

## Apache Trout: (*Oncorhynchus gilae apache*)

### DATA: Draft Apache Trout Recovery Plan, Second Revision - 2007

Partners: AZ, FWS, FS, TU, White Mountain Apache Tribe; San Carlos

#### Apache Tribe

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**Status of Apache Trout:** Apache trout was first listed as an Endangered Species on March 11, 1967 (USFWS 1967). It was downlisted to threatened in July 1975 (USFWS 1975) based on recovery actions and a re-analysis of data. The Recovery Plan was completed in 1979, revised in 1983, and is currently (2007) under revision and 5-year review.

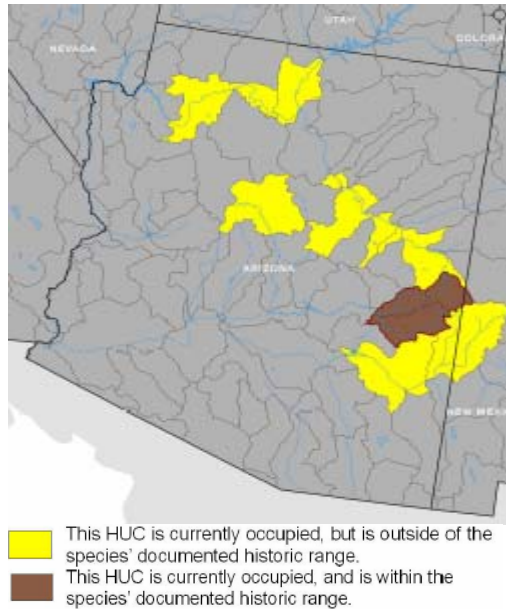
#### Sportfishing Status of the Apache Trout:

The 1975 downlisting with a 4(d) rule allows the Arizona Game and Fish Department (AGFD) and the White Mountain Apache Tribe (WMAT; on Fort Apache Indian Reservation [FAIR] lands) to selectively establish sport fishing opportunities and regulate methods of take (via angling), possession limits, seasons, and close specific areas to fishing (Arizona Revised Statute A.R.S. Title 17 and WMAT Game and Fish Code). All 13 relic populations of Apache trout currently reside on lands of the FAIR (portions of Soldier Creek are also on ASNF) and are closed to fishing. However, AGFD and the WMAT have established several Apache trout sport fisheries that do not contribute towards the recovery criteria in streams and reservoirs using hatchery-reared fish (from AGFD and U.S. Fish and Wildlife Service (FWS) hatcheries) to promote Apache trout recognition as a sport fish and provide a buffer zone in areas where angler use is high. Once populations are restored in recovery streams, angling regulations will be assessed on a case-by-case basis to ensure the continued existence of each population.

**Apache Trout Distribution:** Historically the trout was found in headwaters of the Black, White, and Little Colorado rivers in

the White Mountains of eastern Arizona. Current distribution is limited to the upper portions of these watersheds and a few populations that were established outside of the historical range.

#### Range of the Apache Trout



Currently, twenty-five pure (non-hybridized) populations of Apache trout exist within their historical range. Thirteen natural populations occur on FAIR, three reestablished populations on the FAIR, seven reestablished populations on the Apache-Sitgreaves National Forest (ASNF), and two reestablished populations in streams that occur both on the FAIR and ASNF.

Two streams outside of historical range have pure replicate populations, North Canyon Creek (Ord Creek stock) and Coleman Creek (Soldier Springs stock). North Canyon Creek

## Apache Trout: (*Oncorhynchus gilae apache*)

received Ord Creek stock in the early 1960s. The natural population in Ord Creek was compromised by brook trout and was renovated and replaced with replicated Ord Creek stock from Coyote (ASNF) and North Canyon (Kaibab National Forest, KNF) creeks in 1996.

### **Apache Trout Habitat and Associated Species:**

Information concerning habitat requirements for all life stages of Apache trout is limited. Apache trout evolved in streams primarily between 1,800 m and 2900 m elevation, within mixed conifer and ponderosa pine forests. Apache trout generally require water temperatures below 25° C (77° F). Sufficient flow, shading, and pools are critical for survival during periods of drought and temperature extremes. Apache trout require clean coarse gravel substrates for spawning and prefer cover in the form of woody debris, pools, rocks/boulders, undercut stream-banks, or overhanging vegetation. In portions of its historical range, Apache trout was commonly associated with speckled dace, desert sucker, Sonora sucker, roundtail chub, loach minnow, and spikedace.

### **Concerns, Issues, or Obstacles Relative to the Conservation and Improvement of the Status of Apache Trout:**

#### Habitat Concerns

The Apache Trout evolved in a region characterized by periods of extended drought followed by more mesic conditions. Timber harvest, mineral extraction, livestock grazing, road construction, and water diversion contributed to habitat degradation (e.g., channel incision, sediment loading, bank instability). Climatic variations and catastrophes such as forest fires can result in warmer water temperatures, subsequently

decreasing snow cover in winter due to higher ambient temperatures and resulting in reduced water flows.

#### Introduced Species Concerns

Non-native salmonids such as rainbow trout, cutthroat trout, brown trout, and brook trout were introduced throughout the range of Apache trout for fishing recreation, and their introduction resulted in competition for resources or habitats, direct predation, and hybridization (with rainbow and cutthroat trout). Brown and brook trout are predators to Apache trout, as well as competitors for food and space. Such competition has been identified as a cause of the decline of Apache trout.

#### Genetic Concerns

Continued monitoring of the pure Apache trout populations is necessary to protect the genetic purity of restored populations in recovery waters. The inadvertent stocking or use of introgressed fish for restoration purposes would compromise the recovery effort.

Comment [RK1]: Need scientific names

#### Over-utilization Concerns

Although not identified as a reason that led to listing in 1969, unregulated harvest of Apache trout was another factor that contributed to the species decline from the late 1800s to 1950s. Angling opportunities, methods of take, and harvest of Apache trout on USFS streams have been addressed by AGFD by imposing and enforcing restrictive regulations. Similar restrictions have been developed and enforced by WMAT for FAIR streams. AGFD and USFWS monitor and manage collection permits so damage to populations from scientific collection is prevented or minimized.

## Apache Trout: (*Oncorhynchus gilae apache*)

### Opportunities to Improve the Status of Apache Trout

The management objectives to protect and restore the Apache Trout include: 1) establishment and maintenance of 30 self-sustaining discrete populations of pure Apache trout throughout its historic range; 2) survey and manage pure Apache trout populations presently existing in waters outside the historic range; 3) provide habitat protection through implementation of land management practices, habitat improvement programs, and acquisitions; 4) provide adequate enforcement of all federal, state, and tribal laws and regulations to ensure protection of Apache trout; and 5) develop public support of the Apache trout program through an information and education campaign.

Proposed actions to protect and secure long-term population viability include:

- Population manipulations such as surveys, genetic analyses, non-native fish removal, use of hatchery reared fish, and salvage/refugia plans in emergencies
- Reestablishment of populations with genetically appropriate fish
- Habitat manipulations (placing fish barriers, improving riparian zones, securing water)
- Maintenance of appropriate fishing regulations and property closures
- Continue to exclude stocking of nonnative trouts within the same drainage as endemic or replicate Apache trout populations
- Protection of Apache trout populations from over-utilization and disease
- Development and implementation of BMPs, FMPs and AMPs to enhance habitat restoration in livestock/elk use areas

### Population manipulations

The recovery strategy for Apache trout is to establish and maintain 30 self-sustaining populations. A population will be considered established when it is self-sustaining, capable of persisting under the range of variation in habitat conditions that occur in the restoration stream, and when the population is protected from immigration of non-native trout.

#### **Key actions include:**

Survey and manage Apache trout populations presently existing in waters
Reestablish populations with genetically appropriate fish in renovated streams
Finalize Apache trout broodstock management plan
Prevent reinvasion of non-natives by maintaining or establishing in-stream barriers as needed

### Maintenance of quality habitat for Apache trout

Recovery streams that are subject to multiple land-use practices, such as timber harvest or thinning, prescribed fire, livestock grazing, and intensive recreation, should be managed to maintain healthy riparian corridors that promote sufficient habitat conditions for all Apache trout life functions. Occupied streams that have unstable or declining conditions should be the focus of remedial actions. Routine monitoring should be used to assess stream conditions.

#### **Key actions include:**

Identifying and baseline existing habitat conditions using a standard protocol
Complete habitat improvement or protection on a priority basis
Develop BMPs, AMPs or FPs for grazing control in the Apache trout drainages to reduce land use impacts
Manage human impacts through appropriate regulations and control of public access

## Apache Trout: (*Oncorhynchus gilae apache*)

### Protect Apache trout in non-historical habitats

To protect against a catastrophic event that could affect isolated Apache trout populations the out-of-basin populations should be maintained as Apache trout refugia.

#### **Key actions include:**

Monitor the genetic diversity, basic population viability standards, and population donor sources for re-introductions.
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Salvage and provide refugia for Apache Trout populations that are threatened by wildfire, drought, barrier failure or other unforeseen events when deemed prudent and necessary
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### Assessment of Appropriate Regulatory functions and mechanisms

The Apache trout recovery depends, in part, on adequate regulatory mechanisms and management programs remaining in existence to ensure that all populations of Apache Trout and their habitats are maintained.

#### **Key actions include:**

Identify regulatory mechanisms, laws, and policies that are insufficient to fulfill all recovery objectives and protect Apache trout
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Monitor, prevent, and control disease and/or causative agents, parasites, and pathogens.
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Implement appropriate laws and regulations to allow Apache trout populations to persist in light of commercial, scientific, and recreational uses.
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### **Highest Priority Strategies and Actions for Apache trout protection and de-listing:**

1. Complete the Revised Apache Trout Recovery Plan and the 5-year Status review.

2. Finalize an Apache Trout Conservation Strategy MOU between Arizona Game and Fish Commission, U.S. Forest Service, U.S. Fish and Wildlife Service, White Mountain Apache Tribe, San Carlos Apache Tribe, Arizona Chapter of Trout Unlimited, Federation of Fly Fishers, and Arizona Wildlife Conservation Council based on the completed 2007 Revised Recovery Plan and Status review.

3. Develop proposed delisting rule and post-delisting management plan.

4. Complete stream renovations needed to get to 30+ populations.

- Stinky Creek Restoration
- West Fork Black River

5. Reestablish pure Apache trout in prepared recovery streams.

- Develop broodstock for Whiskey and Spruce Creek lineages

6. Monitor populations to determine current status.

7. Monitor and maintain effective barriers, where needed

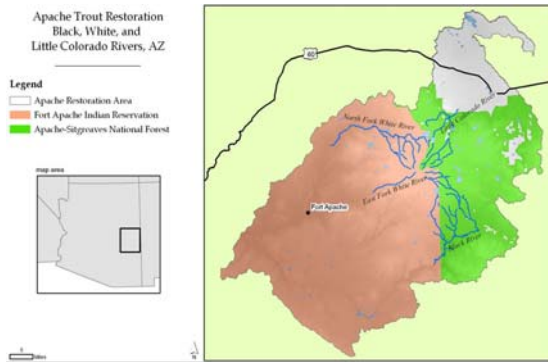
### On-going partnerships and joint ventures

#### **1. Apache Trout Bring Back the Natives Project**

The Apache Trout Recovery Partnership (FWS, AGFD, TU, WMAT, and FS) worked with TU national to develop a \$271,600 National Fish and Wildlife Foundation grant to conduct Apache trout restoration, research and education activities. Matching funds from the Arizona heritage Foundation have added to the effort to restore depleted and extirpated populations and develop robust recreational fisheries.

## Apache Trout: (*Oncorhynchus gilae apache*)

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This project is currently 90 % completed.

### Future Partnerships and Strategies:

### References:

1. U.S. Fish and Wildlife Service. 2006. **Draft Apache Trout Recovery Plan, Second Revision.** Albuquerque, NM.
2. AZGFD Information Flier
3. TU Apache Trout Project