herpy

POISON DART FROGS

Green and Black Poison Dart Frog

Dendrobates auratus

Dendrobates auratus is a diurnal poison frog of 3-5 cm from the rainforests of Central America and north-western Colombia, black with metallic green, blue or bronze markings. It is calm, thrives in groups and is regarded as one of the easiest poison frogs to keep and breed, provided humidity, food and temperature are right.

Family: Dendrobatidae Former name: *Phyllobates auratus*

KEY FACTS

THE ANIMAL

Adult size	**3-5 cm** snout-vent length
Lifespan	**8-20 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	**Beginner**

CARE

Min. enclosure	**45 × 45 × 45 cm** L × W × H for 2 adults
Temperature, day	**21-25 °C**
Temperature, night	**18-21 °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 or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles carried to water**
Egg-laying site	**On the ground**
Sexually mature	**8-12 months**
Eggs per clutch	**3-7**
Hatching	**10-14 days**
Larval period	**42-80 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	**Least Concern (LC)**

About the species

Dendrobates auratus is a medium-sized, robust poison dart frog. Adults typically measure 4-5 cm from snout to vent, and the males are slightly smaller than the females. Small forms also exist in which the animals measure only 2-3 cm. The base colour is black with irregular spots and bands in metallic green, blue-green, light blue or bronze. The pattern differs from animal to animal, and the colours vary greatly between populations. A distinction is made between local forms, which should not be mixed. The young acquire the adult colour and pattern only 6-8 months after metamorphosis.

The species was described by Girard in 1855 as *Phyllobates auratus*. Later names such as *Dendrobates latimaculatus* and *D. amoenus* are today regarded as synonyms.

D. auratus is peaceable and thrives in groups throughout life, which is unusual among poison dart frogs. It can be somewhat shy, but becomes bolder in a densely planted enclosure, and forms from Costa Rica are regarded as the boldest. When threatened it readily dives into water and can stay under for several minutes.

Skin toxins: The toxins come from the diet. In the wild the frog takes up alkaloids from ants and other small arthropods and stores them in its skin. Captive-bred animals on ordinary feeder insects lack the toxins or have very little, while wild-caught animals can retain them for a long time. The skin toxicity is therefore regarded as mild. Do not handle the frogs, wash your hands after working in the enclosure, and do not touch your eyes and mouth afterwards.

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

Distribution and habitat

Dendrobates auratus lives in southern Central America and the far north-west of South America: on the Atlantic side in south-eastern Nicaragua and eastern Costa Rica, on the Pacific side in south-western Costa Rica, widely distributed in Panama and into the Chocó department in the far north-west of Colombia. Most recorded observations come from Costa Rica and Panama.

In 1932 the species was introduced to Oahu in Hawaii to control mosquitoes. The population does well and, among other things, lays eggs in discarded bottles and cans. It is not included on the map of native distribution.

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

HABITAT

Dendrobates auratus lives in humid lowland rainforest and on lower mountain slopes from sea level up to about 1,000 m. It moves about on the forest floor in the leaf litter, among roots and fallen trunks, and also climbs in the vegetation. It is often found near small streams, and the tadpoles develop in small pools and other bodies of water.

The frog is active by day and constantly searches for food. It breeds in the rainy season, from mid-July to mid-September, when the males first fight over territories. Measurements of temperature and humidity at the habitats are not documented, so the figures under husbandry are based on common practice.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

Allow at least about 38 litres per adult frog. A terrarium of 45 × 45 × 45 cm (about 90 litres) is therefore the minimum for a pair of *D. auratus*, and a trio or a small group needs at least 60 × 45 × 45 cm. The terrarium should be closed at the top with a narrow mesh section, so that the air is exchanged without drying out.

The floor is built up with a drainage layer of clay pebbles, a mesh barrier, a well-drained substrate and a thick layer of leaf litter on top. The leaf litter retains moisture, provides hiding places and food for springtails and isopods, which keep the floor clean. Plant densely, and provide plenty of hiding places of cork, roots and coconut shells. Crevices and ledges in the back wall, where the frog can squeeze in with its back against the ceiling, make it feel more secure and more visible.

For breeding, there must be smooth egg-laying sites: a petri dish under a coconut shell or a smooth leaf. Fresh leaf litter is added about every six months, as the old litter breaks down.

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

TEMPERATURE

By day the temperature should be 21-25 °C and at night 18-21 °C. The temperature must not exceed 27 °C for long, and above 29 °C can be fatal. Brief cold down to 16 °C is tolerated better than heat.

Do not use a heat lamp. Room temperature is normally enough, but an enclosure in sunlight or under a warm lamp quickly becomes too hot in summer. If the room is cold in winter, a heat mat on the side of the enclosure can give a little extra warmth. Always keep a thermometer inside the enclosure. The species has no known winter rest.

Read more: Heat and temperature

HUMIDITY AND MISTING

Humidity should be 70-100 %. Mist thoroughly once or twice a day with reverse osmosis water or dechlorinated tap water, so that plants and leaf litter become wet, and let the surface dry out a little between mistings. A timer-controlled rain system gives a more stable climate.

The floor should be moist, but not waterlogged: if the substrate smells of rotten eggs, there is too much water in it. Stagnant, saturated air causes mould, so do not close the ventilation completely.

WATER AND WATER QUALITY

D. auratus is fond of water and seeks it out both to hide and to breed, so a shallow water dish or a small water feature is a good idea. 1-2 cm of water is enough, and there must be a sloping edge or stones so that the frogs can easily climb out. The water is changed every day or every other day, because it quickly becomes dirty.

Use reverse osmosis water or dechlorinated tap water. Amphibians absorb water and dissolved substances through the skin, so soap, cleaning products and traces of hand cream must not get into the terrarium. Rinse equipment in clean water without soap.

LIGHTING AND UVB

The plants need light, and an LED plant lamp that does not give off much heat is suitable. Day length has not been documented for the species; 12 hours of light is common practice. UVB is not documented as necessary when the food is dusted with vitamin D3, but a weak UVB source (Ferguson zone 1) can be used. If you do, there must be dense planting and shade, so that the frogs can choose for themselves.

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

FEEDING

Dendrobates auratus eats small arthropods. Flightless fruit flies are the obvious staple, because they are easy and cheap to keep in culture. Feeder insects should be under about 3 mm, and springtails and isopods in the leaf litter are a good supplement.

All feeder insects must be dusted with a calcium and vitamin supplement for amphibians. Feeding frequency has not been documented for the species. A good rule of thumb from *Dendrobates tinctorius*, which is kept in the same way, is to give as many flies as the frogs eat in 15-30 minutes, and to wait if there are still many left after an hour.

In the wild the species eats, among other things, ants with a high alkaloid content. These are not found in the diet in captivity, which is why captive-bred animals lose the poison.

BEHAVIOUR AND HANDLING

Dendrobates auratus is diurnal and peaceful and shows almost no aggression in most situations. It can be somewhat shy, but dense planting, hiding places and a small water feature make it show itself more.

The species can be kept in pairs, in groups or singly as juveniles. When the animals become sexually mature, the females may eat each other's eggs, so if you want young, one pair per terrarium is the safest.

Poison frogs should not be handled, only moved. The skin is thin, and substances and grease from your hands can damage it. Coax the frog into a small, clean cup instead of picking it up by hand.

Breeding

SEXUAL MATURITY AND SEXING

The sexes are hard to tell apart by appearance until the animals are a couple of years old, but a calling frog is always a male. The males are slightly smaller and slimmer, and the females are sturdier and become rounded when carrying eggs. The species is sexually mature at 8-12 months and can breed from about 10 months of age. The safest approach is to let a group grow up together or to buy an established pair.

MATING

The species is one of the easiest poison frogs to breed. In the wild the breeding season follows the rainy season. In captivity a period of lighter misting followed by heavy misting and plentiful feeding can kick-start a pair that is not breeding.

The male calls and leads the female to a hidden spot, where they touch each other. There is no amplexus: the female lays the eggs, and the male fertilises them afterwards. A pair can lay eggs every 10-21 days. Make sure the female does not lose weight, and remove the egg-laying sites for a period if she needs a rest.

EGGS AND TADPOLES

The female lays 3-7 eggs on a smooth leaf or a petri dish in a hiding place, the small forms also in film canisters. The eggs lie in a clear jelly, and the male returns to keep them moist and clean.

When the eggs hatch, the tadpoles climb onto the male's back, where they stick in mucus that does not dissolve until it reaches water. He carries them to a small pool or stream, in the terrarium preferably the water dish. The eggs can also be moved to a petri dish with a moist bottom so that you raise the tadpoles yourself; eggs must not be covered by water, as they would suffocate.

The tadpoles are best kept separately in cups with reverse osmosis water, a piece of Indian almond leaf and a little Java moss. Feed a prepared tadpole food, preferably rolled in spirulina or chlorella, and remove leftovers the same day. Frequent water changes keep the water clean.

METAMORPHOSIS

The eggs hatch after 10-14 days. The tadpoles metamorphose after 42-80 days in the water, depending on temperature and food.

When the front legs are nearly complete, the water level must be lowered and the cup tilted about 45°, so that the young frog can climb onto land; otherwise it can drown. It does not eat while the tail is being absorbed, so feeding can stop during that period.

REARING THE YOUNG

The newly metamorphosed froglets are placed in a small rearing box with leaf litter, plant cuttings and a good population of springtails. Small boxes make it easy to keep an eye on the young, but fluctuate quickly in temperature, so place them out of draughts and direct sunlight.

The first feeder insects are springtails and later *Drosophila melanogaster*, dusted with calcium and vitamins at every feeding. Do not overfeed at first. Keep young of the same size together, and do not put them with larger frogs, which eat the food right under their noses. Young are typically sold from 2-3 months of age.

Health and common mistakes

There is no actual list of diseases for the species, but these pitfalls recur for poison frogs:

- A terrarium that is too dry. The frogs hide, become thin and lose their sheen. Increase the misting.
- Too high a temperature, above about 27 °C. Causes stress and weakened animals, and above 29 °C can be fatal.
- Lack of calcium and vitamins. Dust all feeder insects.
- Bacterial and fungal infections of the skin, especially in a wet and dirty terrarium. Keep it clean and ventilate.
- Intestinal parasites, which show up as emaciation despite a good appetite. Requires a faecal sample at the vet.
- Chytrid fungus (*Batrachochytrium dendrobatidis*), a serious amphibian disease. Quarantine newly acquired animals.

See a vet with amphibian expertise if a frog loses weight, stops eating, sits limply or has sores on the skin.

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.