitats are highly structured, with fallen trunks, branches and dense undergrowth.

The frog is diurnal and lives on the forest floor among fallen branches and leaves. It hunts ants and mites from sunrise and during the afternoon seeks cover under the leaf litter or up on fallen trunks. The male calls from a low perch. The tadpoles grow up in small collections of water, typically in the leaf axils of bromeliads.

Care

THE ENCLOSURE

A pair needs a rainforest vivarium of at least 50 × 50 × 50 cm, and larger is better. *Oophaga* species can be territorial, so keep only one pair unless the vivarium is very large.

Plant several large bromeliads, preferably about 35 cm across, with broad, strong leaves that can carry the frogs and hold water in the leaf corners. They give the female many places to deposit tadpoles. Build up the floor with a drainage layer, a fibre mesh and a moist substrate with a thick layer of leaf litter on top, and provide cork, roots and branches to climb on. Cover with glass with a ventilation panel, and close all gaps so that neither frogs nor feeder insects escape.

Never mix species or localities, neither in the same vivarium nor for breeding. After the split in 2018 it is especially important to know the animals' origin.

Read more: Terrarium construction and bioactive substrate

TEMPERATURE

The daytime temperature should be 24-26 °C, and at night it is lowered by 5-6 degrees, to 18-21 °C. The temperature only needs to vary by 1-2 degrees over the year, and there is no winter rest.

The species lives in warm lowland forest, but a closed enclosure quickly becomes too warm. Place it out of direct sunlight, use lighting that does not give off much heat, and have a thermometer with a probe down in the enclosure. A heat spot is not needed.

HUMIDITY AND MISTING

Humidity should be 70-80 % in the middle of the day and up to 100 % morning and evening. This is easiest to achieve with a rain system and a fogging system on timers. Mist with reverse-osmosis water or rain water, so that glass and leaves do not get limescale spots.

The substrate must be moist, but not waterlogged, and the air must not be still, or mould will appear. If the air becomes too dry, the frogs hide, and the small juveniles easily dry out.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

A shallow water dish with about 1 cm of water and a ramp of stones or moss is enough for the adults. Use reverse-osmosis water, rain water or dechlorinated tap water, and change the water often. Amphibians absorb water and substances through the skin, so soap, cleaning products and cream must not come near the enclosure.

The tadpoles need small, water-filled places. The bromeliads' leaf axils are the natural choice, and film canisters mounted at a slant so that they always hold water are a good supplement (see Eggs and tadpoles).

LIGHTING AND UVB

The lighting is first and foremost for the bromeliads and the other plants. Provide about 12 hours of light a day with LED or fluorescent tubes that do not give off much heat. The species has no known need for UVB, and the frogs get their vitamin D3 through the supplement on the food. If you want to use a weak UVB source, stick to Ferguson zone 1, and provide plenty of shade.

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

FEEDING

Oophaga histrionica eats small arthropods, in the wild especially ants, termites, mites and small beetles. In the enclosure the staple diet consists of wingless fruit flies, springtails and small and slightly larger newly hatched crickets, preferably supplemented with field plankton when available.

Adult frogs are fed about every other day, juveniles daily. Dust the feeder insects with a vitamin and mineral powder for amphibians. A female that feeds tadpoles must have plentiful and varied food, because that determines the quality of the eggs the tadpoles live on. Keep your own cultures of fruit flies and springtails, so there is always food.

Read more: Feeder animals: keeping and breeding

BEHAVIOUR AND HANDLING

Oophaga histrionica is diurnal. The male calls from a low perch, and males defend their territories. Therefore keep only one pair in the enclosure.

Do not handle the frogs. The skin is sensitive, and the animals easily become stressed. If a frog has to be moved, lure it into a clean cup. Wild-caught animals are often stressed, have a far higher mortality than captive-bred ones and can still be poisonous. They must be kept completely separate from other animals.

Breeding

SEXUAL MATURITY AND SEXING

The sexes look alike, and there are no reliable external features. The male's call is the surest sign, and a female reveals herself by laying eggs. Young males can start calling as early as 4-5 months, but the first fertilised clutches come at 12 months of age. The easiest way is to let several young animals grow up together and see which ones call.

MATING

In the wild the frogs breed in the rainy season. The male calls from a leaf with a buzzing, trilling sound. When a female approaches, they call to each other and touch each other, and the pair finds a place for the eggs together. The female lays the eggs, and the male fertilises them afterwards. The mating behaviour resembles that of the closely related *Oophaga lehmanni* and *Oophaga speciosa*.

EGGS AND TADPOLES

The female lays 4-20 eggs on a leaf or in the leaf litter, in the enclosure preferably in a film canister. In the enclosure a pair can lay 9-12 eggs every other week. The female guards the eggs, and when the tadpoles hatch, they climb onto her back. She carries them one at a time to separate small collections of water, preferably in the leaf axils of a bromeliad.

The tadpoles live only on infertile eggs, which the female returns and lays in the water roughly every other day. Fish food and eggs from other species such as *Dendrobates auratus* are admittedly eaten, but the tadpoles do not complete metamorphosis. Therefore let the female manage the rearing herself, and give her many small water sites. She has to remember where each individual tadpole sits.

METAMORPHOSIS

The eggs hatch after about 10 days, and the tadpoles then take about three months to become small frogs. When the front legs appear, the tadpole stops eating and lives off its tail. The little frog climbs out of the bromeliad by itself and begins life on land, so provide moist moss and leaves around the water sites.

REARING THE YOUNG

Newly metamorphosed juveniles are very small and can only manage the very smallest feeder insects. Springtails are the staple, and more varied food probably increases the chance that they survive. Keep them in a small rearing box with high humidity, moss, leaf litter and a dense population of springtails, and dust the food with vitamins and minerals. Only a few juveniles live beyond six months, so do not move them to a larger enclosure until they eat reliably and grow steadily.

Health and common mistakes

These problems recur in poison frogs:

- Overheating and stagnant air. The frogs become lethargic and hide.
- Deficiency diseases such as soft bones and crooked legs, if the food is not dusted with vitamins and minerals.
- Weak juveniles. Only a few juveniles reach six months, and varied food for both the female and the juveniles is crucial.
- Parasites and stress in wild-caught animals, which have far higher mortality and must be kept separate from captive-bred ones.
- Chytrid fungus (*Batrachochytrium dendrobatidis*), a serious amphibian disease. Keep new animals in quarantine for a few weeks.

The lifespan in captivity is about 9 years. Contact a vet with amphibian experience if a frog stops eating, loses weight or develops swellings or sores.

Because the species is critically endangered and smuggled, you should only buy animals with documentation of captive breeding and locality. Legally bred animals from licensed breeders in Colombia are available to a limited extent. After the split in 2018 it can be unclear which species an animal sold as *O. histrionica* actually belongs to.

Read more: Quarantine and hygiene

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.