

Threatened fishes of the world: *Siphateles bicolor snyderi* (Miller, 1973) (Cyprinidae)

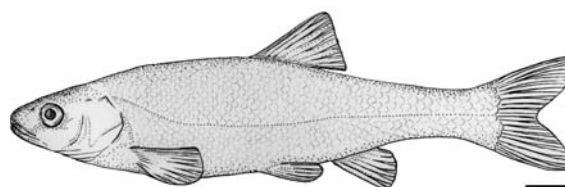
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Common name: Owens tui chub. **Conservation status:** Endangered – California Endangered Species List 1974. Endangered – United States Endangered Species Act 1985. Not listed in 2003 IUCN Red List of Threatened Species. **Identification:** Owens tui chubs are fusiform, large-scaled fishes with small, terminal, and slightly oblique mouths, stubby gill rakers, and a decurved lateral line (Moyle 2002). All fins are rounded and short (D 8, A 7, P 15–18, V 8–10), with the tail slightly forked. The head becomes larger relative to the rest of the body in older fish and is usually somewhat convex in profile. A distinct hump may develop behind the head. The single-rowed pharyngeal teeth (5–4) are slightly hooked, with a well-developed grinding surface. Differs from other subspecies of *S. bicolor* (Girard) in having: (1) pharyngeal arches with a strong shield at the posterior end of the anterior limb; (2) the scale typically with a weak or no basal shield and with lateral as well as apical radii, the total number of radii from 13 to 29; (3) the dentary deep below the subvertical ascending process with the gnathic ramus strong and evenly curved and the thin, elevated ridge of the dentary little flared away from the median; (4) and usually 10–14 gill rakers, 7 anal rays and 52–58 lateral line scales (Miller 1973). Live fish tend to be dusky olive, brown or brassy on the back and white to silver on the belly. The younger the fish, the brighter the overall body colour. Adults are usually about 10–14 cm in SL, although in suitable habitat some grow much larger, females being slightly bigger. Drawing by RM (scale bar = 1 cm). **Distribution:** Owens tui chub were common in a variety of habitats throughout the Owens River basin of eastern California in the early 20th century. As a result of species introductions and habitat degradation, they have become introgressed with introduced Lahontan tui chub (*S. b. obesa*) or extirpated throughout most of their range. Three natural and four transplant populations persist in isolated habitats (Parmenter, pers. comm.). **Habitat and ecology:** Owens tui chubs are nocturnally active schooling fish which inhabit lakes, spring-fed ponds or calm river backwaters. They have an affinity for undercut banks or dense aquatic vegetation that provides habitat for insect prey and cover from predators (McEwan 1990). They are opportunistic, unselective feeders that mainly eat insect larvae and, to a lesser degree, algae and detritus. Owens tui chub of all ages spend the winter in deeper waters and may, like Mohave tui chubs (*S. b. mohavensis*), lie on the bottom in a semi-dormant state. **Reproduction:** Owens tui chubs reach sexual maturity at 1–2 years of age and may live more than 30 years (Scoppetonne 1988). They spawn from spring through late fall, usually when water temperatures rise to about 16°C. Females lay adhesive eggs on submerged vegetation or other available substrates, such as rocks and gravel, and hatching may occur within 9 days (Thelander 1994). Larvae probably remain under cover until they grow larger, which happens quickly during their first summer. **Threats:** Introduction of Lahontan tui chubs into the Owens Basin resulting in introgressive hybridization. Predation from non-native gamefishes, especially brown trout (*Salmo trutta*), largemouth bass (*Micropterus salmoides*) and Sacramento perch (*Archoplites interruptus*). Habitat modifications associated with the storage and diversion of water out of the Owens Basin (Moyle 2002). **Conservation actions:** Recovery plan approved. Emergent vegetation reduction and population monitoring are performed in artificial refuges, and a land purchase for habitat restoration and reintroduction was made in 2004 (Parmenter, pers. comm.). **Conservation recommendations:** Continue to



Chen, Y. & B. May. 2003. Introgressive hybridization and genetic differentiation of endangered Owens tui chub populations. Final Report for California Dept. of Fish & Game. 31 pp.

McEwan, D. 1990. Utilization of aquatic vegetation and some aspects of the life history of the Owens tui chub (*Gila bicolor snyderi*) in the Hot Creek Headsprings, Mono County, CA. Unpub. M.S. Thesis, California State University, Sacramento. 92 pp.

Miller, R.R. 1973. Two new fishes, *Gila bicolor snyderi* and *Catostomus fumeiventris*, from the Owens River Basin, California. Occas. Pap. Mus. Zool. Univ. Mich. 667: 1–19.

manage the remaining populations in order to maintain isolation from each other, from hybrids, from Lahontan tui chub and from piscivorous exotics. Determine native ranges of genetically distinct forms prior to reintroduction. Increase the number of populations in additional secure sites (Chen & May 2003).

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- Scopetonne, G.G. 1988. Growth and longevity of cui-cui and longevity of other catostomids and cyprinids in western North America. *Trans. Amer. Fish. Soc.* 117: 301–307.
- Thelander, C.G. (ed.). 1994. *Life on the Edge: A Guide to California's Endangered Resources: Wildlife*. BioSystems Books, Santa Cruz. 550 pp.
- World Conservation Monitoring Centre 1996. *Gila bicolor-Siphateles bicolor*. In: IUCN 2003. 2003 IUCN Red List of Threatened Species. www.redlist.org, downloaded on 19 January 2004.