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FROGS

Ornate Horned Frog

Ceratophrys ornata

Ceratophrys ornata is a stout, wide-mouthed frog from the Pampas of Argentina, Uruguay and southernmost Brazil, which lies buried and waits for something edible to pass by. Females grow up to 17 cm and can swallow prey almost as large as themselves. The species is robust and easy to keep, but demands respect for the mouth and a firm routine of cleaning and feeding.

Family: Ceratophryidae

KEY FACTS

THE ANIMAL

Adult size	**8-17 cm** snout-vent length
Weight	**187-482 g**
Lifespan	**6-15 years**
Active	**At dusk and at night**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Wetland and temperate woodland and meadow**
Skin toxins	**None known**
Difficulty	**Beginner**

CARE

Min. enclosure	**45 × 45 × 30 cm** L × W × H for 1 adult
Temperature, day	**24-28 °C**
Temperature, night	**22-24 °C**
Humidity	**65-80%**
Water	**Water dish**
UVB	**Optional** Ferguson zone 1
Winter rest	**16-20 °C** 6-12 weeks
Diet	**Insects, vertebrates and worms/snails**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**In water**
Sexually mature	**12-24 months**
Eggs per clutch	**1,000-2,000**
Hatching	**2-4 days** at 24-26 °C
Larval period	**28-41 days** from hatching to metamorphosis
Larval diet	**Other tadpoles**
Parental care	**None**

PROTECTION AND PAPERWORK

CITES	**Not listed**
IUCN	**Vulnerable (VU)**

About the species

Ceratophrys ornata is one of the largest and most compact species in the family Ceratophryidae. The head is enormous, and the mouth makes up about half the size of the animal. The eyes sit high, and above each eye the skin has a small, pointed flap that resembles a horn. The legs are short and strong, and the frog is no good jumper. The base colour is bright green with dark green, brown, yellow and red markings and a cream-white, spotted belly, but there are also dark green and albino animals, and breeders have developed several colour forms.

Females grow to 12-17 cm from snout to vent, males to 8-12 cm. An adult female can weigh about 480 g and a male about 190 g; the figures are based on few animals. Adult males are recognised by nuptial pads on the front legs and loose, darker skin in the throat, where the vocal sac sits. In young animals sex is hard to see.

The species was described by Thomas Bell in 1843 as *Uperodon ornatum* from material from Darwin's voyage on the Beagle. It is a typical ambush hunter: it buries itself with only eyes and horns free and strikes when prey comes close enough. It bites hard and also throws itself at prey that is too large to swallow, which in the worst case costs it its life. *C. ornata* is closely related to *C. cranwelli*, and crosses between the two are sold as so-called fantasy frogs. Today *C. ornata* is bred far less often than *C. cranwelli*.

The skin has serous glands that produce a weak toxic secretion. It is not described as harming or irritating humans, and skin toxicity is therefore set to none. The real risk is the bite: the jaws have sharp teeth and tooth-like projections, and a bite from a large frog hurts and often draws blood. Always wash your hands after contact with the animal, the water and the substrate.

Distribution and habitat

Ceratophrys ornata lives in the temperate grasslands of south-eastern South America, the Pampas, in Argentina, Uruguay and southernmost Brazil. In Argentina it is known from the provinces of Buenos Aires, Córdoba, Entre Ríos, La Pampa, Mendoza and Santa Fe, and by far most recorded finds are in Argentina. One documented locality is the floodplain at Arroyo el Pescado near La Plata in Buenos Aires Province.

There are a few records from Paraguay, but they are not confirmed, and the country is not shown on the map. Records far outside the range come from captive animals or misidentifications.

> **Native range:** Argentina, Uruguay and Brazil.

HABITAT

The species lives on open, flat grassland, on farmland and in forest edges near temporary pools, ditches and flooded meadows. The climate has a hot, wet summer from October to April with 28-32 °C and plentiful rain and a cooler, dry winter from May to September with an average of 18-22 °C. Average humidity is 65-80 %.

The frog spends most of its time buried in mud or loose soil. In the cold, dry season it goes into dormancy underground and forms a protective membrane around the skin against desiccation. It has fat reserves that it lives on: in dormancy the frog loses weight and burns both glycogen and fat. In late spring, when the warmth and rain arrive, the animals dig themselves up and breed in shallow, temporary pools.

Read more: Humidity, misting and ventilation Read more: Brumation and the seasons

Care

THE ENCLOSURE

An adult needs a horizontal enclosure of at least 45 × 45 × 30 cm. The rule of thumb for the genus is a floor area of 8-10 times the animal's size, and a large female is welcome to more. Height matters less, because the frog does not climb and jumps poorly. An enclosure that is too large can, however, make it difficult for a young frog to catch its food. Keep the animals separately, because the species eats its own kind.

Provide 10-20 cm of loose, moist substrate so that the frog can bury itself completely, for example coconut coir mixed with sphagnum and a little coconut chip or a bioactive forest-floor substrate over a drainage layer. Place leaf litter or moss on top, a hide of cork or a cave, and a shallow, heavy water bowl. Live or artificial plants, for example pothos in buried pots, provide cover and help with humidity. Avoid gravel and pebbles, which can be swallowed.

The enclosure must have a lid with good ventilation so that the substrate does not turn sour and mouldy. Remove droppings and food remains at least once a week, and more often if needed. Stir the substrate up now and then, and replace it completely when it smells or begins to rot. If several enclosures stand side by side, put screens between them so that the frogs do not throw themselves at the glass.

Read more: Terrarium construction and bioactive substrate

TEMPERATURE

During the day the enclosure is kept at 24-28 °C and at night at 22-24 °C. *C. ornata* eats best at the warm end and worse when it is cool. Over 30 °C or under 18 °C for a longer time can be fatal. A heat mat should be on the side of the enclosure, not under the bottom, which dries the soil out, or a heat bulb in the lid can be used. Always use a thermostat and two thermometers, one at the warm and one at the cool end. Do not place the enclosure in direct sun.

For breeding, the animals must go through a cool and dry dormancy at 16-20 °C for 6-12 weeks (see Breeding). At a steady temperature all year round, dormancy is not necessary, and only healthy, well-nourished animals should undergo dormancy.

Read more: Heat and temperature

HUMIDITY AND MISTING

Humidity is kept at 65-80 % all year round and raised to about 90 % in the mating season. Mist lightly every day so that the substrate is moist but not wet. Provide both damper and drier areas in the substrate, for example under a hide, and let young frogs have it a little damper than adults. Mist more in the warm part of the year.

The skin is thin and absorbs water and substances directly, so the substrate must never dry out completely, but a constantly wet substrate causes fungus and skin problems. Use tap water treated with a water conditioner against chlorine and chloramine, or clean, lime-free water for misting.

WATER AND WATER QUALITY

Always provide a shallow bowl of fresh, treated water, large enough for the whole frog to lie in, with the water reaching no higher than the frog's mouth. The frog swims poorly and must be able to rest with its head above water and get out without difficulty.

The frog often defecates in the water, so change it every day and clean the bowl in hot water without soap. The species is very sensitive to insecticides, especially substances such as chlorpyrifos, which act on the nervous system. Never use insecticide near the enclosure.

LIGHTING AND UVB

UVB is not necessary, but a weak UVB tube (Ferguson zone 1) can be beneficial, because the frog gets a little UV in the wild. Hang it over one side so that there is always shade in the rest, and do not give albinos UVB, as they are sensitive to light. Keep the light on for 12 hours a day, preferably controlled by a timer, and dark at night. The frog is most active at dusk and at night and lies buried for most of the day.

Read more: Lighting and UVB

FEEDING

The species eats almost anything that fits into its mouth. In the wild, adult frogs eat mainly vertebrates such as mice, small birds, lizards and other frogs, but also large spiders and insects. In the enclosure the staple diet should be insects and worms: crickets, locusts, roaches and earthworms. Mice are given only on rare occasions to large animals, because the frog can become dependent on them and refuse insects, and a diet of mice alone causes obesity.

Young frogs are fed daily, adults every third or fourth day. Give several small feeder insects rather than one large one, and use tweezers so that the frog does not swallow substrate. The frog can choke if it tries to swallow something that is too large.

Feed the feeder insects well 1-2 days beforehand, and dust them with calcium with D3 mixed with a multivitamin. Vary as much as possible between earthworms, crickets, locusts and roaches.

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

BEHAVIOUR AND HANDLING

Ceratophrys ornata is a sedentary frog that lies buried most of the time and only comes out to eat. It is not an animal to pick up. It can lunge at a hand that comes too close, and the bite hurts. If it bites, wait until it lets go by itself, because if you pull your hand away the wound can get worse.

Move the animal as little as possible, and use a clean plastic box, for example when cleaning. If you must touch it, use wet, clean hands or powder-free gloves, and grip it from behind. Keep the species singly: it eats its own kind, even large ones. The males call loudly with a sound that is more like a duck in distress than a frog. Even the tadpoles make short, metallic sounds under water, probably as a defence.

Read more: Rearing tadpoles

Breeding

SEXUAL MATURITY AND SEXING

Females are always the largest. Males have loose, darker skin in the throat and brownish nuptial pads on the front legs in the breeding season. In young animals the sex is hard to see. The species can be sexually mature after 12 months, but it is recommended to wait until the animals are 18-24 months old before using them for breeding. Choose healthy animals in good body condition.

MATING

The species is difficult to breed in captivity, and it requires a dormancy that imitates the cold, dry season. Feed the animals generously for a month, and stop feeding two weeks before, so that the gut is empty. Then lower the light from 12 to 8 hours and the temperature gradually to 20 °C over two weeks, and mist less. When the frogs have buried themselves, the temperature is lowered to 16 °C, and the surface may dry a little. The dormancy lasts 6-12 weeks, shortest for the youngest animals. If the frogs will not bury themselves, return to normal care and try later.

Afterwards light, temperature and misting are gradually returned. After a week of feeding the animals are placed in a paludarium with water over the whole bottom, deep enough that they can hold the head above water, and misted heavily several times a day. A small group with two males to each female gives better results than a single pair.

In animals that will not breed, a hormone injection can trigger calling, amplexus and egg-laying within a day. The method is used by researchers and vets, not by private keepers.

EGGS AND TADPOLES

The female lays 1,000-2,000 eggs, which lie singly and scattered in the water and stick to plants, stones and the sides of the tank. Most of them become healthy tadpoles. Remove the parents after egg-laying, because they eat the eggs. There is no parental care.

The tadpoles are predators and cannibals. Feed them several times a day with live food such as tubifex, mosquito larvae and chopped earthworms, and keep them singly in small containers or in a large tank with plenty of floating plants to hide in. The water must be clean and treated, because the tadpoles are very sensitive to insecticides.

METAMORPHOSIS

The eggs hatch within 2-4 days. At 25 °C the tadpoles swim freely and feed after about three days, get hind legs after 17 days and metamorphose after 28-41 days; the upper limit is borrowed from *C. cranwelli*.

When the front legs appear, the tadpole needs shallow water and easy access to land, for example a sloping rock or a floating piece of cork, otherwise it drowns. The tadpoles can keep eating in the middle of metamorphosis. Move the newly metamorphosed young away from the others so that it is not eaten.

REARING THE YOUNG

The young probably measure 30-40 mm at metamorphosis, as in *C. cranwelli*. Keep each young one on its own in a small box with a couple of cm of moist soil, a shallow water bowl and a hide, because the young also eat their siblings. Mist daily.

Give small live feeders such as crickets and earthworms daily, dusted with calcium and vitamins, and move on to larger feeders as the young grow. Weigh or measure them regularly so that you can see whether they are growing, and move them to a larger enclosure when they become too big for the box.

Health and common mistakes

The species is hardy, but several typical problems arise in care:

- Obesity and malnutrition. A diet of mice alone causes obesity. Vary the food, and dust the insects with calcium and D3.
- Choking. The frog may try to swallow something that is too large. Give food of a suitable size.
- Constipation from swallowed grit or substrate.
- Dirty water and substrate. In a closed, wet enclosure bacteria multiply quickly. Change the water every day, and remove faeces regularly.
- Chemicals. The tadpoles react strongly to insecticides such as chlorpyrifos. Keep the enclosure free of sprays and cleaning products.

- Parasites. Amphibians in captivity can have many kinds of intestinal parasites. Bring a faecal sample to a vet who knows amphibians if the frog loses weight or eats poorly.
- Brucella. An atypical *Brucella* strain has been found in the species in captivity. Whether it can infect humans is not settled, so wash your hands thoroughly after contact with animals, water and substrate.

If the frog stops eating for several weeks without being in dormancy, has swellings, sores or red skin, or yawns without closing its mouth again, contact a vet with experience in amphibians. Animals in dormancy should not be dug up.

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.