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FROGS

Cuban Treefrog

Osteopilus septentrionalis

Osteopilus septentrionalis is a large, hardy tree frog from Cuba, the Bahamas and the Cayman Islands. Females grow up to 13 cm, the skin can change colour to match the surroundings, and the long toes with large adhesive discs make it a skilled climber. It is easy to keep, but noisy, voracious and has a skin secretion that can irritate the eyes and mucous membranes.

Family: Hylidae

Mild skin toxins

KEY FACTS

THE ANIMAL

Adult size	**5-13 cm** snout-vent length
Lifespan	**5-13 years**
Active	**At night**
Lifestyle	**Arboreal**
Habitat	**Dry forest, rainforest and wetland**
Skin toxins	**Mild** Wash your hands after contact and keep your fingers away from your eyes and mouth
Difficulty	**Beginner**

CARE

Min. enclosure	**45 × 45 × 60 cm** L × W × H for 2 adults
Temperature, day	**24-29 °C**
Temperature, night	**18-22 °C**
Humidity	**60-90%**
Water	**Water dish** depth 2-3 cm
UVB	**Optional** Ferguson zone 1
Diet	**Insects**
Kept	**Singly or in groups**

BREEDING

Reproduction	**Egg-laying**
Development	**Tadpoles in water**
Egg-laying site	**In water**
Sexually mature	**4-8 months**
Eggs per clutch	**75-1,000**
Hatching	**1-2 days**
Larval period	**21-30 days** from hatching to metamorphosis
Larval diet	**Algae/plants and other tadpoles**
Parental care	**None**

PROTECTION AND PAPERWORK

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

About the species

Osteopilus septentrionalis is one of the largest tree frogs in the Caribbean. Adult frogs measure 5-13 cm from snout to vent, and females are clearly larger than males. Males typically reach 5-8 cm, while females can reach 12-13 cm. The frog keeps growing throughout its life, so an old female can be very heavily built.

The colour is variable: grey, brown or yellowish green with irregular spots, and young animals are often greener than old ones. The frog can change both colour and pattern to match the substrate. The skin is rough and warty, and the skin on the head is fused to the skull, which reduces evaporation. The inner thighs are bright yellow and flash into view when the frog jumps. The toes end in large adhesive discs. Males develop a dark nuptial pad on the thumb in the breeding season.

The skin secretion is important to know about. It can cause a burning sensation in the eyes and mucous membranes and trigger allergic or asthmatic reactions, so the species is poorly suited to children. The secretion is produced by the frog's own skin and not by its food, so captive-bred animals have it too; there is no evidence that it disappears in captivity. Wash your hands before and after contact, and never touch your face. The secretion is also harmful to other amphibians and reptiles, so wash your hands before touching other animals.

The temperament is shy by day and voracious by night. *O. septentrionalis* eats anything it can get down, including smaller frogs of its own species. The species was described as *Hyla septentrionalis* in 1841 and moved to the genus *Osteopilus* in 1974.

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

Distribution and habitat

Osteopilus septentrionalis is native to Cuba, the Bahamas and the Cayman Islands. It has been introduced to Puerto Rico, the Virgin Islands, Anguilla, Guadeloupe, the Turks and Caicos Islands, Costa Rica and especially southern Florida, where it often arrived with ship cargo and later as a stowaway in potted plants, on boats and on vehicles. Whether the population on Key West in Florida is native is disputed. The introduced populations have led to a decline in native tree frogs, and the species is regarded as invasive in many places. A frog must therefore never be released into the wild.

> **Native range:** Cuba, Bahamas and Cayman Islands.

HABITAT

Osteopilus septentrionalis lives in habitats ranging from coastal scrub and mangrove to forest, swamps, farmland and towns, and is often found in dry habitats. It has been recorded up to about 1,100 m above sea level. During the day the frog hides in tree holes, under bark, in pipes or in potted plants, and at night it hunts from trees and bushes, often near ponds, rain barrels and lights that attract insects. It likes shade and moisture, but also copes with dry periods by seeking shelter.

In the breeding range the temperature is above 25 °C for many months of the year. Below about 10 °C the frog goes into torpor. Breeding activity peaks in the rainy season from May to October, when large groups move towards temporary pools after heavy rain. Breeding does occur all year round, however. The frog tolerates brackish water, which has helped it to spread between islands.

Care

THE ENCLOSURE

An enclosure of 45 × 45 × 60 cm is the minimum for 2 adult *Osteopilus septentrionalis*. The frog is active and climbs a lot, so height matters more than floor area, and bigger is better, especially for several animals. For a group of 4 or more, the enclosure should be at least 60 × 45 × 60 cm. Glass gives the best humidity and ventilation, and the lid must close tightly because the frog is a skilled escape artist.

The substrate must hold moisture without turning to mud: coconut soil, sphagnum or bark chips over a drainage layer. Fill the enclosure with branches, cork and robust plants such as pothos, bromeliads and philodendron, so that there are many vantage points and hiding places at different heights. The frog sleeps during the day, so it needs at least two hides that are not in full light. Ventilation must be good enough that the glass is not fogged up all day.

Young frogs can grow up in a smaller enclosure, but must be moved to the large one as they grow. Only house animals of roughly the same size together, because large frogs eat small ones. Clean the glass and the bowl regularly, and remove droppings and dead plant material before they turn to mould.

Read more: Humidity, misting and ventilation Read more: Terrarium construction and bioactive substrate

TEMPERATURE

By day *Osteopilus septentrionalis* is kept at 24-29 °C with a slight gradient, so that the frog can choose a warmer or cooler spot. It tolerates large fluctuations, but sustained heat above about 30 °C causes stress and dehydration. At night the temperature should fall to 18-22 °C. The night temperature should not drop below 18 °C.

A heat mat on the side of the enclosure with a thermostat gives gentle, even heat and does not dry the air. Ceramic heaters dry the air out a great deal and should be used only with great caution. Measure the temperature both at the top and at the bottom of the enclosure. A winter rest period has not been documented as necessary.

Read more: Heat and temperature

HUMIDITY AND MISTING

Humidity should be 60-90 % with a clear rhythm. The base humidity can be about 60 %, and you should mist heavily with dechlorinated or reverse osmosis water at least once a day, preferably in the evening, so that it rises to 80-90 %. If ventilation is generous, it may be necessary to mist twice. The substrate and planting must have time to dry out a little between mistings, otherwise mould and bacteria spread.

A hygrometer at mid-height shows whether the rhythm holds. A damp substrate and a large water bowl help, but air circulation must be good. Dry, dull skin means that the humidity needs to go up. If the skin becomes slimy and blotchy, it is too wet and there is too little air.

WATER AND WATER QUALITY

Provide a large, shallow water bowl where *Osteopilus septentrionalis* can sit with most of its body under water, 2-3 cm deep, so that the frog can get out without a struggle. The frog often bathes at night and uses the bowl as a toilet, so the water must be changed daily, and the bowl washed with hot water without soap every week. Use dechlorinated tap water or reverse osmosis water with added minerals. Chlorine and chloramine must be removed, because the frog's skin absorbs substances from the water. The water should be at the same temperature as the air, and no cleaning products that could leave a residue in the bowl should be used. A filter is not necessary.

LIGHTING AND UVB

There is no evidence that *Osteopilus septentrionalis* needs UVB, but weak UVB gives a clear day rhythm and may promote appetite and activity. It is therefore optional. If you choose it, use a weak source, Ferguson zone 1 and UV index 1-2, with dense foliage so that the frog can retreat into shade. Switch the light on for 10-12 hours a day and off at night, so that the frog gets a steady rhythm. Plant lighting does not give UVB, and lamps can dry out the air, so they must be kept out of the frog's reach.

Read more: Lighting and UVB

FEEDING

Osteopilus septentrionalis is a voracious predator that eats anything of suitable size. Offer varied insects: crickets, grasshoppers, cockroaches, fruit flies, mealworms and waxworms, silkworms and small earthworms. Feeder insects should be no wider than the gap between the frog's eyes. Pinkie mice can be given as a rare treat, but the frog easily becomes fat.

Young frogs are fed every day, and adults 2-3 times a week with a suitable number of feeder insects that the frog eats in 15-20 minutes. An overfed frog can develop fat deposits so large that they cover the eyes. Dust the food with calcium without D3 at most feedings and with a multivitamin once a week. An excess of calcium and vitamins can damage the kidneys, so stick to the amounts mentioned, and dust adults less often than juveniles. The feeder insects should themselves be well fed before they are given to the frog.

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

BEHAVIOUR AND HANDLING

Osteopilus septentrionalis is a nocturnal and shy frog that sleeps in a hide during the day. Males call loudly at night with a rasping, barking cry that can be heard from a long way off and resembles a small dog. That is a good argument for not keeping the enclosure in the bedroom. If you keep only females or a single frog, there will be less noise.

The frogs can be kept singly or in a small group of animals of roughly equal size, but they are cannibalistic, so large frogs eat small ones. Provide plenty of hides and vantage points. The frog should not be handled, because the skin is sensitive and the secretion can irritate hands and eyes. If it has to be moved, catch it in a clean plastic container with a damp base. Wild-caught animals are stressed and may carry parasites, so captive-bred animals are preferable.

Breeding

SEXUAL MATURITY AND SEXING

Females are clearly larger than males, and that is the easiest way to tell the sexes apart. Males also have a dark nuptial pad on the thumb in the breeding season and a vocal sac under the chin, which unfolds when they call. Males become sexually mature after about 4 months and females after about 8 months. Females thus grow faster, but mature later. The figures are

averages and come from free-living populations.

MATING

Breeding activity is triggered by warmth, high humidity and heavy rain. In the wild the males call in chorus at temporary pools after rain, and mating involves no fixed choice of partner. The male grips the female behind the forelimbs (amplexus), and the eggs are fertilised outside the body. In captivity the rainy season can be imitated with a period of daily, heavy misting and temperatures around 27 °C. Use a separate breeding enclosure or aquarium with water, because the eggs must be laid in water.

EGGS AND TADPOLES

The female lays the eggs in water, where they float as a thin film on the surface. A clutch is 75-1,000 eggs, and large females lay more. The eggs survive only at water temperatures above about 27 °C. There is no parental care, and adult frogs readily eat eggs and tadpoles, so they should not stay in the breeding water.

The tadpoles eat algae and can be cannibalistic towards each other and, in rare cases, towards newly metamorphosed froglets. Give them plants, algae-covered stones and a not too dense population, and feed them finely grated vegetables, algae and fish food. The water must be kept clean with a filter and a daily partial water change, because the tadpoles are sensitive to nitrogen compounds. High temperature gives fast growth: above 35 °C development takes about 3 weeks, and below 29 °C about a month.

Read more: Rearing tadpoles

METAMORPHOSIS

The eggs hatch after about 24-32 hours, i.e. 1-2 days. The tadpoles go through metamorphosis in about 21-30 days at the temperatures mentioned, and cooler water lengthens the period. When the front legs appear, they stop eating, and they need easy access to land: lower the water level to a few centimetres, add floating plants or bark, and provide a damp, warm place alongside. The newly metamorphosed froglets must be moved away from the tadpoles' water so that they do not drown or get eaten.

REARING THE YOUNG

The newly metamorphosed froglets are 14-17 mm and are greener than the adults. Keep them in a small, damp enclosure with a base of damp coconut, small plants and a shallow water dish. Give fruit flies and small crickets every day, dusted with calcium and vitamins. They grow quickly and gladly eat each other, so sort them by size after just a few weeks. The froglets are moved to a larger enclosure when they have outgrown the small one.

Health and common mistakes

Osteopilus septentrionalis is hardy, and most problems are caused by too much fat, poor hygiene or the wrong food. The typical mistakes are:

- Obesity and overfeeding. The frog develops rolls of fat over the eyes and becomes lethargic. Give fewer feeder insects, and vary the food.
- A lack of calcium and D3 in young animals, which causes soft bones and tremors, or too much calcium and vitamins, which can damage the kidneys.
- Bacterial and fungal infections of the skin and red skin on the belly from a persistently wet and dirty substrate, or poor air circulation. The frog needs a clean enclosure.
- Parasites, especially in wild-caught animals. The signs are emaciation despite a good appetite and slimy droppings.
- Skin injuries from incorrect handling or bites from other frogs.

See a vet with knowledge of amphibians if the frog refuses to eat for more than a couple of weeks, if the skin is red or has sores, or if it sits on the bottom and does not respond.

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.