herpy

FROGS

Red-legged Kassina

Phlyctimantis maculatus

Phlyctimantis maculatus is a slender, nocturnal frog from East Africa and north-eastern South Africa with a grey-brown, dark-spotted back and bright red patches on the inside of the hind legs. It walks and runs rather than hops, climbs in branches at night and burrows down during the day. The species is hardy and can be kept in pairs or small groups, but the tadpoles take an unusually long time to become frogs.

Family: Hyperoliidae Former name: *Kassina maculata; Hylambates maculatus* **Mild skin toxins**

KEY FACTS

THE ANIMAL

Adult size	**6-8 cm** snout-vent length
Lifespan	**10-15 years**
Active	**At night**
Lifestyle	**Arboreal, terrestrial and burrowing**
Habitat	**Savanna and wetland**
Skin toxins	**Mild** Wash your hands after contact and keep your fingers away from your eyes and mouth
Difficulty	**Intermediate**

CARE

Min. enclosure	**75 × 60 × 60 cm** L × W × H for 3 adults
Temperature, day	**22-27 °C**
Temperature, night	**20-23 °C**
Humidity	**60-80%**
Water	**Water section** depth 5 cm
UVB	**Recommended** Ferguson zone 2
Diet	**Insects**
Kept	**In pairs or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**In water**
Eggs per clutch	**300**
Clutches per year	**2-3**
Hatching	**3-5 days** at 24 °C
Larval period	**150-300 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

Phlyctimantis maculatus is a medium-sized, slender frog. The males reach 6-7 cm from snout to vent, the females are slightly larger and plumper, and the largest animals reach 8 cm. The back is silvery grey to grey-brown, sometimes greenish, with a leopard-like pattern of dark brown to black spots, each with a pale edge. The inside of the hind legs is bright red, a colour that is seen only when the frog moves and that frightens predators. The belly is white and rough. The frog can change from light to dark, both to blend in with its surroundings and to regulate its temperature. The eyes are large with vertical pupils, and the toes have well-developed adhesive discs that help it climb. Instead of hopping, it walks or runs on its hind legs.

The species belongs to the family Hyperoliidae and was described by Duméril in 1853 as *Hylambates maculatus*. It was long placed in the genus *Kassina* as *Kassina maculata* and was moved in 2016 to *Phlyctimantis* by Portik and Blackburn. More recent checklists again place it in *Hylambates*, so all three genus names are still in use. No subspecies have been described.

The skin contains defensive substances. *P. maculatus* gives off a characteristic smell when handled and tastes so bad that many predators leave it alone. This is due to amines and peptides such as caerulein and kassinin from the skin glands. How the substances affect humans has not been documented, so the skin toxicity is regarded as mild: wash your hands after contact, and keep them away from eyes, mouth and wounds. The substances are produced in the skin itself, and there is nothing to suggest that captive-bred animals lack them.

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

Distribution and habitat

Phlyctimantis maculatus lives in the tropical and subtropical part of Africa's east coast: Kenya, Tanzania, Malawi, Mozambique, the eastern lowlands of Zimbabwe, Eswatini and north-eastern South Africa. In South Africa the range runs from Pafuri in north-eastern Limpopo through eastern Mpumalanga to the coastal lowlands of KwaZulu-Natal, including around Kosi Bay, Hluhluwe and iSimangaliso, and the species occurs in Kruger National Park. It is first and foremost a lowland species, but has also been found in the Vumba Mountains in Zimbabwe at an altitude of 1,400 metres.

> **Native range:** Kenya, Tanzania, Malawi, Mozambique, Zimbabwe, South Africa and Eswatini.

HABITAT

Phlyctimantis maculatus lives in bush savanna, scrub, grassland and forest edges and in swamps, marshes, ponds and rural gardens, as long as there is fresh water or high humidity nearby. Many of the habitats turn into swampy areas in the rainy season. The species breeds in densely vegetated waterholes, marshes and ponds.

The frog is nocturnal. During the day it lies hidden in dense vegetation such as reeds and papyrus, under logs, in the leaf axils of banana plants or buried in moist soil. At night it climbs up into trees and tall bushes to hunt. In the dry winter it has been found in burrows that it has dug itself in the moist mud at the bottom of dried-up waterholes, or under moist debris. In South Africa the breeding season usually begins in early November and lasts until the end of February, depending on the rain. Temperature and humidity in the habitats are not documented.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

A pair or a trio needs an enclosure of at least 75 × 60 × 60 cm (length × width × height), and a large floor area is more important than height: *Phlyctimantis maculatus* lives mostly on the ground, but likes to climb up to about 50 cm. Use glass or PVC, because wood cannot tolerate the moisture.

The substrate must be 8-10 cm deep so that the frogs can burrow, e.g. coconut fibre, peat or bark with a layer of moss on top that holds the moisture. Provide both damp and drier areas. Branches, roots and sturdy plants offer climbing opportunities, but leave most of the floor free. Cork bark and dense planting provide cover, and a screened back wall makes the animals feel secure. Remove droppings, dead plant material and food remains every day, and rinse loose items regularly with hot water without detergent.

TEMPERATURE

During the day the enclosure is kept at 22-27 °C, slightly warmer at one end than at the other, and at night at 20-23 °C. In many living rooms the light tubes provide most of the heating; otherwise use a thermostat-controlled heat mat, heating cable or heat lamp. The frogs must not be able to come into direct contact with the lamps.

Measure with a thermometer and a hygrometer, and read them at least once a day. A true winter rest is not necessary, but a dry season is part of breeding (see Mating).

Read more: Heat and temperature

HUMIDITY AND MISTING

Humidity is 60-70 % during the day and may rise to 70-80 % at night. Mist every evening with lukewarm water, preferably with a timer-controlled misting system, so that the humidity rises when the light goes off. In the morning the ventilation must bring the humidity down again: dew on the glass and the plants is fine when the light comes on, but it must dry off during the morning. If it does not, the ventilation is too poor. Avoid draughts.

WATER AND WATER QUALITY

The enclosure should have a water section covering about a quarter of the floor, with about 5 cm of water and low edges or a branch, so that the frogs easily get out again. Use soft, pH-neutral water without chlorine, e.g. reverse-osmosis water or tap water that has stood for at least a day, for both the water section and misting. The water is changed at least three times a week and preferably every day. Amphibians absorb substances through the skin, so never use cleaning products in or around the water.

LIGHTING AND UVB

UVB is recommended, because D3 in powder form alone is not a safe solution. A UV index of 2-3 at the warmest spot (Ferguson zone 2) is suitable, with shade in the rest of the enclosure so that the frogs can choose for themselves. Glass blocks UVB, and the UVB from light tubes declines after a few months without any visible sign, so they must be replaced regularly. Give 12-14 hours of light a day controlled by a timer. A faint night light makes it possible to see the frogs hunting when the main light is off.

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

FEEDING

P. maculatus eats insects and in the wild also smaller frogs. In the enclosure, crickets, grasshoppers, flies, moths and calci worms are used, and the feeder insects must be no larger than the distance between the frog's eyes. Young frogs can start on fruit flies. Adults are fed 2-3 times a week, juveniles daily. Feed preferably when the light goes off, but most animals also take food during the day. Remove live feeder insects that have not been eaten, so that they do not disturb the resting frogs.

The feeder insects are gut-loaded before feeding and dusted with a supplement. A fixed schedule is a calcium-rich multivitamin at every feeding, calcium with magnesium every fourth time, D3 every eighth and vitamin A every twelfth. Give only a few feeder insects at a time, because they quickly groom off the powder.

Read more: Feeder animals: keeping and breeding

BEHAVIOUR AND HANDLING

P. maculatus is shy and lies hidden or buried for most of the day. At night it becomes active, climbs and goes hunting. The males call with a loud, short croak that is repeated at intervals.

The species can be kept as a pair or trio, one male and two females, and it is not aggressive towards conspecifics. The animals should be about the same size, though, because larger frogs can eat smaller ones. The frog should not be handled, because substances from human skin are easily absorbed through frog skin. If it has to be moved, let it walk or hop down into a container. If handling is unavoidable, rinse your hands thoroughly in clean water without soap before and wash them with soap afterwards.

Breeding

SEXUAL MATURITY AND SEXING

Females are on average larger and plumper than males. The male is recognised by the black vocal sac with an often yellow patch of skin on top and by the call. The age at sexual maturity is not documented.

MATING

In the wild *Phlyctimantis maculatus* breeds in the rainy season. The males gather at the water in the late afternoon or early evening and call, first from the water, hidden under overhanging plants, later from plants up to 50 cm above the water. A willing female that arrives is clasped by the male.

In captivity the seasons are imitated: a dry period of about two to three months, during which the substrate is deep and kept slightly moist because the frogs burrow down, followed by a wet period in the summer with 80-100 % humidity and misting several times a day. Light and temperature are not changed. The water section should have aquatic plants on which the eggs can be placed.

EGGS AND TADPOLES

The eggs are placed singly or in small rows on plants just below the water surface. A clutch is up to 300 eggs, and a female can lay two to three times a year. The minimum number is not documented. There is no parental care. Move the plants with the eggs to a separate rearing tub with aquarium plants and water at 24 °C.

The tadpoles become large and fish-like, up to 13 cm long, with a high tail fin that begins right up on the head. They are fed algae, finely chopped fish food flakes and crushed aquarium plants. Good water quality is essential. Malnutrition and poor conditions in the rearing tub probably cause deformities, e.g. tadpoles without front legs or with stunted front legs.

Read more: Rearing tadpoles

METAMORPHOSIS

At 24 °C the eggs hatch after 3-5 days. The tadpoles take an unusually long time to become frogs: metamorphosis begins after about five months and is completed after about ten. When metamorphosis begins, the tub must be covered with netting, so that the juveniles do not escape.

When the front legs break through, floating cork flakes or a sloping land section are placed in the tub, so that the juveniles can climb out, and live food must be ready.

REARING THE YOUNG

Newly metamorphosed juveniles are fed daily with small live feeder insects such as fruit flies and newly hatched crickets, dusted with supplements. They need a moist but well-ventilated rearing enclosure with hiding places and a shallow water dish. Keep them in groups of roughly the same size, because larger frogs eat smaller ones. Growth and age at transfer to the adult enclosure are not documented.

Health and common mistakes

Phlyctimantis maculatus is hardy when husbandry is in order. The typical problems are:

- Fungal, bacterial and intestinal parasite infections, especially in a dirty enclosure or with incorrect humidity, temperature or lighting.
- Infection from new animals. Keep them in quarantine for a couple of weeks, and preferably have them tested for chytrid fungus (Batrachochytrium dendrobatidis), which kills frogs on a large scale.
- Bone disease from lack of calcium and D3. It is difficult to cure once it has developed.
- Deformities at metamorphosis, probably due to incorrect food for parents or tadpoles.

Seek a vet with amphibian experience if the frog becomes less active, loses weight, eats poorly or develops skin changes or abnormal droppings. Bring fresh droppings for examination.

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.