

ZUNI MOUNTAINS COLLABORATIVE

Water monitoring subgroup virtual meeting

November 15th, 2022, 1:00 – 2:00pm

Notes

Participants:

Cottonwood Gulch: Brad Jeffrey

Forest Stewards Guild: Mateo Pomilia, Rachel Bean, Juan Lemos

Great Old Broads for Wilderness: Susan Ostile

Native Plant Society of NM: Pam McBride, Lee Regan

NM Game and Fish: Adam Barkalow

NM Council of Governments: Carrie House

Pueblo of Zuni: Darren Sanchez

Ramah Navajo Chapter: Mike Henio

River Source, Inc.: Rich Schrader

The Nature Conservancy: Robert Findling

U.S. Forest Service: Donald Serrano, Ryan Washam, Livia Crowley, Shawn Martin

Others: Susan Oviatt, Susan Selbin, Norman Begay

Meeting objectives:

1. Identify aquatic and watershed restoration actions for the next ten years of the CFLRP
2. Understand partners' current and potential monitoring capacity and connect monitoring efforts
3. Articulate monitoring goals and describe monitoring priorities

Water monitoring efforts to date:

Name	Location	Parameters	Protocol / device	Funding	Collected by	Date	Notes
Zuni Bluehead Sucker monitoring	ZBS range	1. temperature pH DO Conductivity Depth? 2. Habitat features 3. Population data		NM Game & Fish.	NM Game & Fish.	1991 – 2009	

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Zuni Bluehead Sucker monitoring	Agua Remora, Rose Creek, Rio Nutria	1. temperature pH DO Conductivity Depth? 2. Habitat features 3. Population data	1. logger 3. Electroshocking	US Fish & Wildlife Service.	US Fish & Wildlife, NM Game & Fish, Pueblo of Zuni.	2009 – present	
Zuni Mtns. CFLRP monitoring	Tampico Draw, Agua Remora, Bluewater Ck.	1. temperature 2. pH DO Conductivity DS Salt	1. Hobo logger 2. Handheld Exttech	Agreement with Cibola NF&NGs.	Forest Stewards Guild staff & volunteers.	2013 – present	
Cibola Water Resource Inventory & Monitoring	Zuni Mtns.	1. temperature pH DO Conductivity Depth Discharge 2. Laboratory analysis: Major cations and anions, oxygen isotope, and other data	1. Groundwater Dependent Ecosystem (GDE) Level 1 2. Water quality protocols as described in quality control document	Cost share agreement between Cibola NF&NGs & UNM. Principal cooperator is Laura Crossey.	UNM students. Two focused studies in Zuni Mountains: 1. Becky Frus - Agua Remora, Tampico Draw 2. Luke Collis - Shush Kin Fen, Sawyer Fen & Bluewater Ck.	2010 – present	Cost share agreement covers the entire Cibola GDE protocols are analogous to SSI methods. Other samples collected in the Zuni Mountains can be brought to UNM for analysis under this agreement but must be collected using protocols.

Name	Location	Parameters	Protocol / device	Funding	Collected by	Date	Notes
Cibola Spring Inventory	Zuni Mtns.	1. temperature pH DO Conductivity Depth Discharge • Samples can be brought to UNM for analysis	1. SSI protocols. Level depends on state of spring features. Wet springs receive highest level with restoration recommendations.	Cost share agreement between Cibola NF&NGs & UNM.	Spring Stewardship Institute staff & volunteers.	2017 – present	Samples can be brought to UNM for analysis under this agreement but must be collected using protocols.
Rio Grande sucker & chub	Bluewater headwaters	Endangered fish discovered				2016 - 2017	
Restoration	Agua Remora	fenced				?	

Question: Is macroinvertebrate monitoring occurring?

Answer: Springs Stewardship Institute has collected some basic macroinvertebrate data; however, it is spotty, including in Little Water Canyon where monitoring has been ongoing since the '60s.

Question: Is there monitoring of Rio Grande sucker and Rio Grande chub on the east side of the Zuni Mtns?

Answer: These species were only discovered in the Zuni Mountains around 2016. Luke Collis' research looked at the chemistry of the river reaches where they occur. Joanna Hatt is the NM Game and Fish biologist responsible for these species.

Question: What restoration actions have been taken in the landscape?

Answer: Agua Remora has been fenced. The Forest Service (FS) is aiming to fence Shush Kin Fen at the headwaters of Bluewater Creek. FS is also planning fencing and gully repair of riparian areas as well as decommissioning of disused and unauthorized roads on the Puerco side, as components of Watershed Restoration Action Plans (WRAPs) that make up part of the Watershed Condition Framework.

Question: Is TNC doing any restoration work on their Rio Nutria reserve?

Answer: They are working on a fence in partnership with the Silvas on the east boundary of the reserve. It is not an easy place to fence as you must drill into rock to put in a T post. Fencing costs about \$14k / mile. Much of the terrain does not have secure fencing, which isn't a big problem for livestock grazing but does make the area susceptible to unregulated recreation. There is a subdivision of mostly recreational homes that has been approved by McKinley County, adding a new risk to the groundwater supply that feeds Tampico Springs and the Rio Nutria valley. There is no public water supply obligation, so each lot owner has a domestic well. While their water rights are nominal, the aggregated use is increasing. TNC is working with the Pueblo of Zuni due to their strategic advantage of having indigenous water rights.

Question: There are two forks of Red Canyon with water sources that have been identified. Are these being monitored?

Answer: It is possible, as Red Canyon could be an unofficial name for source of water surveyed by Springs Stewardship Institute.

Monitoring and watershed restoration goals for the Zuni Mtns. CFLRP:

How do upcoming monitoring and restoration activities work towards accomplishing goals? What changes do we want to see in the next, 2, 5 or 10 years with regards to water in the Zuni landscape, and how can we effectively monitor to determine if these changes are occurring?

Proposed goals:

- Understand trends in habitat condition as it pertains to species of interest (e.g., stream temperature, dissolved oxygen, macroinvertebrates).
- Determine the extent of invasive species (e.g., salt cedar, Russian olive, bull thistle) in priority watersheds.
- Determine trends in abundance and range of focal native species (Zuni bluehead sucker, Rio Grande chub, Rio Grande sucker, beaver, bats).
- Determine the efficacy of land management treatments in improving/increasing favorable conditions for 1) focal species, and 2) surface water availability and quality. Prioritize water monitoring locations based on overlap with management actions. Use data to make adaptive management recommendations.
- Synthesize monitoring data trends and disseminate results (including public outreach) for continual learning and knowledge exchange.
- Include education and youth in data collection and restoration projects.
- Increase water availability at all the tributaries in the Nutria Valley (e.g., Tampico Springs) that feed into the Rio Nutria, given a drying/reducing trend and water scarcity in the Pueblo of Zuni.

Question: How are goals related to monitoring questions?

Answer: Goals should address (i.e., seek to answer) monitoring questions and guide monitoring activities.

Question: Should we be monitoring the impacts of human use, e.g., from off-road vehicles, hunters, etc.?

Answer: FS is doing work to decommission unauthorized roads and reduce erosion and collateral impacts of roads and recreation. Additionally, an Environmental Assessment of the groundwater impact of the aforementioned housing development has been completed. Zuni Pueblo also hired a consultant to study related water withdrawals.

2023 (and beyond) water monitoring and restoration activities:

What current and future water monitoring and restoration efforts are being planned in the landscape?

Shush Kin Fen restoration:

NEPA is done and the project is set to go. They got delayed this year in implementation due to weather. Bat Conservation International is a partner on the project while NM Game & Fish is also providing support to build the enclosures. They were originally looking at using traditional materials (e.g., barbed wire) but opted for pipe fence because it is much more wildlife friendly and doesn't present a hazard if it fails. They

also considered buck and pole but got the necessary funding to use pipe which is more durable. One issue they face with the metal is theft. The second part of the project is a pasture division fence in the larger part of the same allotment. From the perspective of a broad restoration area, it's going to be beneficial to defer cattle grazing until later in the summer. The FS is also planning to install porous rock structures and additional fences in the area.

Native and invasive vegetation

The FS is keeping their eye on invasives in the Puerco area as well as the broader landscape, particularly bull thistle which tends to propagate following forest thinning and burning. The FS is also looking at aspen regeneration which might also facilitate recovery of remnant tree willow (Bebb's? Scouler's?) populations. The FS collects plant data as part of its riparian assessments; however, this data is not very specific. Native Plants Society of NM is concerned about invasives and is interested in assisting with plant monitoring.

Restoration actions on the Puerco side of the Mt. Taylor RD

There are plans for fence repair and erosion control measures.