herpy

POISON DART FROGS

Machalilla poison frog

Epipedobates machalilla

Epipedobates machalilla is a slender, subdued poison frog of 14-18 mm with a brown back and a pale stripe along the flank. It lives only in the lowlands and dry forests of western Ecuador. The species is hardly ever kept, and its care is based on the climate and its close relatives.

Family: Dendrobatidae

KEY FACTS

THE ANIMAL

Adult size	**14-18 mm** snout-vent length
Lifespan	**8-10 years**
Active	**By day**
Lifestyle	**Terrestrial**
Habitat	**Dry forest and 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	**Experienced**

CARE

Min. enclosure	**40 × 40 × 40 cm** L × W × H for 3 adults
Temperature, day	**22-27 °C**
Temperature, night	**19-22 °C**
Humidity	**80-100%**
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**
Eggs per clutch	**15**
Hatching	**18-22 days**
Larval period	**42-70 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

Epipedobates machalilla is a small, slender poison frog and one of the smallest in the genus. Males measure 14-16 mm and females 15-18 mm from snout to vent. The head is longer than wide, the tympanum is small, the fingers have no webbing, and the toes have expanded toe pads. The back is olive-brown to dark coffee-brown with dark brown, often X-shaped markings over the shoulders, and a cream-yellow to cream-white stripe runs obliquely from the eye along the flank. The forelimbs are orange, the eye is gold, and the belly is cream. Near the type locality the animals have an orange to bright red spot in the groin; in other populations it is absent.

The species is one of the subdued, inconspicuously coloured species in the genus, without sharp warning colouration. It was described by Luis Coloma in 1995 as *Colostethus machalilla* and is closely related to *Epipedobates anthonyi* and *Epipedobates tricolor*.

The genus has toxins in the skin, which the frogs obtain from their diet in the wild; captive-bred animals are non-toxic. For *E. machalilla* the toxicity is not documented, but some populations may have chemical defences. Wash your hands before and after contact.

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

Distribution and habitat

Epipedobates machalilla occurs only in western Ecuador, west of the Andes. It is known from the provinces of Manabí, Santa Elena, Guayas, Los Ríos, Bolívar and El Oro, including Machalilla National Park, Reserva Jouneche and Reserva Ecológica Manglares Churute, at elevations from 10 to 515 metres. To the north it has been found in the transition to the Chocó rainforest. Older records from east of the Andes are erroneous.

The IUCN classes the species as Least Concern (LC), but the population is declining because forest is being cleared for agriculture and timber.

> **Native range:** Ecuador.

HABITAT

Epipedobates machalilla lives in dry, low-lying forests on Ecuador's Pacific coast. The climate is tropical with a rainy season and a long dry season, during which many trees in the dry forest lose their leaves. The frogs are diurnal and live on the forest floor and in the leaf litter, and the males carry the tadpoles to the banks of streams or to pools. Temperature and humidity at the frogs' sites have not been measured.

Read more: Humidity, misting and ventilation Read more: Rearing tadpoles

Care

THE ENCLOSURE

Little is known about the care of *Epipedobates machalilla*, and the species is hardly ever kept. Care is based on the climate of its range and on the close relatives *Epipedobates anthonyi* and *Epipedobates tricolor*, which it resembles in size and way of life. The figures for enclosure, climate, larval period and lifespan are borrowed from *E. tricolor*.

A pair, or one male and two females, needs an enclosure of at least 40 × 40 × 40 cm. Build up the base with a drainage layer of expanded clay pebbles, a water-permeable barrier cloth and a substrate of soil, moss and coconut fibre. A thick layer of leaves provides cover and egg-laying sites. Add cork, roots and dense planting of robust plants. Cover the ventilation openings with fine mesh.

Keep the species on its own and not together with other poison frogs, not even *E. anthonyi*, so that the species do not hybridise.

Read more: Terrarium construction and bioactive substrate

TEMPERATURE

Keep 22-27 °C by day, with slightly cooler and slightly warmer spots in the enclosure, and 19-22 °C at night. The species lives lower and warmer than *Epipedobates tricolor*, so the upper part of the range suits it. Keep the air below 28 °C, and avoid direct sun and local heating; prolonged heat stresses frogs. Measure with a digital thermometer down in the enclosure. A cooler and drier period in winter corresponds to the dry season in the wild and gives the animals a break from breeding.

HUMIDITY AND MISTING

Humidity should be 80-100 %. Mist several times a day or use a rain system, for example three times daily for 20-60 seconds, so that leaves and furnishings are dry again after about an hour. Use rainwater or reverse-osmosis water. If the dry season is imitated, mist for shorter periods and less often, but the leaf litter must always have damp areas so that the frogs can choose. The substrate must not become waterlogged, and still air should be avoided.

WATER AND WATER QUALITY

A shallow water dish with 1-2 cm of water, which the frogs can easily climb out of, is enough. Use rainwater, reverse-osmosis water or dechlorinated tap water, and change it often. Amphibians absorb water and substances through the skin, so soap, cleaning products, chlorine and hand cream must be kept well away. Tadpoles are raised in separate containers (see Eggs and tadpoles).

LIGHTING AND UVB

The lighting is for the plants: fluorescent tubes or LED bars for about 12 hours a day. The closely related species thrive without UVB, so it is optional. If you wish to provide it, stay with Ferguson zone 1 with plenty of shade and dense foliage.

Read more: Lighting and UVB

FEEDING

Epipedobates machalilla is small and takes small prey: springtails and fruit flies (*Drosophila melanogaster*), and as an adult also the larger *Drosophila hydei* and newly hatched crickets. Feed 2-3 times a week and only as much as the frogs eat in a few minutes. Dust the food with a vitamin and mineral powder for amphibians, and give the feeder insects good food themselves. Do not collect feeder insects in the wild; they can carry parasites and pesticides.

Read more: Feeder animals: keeping and breeding

BEHAVIOUR AND HANDLING

The males are probably territorial and call from perches on the ground and in the leaf litter, like their close relatives. The species is best kept as a pair or a small group in an enclosure with many visual barriers and hiding places. Watch that no animal is chased persistently. Do not handle the animals: the skin is thin and does not tolerate soap, salt and cream from the hands. If a frog has to be moved, coax it into a clean plastic tub.

Breeding

SEXUAL MATURITY AND SEXING

The females are slightly larger than the males, and the males call. The age at sexual maturity is not documented for the species; in *Epipedobates tricolor* breeding begins 6-10 months after metamorphosis. The safest approach is to raise a group of juveniles together and see which ones call.

MATING

Breeding probably follows the rainy season. In the enclosure, a cooler and drier period followed by heavier misting can bring the animals into breeding condition. Mating takes place with cephalic amplexus. Details of calling and mating are not documented for the species.

EGGS AND TADPOLES

The female lays about 15 eggs on the ground or under leaves and then leaves them. The eggs are about 1.6 mm, and thus the smallest and least pigmented in the genus. The male guards the eggs, and when the tadpoles hatch he carries them to water and defends them aggressively.

The tadpoles are raised singly or together in tubs of rainwater or reverse osmosis water at 22-24 °C, at first only 1-2 cm deep, and are fed fish flakes, spirulina and daphnia every day.

METAMORPHOSIS

The tadpoles hatch about 20 days after fertilisation. The larval period is 6-10 weeks (42-70 days). When the forelimbs appear, there must be a gentle transition from water to land with stones, cork or plants, so that the little frogs can easily climb out.

REARING THE YOUNG

The newly metamorphosed froglets are very small and are moved to a small enclosure with the same climate and a layer of leaf litter to hide in. Give springtails and the smallest fruit flies daily, dusted with a vitamin and mineral powder. Growth and age at transfer are not documented for the species.

Health and common mistakes

Diseases are not documented specifically for the species. What applies to the genus probably applies here too:

- Chytrid fungus (*Batrachochytrium dendrobatidis*), which can wipe out entire populations. Quarantine new animals, have them tested, and disinfect furnishings.
- Matchstick-leg in juveniles, which develop weak or no forelimbs. The cause has not been established; the diet and too many tadpoles in the same water are suspected.
- Heat above 28 °C for a longer period, which causes lethargy and loss of appetite.
- Desiccation at low humidity without access to water.

Contact a vet with amphibian expertise if an animal is lethargic, emaciated or develops skin lesions.

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.