



THE STATE OF ARIZONA

GAME & FISH DEPARTMENT

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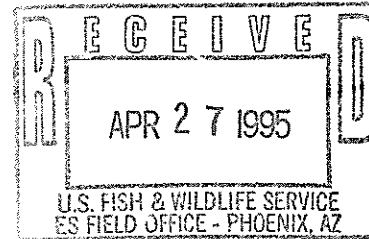
MEMORANDUM

TO: Distribution List

FROM: Kirk Young, Native Fish Program Manager

SUBJECT: Sonora Chub Collection in California Gulch

DATE: April 25, 1995



On March 28 through March 30, 1995, Nongame personnel conducted an inventory survey for Sonora chub (*Gila ditaenia*) in California Gulch and nearby drainages along the International border in Santa Cruz County. Sonora chub have been previously documented in the United States only from Sycamore Creek and its immediate tributaries.

Surveys were conducted in California Gulch, Warsaw Canyon, Holden Canyon, Bonita Canyon, and Alamo Wash in the United States. These drainages, along with Sycamore Creek, form the headwaters of the Rio Altar of Mexico. California Gulch flows south into Mexico approximately two miles west of Sycamore Creek at the International border and drains into Los Alisos (tributary to Rio Altar) in Mexico, as does Sycamore Creek. With the exception of Sycamore Creek, there are no known records of native fish from these drainages within the United States. Nonnative mosquitofish (*Gambusia affinis*) and green sunfish (*Lepomis cyanellus*) are the only fish species previously known from California Gulch.

Fish were collected using a Model 12 Smith-Root backpack electrofisher and dipnet. Surface water was spot-sampled along reaches of access and along roads. Selected portions of isolated reaches were walked and sampled. Photos were taken at representative sites of each creek, collection sites, and of fish and ranid frogs.

Sonora chubs were found during this survey in California Gulch, ranging from just below a small concrete dam immediately above the confluence with Warsaw Canyon (T23.0S R11.0E Section 20 SW4SE4) downstream to the International border with Mexico. Sonora chub was abundant in approximately one-half mile of stream from the

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international border (T23.0S R11.0E Section 31) upstream to a 4WD road (T23.0S R11.0E Section 29 SW4SW4). In this reach they were found in all habitats including pools, riffles, and runs, and represented a variety of size classes ranging from 23 to 141 mm total length (n = 17). Sonora chub was uncommon in approximately 1.5 miles from the 4WD road upstream to the concrete dam. In this reach, chub were found only in the deepest pools at the base of bedrock cliff faces and large boulders. These fish appeared to be of the same size class ranging from 73 to 87 mm total length (n = 10). Chub were not found upstream of the concrete dam. A series of Sonora chub were preserved in 10% formalin and will be added to the Arizona State University Fish Collection.

Nonnative mosquitofish, black bullhead (*Ameiurus melas*), green sunfish, and bluegill (*Lepomis macrochirus*) were also collected from California Gulch. Nonnatives were not found in the half mile reach immediately above the international border, where Sonora chub were abundant. Mosquitofish and black bullhead were common upstream of this reach, and green sunfish and bluegill were uncommon. Nonnative bullfrog tadpoles and adults (*Rana catesbeiana*) were found throughout California Gulch. A single goldfish (*Carassius auratus*) was found in Warsaw Canyon. No fish were found in Holden Canyon, Bonita Canyon, or Alamo Wash. A leopard frog, yet to be identified, was found and photographed in Holden Canyon.

Water flow in most of California Gulch was small and discontinuous, with the exception of the half-mile reach at the international boundary. Here the flow was plentiful and continuous. The riparian vegetation in this reach appeared to be in good health and quality. Mining activities, historic and present, are numerous throughout the California Gulch drainage.

We are considering the discovery of Sonora chub in California Gulch to be a natural population and a range extension for the species. This additional population will be a benefit to the conservation of the species in the United States. It is also evidence to support further investigations of other drainages in the Rios Altar and Magdalena watersheds in Arizona.

If you have any questions or comments regarding this survey please contact me at (602) 789-3514.

KLY:MAL:ml

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Distribution List:

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