

Pacman Frog

Ceratophrys ornata

Class: Amphibia **Order:** Anura **Family:** Leptodactylidae

Other names: Ornate horned frog, Argentine horned frog, Argentine wide-mouthed frog; Horned frog; Bell's horned frog

Other Subspecies:

Brandywine Zoo Frogs 0.0.2

0.0.2 "Renji" and "Ichigo"

About Renji & Ichigo

Renji DOH: unknown date in 2008; Aq: April 22, 2008

Ichigo DOH: unknown date in 2008; Aq: April 22, 2008 (has a green spot on top of the head)

Renji and Ichigo came from amphibian specialist breeders. Their genders are unknown.



Status

Near Threatened [1]; this species is in significant decline (but at a rate of less than 30% over ten years) because it is subject to intense persecution, making the species close to qualifying for Vulnerable [1].

Geographic Region

Pampean region of Argentina (Buenos Aires, Córdoba, Entre Ríos, La Pampa, Mendoza and Santa Fe), Uruguay (Rocha and San José), and Rio Grande do Sul, Brazil [1]

Habitat

Rain forests [2]; grasslands on the ground near temporary waterbodies, and also occurs in roadside ditches and in irrigated cropland [1]

Characteristics

Size: Adult female length: 5.5 in (14 cm); adult male length: 3.9 in (10 cm) [2]

Some adults can reach up to 10" in length [3]

Longevity: Wild- 6-7 years [2]

Captivity- 16-25 years [3]

Physical Description

- **Ectothermic**
- Ornate horned frogs are named so because of the large fleshy points above their eyes that resembles small horns.
- They are usually marked in bright green, brownish red, and yellow blotches and spots. They are intricately colored, with geometric patterns of yellow, red, and green on a dark background [3].
- The underside ranges from pink to yellow, and the throat is mottled in gray [3].
- Most prominent feature is its mouth, which accounts for roughly half of the animal's overall size [2]
- The powerful limbs are short, the digits blunt, and an enlarged **metatarsal tubercle**, or spade, is present on each hind leg [3]
- They have several **odontoid projections** (not teeth, per se) along their bottom and top jaws [2]
- They appear to consist of two main parts: a mouth and a stomach.
- The creature has eyes and legs also, but they pale in significance except as aids in the capture of the next meal, when compared to the unbelievably huge mouths these guys have! This is probably where this frog got the nickname "PacMan Toad."

Dimorphism

Sexing this species is very difficult before sexual maturity is reached.

Males: males possessing dark pigmented throats and **nuptial pads** on the forelimbs [4]. Males are typically more ornately colored, ranging from dark green to lime-colored [5].

Females: typically larger and longer than males [2] [3]

Diet: Carnivore

Diet in the Wild: Will eat any prey that fits in its mouth [6]. Primarily vertebrates [2]; They are voracious eaters, often eating insects, small mammals (such as mice), fish, other frogs, and small reptiles.

Diet at the Zoo: crickets, worms and adult mice

Behavior

- *Diurnal*, day active [6]
- *Terrestrial, solitary* [6]
- *Ambush predator*- Horned frogs hunt by remaining motionless, and waiting for prey [4].
- Ornate horned frogs seem to have been designed for the sole purpose of eating as much as possible.



- Sit-and-wait predators, partially concealing themselves in the leaves of the forest floor and remaining motionless most of the time [2]
- Horned frogs are well known for their fearless reputation. They will attempt to consume animals, sometimes even the size of themselves [2]
- They like to fight, and if disturbed will attack larger animals and will even snap at humans if they try to handle them [3].
- *C. ornata* larvae are carnivorous towards tadpoles of other species, they do not consume conspecific tadpoles [2].
- They burrow during autumn and winter, and while buried, it creates a cocoon around itself to protect from water loss. It emerges to breed in the late spring, when enough rain has fallen to create temporary pools where they lay their eggs [2].

Reproduction

- **Oviparous**, egg-laying
- **Amplexus**, lasts from 1 to 4 hours
- Ornate horned frogs are ready to mate at 18-24 months [6].
- Females deposit tennis ball-sized clump of between 200 to 2,000 1.3 millimeter in size eggs in standing water [2] [3]
- Eggs hatch in about 18 hours [3]
- At optimal temperature, it takes only two weeks for the egg to reach the froglet stage [2], and can reach their full adult size in 5 months [6]

Conservation

It has apparently disappeared from at least two sites in Uruguay; it is rare in Argentina [1].

- **Use & Trade:** It is collected for the international pet trade and its eggs are sold internationally for scientific research. No data are available either on official trade or on illegal trade; captive breeding is probably high [1].
- **Threats:** Habitat loss (due to agricultural development and housing development) is a major threat, as is water and soil pollution due to agriculture, industry, and human settlement.
 - It is sometimes subject to persecution because of unfounded beliefs that it is venomous [2].
 - It is also collected for the international pet trade and its eggs are sold internationally for scientific research [1].
- **Predators:** Birds, snakes, and bears [6]

Did You Know?/Fun Facts

- Tadpoles of pacman frogs can make distress calls both underwater and out of water. This is the first example of any larva (vertebrate or invertebrate) communicating underwater by sound, as well as the first known of any vertebrate larva to make sounds at all. Tadpoles are able to make these calls as early as three days after hatching [2].
- While the official vernacular name is the horned frog, many people refer to frogs in the genus *Ceratophrys* as "Pac-Man" frogs (from the old Pac-Man video game) since the body plan appears to be mostly dominated by the large, gaping mouth [2]
- The eyes are set as much as three times higher from the lower jaw than in most frogs, enabling this frog to completely burrow into a loose substrate with just the eyes exposed [3].
- They are called "horned" frogs due to the elongated skin folds over their eyes that stick straight up, resembling horns [6].



Glossary: List of definitions of the most important recurrent technical terms used in the text.

Amplexus - a type of mating behavior exhibited by some externally fertilizing species (chiefly amphibians and horseshoe crabs) in which a male grasps a female with his front legs as part of the mating process, and at the same time or with some time delay, he fertilizes the female eggs as they are released from the body.

Metatarsal tubercle - one or more small (usually rounded) lumps at the base of the foot, often called 'digging spades' (see photo at top right)

Nuptial pads - also known as thumb pad, is a secondary sex characteristic present on some mature male frogs and salamanders. This spiky swelling on the forearm aids with grip, used primarily by males to grasp (or clasp) females during amplexus (see photo bottom right).

Odontoid projections - Bony projections (odontoid structures) that function as 'teeth' which line the lower jaws of some predatory frogs. These 'teeth' prevent prey animals from escaping once grasped [7].



Bibliography

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