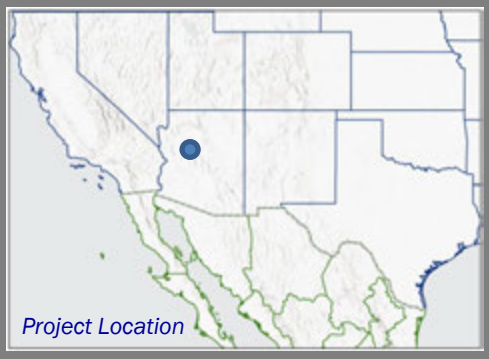
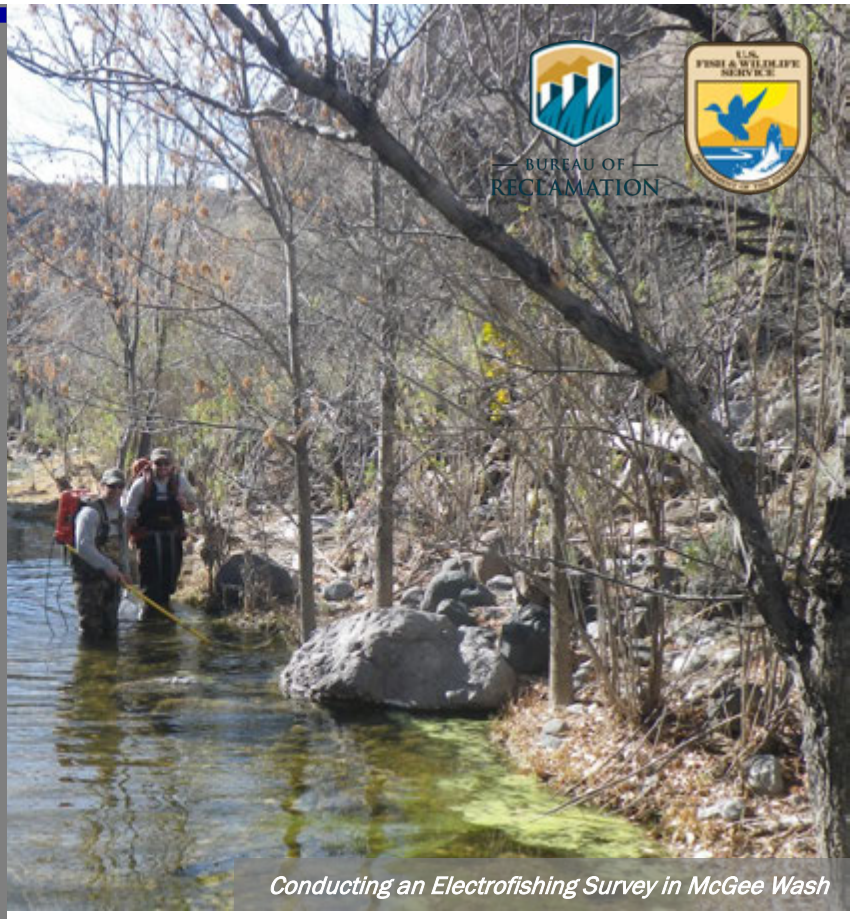
RESTORATION

Sunfish Removal for Native Aquatic Species Conservation in McGee Wash, Arizona

McGee Wash, a tributary to Trout Creek in west-central Arizona, has become overrun with non-native Green Sunfish (*Lepomis cyanellus*), at the expense of native fish populations of Desert Suckers (*Catostomus clarkii*), and Roundtail Chub (*Gila robusta*). Since 2017, biologists from Arizona Game and Fish Department (AZGFD) have implemented regular mechanical removals to mitigate the negative effects of non-native sunfish on the native aquatic species community. Since these intensive removal efforts began, biologists have observed significant increases of native Desert Sucker and Roundtail Chub populations in sampled sites.





Conducting an Electrofishing Survey in McGee Wash

KEY ISSUES ADDRESSED

McGee Wash supports a unique assemblage of native fishes that include Desert Suckers and Roundtail Chub. Non-native Green Sunfish have established a population in the wash, outcompeting native fish species. Green Sunfish have high invasion potential as they prefer the warm, shallow waters in systems like McGee Wash and are highly predatory of the limited food sources, including small, juvenile fish. As a result, native populations of Desert Suckers and Roundtail Chub have declined in McGee Wash. Project biologists therefore have determined the need to control non-native sunfish in order to restore native fish populations.

PROJECT GOALS

- Take inventory of non-native and native aquatic species in McGee Wash
- Eradicate populations of non-native Green Sunfish via mechanical removal
- Restore populations of native Desert Suckers and Roundtail Chub

BLITZ APPROACH TO MECHANICAL REMOVAL

Equipped with a range of methods, project members have completed 36 survey passes in McGee Wash since August 2017, including 10,000 sunfish removed within the first year of sampling.

Lowland Leopard Frog in McGee Wash

PROJECT HIGHLIGHTS

Monthly Site Visits: Baseline surveys in 2016 indicating high abundances of non-native sunfish prompted monthly mechanical removals starting in August 2017 using different net mechanisms, angling, and backpack electroshocking.

Effective Green Sunfish Suppression: Since 2017, project biologists have been successful in reducing populations of Green Sunfish. In July 2019, project biologists did not observe any sunfish, and only a handful of sunfish were removed between October 2019 and January 2020.

Resilience of Native Fishes: As sunfish populations have decreased, biologists have observed an increase in abundances of native Desert Suckers and Roundtail Chub.

Multi-Species Benefits: Since the initial 2016 survey, project members have observed more egg masses, tadpoles, and adult lowland leopard frogs, concurrent with sunfish removal.

Streamflow: McGee Wash has naturally intermittent flow conditions that serve as summer dry barriers to sunfish. Despite high winter flows in 2019, biologists suspect that sunfish did not recolonize upstream.

Collaborators

- Arizona Game & Fish Department
- U.S. Fish and Wildlife Service

Funding Partners

- Arizona Game & Fish Department Wildlife Grants

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

LESSONS LEARNED

Effective sunfish suppression in McGee Wash requires regular, consistent site visits to monitor progress. Project members extensively monitor different habitat types year round, even when returning for several consecutive months without detecting sunfish.

Despite low numbers, biologists have still found both adults and young-of-year sunfish. This suggests that the sunfish population either still persists in difficult to sample locations, or they are able to move upstream during high flow events that connect McGee Wash to Trout Creek.

McGee Wash contains relatively homogenous habitat of mostly pools and some riffle/runs. As such, sunfish suppression is perhaps more feasible here solely with mechanical removal than in larger streams or rivers with difficult to sample, complex habitat types. Other nearby areas that have had complete success with sunfish eradication, such as East Ash Creek, also incorporate dry barriers along with mechanical removal efforts.

NEXT STEPS

- Continue mechanical removal and monthly monitoring until all Green Sunfish are removed from McGee Wash
- Stock more native fish species
- Increase public education on the importance of native aquatic species conservation in Arizona

PROJECT RESOURCES

For more information on this project, contact Brett Montgomery: bmontgomery@azgfd.gov

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

Desert Sucker in McGee Wash