American Society of Adaptation Professionals

SNAPSHOT

Enhancing Resilience of Riparian and Wet Meadow Habitats in the Upper Gunnison River Basin

American Society of Adaptation Professionals
PRIZE FOR PROGRESS
2015

LEAD ORGANIZATION
The Nature Conservancy

STATE
Colorado

TYPE OF ADAPTATION
Restoration and Resilience

conservationgateway.org

Photo credit: Giles Clark, www.flickr.com

Challenges

The wet meadow and riparian habitats within sagebrush shrublands in the Upper Gunnison Basin are critical for Gunnison sage-grouse (federally listed species) brood rearing, and are used by many wildlife species including neo-tropical migratory birds, mule deer, and elk. They are also important for livestock grazing by ranchers. Already compromised by lowered water tables, erosion, and incised gullies, riparian habitats will likely be further degraded by climate change: increased drought, more invasive plants, and increased erosion from intense runoff events.

CHALLENGES
Lower water tables

CHALLENGES
Erosion & incised gullies

Solution

SOLUTIONS
Rock structures

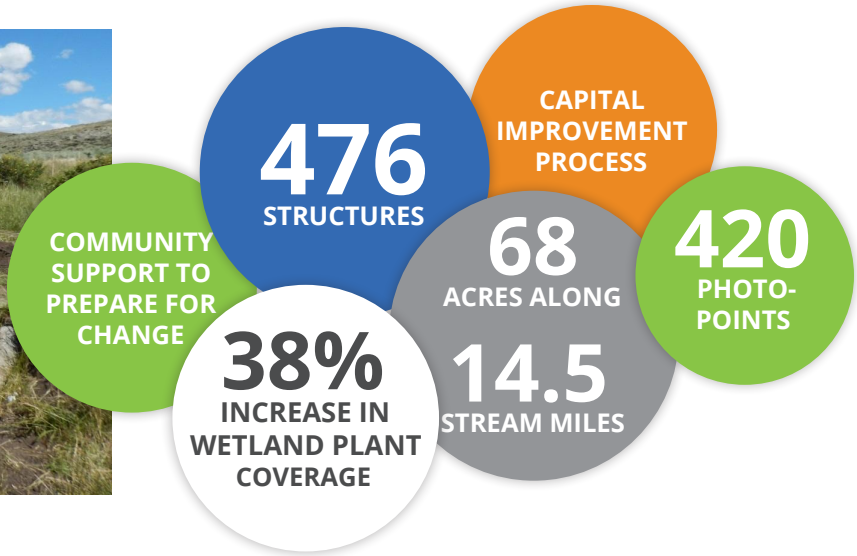
SOLUTIONS
Higher stream channel

To address these impacts, the Gunnison Climate Working Group implemented innovative yet simple restoration methods, i.e., rock structures, to improve hydrologic and ecological function of the area. The structures work by slowing water passing through the system, resulting in increased sediment deposition behind the rocks/plants and increased height of the stream channel. The higher stream channel reconnects formerly incised channels to the floodplain, increases water retention in stream banks, and reduces erosion. The wet meadow functions are then more resilient in the face of increased warming and extreme climatic events, such as drought and heavy rainfall. Increased resilience to climate change will help the Gunnison sage-grouse adapt to a changing climate by providing habitat during its critical brood-rearing stage.

Results

Over the past three years, partners, volunteers, contractors and youth field crews installed a total of 476 structures restoring approximately 68 acres along 14.5 stream miles at five sites on public and private lands. The monitoring team established and read 138 transects and 420 permanent photo-points to monitor vegetation changes. The structures are already capturing sediments and retaining water, enabling wetland species to significantly expand in cover and extent. At one site, wetland plants covered 12% of the transect lines pre-restoration in 2012 and in two-years post-restoration, the cover increased to nearly 50%.

Initially, there was concern regarding potential resistance to a climate adaptation project in a rural community, where climate change is a sensitive topic. This on-the-ground "no regrets" project helped initiate dialogue, build consensus and support around the need to prepare for change, particularly drought, changes in spring runoff timing, and intense flood events. Partners have worked together on every step along the way, prioritizing sites, designing treatments, obtaining permits, leading field crews and volunteers, leading field tours, trainings, and recruiting new landowners. To build a sustaining program to increase restoration across the basin, the team developed local expertise of agency staff to continue this work.



Next Steps

Full restoration of the basin will take many years. Based on strong partner interest and promising early results of the pilot project, in 2014 the team launched a three-year effort to significantly expand the project across the basin, as there are many incised channels and degraded streams that would benefit from similar treatments. The team is prioritizing areas for treatment, planning 2015-2016 work, and planning maintenance and repair of existing structures. The team is developing a monitoring and research strategy to increase scientific rigor and guide graduate student research projects.

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