Desert Fish Habitat Partnership
2007-2010 Report

Bringing together people and organizations with a common interest in voluntary conservation of desert fishes and their habitats.

The Desert Fish Habitat Partnership (DFHP) was initiated in 2005 to conserve native desert fish by protecting, restoring, and enhancing their habitats in cooperation with state and tribal fish and wildlife agencies, federal resource agencies, research and private organizations, and engaged individuals. The DFHP seeks to address critical fish and aquatic habitat conservation needs in the Great Basin and Mohave, Sonoran, and Chihuahuan deserts in southwestern United States. These lands support 179 non-salmonid native fish taxa prioritized for conservation by the DFHP under the guidance of the western states' State Wildlife Action Plans and the National Fish Habitat Action Plan (NFHAP).

<u>Milestones</u>

- November 2005: Initial discussions concerning a desert fish habitat partnership at the Desert Fishes Council Meeting, Cuatro Cíenegas, Coahuila, MX.
- November 2006: Partnership development meeting, Death Valley, CA
- January 2007: First DFHP teleconference
- February 2007: DFHP presentation to NFHAP Board
- March-May 2007: DFHP teleconferences to shape the partnership
- June 2007: DFHP begins applying for funding
- November 2007: Steering Committee Meeting, Ventura, CA
- February – December 2008: Strategic Plan development
- April 2008: Candidate Fish Habitat Partnership Project Funded: Red Rocks Cíenega, NM
- June 2008: Strategic Planning Workshop, Salt Lake City, UT
- March 2009: formal Partnership recognition by NFHAP Board
- May 2009: Steering Committee Meeting, Albuquerque, NM
- October 2009: NFHAP Project funded: Myton Diversion Fish Passage, UT
- April 2010: "Waters to Watch"—Fairbanks and Soda Springs, NV; Green River Basin, CO, UT, WY

- October 2010: DOI Partners in Conservation Award—recognition of partners for work in southern Arizona on native desert fishes
- November 2010: Steering Committee Meeting, Moab, UT
- December 2010: NFHAP Projects Proposed for Funding: Phantom Lake Spring Restoration, TX; Mud Springs Habitat Protection, AZ; Mountain View Creek Nonnative Species Barrier, NV; Apcar Spring Connectivity Restoration, NV.

Framework for Strategic Conservation of Desert Fish: Achievements and Goals

In 2007, the DFHP developed a Framework for Strategic Conservation of Desert Fish and has used this document to guide daily and long-term activities. From the Framework, the principal goals of the DFHP are:

- Protect and maintain intact healthy aquatic ecosystems supporting desert fish habitats
- Prevent further degradation of desert fish habitats that have been impaired
- Reverse declines in the quality and quantity of desert fish habitats to improve the overall population status of desert fishes and other aquatic organisms
- Increase the quality and quantity of fish habitats that support a broad natural diversity of desert fishes and other native aquatic species

To accomplish this, the DFHP established the following priorities:

1. Integrate State Wildlife Action Plan priorities with the National Fish Habitat Action Plan (NFHAP) strategies to include the following:

- Protect intact and healthy habitats.
- Restore and maintain flow and water levels.
- Restore connectivity, while protecting native populations at-risk from nonnative encroachment.
- Remediate and minimize sediments and excessive input of nutrients to habitats supporting species at-risk.

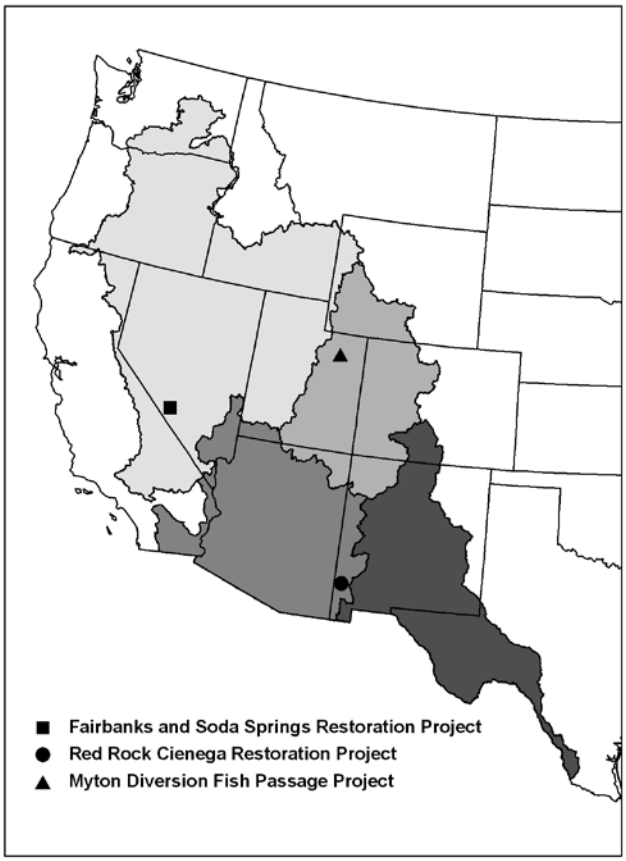
Accomplishments to Date

In 2008, each DFHP partner state reviewed their State Wildlife Action Plan (SWAP) priority species and habitats to determine the focus of the DFHP. A review of these plans identified 179 native fish species occurring within the geographic scope of the DFHP, excluding salmonids, occurring in four priority habitats in the desert: rivers, streams, springs, and cíenegas. The DFHP then further prioritized species and habitats to focus on the species which are unique to the deserts of North America, highly imperiled, and underserved by lacking adequate management and resources to ensure effective conservation. The outcome of this effort produced a numerical ranking system from 0.9 to 2.8, with the highest priority desert fish species receiving scores greater than 2.

2. Implement on-the-ground projects that focus actions to protect the most under-served, imperiled desert fish species identified in SWAPs to enhance their conservation status and prevent their extirpation and extinction.

Accomplishments to Date

Beginning in 2008, with Candidate Partnership funding from the NFHAP and USFWS, the DFHP began implementing on-the-ground projects for the conservation of desert fish.



Map of Desert Fish Habitat Partnership projects, 2008-2010.

Restoration of Red Rock Cíenega, NM. Fish Species Addressed (Rank): Gila chub (2.11) and Gila topminnow (2.00). Total Project Cost: $100,000. Beginning in 2008, New Mexico Department of Game and Fish partnered with Arizona Game and Fish Department and U.S. Fish and Wildlife Service to restore cíenega habitat at Red Rock State Wildlife Area in southeastern New Mexico. Direct funding was provided by USFWS National Fish Habitat Partnership Demonstration Project funds ($60,000) and the Central Arizona Project Native Fishes Restoration funds ($20,000), with in-kind resources provided by the partners. The historical cíenega was manually deepened, nonnative vegetation removed, and a pump installed to secure perennial water in times of drought. Following completion of the construction and establishment of native vegetation and invertebrates, the agencies stocked Gila topminnow and Gila chub. These populations double the numbers of each species in New Mexico, significantly impacting recovery efforts. The cíenega will provide habitat for native waterfowl, neotropical birds, and amphibians, as well as the

endemic fish. A boardwalk and signage will increase the recreational and education value of the wildlife area.

Red Rock Cíenega area prior to restoration.

Red Rock Cíenega after restoration.

Myton Diversion, UT. Fish Species Addressed (Rank): flannelmouth sucker (2.00), bluehead sucker (1.89), roundtail chub (2.00), and Colorado pikeminnow (1.67). Total Project Cost: $320,000. Myton Diversion, located on the Duchesne River, approximately 43 river miles above the confluence of the Green River, does not currently allow fish to move from the lower reaches of the Duchesne River into the upper reaches of the Duchesne River. A fish passage structure will restore connectivity between fish populations of flannelmouth sucker, bluehead sucker, and roundtail chub above and below the diversion, which will restore gene flow and migratory capabilities of the species and increase the amount of habitat and the ability to select better habitat of each individual. The structure will also allow upstream movement of Colorado pikeminnow. The implementing agency is the Ute Indian Tribe and partnering agencies/organizations are U.S. Fish and Wildlife Service and Utah Division of Wildlife Resources.

Myton Diversion on Duchesne River, UT.

Fairbanks and Soda springs, NV. Fish Species Addressed (Rank): Ash Meadows Armagosa pupfish (1.67) and Ash Meadows speckled dace (2.00). Total Project Cost: $100,000. This project on Ash Meadows National Wildlife Refuge restored two miles of spring outflow following historic flow patterns, which allowed the discharge from Fairbanks Spring to be returned from old agricultural ditches to sinuous natural channel. Additionally, open box culverts were installed in the spring outflow stream to restore fish passage. These structures are designed with replaceable baffles that allow the emergency placement of drop barriers to protect restored habitats if nonnative fishes are found in the lower spring outflow in the future. Although native riparian vegetation restoration and removal of nonnative fish remain, Ash Meadows speckled dace were released into the restored upper Fairbanks Spring outflow in spring 2010. The fish appear to be successfully re-establishing in the system for the first time in 50 years with evidence of recruitment observed this summer. The implementing agency is U.S. Fish and Wildlife Service and partnering agencies/organizations are the National Fish Passage Program and Nevada Department of Wildlife. Funding for project implementation was provided by the National Fish Passage Program.

Fairbanks Spring new outflow channel prior to re-vegetation with native plant species.
Photo Credit Harry Konwin

Ash Meadows Amargosa pupfish

3. Prioritize projects to conserve and restore habitat for the most under-served, imperiled desert fish species.

<u>Accomplishments</u>

In 2009, the Desert Fish Habitat Partnership began soliciting for projects under the NFHAP. The DFHP received seven project proposals in 2009, ten project proposals in 2010, and eleven project proposals in 2011. The Request for Proposals (RFP), the guidance provided to potential responding entities, and the evaluation criteria used in ranking the submissions are based upon the priorities set forth in the Framework and are available on DFHP's website. In each year, projects were first reviewed and ranked within each DFHP geographic subregion, then prioritized across the partnership. The four projects listed here are identified for US Fish and Wildlife Service-National Fish Habitat Action Plan FY2010 funding within the $90,000 identified for the DFHP.

Phantom Lake Springs Cíenega Habitat Restoration, TX. Fish Species Addressed (Rank): Comanche Springs pupfish (1.89) and Pecos gambusia (1.89). Total Project Cost: $108,000. Flow from Phantom Lake Spring has been continually declining since measurements began in the 1940s. Corresponding aquifer levels in Phantom Cave have dropped 2.5 feet in the last 10 years. Five endemic and highly imperiled species of fish and invertebrates occupy the cíenega maintained by the spring flow and their populations are threatened by the declining water and unreliable pumping system now in place. This project will modify the existing altered cíenega to make it larger, more natural, and more reliable. The implementing agency is U.S. Fish and Wildlife Service and partnering agencies are U.S. Bureau of Reclamation and Texas Parks and Wildlife Department.

Mud Springs Fish Introduction and Habitat Protection, AZ. Fish Species Addressed (Rank): desert pupfish (2.11) and Gila topminnow (2.00). Total Project Cost: $31,280. This project entails the installation of a fence around Mud Springs near Tonto Basin to protect it from cattle and unauthorized cross-country vehicular travel. This spring complex has several artificially constructed ponds surrounded by submergent and emergent vegetation. Water seeps into a wetland dominated by clover and spikerush. A pipe and trough will be installed to provide water to cattle outside the fence. Two endangered fish species, desert pupfish and Gila topminnow, will be stocked into the pond and an information kiosk provided nearby to educate the public. The implementing agency is U.S. Forest Service (Tonto National Forest) and partnering agencies are Arizona Game and Fish Department and U.S. Fish and Wildlife Service.

Mountain View Creek – Nonnative Species Barrier, NV. Fish Species Addressed (Rank): Wall Canyon sucker (2.67) and speckled dace (1.00). Total Project Cost: $11,500. A population of Wall Canyon sucker persists in Mountain View Creek, a tributary to Wall Canyon Creek downstream of Wall Canyon Reservoir. This section of Wall Canyon Creek supports limited populations of nonnative brown trout and crayfish, both of which have had severe implications for the Wall Canyon sucker population in Wall Canyon Creek. This project will assist in completing design and construction of a barrier that prevents or slows the invasion of the nonnatives. After barrier construction, intensive crayfish trapping will be used to eliminate or drastically reduce the population that exists upstream of the proposed barrier locations. The implementing agency is Nevada Department of Wildlife and partnering agency is U.S. Fish and Wildlife Service.

Moapa Dace-Apcar Box Culvert, NV. Fish Species Addressed (Rank): Moapa dace (1.89), Moapa White River springfish (1.89), Virgin River chub (2.11), and Moapa speckled dace (1.56). Total Project Cost: $250,304. Apcar Spring is one of 25 thermal springs that help create the Muddy River in Clark County, Nevada, and historically supported Moapa dace, an endangered minnow endemic to the Warm Springs area. The upper Apcar system was recently

rehabilitated and now supports a breeding population of Moapa dace, but is effectively cut off from adult and juvenile habitat downstream by an undersized, perched culvert. This project would replace the existing culvert with a box culvert, thus removing a velocity barrier and restoring connectivity for this important portion of the Moapa dace's habitat. The implementing agency is U.S. Fish and Wildlife Service and partnering agencies are Nevada Department of Wildlife, U.S. Geological Survey, Bureau of Land Management, and Southern Nevada Water Authority. The majority of implementation funding will be provided by the National Fish Passage Program.

Additionally, the DFHP has been working with a variety of groups to develop assessment and prioritization tools for use throughout the desert west. These include:

Lower Colorado River Basin Threat Assessment. Conservation of the unique fish fauna of the Lower Colorado River Basin is imperative; however, the optimal allocation of resources for conservation is challenged by incomplete information. To this end, conservation priorities for individual stream segments were developed based on diversity scenarios of taxonomy, species traits representing functional roles (e.g., life history), and phylogeny using multiple parameters including: 1) a threat index developed from anthropogenic stressors, 2) models of species distributions, 3) point locations for species with few collection records, 4) stream connectivity (based on location of major dams), and 5) nonnative species richness. Major watersheds containing areas of high conservation value include the Virgin River, lower reaches of the Little Colorado River, upper reaches of the Gila River, Verde River, upper reaches of the Salt River, Santa Cruz River, and the San Pedro River. The agreement between diversity scenarios for the highest ranking 10% of stream segments was 75%. Taxonomic diversity was generally better represented in protected lands compared to functional and phylogenetic diversity. These analyses are preliminary and will be refined using projected climate change and human influences on impervious surface cover. The project is on schedule to be completed by September 2011.

Trout Unlimited's Conservation Success Index Assessment for Green River Basin. Trout Unlimited developed the Conservation Success Index (CSI) in order to become more strategic and effective in conservation efforts. Using the CSI, the conservation status of all native coldwater fishes is quantified and mapped such that comparisons of existing condition, threats, future security, and management opportunities can be made across watersheds, river basins, and entire species. The CSI has now been expanded to include warmwater fish as well. Trout Unlimited is currently working on the final report for extending the CSI to the entire Upper Colorado River Basin, focusing on Colorado River cutthroat trout, roundtail chub, bluehead sucker, and flannelmouth sucker.

National Fish Habitat Action Plan Involvement

The DFHP has been actively involved in the development and implementation of NFHAP related efforts. Some highlights include:

- Science and Data Committee Team Meeting, March 2008
- Informational booth at AFS Meeting, February 2008
- Presentations at Board Meetings attended: February 2007 and March 2009
- NFHAP One-Year-Out Workshop, Leesburg, VA, June 2009
- Comments on the Status of Fish Habitats Assessment Report, 2010
- Presentation at the NFHAP Symposium, 2010
- Presentation for the Federal Caucus Meeting, August 2010

Outreach and Communications

One of the primary goals of the DFHP is to increase awareness, not only of the DFHP and NFHAP, but to educate professionals and private citizens about the importance and conservation of desert fish. Efforts on behalf of the DFHP include:

1. Presentations at meetings:
    - Desert Fishes Council 39th Annual Meeting, November 2007
    - AZ/NM American Fisheries Society-The Wildlife Society Joint Annual Meeting, February 2008
    - Arizona Native Fish Conservation Team meetings, February and March 2008
    - BLM Fisheries State Biologist meeting, March 2008
    - Western Division of American Fisheries Society, May 2008
    - Native American Fish and Wildlife Society, Southwest Regional Meeting, June 2008
    - International Congress for Conservation Biology (Society for Conservation Biology), July 2008
    - AZ/NM American Fisheries Society-The Wildlife Society Joint Annual Meeting, February 2009
    - Arizona Native Fish Conservation Team Meeting, February 2009
    - National Conference on Ecosystem Restoration, July 2009
    - Southwestern Climate Change Workshop, April 2010
    - Webinar on Conservation of Endangered Fish Species, December 2009
    - Fish Passage Workshop, July 2010
    - International Congress for Conservation Biology (Society for Conservation Biology), July 2010
    - Western Association of Fish and Wildlife Agencies, Western Fish Habitat Partnerships Meeting, July 2010
    - American Fisheries Society, NFHAP Symposium, September 2010

2. Informational booths at:
    - AZ/NM American Fisheries Society-The Wildlife Society Joint Annual Meeting, February 2008
    - Native American Fish and Wildlife Society, Southwest Regional Meeting, August 2010
    - Desert Fishes Council Meeting, November 2010
    - World Wildlife Fund, River Restoration Meeting, December 2010

3. A website providing information about the DFHP including the Framework, RFPs, updates, and contact information is hosted by the National Park Service. www.nature.nps.gov/water/DFH_partnership.cfm

4. A quarterly newsletter beginning in summer 2010.

5. A Facebook page including RFPs, newsletters, updates, partners, and pictures was launched to reach out to the public. www.facebook.com/pages/Desert-Fish-Habitat-Partnership/193053497376208

Coordination and Administration

The Operating Structure, formally presented in the Framework in 2008, defines the roles and responsibilities of the DFHP partners. The Operating Structure was updated in late 2010 to better reflect the organization and administration of the Partnership.

Steering Committee is a self-directed group of partner representatives, the decision-making body of the DFHP and has oversight responsibility for all DFHP activities composed of one individual from each of the following:

Arizona Game and Fish Department
U.S. Bureau of Land Management
U.S. Bureau of Reclamation
California Department of Fish and Game
Colorado Division of Wildlife
Desert Fishes Council
Idaho Department of Fish and Game
National Park Service
Native American Fish and Wildlife Society
Natural Resources Conservation Service
Nevada Department of Wildlife
New Mexico Department of Game and Fish
Oregon Department of Fish and Wildlife
Southwest Tribal Fisheries Commission
Texas Parks and Wildlife Department
The Nature Conservancy
Trout Unlimited
U.S. Fish and Wildlife Service
U.S. Geological Survey
U.S. Forest Service
Utah Division of Wildlife Resources
Washington Game and Fish Department
Wyoming Game and Fish Department

Executive Committee serves as the daily governing arm of the DFHP; it oversees the responsibilities of the coordinator, interacts with the National Fish Habitat Action Plan Board and the Western Association of Fish and Wildlife Agencies, and responds to issues that require immediate response. Membership, drawn from the Steering Committee and At-Large Council, is made up as follows:

Federal Agency Representative (Co-chair)
State Agency Representative (Co-chair)
Basin and Range Representative
Upper Colorado River Representative
Lower Colorado River Representative
Rio Grande Representative
U.S. Fish and Wildlife Service Liaison (R2)
Non-Governmental Representative
Tribal Organization Representative

At-Large Council, formally called the Partnership-At-Large-Council, includes all individuals, groups, and agencies beyond the voting members of the Steering Committee who would like to participate in the DFHP. Although the At-Large Council cannot vote, they can attend meetings, participate on the Executive, Science and Data, and ad hoc committees, and provide or receive technical and financial assistance. Currently, there are 32 members on the At-Large Council.

Science and Data Committees, Regional Workgroups, and ad hoc Committees are utilized by the DFHP to address long- and short-term goals.

Coordinator provides primary staff support to the DFHP Steering and Executive committees and is responsible for record keeping, disseminating information, and coordinating and facilitating overall implementation of actions and projects. The Coordinator position was staffed by the Bureau of Land Management from 2008-2009 (Heidi Blasius) and is currently provided by the U.S. Fish and Wildlife Service (Kayla Barrett).

The DFHP holds a teleconference every two months to discuss issues, set priorities, and make decisions. Meetings are held annually, often in conjunction with the Desert Fishes Council meeting in November.

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Paul Scheerer (ODFW)
Robin Schrock (USGS)
David Zafft (WGFD)

Italics indicates current Steering Committee member
* Indicates current Executive Committee member
** Indicates previous Executive Committee member

DFHP Members at the DFHP Annual Meeting in Moab, UT, November 2010.