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FROGS

Budgett's Frog

Lepidobatrachus laevis

Lepidobatrachus laevis is a broad, flat aquatic frog from the Gran Chaco in South America with a mouth that fills almost the whole head. It lies in ambush in shallow water with only the eyes and nostrils above the surface and swallows anything it can overpower. The species reaches 8-15 cm, must live alone and bites hard enough to draw blood, so it is an animal to look at, not to pick up.

Family: Ceratophryidae

KEY FACTS

THE ANIMAL

Adult size	**8-15 cm** snout-vent length
Lifespan	**5-20 years**
Active	**At dusk and at night**
Lifestyle	**Burrowing and semi-aquatic**
Habitat	**Savanna, dry forest and wetland**
Skin toxins	**None known**
Difficulty	**Intermediate**

CARE

Min. enclosure	**60 × 30 × 40 cm** L × W × H for 1 adult
Temperature, day	**24-28 °C**
Temperature, night	**20-23 °C**
Humidity	**60-70%**
Water	**Aquaterrarium** depth 5-23 cm
UVB	**Optional** Ferguson zone 1
Diet	**Insects, vertebrates and worms/snails**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**In water**
Sexually mature	**12 months**
Eggs per clutch	**1,400**
Larval period	**14 days** from hatching to metamorphosis
Larval diet	**Other tadpoles**
Parental care	**None**

PROTECTION AND PAPERWORK

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

About the species

Lepidobatrachus laevis is a compact, flattened frog with an enormous head that makes up as much as a third of the body, and a mouth that extends far down along the sides. The eyes and nostrils sit high up, so the frog can lie almost completely under water and still see and breathe. The legs are short and plump, the hind feet are webbed, the front feet are not. The body is grey to dark olive-green with irregular olive-green spots, which become distinctly reddish-brown after dark. The underside is light and without markings. Young animals often have a green area around the eyes and down the back, which most lose with age.

Adults typically reach 9-13 cm from snout to vent, and a few reach 15 cm. The females are largest. The males are smaller, sometimes only half as large, and have a loose, blue-grey to dark throat and nuptial pads on the innermost finger in the breeding season. The species was described by John Samuel Budgett in 1899, and the species name laevis means smooth. The genus contains two other species, but *L. laevis* is by far the most common in enclosures. The animals in the trade today are almost always captive bred, often with the help of hormones.

The bite is the species' real risk. The upper jaw has a row of very sharp teeth, and in the middle of the lower jaw there are two large, tooth-like projections. The frog throws itself at anything that moves, including fingers, and a bite hurts and often draws blood. If threatened on land, it rises on stretched legs, puffs itself up, opens its mouth wide and lets out a shrill scream, and if that does not help, it lunges forward and bites. In the water it burrows into the mud instead.

Toxic skin is not documented in *L. laevis*, and the skin toxicity is therefore set to none. This is not the same as a documented absence, so always wash your hands after contact with the animal and the water. The frog should not be picked up, both because of the bite and because the skin is very sensitive to soap, cream and other residues on the hands.

Distribution and habitat

Lepidobatrachus laevis is native to the Gran Chaco, a relatively dry area in South America that stretches from south-eastern Bolivia into western Paraguay and southwards in Argentina to the province of Santa Fe. The species is common in Paraguay and Bolivia and rarer in Argentina.

> **Native range:** Argentina, Bolivia and Paraguay.

HABITAT

Lepidobatrachus laevis lives in both the dry and the humid Chaco: flat land with dry forest, scrub and grassland, which is flooded in the rainy season and dries out completely the rest of the year. When the rain comes, the frogs appear and gather in temporary pools and artificial ponds, where they hunt and breed. The prey is especially other frogs in the same pools as well as large insects and snails at the water's edge.

When the pools dry out before the cold, dry winter, the frog digs into the mud with a hard knob under the hind foot. There it surrounds itself with several layers of dry, shed skin, a cocoon, which limits water loss, and lies dormant until the warm rain returns. Exact figures for temperature and humidity in the wild are not documented.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

Despite its size the species does not require a large enclosure. An adult manages in an aquarium of about 60 × 30 × 40 cm, and a young frog of 4-6 cm in about 30 × 25 × 25 cm. Height matters little, because *Lepidobatrachus laevis* does not climb, but more water gives more stable water quality. The aquarium must have a lid with mesh, because a startled frog can jump out.

Most of the bottom is water, and there must be a platform or a slope of large, smooth stones, so that the frog can walk right up out of the water. Stones, driftwood, clay pots and plastic pipes provide hiding places and terraces at different depths, so that the frog can choose how deep it wants to rest. Everything in the aquarium must be too large to be swallowed: even a large stone or an aquarium ornament can end up in the stomach and require surgery. Do not use gravel, small stones or coarse sand. Without a base layer the aquarium is easiest to keep clean, but very fine, soft sand can be used. Mud and soil clog the filter. Robust plants such as Java fern and floating plants that the frog can lie hidden under suit well, but the frog digs and stirs things up, so artificial plants are easier.

Keep the animals separately, and never put live fish in the same water, because they will be eaten.

TEMPERATURE

By day, water and air are kept at 24-28 °C and at night at 20-23 °C. In cold water the frog eats poorly and falls ill more easily, so a thermostat-controlled aquarium heater is necessary in most living rooms. The frog can push the heater loose when it swims and digs, so choose a model that switches off if it comes above the waterline.

Heat is tolerated poorly. Above 30 °C can quickly become fatal, especially if water or moisture is lacking. Use a digital thermometer in the water and one in the air.

In the wild the species goes dormant in the cold, dry season. Whether dormancy is necessary in captivity, there is no agreement: animals without an annual dormancy possibly get respiratory problems more often, but dormancy is in itself a strain and only for animals in top condition. See Mating for how a dormancy is carried out.

Read more: Heat and temperature Read more: Brumation and the seasons

HUMIDITY AND MISTING

Humidity is kept at 60-70 %, and the large water surface manages that almost by itself. More important is good ventilation, because stagnant, humid air quickly causes bacterial skin infections. At least half of the lid must be mesh. Spraying is normally unnecessary.

WATER AND WATER QUALITY

The water is the frog's home, and water quality is the most important thing in the whole care. Young animals need 5-8 cm of water, adults 15-23 cm, or about three times the frog's body height. The species swims well, and up to 30 cm is no problem for an adult, as long as there are resting places where it can reach the surface without swimming.

Always use tap water treated for chlorine and chloramine. Amphibians absorb substances through the skin, so never use soap or cleaning products for the aquarium, the decorations or the hands. The frog produces large amounts of faeces, so a filter is necessary, but it may only give a weak current: an air-driven sponge filter for young animals, an internal or external filter with the outlet spread through a spray bar for adults. The better the filter, the fewer water changes. Faeces usually appear a couple of days after feeding, and they must be siphoned up immediately, followed by a partial water change.

LIGHTING AND UVB

UVB is not necessary for *Lepidobatrachus laevis*. Light is not strictly necessary either, but an ordinary aquarium tube for 12 hours a day gives a clear daily rhythm and keeps the plants alive. At night it must be dark, because the frog is most active in the evening and at night and often lies still most of the day.

Read more: Lighting and UVB

FEEDING

Lepidobatrachus laevis is a predator and eats anything it can overpower. The staple diet is earthworms, crickets, locusts, cockroaches and wax moth larvae, preferably varied with shelled snails. Shrimp, sardines and other fish can be given occasionally, but must be heated through to break down the enzyme thiaminase and cooled again before being given. Locusts and crickets can climb up onto cork in the water, while mealworms easily drown. A thawed, hairless baby mouse can be given every other week or less often: the mice are fatty, and frogs that get many rodents become lethargic and overweight. Wait with the next meal until the frog has had a bowel movement, which can take 10-14 days after a large mouse.

Feed juveniles daily with as much as they will take at a time. They grow quickly and can be fully grown after 6-12 months. Adults get a good meal 2-3 times a week. They always seem hungry, so appetite must not decide the amount: a healthy adult frog is longer than it is wide. Dust the food with calcium and a multivitamin with D3 at every second feeding for juveniles and only at one feeding every other week for adults on a varied diet.

Feed with long tweezers, and never give food from the hand. The frog throws itself up out of the water after the prey and easily hits the fingers.

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

BEHAVIOUR AND HANDLING

Lepidobatrachus laevis is a loner that lies still for hours and then strikes. It is most active at night. The males call with a loud, croaking sound from a spot where they can sit with their head just above the water.

Keep the animals separately. Juveniles are highly cannibalistic, and if several are put together, usually only one is left. Adults of the same size can also attack and eat each other.

The frog is an animal to look at, not a pet. Handling damages its sensitive skin, and the bite is serious. If it has to be moved, use a box or wet, powder-free nitrile gloves, support the whole body, and keep your fingers away from the mouth. The upright defensive posture with screaming stresses the animal and must never be provoked for fun.

Breeding

SEXUAL MATURITY AND SEXING

The females grow larger than the males. The surest distinguishing feature is the male's loose, dark throat, which is blue-grey to black and becomes more distinctly coloured when he calls, as well as the nuptial pads on the innermost finger in the breeding season. The female's throat is grey to white. The sex is easiest to see by comparing animals of the same age. The species reaches sexual maturity after about a year. The female can eat the male, so a pair must be kept under close supervision.

MATING

Breeding without hormones is difficult and unpredictable. It follows the species' natural rhythm: a dry, cool dormancy followed by rain, more food and a rain chamber. Only healthy, well-nourished animals may go into dormancy.

Feed heavily for 2-4 weeks, and then stop feeding for about two weeks, so that the gut is completely empty. Lower the water level over 2-3 weeks to 2-5 cm, and place moist coconut substrate, peat or sphagnum at one end. Then remove the rest of the water, and fill the aquarium with slightly moist, lightly compressed substrate to a depth of 30 cm. Lower the temperature gradually from 20-22 °C towards 15 °C, until all the animals have dug in, and put out a heavy, shallow water dish. Then let the substrate dry slowly, so that the frogs form a cocoon. Check them regularly, because an animal without a proper cocoon dries out quickly. The dormancy lasts from a few weeks in young animals to several months in older ones.

Wake the animals by raising the temperature 3-4 degrees every 3-4 days and moistening the substrate slowly with lukewarm water, like rain seeping down. If the frogs do not come up by themselves, they are dug free and placed in 2-3 cm of lukewarm water, where they are sprayed regularly. They shed the cocoon and urinate a lot, so the water must be changed often. After a few days a little live food is offered, and the aquarium is gradually filled up again.

Afterwards the males come into breeding condition: the throat hangs loosely, the nuptial pads grow out, and they call with the head over the water. The females usually need to be prepared for longer. For the mating itself the animals are put in a rain chamber, where the eggs are laid in the water.

EGGS AND TADPOLES

The female lays up to 1,400 eggs in one single clump in shallow, temporary water. The smallest number is not documented. There is no parental care, and the parents should be removed when the eggs have been laid.

The tadpoles are predators from the first day. They have almost adult jaws and a gut that resembles the adults', and they swallow the prey whole. In the wild they eat snails, insects, crustaceans and other tadpoles, including their own species. Differences in size quickly arise, and the smallest are eaten, so the tadpoles must be kept individually in small containers or sorted frequently and given plenty of live food. A successful breeding means hundreds of cannibalistic tadpoles and juveniles and a lot of work. Food, water temperature and water changes for the tadpoles in captivity are not documented in more detail.

Read more: Rearing tadpoles

METAMORPHOSIS

How many days the eggs take to hatch is not documented. The tadpoles develop very quickly and have completed metamorphosis after about two weeks, before the pool dries out. The newly metamorphosed juveniles already measure 40-50 mm from snout to vent, and they eat the same before and after metamorphosis.

When the front legs appear, the water level must be lowered, and there must be easy access to land, for example a sloping stone or a piece of floating cork. The juveniles must be separated immediately.

REARING THE YOUNG

The newly metamorphosed juveniles must live separately in small containers with 5-8 cm of water, a platform to climb onto and hides. Rearing in groups causes losses, even when the juveniles look equal in size.

The juveniles are fed daily with as much as they will take: small crickets, pieces of earthworm and cockroaches, dusted with calcium and D3 at every second feeding. They grow very quickly and can be fully grown after 6-12 months. Move them to larger aquariums as they grow, and never use gravel on the bottom.

Health and common mistakes

Lepidobatrachus laevis is robust when the water quality is in order. Typical problems:

- Skin infections in dirty water and stagnant, humid air. The signs are red skin, sores and heavy shedding. Prevent with a filter, water changes and good ventilation.
- Swallowed foreign objects. Gravel, stones and decorations are easily swallowed when the frog strikes at food. The signs are absence of faeces and lethargy, and it often requires a vet.
- Obesity and lethargy from too much food, especially rodents.
- Bone disease in young animals when the food is not dusted with calcium and D3.
- Cold water, which makes the frog poorly and a poor eater.
- Problems during and after dormancy, if the animal was not in good condition, did not form a proper cocoon or dried out.

Seek a vet with amphibian expertise if the frog stops eating without being dormant, loses weight, develops sores or red skin or swells up. Amphibians are often far gone by the time they look ill.

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.