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POISON DART FROGS

Marañón poison frog

Excidobates mysteriosus

Excidobates mysteriosus is a small, diurnal poison frog of about 3 cm from the Cordillera del Cóndor in northern Peru. It is black with white dots, breeds in water-filled bromeliads in old montane forest and is threatened in the wild.

Family: Dendrobatidae English name: Marañón Poison Frog Former name: *Dendrobates mysteriosus*

KEY FACTS

THE ANIMAL

Adult size	**3 cm** snout-vent length
Lifespan	**5-10 years**
Active	**By day**
Lifestyle	**Arboreal and terrestrial**
Habitat	**Rainforest and montane forest**
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	**Experienced**

CARE

Min. enclosure	**45 × 45 × 60 cm** L × W × H for 2 adults
Temperature, day	**21-25 °C**
Temperature, night	**17-20 °C**
Humidity	**80-100%**
Water	**No water dish**
UVB	**Optional**
Diet	**Small invertebrates (springtails, fruit flies)**
Kept	**In pairs**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles carried to water**
Egg-laying site	**In leaf axils (e.g. bromeliads)**
Sexually mature	**10-12 months**
Eggs per clutch	**4-8**
Larval period	**65-75 days** from hatching to metamorphosis
Larval diet	**Algae/plants and complete diet**
Parental care	**Carries the tadpoles**

PROTECTION AND PAPERWORK

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

About the species

Excidobates mysteriosus is a medium-sized poison dart frog of 27-34 mm from snout to vent. The back is black to dark brown with distinct white dots, and there is always a dot under the chin. The number and placement of the dots vary from animal to animal. The genus is recognised by pale, oval spots on the underside of the thighs.

The species was described in 1982 by Charles Myers as *Dendrobates mysteriosus* and was found again in the wild in 1989. In 2008 it was moved to the new genus *Excidobates*, which today has three species: *E. mysteriosus*, *Excidobates captivus* and *Excidobates condor*. *E. captivus* is the closest relative; it is far smaller and lives in the lowlands and foothills around the Marañón and Santiago.

The sexes look alike. The female is slightly plumper, but the difference only becomes clearly visible when the male calls.

In the wild the skin has poison, which the frogs presumably take up from their food. Animals in captivity lose the poison, and captive-bred animals are non-toxic. Wash your hands before and after working in the enclosure all the same.

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

Distribution and habitat

Excidobates mysteriosus occurs only in Peru. It is known from the slopes of the Cordillera del Cóndor in the upper Marañón valley in the department of Cajamarca, and there are also records from the neighbouring department of Amazonas. The species lives at about 600-1300 m elevation and is most often reported from 900-1100 m. The total range is under 5000 km². Deforestation, fires and illegal collecting for the terrarium trade in the 1990s have made the populations small, and only a few areas today have stable populations.

> **Native range:** Peru.

HABITAT

The species lives in undisturbed, humid premontane forest with many terrestrial bromeliads and cacti. The frogs are found especially at the foot and top of rock faces, where they hunt in the plant cover. They are diurnal and eat ants and small flies, among other things.

All breeding sites are water-filled bromeliads, especially *Aechmea nudicaulis*, which holds water in its funnels all year. The bromeliads the species uses grow only on very old trees, and few of these remain today. The female lays the eggs in the bromeliad, and the male carries the tadpoles to bodies of water in other parts of the plant.

The climate at 600-1300 m elevation on the tropical Andean slopes is humid all year, with warm days and distinctly cooler nights.

Read more: Rearing tadpoles

Care

THE ENCLOSURE

Little is known about the care of *Excidobates mysteriosus*. The animals live in humid montane forest close to bromeliads and rocks, with warm days and cool nights. *Excidobates captivus* is the species' closest relative, and *Ranitomeya variabilis* and *Ranitomeya imitator* are bromeliad-breeding species from the same part of Peru with well-known requirements.

A pair needs an enclosure of at least 45 × 45 × 60 cm. Height is important, because the frogs climb and breed in bromeliads. Use a drainage layer of expanded clay pebbles at the bottom, a damp substrate of coconut and soil and a thick layer of dead leaves. Back and side walls of cork or another moisture-retaining material provide climbing surfaces.

Plant densely with bromeliads, which provide both cover and breeding sites, and add film canisters with water set at an angle at different heights. The enclosure needs fine ventilation openings so that the air is exchanged without drying out. Do not keep other species together with *E. mysteriosus*. Juveniles can stay in the same enclosure until they eat on their own and have clearly grown.

Read more: Terrarium construction and bioactive substrate

TEMPERATURE

The temperature at the species' localities has not been measured. 21-25 °C by day and 17-20 °C at night suits the climate in the foothills. The frogs tolerate heat poorly, so avoid longer periods above 27 °C. Place the enclosure somewhere cool, use LED lighting instead of heat bulbs, and cool with a fan if necessary. A true winter rest is not known in the species.

HUMIDITY AND MISTING

Humidity should be 80-100 %, and the substrate should be damp all year. Mist with reverse-osmosis or rainwater once or twice a day, or use a rain or fogging system. The bromeliads must always have water in their funnels, otherwise the frogs cannot breed. Make sure the air does not stand still, otherwise fungus and disease easily develop.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

A water dish is not necessary, because the frogs get moisture from the misting and from the water-filled bromeliads. The water in bromeliads and film canisters is replaced with fresh reverse-osmosis or rainwater every week. Avoid hard tap water and chemicals, because amphibians absorb substances through the skin. When there are tadpoles, each bromeliad or canister must have clean water and a couple of withered leaves.

LIGHTING AND UVB

The species is diurnal and lives in shade under dense foliage, so the lighting should first and foremost support plant growth and a day of 12 hours. UVB is not necessary, but optional. A weak UVB light (Ferguson zone 1) can be used over part of the enclosure, as long as there is shade and plants where the frogs can retreat.

Read more: Lighting and UVB

FEEDING

Excidobates mysteriosus is large enough to take flightless fruit flies (*Drosophila melanogaster*), springtails and, once the animals are adult, *Drosophila hydei*. In the wild the species eats ants and small flies. Feed adults every second day and juveniles daily, with as much as is eaten. Dust the feeder insects with a vitamin and mineral supplement a few times a week. Your own cultures of fruit flies and springtails provide a stable supply.

Read more: Feeder animals: keeping and breeding

BEHAVIOUR AND HANDLING

The species is diurnal, and the male calls loudly and often from the plants and rocks in the enclosure. It is best kept as a pair, because several animals together can cause conflict. The frogs should not be handled, because they are sensitive to stress. Use a plastic cup when they need to be moved.

Breeding

SEXUAL MATURITY AND SEXING

The animals reach sexual maturity after 10-12 months. The female is slightly plumper than the male, but the difference is only clearly visible when the male calls. The male has an internal vocal sac and calls loudly and often with a rattling sound reminiscent of a rattlesnake. The safest approach is to let a group of juveniles grow up together and then place a calling pair on its own.

MATING

The male calls, and the female willingly follows him to a suitable bromeliad funnel, where the eggs are laid. Several hours can pass from the first call to egg-laying. The season and rest period are not known. More misting and slightly cooler nights, as in the rainy season, can bring the animals into breeding condition.

EGGS AND TADPOLES

The female lays 4-8 eggs in a water-filled bromeliad funnel or in a film canister that imitates it. When the tadpoles hatch, the male carries them on his back to other bodies of water in the plant. The tadpoles are black. Give each tadpole its own body of water. The food of the tadpoles in the wild is not known; algae, the natural film in the water and a fine prepared food suit.

METAMORPHOSIS

Hatching time and larval period are not known for the species. The figures are borrowed from *Ranitomeya variabilis*: at 24 °C the eggs hatch after about two weeks, and the larval period is 65-75 days. When the forelimbs appear, the water must be shallow, and the tadpoles must have easy access to land. When the tail has been absorbed, the froglet is ready for life on land.

REARING THE YOUNG

The newly metamorphosed froglets are very small and need fine feeder insects such as springtails and the smallest fruit flies every day. Keep them in a damp enclosure with moss and leaves, dust the food with vitamins and calcium, and keep the temperature at 21-24 °C. They can be moved to a larger enclosure when they eat confidently and have clearly grown. Lifespan is not known; the 5-10 years in the box are borrowed from *Ranitomeya variabilis*.

Read more: Calcium, vitamins and supplements

Health and common mistakes

There are no known diseases specific to the species. The typical errors are the same as in other poison frogs:

- An enclosure that is too warm or too dry. The frogs become lethargic, lose weight and lose colour.
- Dirty water in bromeliads and canisters, which causes fungus and disease in the tadpoles.
- Food without a vitamin and mineral supplement, which causes bone problems and weak juveniles.
- New animals that bring infection with them. Quarantine new frogs separately.

A healthy frog has intact skin and a round, but not bloated, belly. Seek a vet with amphibian expertise if the frog stops eating, swells up or develops sores or red areas 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.