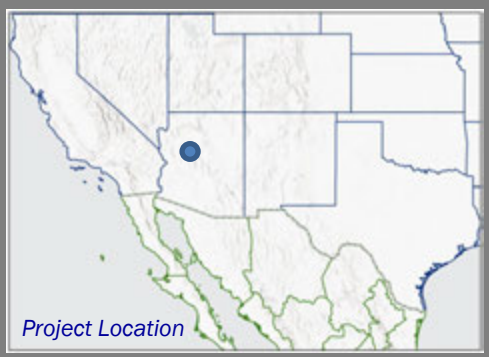
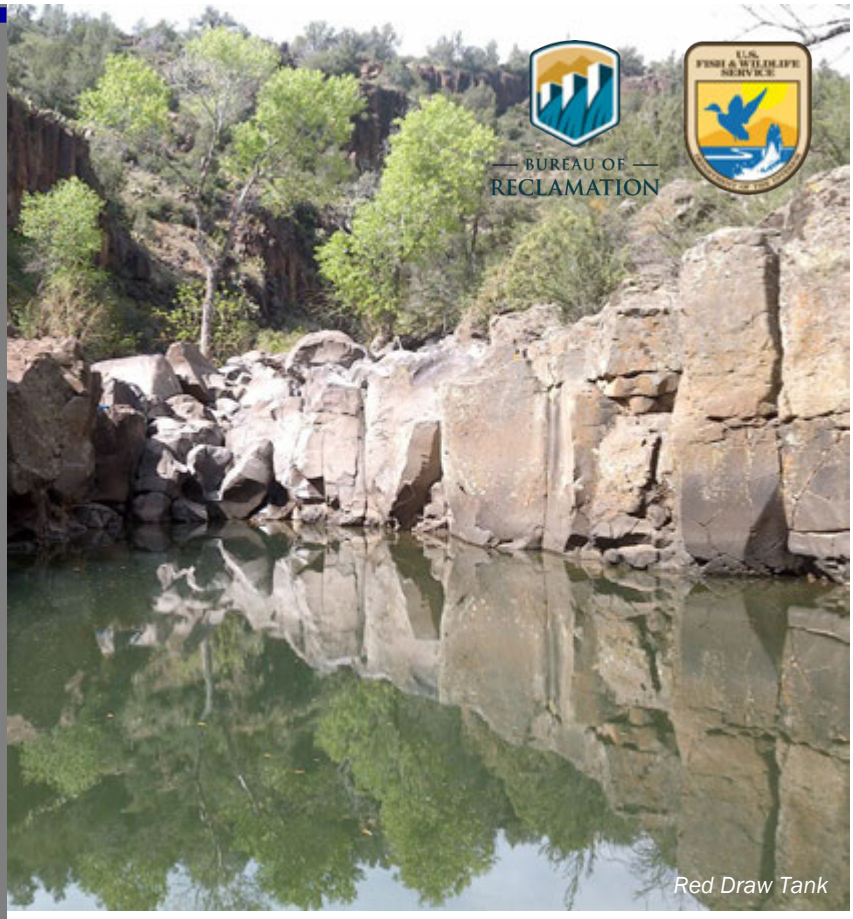
RESTORATION

Sunfish and Bullhead Removal for Native Fish Recovery in Red Tank Draw

Red Tank Draw drainage in north-central Arizona is home to several native fish species including Roundtail Chub (formerly Gila Chub), Longfin Dace, Desert Sucker, and Sonora Sucker. Yet, several non-native species, including Green Sunfish, Black Bullhead, Fathead Minnow, and Northern Crayfish have established populations in the area, becoming a conservation threat to these unique native fishes. Biologists from Arizona Game and Fish Department are working to remove non-native Sunfish and Bullhead, while expanding populations of native species like Roundtail Chub, through the Red Tank Draw Native Fish Restoration Project.





Red Draw Tank

KEY ISSUES ADDRESSED

Green Sunfish (*Lepomis cyanellus*), native to eastern North America, and Black Bullhead (*Ameiurus melas*), native to central North America, have established populations in perennial waters in Red Tank Draw. Once established, complete eradication is difficult to achieve as suppressed populations are quick to recover and can recolonize new areas rapidly. Typical control methods for non-native fish include biocides (difficult to approve and implement) and mechanical removal (time intensive). Both methods are most effective in closed and isolated systems, and mechanical removal is often effort intensive to ensure that suppression or eradication has been achieved.

PROJECT GOALS

- Conduct baseline surveys to determine feasible locations for native fish restoration in Rarick and Mullican Canyons
- Suppress or eradicate Green Sunfish and Black Bullhead based on survey results
- Recover native fish such as Roundtail Chub (*Gila robusta*) by expanding populations

RESTORING NATIVE FISHES

Effective Sunfish and Bullhead removal efforts have led to increasing numbers of native Roundtail Chub in Red Tank Draw.

Green Sunfish

PROJECT HIGHLIGHTS

Widespread Stream Surveys to Inform Conservation: Biologists surveyed all of Red Tank Draw to prioritize areas best suited for native fish conservation.

Working with Site Access: A point source for non-native Sunfish was identified on private land that limited sampling access in Mullican Canyon. Project biologists therefore adapted and re-focused efforts on Rarick Canyon, located within National Forest land.

Effective Non-Native Mechanical Removal: Green Sunfish populations were suppressed in Red Tank Draw and Bullhead were eradicated in Rarick Canyon.

Increasing Numbers of Native Fishes in Red Tank Draw: While Green Sunfish have not been eradicated, biologists have found decreased size structure, e.g. mostly small juvenile fish with few large adults. This trend, coupled with Bullhead eradication, has led to a 10-fold increase in Roundtail Chub in 2019.

Roundtail Chub Translocations: Roundtail Chub were successfully translocated from Red Tank Draw into Rarick Canyon, upstream of natural waterfall barriers.

Collaborators

- Arizona Game and Fish Department
- Gila River Basin Native Fishes Conservation Program
- Several Federal agencies

Funding Partners

- Bureau of Reclamation: Central Arizona Project

Lead Author: Alex Koeberle, University of Arizona, March 2020.
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Photos courtesy of Arizona Game and Fish Department

LESSONS LEARNED

Extensive baseline surveys were critical for implementing non-native sunfish and bullhead removal. By taking the time to survey the entire drainage, project members determined feasible locations for non-native fish removal. Initial assessments included visual surveys within-stream locations and were also scaled to above Red Tank Draw drainage to include stock tanks, another source of non-native fish.

Baseline surveys also indicated why the project team were unsuccessful in previous efforts to eradicate Green Sunfish from Red Tank Draw. From these surveys, they were able to identify a point source (stock tank) for Green Sunfish contribution located on private land in Mullican Canyon. Project biologists were unable to obtain access to remove sunfish from one stock tank on this land. Accordingly, project members remained flexible to achieve project goals, and adapted to focus their efforts on Rarick Canyon.

NEXT STEPS

- Continue non-native aquatic species removals
- Actively work with local landowners to make progress in Mullican Canyon
- Monitor translocated Roundtail Chub
- Recover and review data collected from temperature logger in Rarick Canyon
- Determine temperature suitability for future Roundtail Chub and Gila Topminnow translocations to Rarick Canyon

PROJECT RESOURCES

For more information on this project, contact Betsy Grube: egrube@azgfd.gov

For additional project resources and case studies, scan the QR code below or visit the CCAST website: WWW.DESERTLCC.ORG/RESOURCE/CCAST

Black Bullhead