

CCAST as the Foundation of a Non-Native Aquatic Species Community of Practice in the Southwest

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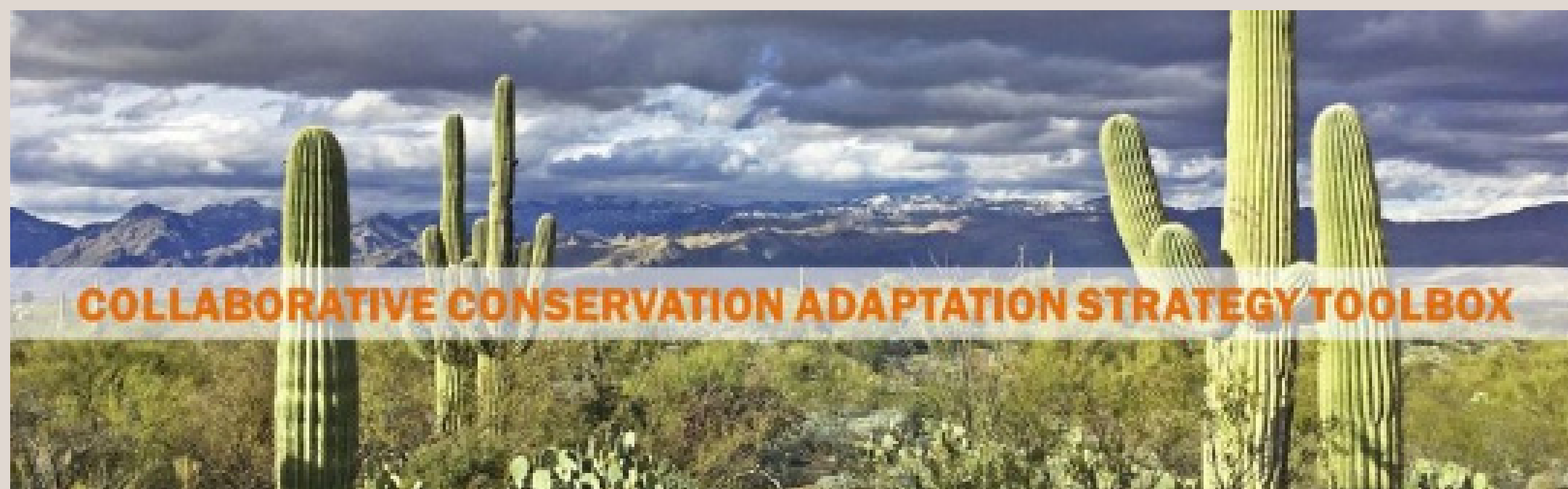
BUREAU OF
RECLAMATION



Southwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

What is CCAST?

- Collaborative Conservation and Adaptation Strategy Toolbox (CCAST)
- An online platform to share Syntheses and Case Studies that provide useful information and lessons learned from on-the-ground science, conservation, and restoration
- CCAST, and the Communities of Practice it supports, is building partnerships and tools to help address natural resources challenges
- The CCAST Team cooperates with over 150 individuals from dozens of organizations to increase and improve communication, develop tools to support landscape conservation and restoration, inform management decision-making, and develop actionable science



The CCAST Team

- 2 Federal Directors (USFWS and Reclamation)
- 4 Coordinators (UArizona, USGS OK-TX, USDA SW Climate Hub)
- 3 Community of Practice Leads (UArizona and U Nebraska-Lincoln)
- Case Study Authors:
 - 1 Program Analyst (Reclamation)
 - 8 Undergraduate students (UArizona)
 - 3 Student interns (USGS OK-TX)
 - 1 Undergraduate intern (N. Arizona University)
- 2 Web Developers/Data Managers (Reclamation)
- Working Group: 100+ partners from across the West
- Non-native Aquatics CoP: ~40 partners from AZ, CA, NM, and NV

CCAST Products: Case Study

Native Paiute Cutthroat Trout Restoration in Silver King Creek, California
A Case Study on Restoration

Introduction | Key Issues and Goals | Project Highlights | **Lessons Learned** | Next Steps | Resources

Monitoring during rotenone revealed that the macroinvertebrate community was more diverse than expected. Macroinvertebrates were also quick to recover after rotenone treatments. Extensive surveys were also conducted for amphibians, including the federally Endangered Sierra Nevada yellow-legged frog and Yosemite toads, neither of which were found in treatment areas. Managers confirmed complete eradication of non-native rainbow trout through three years of surveys from 2016-2018. A mix of field methods including traditional backpack electrofishing and modern eDNA surveys were effective to monitor the presence of rainbow trout. Maintaining quality habitat is also crucial for PCT recovery. Meadow streams provide ideal habitat to support PCT populations because the fish prefer deep pools with low velocities. Therefore, it is crucial for managers to minimize grazing impacts (U.S. Forest Service closed Silver King Creek to livestock grazing while maintaining or increasing the abundance of seasonally inundated meadows connected to streams. Erosion control structures were also constructed in the 1980s to protect eroding stream banks and to facilitate revegetation. These were primarily log structures anchored into the stream banks with brush inserted and willow plantings behind each structure. Although the structures have started to fail with age, they successfully reduced stream velocity and enhanced sediment deposition. The willows have also since established and will continue to enhance flow and sediment conditions to support PCT populations. Highly endemic species like PCT are also susceptible to unpredictable environmental events. Upstream populations experienced high mortality during cold, dry winter conditions in 2013 including the formation of "anchor ice" on streams due to a lack of insulating snowpack. The effects of this to upstream PCT populations were almost as severe as a rotenone treatment. In 2017, a historical landslide caused high flows and

CCAST Case Study Development Process

1) Practitioners, managers, or researchers provide material, 2) CCAST staff develop draft, 3) Internal/contributor review, 4) External CCAST peer review, and 5) Online publication

CCAST Partnerships

SW Non-Native Aquatic Species Community of Practice (CoP)

- A CoP is a group of individuals that regularly interacts to learn how to more effectively conduct their work and achieve common goals
- Launched in Spring 2020, the CoP is a central place to learn from non-native aquatic species control efforts and prioritize research needs
- To date, the CoP is:
 - Developing non-native aquatic species focused Case Studies
 - Writing syntheses on Bullfrogs, Green Sunfish, Salmonids, and more
 - Cataloging treatment goals, level-of-effort, funding, and success
 - Creating a Non-Native Aquatic Species Storymap for CCAST
 - Planning a workshop to discuss non-native treatment options

CCAST Case Study:
"Landscape-Level Eradication of Bullfrogs for Native Aquatic Species Recovery in Southern Arizona."

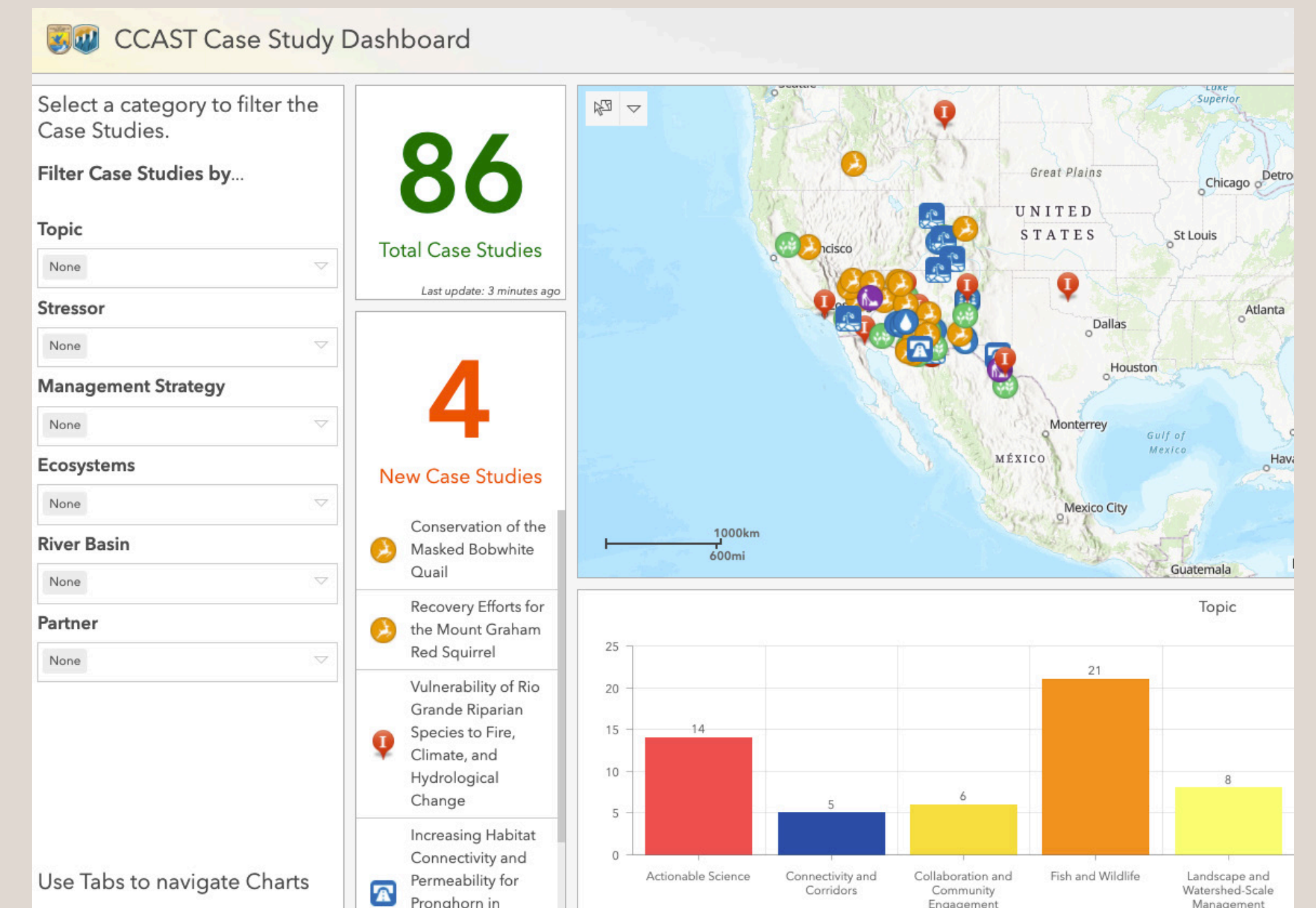
<https://arcg.is/1GOS4X>

Photos by: Arizona Game and Fish Department



CCAST Accessibility

Interactive map from CCAST website (October 2020):



Additional Work

- Emerging CoP focal areas include: Drought Adaptation, Pollinator Conservation, and Grassland Restoration
- Expand opportunities for undergraduate students to produce Case Studies within CoP focal areas and in their areas of interest

Why Use CCAST and the SW Non-Native Aquatic Species CoP?

- The CCAST staff is a resource to help promote your aquatic research, conservation, or restoration work to a widespread audience
- Learn practical lessons from implemented projects
- Connect with practitioners across a diverse geography
- Provide insight for students and professionals interested in conservation, science communication, and developing a professional network

To sign up for the SW Non-Native Aquatic Species CoP or contribute a Case Study, please contact Alex Koeberle: akoeberle@arizona.edu



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