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FROGS

## Asian Painted Frog

# *Kaloula pulchra*

*Kaloula pulchra* is a chubby, dark brown burrowing frog from South and South-East Asia with two pale bands along the back. When startled it puffs itself up like a balloon, and in the dry season it digs itself down backwards and waits for the rain. It is hardy, needs only a moderate enclosure and lives on ordinary feeder insects.

Family: Microhylidae

**Mild skin toxins**

KEY FACTS

### THE ANIMAL

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|---|---|
| Adult size | **5-8 cm**<br>snout-vent length |
| Lifespan | **10 years** |
| Active | **At night** |
| Lifestyle | **Terrestrial and burrowing** |
| Habitat | **Savanna and wetland** |
| Skin toxins | **Mild**<br>Wash your hands after contact and keep your fingers away from your eyes and mouth |
| Difficulty | **Beginner** |

### CARE

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|---|---|
| Min. enclosure | **60 × 60 × 60 cm**<br>L × W × H for 3 adults |
| Temperature, day | **22-27 °C** |
| Temperature, night | **18-21 °C** |
| Humidity | **60-80%** |
| Water | **Water dish** |
| UVB | **Optional** |
| Winter rest | **12-16 °C**<br>4-6 weeks |
| Diet | **Insects** |
| Kept | **Singly, in pairs or in groups** |

### BREEDING

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| Reproduction | **Egg-laying** |
| Development | **Tadpoles in water** |
| Egg-laying site | **In water** |
| Eggs per clutch | **1,000** |
| Hatching | **1 days**<br>at 24-25 °C |
| Larval period | **14-28 days**<br>from hatching to metamorphosis |
| Larval diet | **Algae/plants and complete diet** |
| Parental care | **None** |

### PROTECTION AND PAPERWORK

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

## About the species

*Kaloula pulchra* is a medium-sized, compact frog with a triangular body, a short, rounded snout and short legs. The back is dark brown, and along the flanks run two broad, black-edged bands in colours from copper-brown and cream-yellow to salmon. The belly is cream to greyish white. Males have a dark, greyish to black throat, while the female's throat is pale like the rest of the underside. Otherwise the sexes are very similar.

It reaches 5-8 cm from snout to vent; males typically measure 5-7 cm, and females are slightly larger. The legs are built for crawling and digging, not for long hops. On the hind feet there is a hard, spade-shaped tubercle, which the frog uses to dig itself down backwards with surprising speed. The species belongs to the family Microhylidae, and the relatively small head

and small mouth limit how large a prey item it can take. Albinos have turned up in recent imports.

The species was described in 1831 by John Edward Gray, and *pulchra* means beautiful in Latin. The population in Sri Lanka is today a separate species, *Uperodon taprobanicus*, and the form from northern Vietnam is sometimes regarded as a species of its own, *Kaloula macrocephala*. The form from Hainan has been described as the subspecies *K. p. hainana*.

When threatened, *K. pulchra* fills its lungs and inflates itself, so it looks far larger, and it secretes a white, sticky skin secretion. The secretion tastes foul but is not poisonous to predators; it does, however, contain substances that can burst red blood cells. Skin toxicity is therefore regarded as mild. How strongly the secretion affects humans is not documented, so wash your hands after contact and keep them away from your eyes, mouth and wounds.

## Distribution and habitat

*Kaloula pulchra* occurs naturally across much of South and South-East Asia: from north-eastern India and Nepal through Bangladesh and Myanmar to Thailand, Laos, Cambodia, Vietnam and southern China, especially Hainan, and further south to Malaysia and Indonesia. The wide range is attributed to the species' ability to dig down and wait for rain. Where the boundary lies between native and introduced populations in Indonesia is not settled.

The species has been introduced to several places through the pet trade, ships and nursery stock and has become established in Taiwan, the Philippines, Guam, Singapore and parts of Borneo and Sulawesi. Single animals have been seen in Florida, Australia and New Zealand without settling. The introduced populations are not shown on the map.

> **Native range:** India, Nepal, Bangladesh, Myanmar (Burma), Thailand, Laos, Cambodia, Vietnam, China, Malaysia and Indonesia.

### HABITAT

*Kaloula pulchra* lives in the lowlands from sea level up to about 750 metres elevation. It is found in forest and forest edges, but thrives especially in open, human-influenced land: rice paddies, farmland, gardens, ditches, golf courses and yards, even in the middle of large cities. By day it lies hidden under leaf litter or buried. In the evening it comes out to feed, and it even climbs trees after termites.

The climate is warm with a distinct rainy season. In the dry season the frog digs several centimetres down and stays there until the rain comes, but its reproductive organs are ready all the time, so it can breed shortly after a downpour. After heavy rain the frogs appear in large numbers, and the males call while floating in puddles, flooded ditches and ponds. In India this happens in April and May; elsewhere the breeding season can extend over the whole year.

## Care

### THE ENCLOSURE

*Kaloula pulchra* does not require much space. A terrarium of 50 × 25 × 30 cm (length × width × height) is enough for one frog for its whole life, and an enclosure of 60 × 60 × 60 cm holds two to three adults. A breeding group of five to six animals needs at least 60 × 60 × 120 cm and preferably more floor area, because the frogs dig and live mostly on the bottom, even though they also climb and use the height at night. The lid must fit tightly.

The substrate is the most important thing. It should be deep, damp but not sopping wet, and easy to dig in. A mix of soaked coconut fibre with a little composted bark and leaf litter drains well, and the moisture is easy to control, which becomes important if you want to breed. Avoid gravel, sand and fine bark, which the frog may swallow, and soil with perlite or vermiculite. Cork bark, flat stones and pot shards provide cover and crevices to squeeze into. Live plants such as pothos and ferns last best in their pots, otherwise they get dug up.

Remove dead feeder insects and droppings as you go. A mesh lid provides ventilation, and a glass or acrylic sheet over part of the mesh helps retain moisture.

### TEMPERATURE

*Kaloula pulchra* tolerates a wide temperature range. During the day the temperature should be 22-27 °C, and at night it may fall to 18-21 °C. The odd warm day or cold night is no problem for healthy animals.

If heat is lacking, a thermostat-controlled heat mat can be fitted on the side or back wall, not under the substrate where the frog digs. Insulate it on the outside with a polystyrene sheet, but never with foil, which can cause hot spots and cracks in the glass. Measure with a digital thermometer.

For breeding, a cool period of four to six weeks is used, with the temperature lowered gradually to about 16 °C for animals from Indonesia and Malaysia and about 12 °C for animals from Vietnam; see under mating. It is a breeding technique, not something the species needs day to day.

Read more: Heat and temperature

### HUMIDITY AND MISTING

Humidity should be 60-80 %, preferably around 70 %. Most of the moisture comes from the damp substrate, but mist part of the enclosure a couple of times a week, and daily if the substrate dries out quickly. Humidity has a great effect on activity: when it rises, the males often start calling.

If it gets too dry, the frog digs deep down and stays out of sight for days. This is normal behaviour, but the substrate must always be moist down in the depths. Avoid waterlogged, stagnant soil, which causes mould and skin problems.

Read more: Humidity, misting and ventilation

### WATER AND WATER QUALITY

Place a large, shallow, heavy bowl of water in the enclosure, for example a ceramic dog bowl, which does not tip over when the frog digs. It should be large enough for the frog to lie in, and shallow enough that it easily climbs out again after a swim.

Amphibians absorb water and substances through the skin, so the water must be free of chlorine, chloramine and heavy metals. Use tap water that has stood for a day or has been treated with an aquarium conditioner, or reverse-osmosis water that has been remineralised with a product made for the purpose. Change the water daily, or when it is dirty.

### LIGHTING AND UVB

*Kaloula pulchra* has no documented need for UVB. There is no known benefit from it, as long as the food is dusted with a good supplement containing calcium and D3. UVB is therefore optional.

Light is only necessary for live plants, but it makes the day-night rhythm clearer, which can help with breeding. Use an ordinary aquarium tube or a daylight bulb for about 12 hours a day, and provide dark hides for the daytime.

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

### FEEDING

In the wild *K. pulchra* feeds mostly on ants and termites, but it also takes flies, crickets, moths, grasshoppers and earthworms. In the enclosure it readily takes ordinary feeder insects of a suitable size. Adults can take medium to large crickets, but prefer a larger number of smaller prey: small to medium crickets, small dubia roaches, small mealworms, lesser mealworms, waxworms, silkworms and earthworms. Crickets can make up the bulk of the diet, with other food every third or fourth feeding. Earthworms can be offered in a small dish at night so they do not burrow away.

Adults get three to six feeder insects every second or third day, juveniles more often. Feed the insects fresh fruit and vegetables before offering them. Dust them with a good vitamin and mineral supplement at every second or third feeding for adults and at every meal for juveniles. The frog has a big appetite, so watch that it does not get too fat.

Read more: Feeder animals: keeping and breeding

### BEHAVIOUR AND HANDLING

*K. pulchra* is peaceful, but not an animal for daily handling. Touch the frog only when necessary, for example during cleaning, with clean, damp hands, and wash them afterwards, as the skin secretion can be irritating. By day it lies hidden or buried, so you only see it once it has been dark for a while, and then it crawls and climbs around.

It can be kept alone, in pairs or in groups of the same species and size. The males call after rain or heavy misting. When the frog puffs itself up and secretes white secretion, it is defence, not aggression. Almost all animals in the trade are wild-caught, so examine them carefully when buying, and give new animals peace for the first few weeks.

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

## Breeding

### SEXUAL MATURITY AND SEXING

The sexes are most easily told apart by the throat: the male's is dark grey to black, even outside the breeding season, while the female's is pale like the rest of the underside. Females are slightly larger. Age and weight at sexual maturity are not documented, so wait until the animals are fully grown and in good condition.

Breeding in captivity is rare. It is best to start with six to twelve animals with two males for each female or three males for every two females, because competition between the males and their calling gets the females going.

### MATING

Breeding is triggered by heavy rain after a dry period, and this must be imitated in three steps. First a cool rest: lower the humidity to 50-60%, let the surface of the substrate dry out a little, give less food, and lower the temperature gradually over two to three weeks to about 16 °C (about 12 °C for animals from Vietnam). The light can be reduced from 12 to 8-10 hours. The frogs dig down, and the conditions are kept for four to six weeks. Watch for desiccation, discolouration and weight loss. Then temperature and humidity are raised over two weeks; the frogs often only wake when humidity reaches 85-90%.

Then the frogs are moved to a rain chamber: a large, tall terrarium of at least 45 × 45 × 90 cm with a false bottom, a filter and a pump that carries water to a rain bar, so the rain flushes through the substrate. Let it rain for a couple of hours morning and evening, and after a few days all night. The males begin to call in chorus, and the females become round with eggs. Feed as much as they will eat, for two to three weeks.

### EGGS AND TADPOLES

For the egg-laying itself the chamber is rearranged: fine gravel sloping up towards the sides, 5-8 cm of water at the deepest point, stones and pot shards to climb onto, dense vegetation and leaves and twigs that release tannins. The water is kept at 24-25 °C, and it only rains for a couple of hours in the evening. After a day or two the males call from land and floating on the water. Mating usually takes place early in the morning, while the rain is off. If nothing happens, flush with colder water and switch the rain off for a day or two.

The eggs are small, black and white, and float as a thin film on the surface. Fertile eggs always lie with the black side up and turn back if disturbed. A pair can lay around a thousand eggs; a reliable range is not documented. There is no parental care, so the adults are moved back and the rain is switched off.

The tadpoles are flat and oval with small eyes on the sides of the head. They are efficient filter feeders that also graze on the bottom. Give finely crushed fish flakes and spirulina powder in small portions three to four times a day, and be careful not to overfeed, because leftovers quickly pollute the water. When all the eggs have hatched, the water level is raised and an air-driven filter is fitted.

Read more: Rearing tadpoles

### METAMORPHOSIS

At 24 °C the eggs hatch within a day. The newly hatched tadpoles lie lifeless on the bottom while they use up the yolk, and then begin to swim and feed. Development is fast, because in the wild the species breeds in rainwater puddles that dry out: with good feeding the first froglets appear after about two weeks, and the rest follow over the next two weeks, so the larval period is 14-28 days.

When the front legs appear, the froglets must be able to get out of the water without drowning: lower the water level, and add floating plants, stones or sloping pot shards. The newly metamorphosed frogs are only about 1 cm long.

### REARING THE YOUNG

The young are kept in small groups on damp kitchen roll or fine filter foam, which is easy to keep clean. Mist lightly once or twice a day, and clean every day or every second day.

Give newly hatched crickets, fruit flies and springtails, dusted with calcium and vitamins every day. If the young are kept clean and well fed, they are easy, and they grow quickly. The species can live 10 years or more.

## Health and common mistakes

*Kaloula pulchra* is hardy, but almost all animals in the trade are wild-caught, and many problems stem from capture and transport. The typical problems are:

- Weakened animals at purchase: lethargic, with abrasions from transport, redness of the skin or cloudy eyes. Choose animals that hop away or puff themselves up when disturbed.

- A substrate that is too wet, dirty or cold. This can cause bacterial infections, which show as redness on the legs and belly, tremors or unsteady movements.
- A substrate and air that are too dry, so the frog desiccates.
- Swallowed substrate such as gravel, sand or bark. Use a substrate that can pass through the gut.
- Parasites. Both intestinal worms and leeches on the back have been found in wild animals, so quarantine new animals, and preferably have a faecal sample examined.
- Obesity in overfed animals.

Cloudy eyes, redness of the skin, unsteady movements or refusal of food for several weeks should be seen by a vet with amphibian experience.

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.