

PRESENTS

# SONOYTA PUPPFISH

## *Cyprinodon eremus*

The Sonoyta Pupfish is endemic to Sonora and Arizona. Up until the year 2000, it was considered a subspecies of the desert pupfish, *Cyprinodon macularius*, and in danger of extinction. When it was classified as a separate species it was left without protection in Mexico. The IUCN considers the Sonoyta Pupfish to be endangered.

TAXONOMY

**Phylum:** Chordata  
**Class:** Actinopterygii  
**Order:** Cyprinodontiformes  
**Family:** Cyprinodontidae  
**Subfamily:** Cyprinodontinae  
**Genus:** *Cyprinodon*  
**Species:** *C. eremus*



**Conservation status:**  
- IUCN - EN (endangered)

**NOM-059-SEMARNAT**  
Its inclusion is pending

**Distribution:** It is estimated that it covers less than 11 km<sup>2</sup> in Sonora and Arizona, United States.

**Diet:** Omnivore; feeds on algae, decaying vegetation, plants, insect larvae and nymphs, ostracods, sponges, eggs of other organisms, snails, and occasionally eggs and young of its own species.

**Reproduction:** Mainly during spring and summer; sex ratio is almost equal, although females can be more abundant.

**Predators:** Birds of prey, herons; collared kingfishers and common grackles have been recorded feeding on the Sonoyta pupfish when the river level is low and the fish remain in pools.

CONSERVATION TIMELINE

**2000:** Classification of the Sonoyta pupfish as a species, previously considered a subspecies of the desert pupfish *Cyprinodon macularius*.

**2006:** The U.S. Fish and Wildlife Service secures funding to build 5 refuge ponds: 2 in Arizona and 3 in Sonora.

**2008:** On February 2nd, the RAMSAR site designation is granted to the site known as Agua Dulce in Sonora.

**2018:** 755 individuals were counted in the refuge pond located at COBACH Sonoyta.

**2021:** The Biological Station of the Pinacate and Gran Desierto de Altar Biosphere Reserve and the CEDO refuge ponds house 499 and 128 individuals respectively.

**2021:** CEDO promotes the reactivation of the Native Fish of the Sonoyta River binational working group, which brings together authorities, experts and organizations from Mexico and the United States.

**2021:** The binational group submits a proposal to incorporate the Sonoyta pupfish to the list of protected species under the NOM-059-SEMARNAT.

**2021:** The Tohono O'odham Nation joins the binational conservation initiative.

**2021:** CEDO received official recognition as an Environmental Management Unit, the first to be recognized as a research and exhibition site.

SOURCES:

Froese, R. y D. Pauly, Editors. (2021). FishBase. World Wide Web electronic publication. [www.fishbase.org](http://www.fishbase.org). (Consultado en 06/2021)  
Gragada García, M.A., A. Varela-Romero, y N. Barajas Acosta. (2021). Propuesta para la inclusión del Cachorro del Sonoyta (*Cyprinodon eremus*) en la Norma Oficial Mexicana 059-SEMARNAT-2010, en la categoría de en Peligro de Extinción (P.).  
Hendrickson, D. y Varela-Romero, A. (1989). Conservation Status of Desert Pupfish, *Cyprinodon macularius*, in Mexico and Arizona. *Copeia*. 478-483. 10.2307/1445447.  
Miller, R.R., y L.A. Fuiman. (1987). Description and conservation status of *Cyprinodon macularius eremus*, a new subspecies of pupfish from Organ Pipe Cactus National Monument, Arizona. *Copeia* 1987(3):593-609.  
NatureServe. Hendrickson, D., y Yáñez-González, A. 2019. *Cyprinodon eremus*. The IUCN Red List of Threatened Species 2019: e.T191303A82960949. <https://dx.doi.org/10.2305/IUCN.UK.2019-2.BLTS.T191303A82960949.en> (Consultado en 08/10/2021)  
Page, L.M., H. Espinosa-Pérez, et al. (2013). Common and scientific names of fishes from the United States, Canada, and Mexico, 7th edition. American Fisheries Society, Special Publication 34. Maryland. 384pp.  
U.S. Fish and Wildlife Service. (2010). Desert Pupfish (*Cyprinodon macularius*) 5-Year Review: Summary and Evaluation. Arizona Ecological Services. Arizona. 43 pp.

ANATOMY

Compared to other species in this genus, the Sonoyta Pupfish has several physical characteristics, including its size and coloration.



Average size:  
**4 cm**  
in adults

Maximum age reported:  
3 years



The dorsal fin is equidistant between the tip of the head and the base of the tail fin. Females have a larger dorsal fin base.

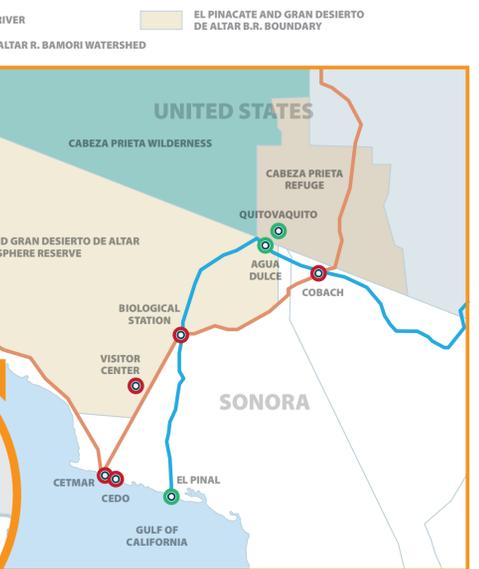
The dorsal projections have characteristic circular scales. The dorsal profile is smoothly rounded.

The caudal peduncle is short.

Has a deeper head and longer jaw.

Highly retractable and superior mouth equipped filled with tricuspid teeth.

SONORA, MEXICO



REFUGE POND FOR THE SONOYTA PUPPFISH  
NATURAL REMANENT

There is an ex-situ population of less than  
**2,000**  
individuals

**5** Refuge ponds created as a preventive measure to repopulate the Sonoyta River.

THREATS

Accelerated loss of habitat and introduction of exotic species.

It has disappeared in 2 of the 5 known habitat locations in Mexico.

Resource competition with invasive species like the black bullhead (*Ameiurus melas*), the mosquitofish (*Gambusia affinis*), and the Gila topminnow (*Poeciliopsis occidentalis*).

DID YOU KNOW...

This species is very similar to the Desert pupfish, but its head, mouth and body are larger, and the fins are smaller.

Males are more colorful than females, especially during the breeding season, when they exhibit a deep metallic blue color over most of the body. Their tail fin and base of the tail turn yellow to olive yellow.



REPRODUCTION



The male establishes a territory and tries to attract the females.



The females deposit their eggs randomly within this territory.

COLORATION



Females are golden to olive brown in color, their underside is silver and the abdomen is white. The dorsal and anal fins are clear white, the tail fin is pale shade of yellow. The dark bars on the sides form irregular spots that run from behind the head to the base of the tail fin.



Typically has 25 to 26 lateral scales.

The pelvic fin has 7 divisions.

Adult males have a thick and laterally compressed body.