

**ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM**

**Invertebrate Abstract**

**Element Code:** IMBIV04020

**Data Sensitivity:** No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Anodonta californiensis*  
**COMMON NAME:** California Floater  
**SYNONYMS:** *Anodon micane* Anthony, *Anodonta dejecta*  
**FAMILY:** Unionidae

**AUTHOR, PLACE OF PUBLICATION:** Lea. Descriptions of new species of the family Unionidae. Trans. Amer. Philos. Soc. (N.S.) 10, 18:253-294.

**TYPE LOCALITY:** "Rio Colorado," actually a former distributary of the river, approximately New River, Imperial County, California.

**TYPE SPECIMEN:** Syntypes (2 or 3): No number: J.L. Le Conte. No date or precise place of collection.

**TAXONOMIC UNIQUENESS:**

**DESCRIPTION:** Freshwater clam with an extremely thin, large shell, about 80 mm (3.20 in.), no teeth.

**AIDS TO IDENTIFICATION:**

**ILLUSTRATIONS:**

**TOTAL RANGE:** From British Columbia south throughout California into Chihuahua and possibly Sonora, Mexico. East to Washington, Oregon, Idaho, Wyoming, Utah, Nevada, and Arizona. Historically found in a majority of the Arizona drainages including the Black, Salt, Santa Cruz, Verde, Gila and Colorado Rivers. Today it is found in Arizona only in the upper Black River in the Alpine Ranger District of the Apache-Sitgreaves National Forest, Arizona, to at least the White Mountain Apache Reservation. (A population may be extant on Chevelon Creek according to Landye, 1988).

**RANGE WITHIN ARIZONA:** Apache County, Arizona. See "Total Range."

**SPECIES BIOLOGY AND POPULATION TRENDS**

**BIOLOGY:** Bivalve with larval, parasitic, juvenile and adult stages. Eggs held in brood pouch formed by gills of female until they hatch into larvae (glochidia). Upon release by female,

glochidia fall to substrate in clean waters. After growing for some time, attachment threads (byssi) dissolve and young clam washed downstream to settle in slower water where further maturation takes place. If clam survives, awaits attachment to tail edges or fins of host fish. At present, unknown whether or not host is species specific. Host produces tissue forming a cyst which is beginning of parasitic stage which lasts about 27 days. At completion of this stage, young mussel detaches from host and the juvenile stage, lasting about two years, begins. During this time organs transformed from immature to adult state. Although life span of *A. californiensis* is unknown, closely related species live about 10 to 15 years (Hulen 1988).

**REPRODUCTION:** Fertilization occurs internally with eggs fertilized by sperm brought through brood pouch with respiratory currents of water. Eggs continually bathed by currents while incubating.

**FOOD HABITS:** In the larval stage *A. californiensis* parasitic on fins of host fish. Whether *A. californiensis* is host specific to a certain species or genus of fish is unknown. There is no direct observation information about adult *A. californiensis* feeding at the present time, however, it is known that detritus, animal plankters and bacteria make up the majority of mussel diet.

**HABITAT:** Shallow areas, less than 2 m. deep in unpolluted lakes, reservoirs, and perennial streams are the preferred habitat of freshwater mussels. Adult mussels typically live in mud or sand and juveniles in loose sand.

**ELEVATION:** 4,000 - 8,670 ft. (1,220 - 2,644 m)

**PLANT COMMUNITY:**

**POPULATION TRENDS:** "When the proper (specific) host fish disappear from the habitat, the clam also will become extinct. This explains why *A. californiensis* is now near extinction in Arizona, while perhaps only a century ago it may have been widespread in the State" (Bequaert and Miller, 1973). "Declining throughout much of its former range, and may be nearing extirpation in some of the more southern states, including parts of California (Burke 1994).

## **SPECIES PROTECTION AND PRESERVATION**

**ENDANGERED SPECIES ACT STATUS:** None (USDI, FWS 1996)  
[C2 USDI, FWS 1995]  
[Petition to List USDI, FWS 1994]  
[C2 USDI, FWS 1991]  
[Insufficient info. to warrant listing, USDI, FWS 1990]  
[Petitioned to List, T. Hulen, City of Phoenix 1989]

**STATE STATUS:** None

**MANAGEMENT FACTORS:** As *A. californiensis* is closely associated with species of fish, once the host or hosts are known, a total fish-molluscan management plan should be developed to avoid developing a habitat to improve one native species at the expense of another native species. No information is available on the California floater in the majority of its range. According to the Fish and Wildlife Service, as of August, 1990, there is no data to support an assumption that the California floater has been substantially depleted or is subject to heavy threats through all or a significant portion of its range.

Alteration and destruction of riverine habitats, including channelization, dredging, impoundment, erosion, siltation, water diversion, groundwater pumping, pollution and watershed modifications. Status may also be tied to a specific fish or group of fish that serve as hosts for the larval stage. Many of the native fishes within the range of the floater are depleted by habitat alteration and by competition and predation by non-native fishes introduced by humans either inadvertently or for various purposes. The proliferation of the introduced Asian clam (*Corbicula manilensis*) may also be adversely affecting the California floater through interspecific competition.

**Threats:** alteration and destruction of riverine habitats; declining water quality; competition with an predation by non-native fish and introduced crayfish; possible link to reduced populations of native fish that serve as larval hosts. **Management needs:** identification of potential for restoration of original habitat and reintroduction; research on effects of suspected competitors and predators.

**PROTECTIVE MEASURES TAKEN:** The California floater is not specifically protected. Some populations could be indirectly protected if they are located on Federal, state or local lands. However, no public agency is known to specifically manage sites for the California floater.

**SUGGESTED PROJECTS:** A status review for the California floater in Washington, Oregon, Idaho and Nevada should be done as no data on current distribution or population dynamics is available.

**LAND MANAGEMENT/OWNERSHIPS:** BIA - Hopi and San Carlos Reservations;  
USFS - Apache-Sitgreaves and Coconino National Forests; AGFD Becker Lake; Private.

## **SOURCES OF FURTHER INFORMATION**

### **LITERATURE CITATIONS:**

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- Landye, J.J. 1981. Current status of endangered, threatened, and/or rare mollusks of New Mexico and Arizona. Report for U.S. Department of Interior, Albuquerque, New Mexico. p. 26.
- Taylor, D.W. 1981. Freshwater mollusks of California. A distributional checklist. California Fish and Game 67 (2); 140-163.
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**ADDITIONAL INFORMATION:**

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