

**DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
FOR THE ENVIRONMENTAL ASSESSMENT:**

**RENOVATION OF STILLMAN LAKE TO REMOVE
NON-NATIVE FISHES AND REPATRIATE NATIVE SPECIES**

Across the United States, and particularly in the Southwest, aquatic habitats have been substantially impacted through human growth and development. Southwestern native fish have declined precipitously over the last several decades in response to these changes in aquatic habitat and the introduction of non-native fishes and other non-native aquatic species such as bullfrogs (*Lithobates catesbeiana*) and crayfish. Non-native species impact native aquatic species through predation, competition, and modification of habitats. Currently, our ability to effectively conserve and manage native fish in the upper Verde River in north-central Arizona is limited due to the presence of non-native fish, amphibians, and crayfish. Stillman Lake, located in the headwaters of the upper Verde River, Yavapai County, Arizona, is not a true "lake," but is a long, narrow body of water (approximately 20 surface acres) that originates from a spring complex approximately 0.25 miles downstream of Sullivan Dam. Stillman Lake is a semi-impoundment of the Verde River formed by an alluvial fan that originates from Granite Creek. Although Stillman Lake does have hydrologic connection to the Verde River during runoff events, normally all the flow to downstream areas is subsurface.

Removal of non-native fish and reduction of other aquatic non-native species would benefit native fishes in the Verde River headwaters by eliminating non-native predators and allowing native fishes in Stillman Lake the ability to grow to a larger size until they disperse downstream during flooding events. This action would also aid in determining how long it takes for downstream areas to recolonize with stocked natives and provide much-needed information regarding the longterm cost effectiveness of renovation projects. This proposed action may be an important first step in renovation of subsequent, downstream sections of the Verde River and Granite Creek, which would be assessed at a later time. However, the proposed action addresses Stillman Lake only and does not address non-native fish populations downstream of the project area.

In response to agency and public concerns regarding the recovery and re-establishment of native fish in the upper Verde River, the Arizona Ecological Services and Arizona Fish and Wildlife Conservation Offices of the U.S. Fish and Wildlife Service (Service), the Arizona Game and Fish Department (AGFD), and in coordination with other partners, prepared an environmental assessment (EA) evaluating how we might work together to restore and enhance the native fish community in the headwaters of the Verde River. The EA documented the need to restore and enhance the native fish community in the

headwaters of the Verde River by eradicating non-native fish and reducing non-native bullfrogs and crayfish from Stillman Lake. Stillman Lake would then be restocked with native fish, such as the endangered razorback sucker (*Xyrauchen texanus*) and the roundtail chub (*Gila robusta*), a species of concern. Providing habitat for threatened and endangered species would aid in recovery of these species, and conservation actions that improve the status of species currently not listed would reduce threats to the species and minimize the likelihood of listing under the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (ESA).

Conservation through re-establishment of native fishes in Arizona is consistent with the AGFD's Wildlife 2006 Nongame and Endangered Wildlife subprogram narrative, goals of which include restoration of native biological diversity and recovery of imperiled species. Furthermore, through a Memorandum of Understanding, the Service and AGFD have mutually agreed to participate in actions to improve the status of wildlife species-at-risk, such as the roundtail chub and other native fish. Currently, AGFD's management goals for the Upper Verde River Wildlife Areas, which includes the Stillman Lake area, include protection of current and potential values for threatened, endangered, and sensitive (TES) stream and riparian habitats, fish, waterfowl, big game, small game, and non-game species with primary emphasis on TES species and their habitats.

The following three alternatives were developed to respond to the issues identified through public involvement. Three additional alternatives were considered, but not analyzed in detail (see Section 2.6 of the EA). A description of each alternative is provided in Chapter 2 of the EA. A detailed discussion of the effects of the alternatives is provided in Chapter 4 of the EA. The following is a summary of the three alternatives: no action; chemical renovation and removal of non-native fish; and removal of the sediment berm that impounds Stillman Lake.

- *No Action Alternative*: Neither renovation nor repatriation of native fish in Stillman Lake would occur under the No Action Alternative. The enclosed, lotic nature of Stillman Lake provides prime habitat for spawning and recruitment of non-native aquatic species such as common carp (*Cyprinus carpio*) and flathead catfish (*Pylodictis olivaris*). Stillman Lake is a source population of these non-natives that disperse downstream when the Verde River periodically floods. Therefore, if renovation does not occur, non-natives will continue to dominate the area, and we will be unable to manage this or adjacent stream habitat for native fishes or other native aquatic species. There would be no cost for implementing the No Action Alternative.
- *Alternative A (Chemical Renovation and Restocking of Native Fish)*: A fish toxicant, either Antimycin A or rotenone, effective in killing most species and life stages of gill-breathing animals would be used to remove non-native fishes from Stillman Lake. Sodium or potassium permanganate will be used as the detoxifying agent at the downstream end of the treatment zone. During chemical application, baited minnow traps would be deployed in order to expose crayfish to the piscicide and increase mortality. Stillman Lake is conducive for native fish

restoration because of its isolation and the retention of the berm that physically separates the area from the rest of the Verde River. Following the eradication of non-native fishes from Stillman Lake, it would be gradually restocked over a three-year period to restore the native fish community that was historically found in the area. Native fish that would be stocked into Stillman Lake include adult razorback sucker, desert sucker (*Pantosteus clarkii*), Sonora sucker (*Catostomus insignis*), roundtail chub, and speckled dace (*Rhinichthys osculus*). Costs for the preferred alternative would include personnel time, monitoring, and equipment. In addition, depending on the type of fish toxicant used, the costs for chemical purchase may be low due to existing stock. Project costs for this alternative are expected to be less than removal of the sediment berm due to the availability of Service and AGFD expertise to implement this alternative.

- *Alternative B (Removal of Sediment Berm)*: In this alternative, the berm would be removed to approximately 3.28 feet (1 meter) below the current water level to provide enough elevation for drainage to occur. A channel would be constructed that would follow the historical channel to convey the flows downstream. Erosion controls would be incorporated along each side of the channel to minimize sedimentation. Channel dimension and profile would be based on landscape slope and distance to where flows become perennial in the Verde River. This effort would likely be contracted to an engineering firm with experience in channel restoration and design. During a field trip in August 2004, several engineers visually surveyed the area and agreed that this alternative was feasible given the hydrology and geomorphology of the area. However, the overall cost of the proposed action would increase significantly if earth-moving and channel restoration become components of the project.

Once water is gravity-drained, a pump would be used to pump water levels as low as feasible. Once draining and pumping are complete, the berm would be repaired and the conveyance channel obliterated and returned to its preconstruction state. Native willow seedlings from below the Stillman Lake outfall would be planted to restore the area to its pre-construction state. Mechanical removal techniques would be used under this alternative to control non-native fish populations and would be an on-going management action into the foreseeable future. Mechanical removal would entail the use of electrofishing and nets to actively remove target fish species.

This alternative would be more costly to implement and maintain. Due to the need to hire a contractor to design and implement the channel construction and deconstruction, costs are expected to be substantially more expensive than Alternative A. In addition to the cost of channel construction, mechanical removal of target species would need to be conducted on a yearly basis. However, more importantly, we may not be able to reconstruct the berm following removal.

FINDING OF NO SIGNIFICANT IMPACT

The analysis in the EA indicates that the proposal does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102(2)(c) of the National Environmental Policy Act of 1969 (as amended). As such, an Environmental Impact Statement is not required. This determination is based upon the following:

1. The proposed action would not pose a risk to public health and safety. Fish toxicants would only be handled by agency personnel trained in the use and application of these chemicals. In addition, a state-licensed pesticide applicator would be on site during application of the chemical fish toxicant.
2. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected. Mitigation measures that are part of the action agencies' standard operating procedures and adherence to laws and regulations would further ensure that the agencies' activities do not harm the environment.
3. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to the use of chemical fish toxicants, this action is not highly controversial in terms of size, nature, or effect.
4. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed chemical fish toxicant application on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks.
5. No significant cumulative effects were identified through this assessment. The EA discussed effects on target and non-target species populations and land uses downstream of the project area and concluded that such impacts were not significant for this action.
6. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources.
7. The Service has determined that the proposed program would have insignificant, discountable, or beneficial effects to Federally-listed threatened or endangered species. This determination is based upon Intra-Service Section 7 Biological Evaluations completed by the Service for this EA. In

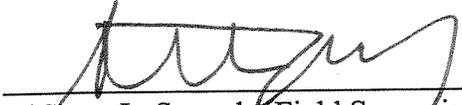
addition, AGFD has determined that the proposed action would not adversely affect any Arizona State listed threatened or endangered species.

8. The proposed action would be in compliance with all federal, state, and local laws.
9. The requirement to comply with the ESA for Federal activities occurring downstream of Stillman Lake would not be affected by this project.

DECISION AND RATIONALE

We have carefully reviewed the EA prepared for this proposal and the input received from the public involvement process. We believe that the issues identified in the EA are best addressed by selecting Alternative A – Chemical Renovation and Re-stocking of Native Fish, including implementation of the proposed action and applying the associated mitigation measures discussed in Chapter 2 of the EA. Alternative A is selected because (1) it offers the greatest chance of successfully removing non-native fishes from Stillman Lake and providing a refuge for native fish species; (2) it presents the best opportunity to maximize net benefits to native aquatic species, while minimizing effect and impacts to the human environment; (3) the Service and AGFD have the expertise to implement this project successfully; and, (4) it is the most fiscally conservative option of the alternatives analyzed. The comments identified from public involvement were considered, and where appropriate, changes were made to the EA. The revisions that were made to the EA did not substantially change the analysis. Therefore, it is our decision to implement the proposed action as described in the EA.

Copies of the EA are available upon request from the Arizona Ecological Services Office Flagstaff Suboffice, 323 North Leroux Street, Suite 201, Flagstaff, AZ 86001 or on the AESO website at: <http://www.fws.gov/southwest/es/arizona/>.



/s/ Steve L. Spangle, Field Supervisor
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Date



Stewart Jacks, Project Leader,
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5-26-09

Date

