# ARIZONA GAME AND FISH DEPARTMENT
# HERITAGE DATA MANAGEMENT SYSTEM

**Animal Abstract** **Element Code:** AFCJB37150
**Data Sensitivity:** No

## CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

**NAME:** *Agosia chrysogaster*
**COMMON NAME:** Longfin Dace
**SYNONYMS:** *Agosia chrysogaster, Agosia metallica, Hyborhynchus siderius, Zophendum siderium, Rhynichthys chrysogaster*
**FAMILY:** Cyprinidae

**AUTHOR, PLACE OF PUBLICATION:** Girard, 1859.

**TYPE LOCALITY:**

**TYPE SPECIMEN:**

**TAXONOMIC UNIQUENESS:** Only *Agosia* species in Arizona.

**DESCRIPTION:** Body is "fusiform; with small scales. Adults rarely exceed 65.0 mm (2.6 in.) standard length. Scales in lateral line 70-90" (Sublette et al. 1990). Head is "thick and blunt. Mouth small, subterminal, oblique; overhung by a bluntly rounded snout; mouth terminates posteriorly at a point under the nares" (Sublette et al. 1990). "Back and upper sides silvery gray to olive, sides sometimes with golden flecks; lower sides and abdomen whitish; peritoneum black. Diffuse dusky lateral stripe originates at upper corner of opercle, terminating in a black spot at base of caudal fin" (Sublette et al. 1990).

**AIDS TO IDENTIFICATION:** The longfin dace can be distinguished from other cyprinids by a small, subterminal mouth; small barbels; and the lack of a dark spot on the anterior part of its triangular dorsal fin (Sublette et al. 1990).

**ILLUSTRATIONS:** B&W photos (Minckley 1973:126)
Color photo (Rinne and Minckley 1991: 17)
Line drawing (Sublette et al. 1990:89)
B&W photos (Sublette et al. 1990:89-90)
Color photo (USGS web site)

**TOTAL RANGE:** *Agosia chrysogaster* is native to the Gila, Bill Williams, Yaqui, Magdalena, and Sonoyta drainages and has been introduced into the Virgin River basin, Arizona, Zuni and Mimbres rivers and Rio Grande basin, New Mexico (Minckley 1973).

**RANGE WITHIN ARIZONA:** Primarily the Gila and Bill Williams drainages and introduced into the Virgin River basin, Arizona. Per W.L. Minckley (AGFD Native Fish Diversity Review 1995), distribution has increased in mountainous areas, probably due to climatic trends.

## SPECIES BIOLOGY AND POPULATION TRENDS

**BIOLOGY:** "It has a remarkable capability to disperse into new habitats, appearing a few hours or days after flow reestablishes in formerly dry stream channels. Longfin dace were once recorded to survive in tiny volumes of water beneath mats of filamentous algae, then reproduce a few days after when summer rains rejuvenated the stream" (Rinne and Minckley 1991). In response to the onset of a flooding event, the fish will move directly into the margins of the current and move back into the channel as discharge declines: they are rarely caught in flood pools or backwaters (Minckley and Barber 1971: Rinne 1975). During drought, they may be found in algal mats or under logs and stones. Maximum life span is three years.

**REPRODUCTION:** They may spawn throughout the year but primarily in spring. Most individuals are sexually mature in their first year. The Colorado River longfin dace create saucer-shaped depressions where the eggs are deposited and newly hatched young remain for a brief time, however, these spawning behaviors have not been observed in the Rio Yaqui populations (Rinne and Minckley 1991). Nests are usually excavated in shallow water 2 to 4 inches (5 to 20cm) deep with a slight current and over sandy bottoms. Nests arrange from 5.9 to 9.8 inches (15 to 25cm) in diameter. Hatching occurs in within 4 days. Fry stay in nest for before dispersing to shorelines areas. "Fecundity is positively correlated with fish length, weight, ovary weight, and maturity index and therefore is a function of size" (Kepner 1982).

**FOOD HABITS:** Omnivorous and opportunistic, feeding primarily on detritus (Minckley 1973, Sublette et al. 1990). Also opportunistic, feeding on various aquatic invertebrates, zooplankton, and algae depending upon availability. Therefore diet can be highly variable among populations in different areas. They prefer to feed during the daylight when resources are abundant.

**HABITAT:** Wide ranging, from intermittent hot low-desert streams to clear and cool brooks at higher elevations. Longfin dace tend to occupy relatively small streams, with sandy or gravely bottoms. Usually in water less than 0.6 ft (0.2 m) deep with moderate velocities of around 1.1f/s (0.3m/s). Rarely abundant in large streams or above 5,000 ft (1524m). Generally found in water less than 75°F (24°C).

**ELEVATION:** Generally less than 4,900 feet (1500 meters). Based on records in the Heritage Data Management System (HDMS), elevation ranges from 1,360 - 6,740 ft. (415 - 2,056 m) (AGFD unpublished data accessed 2001).

**PLANT COMMUNITY:** Varied, from desert scrub to the lower end of conifer woodlands.

**POPULATION TRENDS:** Individual populations may be moved due to changes in water flow and they can suffer massive mortalities but the species has the ability to recover numbers rapidly. The Willcox Playa population has decreased and may be extinct per personal communication with W. L. Minckley, 1995.

## SPECIES PROTECTION AND CONSERVATION

**ENDANGERED SPECIES ACT STATUS:** None (USDI, FWS 1996)
[C2 USDI, FWS 1994]

**STATE STATUS:** None

**OTHER STATUS:** Bureau of Land Management Sensitive (USDI, BLM 2000)
Listed Threatened (Secretaría de Medio Ambiente 2000)
[Listed Threatened, Secretaría de Desarrollo Social 1994]

**MANAGEMENT FACTORS:** Human activities that alter the quality or flow of water. Particularly flood control and irrigation practices.

**PROTECTIVE MEASURES TAKEN:**

**SUGGESTED PROJECTS:** Further investigation of reproductive activities, especially in the Rio Yaqui basin.

**LAND MANAGEMENT/OWNERSHIP:** BIA - Fort McDowell and San Carlos Reservations; BLM - Havasu, Kingman, Phoenix, Safford and Tucson Field Offices; FWS - San Bernardino National Wildlife Refuge; NPS - Montezuma Castle National Monument; USFS - Apache-Sitgreaves, Coconino, Coronado, Prescott and Tonto National Forests; State Land Department; Sonoita Creek State Natural Area; Cienega Creek Natural Preserve; TNC - Aravaipa Canyon, Cottonwood Spring, Hassayampa River and Muleshoe Ranch Preserves, and Patagonia-Sonoita Creek and Cascabel Community Management Area; Private.

## SOURCES OF FURTHER INFORMATION

**REFERENCES:**

Arizona Game and Fish Department Native Fish Diversity Review. 1995. Tempe, Arizona.
BISON-M, Biota Information System of New Mexico, web site.
http://nmnhp.unm.edu/bisonm/bisonquery.php.

Hendrickson, D.A., W.L. Minckley, R.R. Miller, et al. 1980. Fishes of the Rio Yaqui Basin, Mexico and United States. Journal of the Arizona-Nevada Academy of Science 159(3):73.

Kepner, W.G. 1982. Reproductive biology of longfin dace (*Agosia chrysogaster*) in a Sonoran desert stream, Arizona. Arizona State University masters thesis. pp. 72.

Minckley, W.L. 1973. Fishes of Arizona. Arizona Game and Fish Department, Phoenix. pp. 126-128.

Minckley, W.L. and W.E. Barber. 1971. Some aspects of biology of the longfin dace, a cyprinid fish characterestic of steams in the Sonoran Desert. Southwest Naturalist 15(4): 459-564.

Natureserve Explorer: An online encyclopedia of life [web application]. 2001. Version 1.6. Arlington Virginia, USA: NatureServe. Available: http://natureserve.org/explorer. Accessed: November 20, 2002).

Page, L.M. and B.M. Burr. 1991. A field guide to freshwater fishes: North America, north of Mexico. Houghton Mifflin Co., Boston. p. 79.

Pima County Arizona, Priority Vulnerable Species, web site. (http://www.co.pima.az.us/cmo/sdcp/sdcp2/pvs.pdfs.s29_fld.pdf)

Rinne, J.N. 1975. Changes in minnow populations in a small desert stream resulting from naturally and artificially induced factors. Southwestern Naturalist 20(2): 185-195.

Rinne, J.L. and W.L. Minckley. 1991. Native fishes of arid lands: a dwindling resource of the desert southwest. U.S. Department of Agriculture, Forest Service, General Technical Report RM-206. Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. pp. 17-18.

Secretaría de Desarrollo Social. 1994. Diario Oficial de la Federacion. p. 50.

Secretaría de Medio Ambiente. 2000. Diario Oficial de la Federacion. p. 44.

Sublette, J.E., M.D. Hatch, and M. Sublette. 1990. The fishes of New Mexico. University of New Mexico Press, Albuquerque. pp. 89-91.

USDI, Bureau of Land Management. 2000. Arizona BLM Sensitive Species List. Instruction Memorandum No. AZ-2000-018.

USDI, Fish and Wildlife Service. 1994. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species; Proposed Rule. Federal Register 59(219):58996.

USDI, Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants: Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species. Federal Register 61(40):7596-7613.

USGS, Species FactSheet, web site. http://nas.er.usgs.gov/queries/SpFactSheet.asp?speciesID=639.

**MAJOR KNOWLEDGEABLE INDIVIDUALS:**

Paul Marsh - Arizona State University, Tempe.

**ADDITIONAL INFORMATION:**

Was placed in the genus *Rhinichthys* by Woodman (1992).

**Revised:** 1994-08-10 (MHH)
1995-01-29 (KLY)
1997-03-04 (SMS)
2002-11-20 (RHB)

To the user of this abstract: you may use this entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX **(= year of last revision as indicated at end of abstract)**. X...X **(= taxon of animal or plant)**. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.