herpy

FROGS

Reinwardt's Flying Frog

Rhacophorus reinwardtii

Rhacophorus reinwardtii is a large, nocturnal flying frog from the forests of Java. It is jade green with black webbing between the fingers and toes, which it uses to glide from tree to tree. Females grow up to 8 cm, males about 6 cm. The species requires a tall, airy enclosure and cool temperatures, and little is known about captive breeding.

Family: Rhacophoridae Former name: *Hyla reinwardtii*

KEY FACTS

THE ANIMAL

Adult size	**5-8 cm** snout-vent length
Lifespan	**5-10 years**
Active	**At night**
Lifestyle	**Arboreal**
Habitat	**Rainforest and montane forest**
Skin toxins	**None known**
Difficulty	**Intermediate**

CARE

Min. enclosure	**45 × 45 × 60 cm** L × W × H for 3 adults
Temperature, day	**21-24 °C**
Temperature, night	**18-21 °C**
Humidity	**70-90%**
Water	**Water dish** depth 2-3 cm
UVB	**Recommended** Ferguson zone 1
Diet	**Insects**
Kept	**Singly, in pairs or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**In a foam nest**
Eggs per clutch	**130-180**
Hatching	**5 days**
Larval period	**85 days** from hatching to metamorphosis
Larval diet	**Algae/plants and complete diet**
Parental care	**None**

PROTECTION AND PAPERWORK

CITES	**Not listed**
IUCN	**Least Concern (LC)**

About the species

Rhacophorus reinwardtii is a slender, long-legged tree frog with large adhesive discs and strong webbing on all four feet. The back is light to dark jade green, often with small black spots on the back and head, and the webbing is black. Males can have orange, yellow, green, purple and black colours on the sides of the belly. The eyes are pale green, pale yellow or pale grey with a horizontal pupil, and adults have a small, square flap of skin at the vent. With the webbing spread out, the frog can glide on a slanting path from a high point to a lower one, up to about 15 m.

Females are larger and sturdier than males: females grow up to about 8 cm, males up to about 6 cm. From about 12-14 months of age the difference is clear. The weight is not documented.

The species was described by Hermann Schlegel as *Hyla reinwardtii* and is named after the naturalist Caspar Georg Carl Reinwardt, who helped found the botanical garden in Bogor on Java. Until 2006 a long series of closely related flying frogs from all over South-East Asia were counted as the species. Since then the populations from China, Laos, Thailand and Vietnam have been separated as *R. kio*, those from the Malay Peninsula and southern Thailand as *R. norhayatiae*, those from southern Vietnam as *R. helenae* and those from Sabah and Sarawak on Borneo as *R. borneensis*. *R. reinwardtii* in the strict sense is found only on Java.

This matters for husbandry. Animals in the trade often come from the Malay Peninsula and may therefore be *R. norhayatiae* or one of the other related species, and many of the figures below apply to such animals. If the origin is unclear, expect that the animals may be a different species.

The frog is shy and nocturnal and should not be handled. It jumps and glides violently when frightened, and wild-caught animals easily injure themselves in enclosures that are too small.

Skin toxicity: The species has no known toxic skin secretion. This is not a guarantee: as always, wash your hands before and after working in the enclosure, and do not touch your eyes and mouth afterwards.

The lifespan is not known. Like other tree frogs of the same size, it presumably lives at least 5 years in captivity, and probably longer with good care; 10 years is an estimate.

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

Distribution and habitat

Rhacophorus reinwardtii is, in the strict sense, endemic to Java in Indonesia, where it has been recorded from about 20 to 1,800 m above sea level. Habitat models show that only a little over a quarter of the island is suitable for the species, and that the best areas are the large, continuous forests in West and Central Java. In East Java it lives mostly in the mountains, where the forests are more fragmented.

Older records of a much larger area including Sumatra, the Malay Peninsula, Borneo, Thailand, Laos, Vietnam and China date from the time before the related species were separated. The map shows only Java.

> **Native range:** Indonesia.

HABITAT

Rhacophorus reinwardtii lives in the tree canopy in primary and secondary rainforest and in forest edges and agroforest near villages. Around Malang in East Java the frogs live mostly in plantations and forest edges between 660 and 1,094 m, where they sit 2.5-5.5 m above the ground in dense vegetation, preferably on plants with large leaves such as taro, banana, coffee and avocado. They live both singly and in groups.

For breeding the frogs come down and gather at densely vegetated ponds, water reservoirs in plantations and puddles along the roads. The species is a so-called explosive breeder: in the breeding season up to 10-15 animals gather in one place, and males outnumber females about three to one. In the habitats around Malang the air temperature is 18.5-25.3 °C and the humidity 82-100 %, and the water in the breeding ponds is 20.5-24.6 °C.

The species is nocturnal and hides in the foliage by day. Its diet in the wild is poorly known.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

The enclosure must be tall and airy. Three captive-bred adults need at least 45 × 45 × 60 cm, and larger is better for a frog that glides. Wild-caught animals need far larger enclosures and can still easily injure themselves when they jump around at night. Buy captive-bred animals for that reason.

The furnishings must provide many perches and room to jump. Use plants with large, sturdy leaves, vertical branches and a cork back wall, and keep the middle of the enclosure reasonably free so that the frog does not hit the glass. Robust plants such as *Philodendron* and *Epipremnum* tolerate a heavy frog. The substrate can be a moisture-retaining, living substrate with

sphagnum and dead leaves, or a foam sheet that retains moisture and is easy to clean. A mesh across the whole lid ensures that the air does not stand still.

TEMPERATURE

Keep the enclosure at 21-24 °C during the day, corresponding to ordinary room temperature, and let it drop to 18-21 °C at night. The species tolerates short periods up to 27-28 °C, but is a mountain species that prefers it cool. In the wild the air temperature is 18.5-25.3 °C.

Do not go above 28 °C, and do not use heat lamps. Keep an eye on the room temperature in summer, and check with a digital thermometer. Winter rest is not documented.

HUMIDITY AND MISTING

Humidity should be 70-90 %. Spray regularly with dechlorinated tap water, rainwater or reverse-osmosis water, and let the enclosure dry out a little during the day so that the air does not stand still. A mesh across the whole lid and a shallow water dish help with both.

If you see wrinkled skin or a sluggish frog, increase the humidity and lower the temperature straight away.

WATER AND WATER QUALITY

Place a stable, shallow water dish in the enclosure, which the frog can sit in at night. 2-3 cm of water is enough, so the frog easily gets out again. Change the water as soon as it is dirty, and preferably every day or every second day. Use dechlorinated tap water, rain water or reverse-osmosis water, and never use soap or cleaning products near the water, because amphibians absorb substances through the skin. The water should have the same temperature as the air.

LIGHTING AND UVB

The frog is arboreal, and a weak UVB source of the type used for tropical forest animals is recommended. It has not been investigated whether the species needs it, so always provide shaded spots the frog can retreat to.

Use LED light that is strong enough for the plants, and avoid lamps that heat. Keep a fixed daily rhythm; the frog is nocturnal and becomes stressed by disturbance in the enclosure during the day.

Read more: Lighting and UVB

FEEDING

Rhacophorus reinwardtii eats live insects. Crickets can be used throughout life, from about 3 mm up to about 25 mm for adults, supplemented with small cockroaches, black soldier fly larvae and the occasional waxworm as a treat. Young frogs of about 2-3 cm take crickets of about 6 mm.

How often the species should be fed is not documented. Give small portions, and remove feeder insects that are not eaten. Dust the food with calcium, and give a vitamin supplement with D3 a few times a month, as is usual for tree frogs.

Read more: Feeder animals: keeping and breeding Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

The species is nocturnal and shy and spends the day hidden among the leaves; most of the time it sits on the glass or on the furnishings. It mostly lives on its own, but can be kept in small groups with only a little aggression outside the breeding season. Therefore keep a pair or a small group in a spacious enclosure with many perches.

The frog should as far as possible not be handled, because the skin is thin and sensitive. When cleaning, move it with a moist, soft plastic tub. It jumps and glides violently when frightened, and wild-caught animals often bump into the glass. Plant densely in front of the glass, so there are no large, open glass surfaces.

Breeding

SEXUAL MATURITY AND SEXING

From about 12-14 months of age the difference between the sexes is clear. Females are larger and much rounder, and the eggs can be seen through the skin when they are developed. Males are smaller and slimmer, call when kept wet, and develop visible nuptial pads. When the animals become sexually mature is not documented, and young animals are hard to sex. Keep several animals together, and sort them when the sexes can be seen.

MATING

In the wild the frogs come down from the tree canopy and gather at the ponds, where the males call. Mating begins in the water, and then the pair climb up into the vegetation above the water. In the terrarium the species requires a seasonal cycle and a rain chamber to breed, like other tropical tree frogs.

The method has not been tried with *Rhacophorus reinwardtii*, but in another foam-nest builder, *Zhangixalus arboreus*, breeding is triggered by misting the enclosure every evening for a period, giving extra food and then running a rain system for 20 minutes at a time at intervals of about three hours during the day and for an hour straight at night. The males then begin calling almost immediately.

EGGS AND TADPOLES

The female makes a foam nest at the base of leaves above the water and wraps the eggs in the leaves. The foam keeps the eggs moist, and a nest holds 130-180 yellowish eggs of about 4 mm. The parents leave the nest and look after neither eggs nor tadpoles.

When the tadpoles hatch, they fall into the water below the nest. Therefore provide a pool of water at least 8 cm deep under the leaves where the frogs can lay, or cut off the leaf and hang it over an aquarium.

How to rear the tadpoles is not known for this species, but the care of *Zhangixalus arboreus* can serve as a starting point: 18-20 °C, 8 cm of water with pieces of cork and aquatic plants, and a daily water change of 5-10 %. The tadpoles eat spirulina tablets that sink to the bottom, but not lettuce, cucumber or green flakes.

Read more: Rearing tadpoles

METAMORPHOSIS

The larvae hatch after about 5 days and begin metamorphosis after about 85 days. The figure is uncertain and only a guide; in *Zhangixalus arboreus* it takes only about six weeks.

When the front legs appear, the tadpoles stop eating and need easy access to land: lower the water level, place cork or branches in the water, and have a lid or mesh on the aquarium, so the newly metamorphosed frogs do not escape. Provide a moist transition to land with plants and wet hiding places.

REARING THE YOUNG

The newly metamorphosed juveniles go in a small, moist enclosure with moist kitchen paper, plants and a shallow water dish. The humidity must be high at first, 80 % or more. Give small, dusted crickets or fruit flies, a few and often, once the tail is absorbed, and sort by size, so the smallest are not outcompeted. At 2-3 cm the juveniles take crickets of about 6 mm. Keep them in a smaller enclosure until they are big enough to cope among the adults.

Health and common mistakes

Common problems in tree frogs in enclosures are:

- Desiccation and too high a temperature. The signs are lethargy, wrinkled skin and outstretched legs. The species prefers it cool, so keep an eye on the thermometer and hygrometer.
- Injuries from jumping against the glass. Wild-caught animals in particular hurt themselves when they glide around at night.
- Infectious diseases and parasites, especially in wild-caught animals. Buy captive-bred animals, keep new animals in quarantine, and use separate equipment.
- A one-sided diet or a lack of calcium and D3, which can cause weakened bones. Vary the food.

Seek a vet with amphibian experience if the frog stops eating, has sores, swellings or reddish areas on the skin, or sits dull on the floor.

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.

The full guide with map and updates: herpy.org/en/frogs/rhacophorus-reinwardtii