herpy

POISON DART FROGS

Variable Poison Frog

Ranitomeya variabilis

Ranitomeya variabilis is a small, diurnal poison frog of 15-20 mm from the eastern slopes of the Andes and the Amazon. It has many local forms in yellow, green and blue with black markings, breeds in bromeliads and is known for the male carrying the tadpoles around between the plant's pools of water. A good first species among the small poison frogs.

Family: Dendrobatidae Former name: *Dendrobates variabilis*

KEY FACTS

THE ANIMAL

Adult size	**15-20 mm** 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	**Intermediate**

CARE

Min. enclosure	**40 × 40 × 40 cm** L × W × H for 2 adults
Temperature, day	**21-26 °C**
Temperature, night	**18-22 °C**
Humidity	**70-100%**
Water	**Water dish** depth 1-2 cm
UVB	**Optional**
Diet	**Small invertebrates (springtails, fruit flies)**
Kept	**In pairs or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles carried to water**
Egg-laying site	**In leaf axils (e.g. bromeliads)**
Eggs per clutch	**1-10**
Hatching	**10-14 days**
Larval period	**60-80 days** from hatching to metamorphosis
Larval diet	**Complete diet and other tadpoles**
Parental care	**Carries the tadpoles**

PROTECTION AND PAPERWORK

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

About the species

Ranitomeya variabilis is one of the small poison dart frogs. Adults measure about 15-20 mm from snout to vent: most measure 15-18 mm, while large females can reach 19-20 mm. Females are clearly larger and rounder than males.

The colours vary a great deal, as the name suggests. Typically the frog has a yellow to green back with black spots or stripes, a black spot on the tip of the snout and blue to greenish blue legs with large black spots. In the hobby there are several local forms, e.g. 'Highland', 'Southern' and 'Borja Ridge', which are sold under their own names and should not be mixed. The spotted highland form is the one that the spotted form of *R. imitator* mimics.

The taxonomy has been tangled. The species was described in 1988 by Zimmermann and Zimmermann as *Dendrobates variabilis* and has at times been merged with *R. ventrimaculata*. Many animals that went under the name *R. ventrimaculata* in the hobby now belong to *R. variabilis*. In 2022 the populations in French Guiana and eastern Brazil, which were previously regarded as *R. amazonica*, were also moved to *R. variabilis*. The closest relative is *R. amazonica*.

Skin toxicity: Poison dart frogs do not make their own toxins. Wild *R. variabilis* have alkaloids in the skin, and they come from the diet, probably small arthropods such as ants and mites. Captive-bred animals fed on fruit flies and springtails lack the toxins or have very little, while wild-caught animals can retain them for a long time. The field is therefore set to mild. Do not handle the frogs, wash your hands after working in the enclosure, and do not touch your eyes and mouth afterwards.

The species is lively, but some animals are a little shy. The males call with a soft, buzzing sound from an elevated spot.

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

Distribution and habitat

Ranitomeya variabilis has a two-part distribution. The western part lies on the eastern slopes of the Andes and in the adjoining lowlands in Peru and Ecuador, with its core in northern Peru around the upper Huallaga River, and the species has been found as far out as La Pedrera in south-eastern Colombia. The eastern part comprises French Guiana and eastern Brazil (Pará and Amapá), after these populations were moved from *R. amazonica* in 2022.

The two parts lie very far apart, and researchers believe that the delimitation of the species needs closer study. It may thus end up with the populations being split again. Therefore always keep forms from different areas separate.

> **Native range:** Peru, Ecuador, Colombia, Brazil and French Guiana.

HABITAT

Ranitomeya variabilis lives half in the trees in primary and secondary rainforest. In Peru it lives in undisturbed forest on mid-elevation ridges at 900-1,200 m altitude, but the species is also found in the lowlands. The frog is seen in the low vegetation, in bushes and on trunks, but also in the leaf litter, in French Guiana e.g. along the banks of brooks and small rivers.

Eggs and tadpoles develop in pools of water in plants, especially in bromeliads of the genus *Aechmea*. The pools, which the males choose, hold on average about 112 ml, that is considerably more than those used by *R. imitator*. In the Peruvian range about 2,500 mm of rain falls per year, with a drier period from June to September, and the temperature varies between about 16 and 32 °C.

Read more: Rearing tadpoles

Care

THE ENCLOSURE

A pair of *R. variabilis* needs an enclosure of at least 40 × 40 × 40 cm, and the same size is enough for a trio. Each extra frog needs approx. 4 litres more space. The frogs like to climb, so choose a tall enclosure rather than a low one.

Furnish it with a drainage layer, a moist substrate and a layer of leaf litter. Cork or a moisture-retaining material on the back and side walls provides climbing surfaces. Plant densely with bromeliads, climbers such as pothos and small plants such as begonias, so that the frogs have cover and breeding sites. Mount film canisters on the wall almost vertically, but tilted enough that a little water stands at the bottom; they work as artificial leaf axils.

The species is more peaceful than many others in the genus. It can be kept in mixed groups, and in a correspondingly larger enclosure even nine adults can live together without aggression. Remove any animal that chases the others, though. Never house different forms or species together.

Read more: Terrarium construction and bioactive substrate

TEMPERATURE

Keep the enclosure at 21-26 °C during the day and 18-22 °C at night. For short periods the species tolerates up to 27 °C, but the temperature must never exceed 29 °C. Eggs and tadpoles can be kept at a constant 24 °C.

Extra heat is rarely necessary; the light for the plants often gives enough. Never place the enclosure in direct sunlight, and watch the temperature in summer, when small enclosures quickly become too warm. No cool resting period has been documented.

HUMIDITY AND MISTING

Humidity should be 70-100 %. Aim for almost 100 % morning and evening and 70-75 % in the middle of the day. The species can cope briefly at 50 % if it has clean water to sit in, but this is an emergency measure.

Mist daily with reverse-osmosis water or rain water. A fogging system running three times a day and a wall covering that retains moisture make this easier. Let the leaves dry out a little between sprayings, and provide air exchange, so that no mould forms.

Read more: Humidity, misting and ventilation

WATER AND WATER QUALITY

Give the frogs a shallow water dish or a small water feature, and keep the water so shallow that the smallest frog can sit with its head and upper body above the water; the species swims poorly. The bromeliads' leaf pools and the film canisters are just as important, because eggs and tadpoles are laid and deposited there. Clean water in the film canisters is almost a prerequisite for the frogs to lay eggs. Use reverse-osmosis water, rain water or dechlorinated tap water, and never use soap or cleaning products in the enclosure.

The tadpoles can be kept separately in small containers of 10 × 10 × 10 cm with fresh reverse-osmosis water, a leaf from a tropical almond tree, a stalk of *Anubias* and a little moss.

LIGHTING AND UVB

The frogs are diurnal and live in the shade of the forest. The lighting is first and foremost for the plants: LED light for 12-14 hours a day is suitable. It is not documented that the species needs UVB, and it is not normally used. If you choose a weak UVB source, make sure of dense planting and shade. The lighting must not heat up the enclosure.

Read more: Lighting and UVB

FEEDING

R. variabilis is so small that it can only take small feeder insects: springtails, wingless fruit flies (*Drosophila melanogaster*) and small woodlice. Large adults can also take *D. hydei*. In the wild the species eats ants, small beetles, termites and other small arthropods.

Feed adults and juveniles daily with exactly so much that it is eaten up by the next feeding. Dust the feeder insects with a vitamin and mineral supplement, and follow the manufacturer's instructions, because overdosing of certain vitamins can be harmful. Always keep your own cultures of fruit flies and springtails, so the supply is stable.

BEHAVIOUR AND HANDLING

R. variabilis is diurnal and peaceful. The males call from elevated spots, and in the wild the species has a free mating system without fixed pairs and without defended territories. In the terrarium it is therefore often possible to keep several animals together, but some animals are shy and hide when you approach.

The frogs should not be handled. The skin is thin and delicate, and residues of soap and cream from the hands can harm them. If a frog has to be moved, lure it into a transparent tub.

Breeding

SEXUAL MATURITY AND SEXING

Females are larger and rounder than males, and only the males call. These are the surest distinguishing features. Age at sexual maturity is not documented. The easiest way to a pair is to breed or buy several juveniles and keep them together.

MATING

Mating takes place during the day and peaks after rain. The male calls from an elevated spot, calls more frequently when a female approaches, and leads her to the breeding site. Before egg-laying the frogs gather in pairs or in small groups of up to five animals, and several males can call at the same time without fighting. The eggs are laid early in the morning.

The species is easy to breed. Give the frogs bromeliads and film canisters with clean water, stable warmth and high humidity.

EGGS AND TADPOLES

In the wild the female lays 1-6 eggs per clutch; in captivity 4-6 eggs is usual, but up to 10 eggs occur, and new clutches follow at intervals of one to three weeks. The eggs sit on the bromeliad leaf just above the waterline, not in the water, while frogs in film canisters often lay them below the water surface.

When the tadpoles hatch, the male carries them one or two at a time to another pool of water, often another bromeliad. The tadpoles eat eggs, other tadpoles, dead organic material and small insect larvae, and the female normally does not contribute feeder eggs. In captivity, however, females sometimes lay feeder eggs. Because of the cannibalism it is best to remove the tadpoles and keep them separately. Feed with fine tadpole food or crushed dry food for aquarium fish.

METAMORPHOSIS

The eggs hatch after 10-14 days, and at a constant 24 °C the tadpoles swim freely after 10-11 days.

From hatching to metamorphosis typically takes 60-80 days. The whole development from egg to finished frog takes about 80-90 days. Mortality can be high, and deformed legs occur. When the front legs appear, the tadpole must be able to get out: place a piece of cork on the water, and move the little frog to a moist rearing enclosure when the tail is almost absorbed.

REARING THE YOUNG

Newly metamorphosed frogs are very small. Give them springtails for the first two weeks or so and then also small fruit flies and newly hatched crickets. Keep them in a small enclosure of 40 × 50 × 40 cm set up like the adults' with plants, cover and a small water feature.

Feed daily, and lightly dust the food with vitamins and minerals. Springtails are a great help at the start. The juveniles can go in a group, and how fast they grow is not documented.

Health and common mistakes

Poison frogs are sensitive to heat, drought and poor hygiene. The most important mistakes are:

- An enclosure that is too hot or too dry. The frogs become lethargic, lose weight and lose colour.
- Dirty water in the tadpole containers, which causes fungi and disease.
- Food without a vitamin and mineral supplement, which causes bone problems and weak juveniles. Deformed legs in tadpoles and juveniles can be linked to nutrition.
- New animals that bring infection with them. Keep newly bought frogs in quarantine by themselves for a period.

A healthy frog has intact skin and a clearly round belly. Seek a vet with amphibian experience quickly if the frog stops eating, bloats, or develops sores or red, cottony 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.