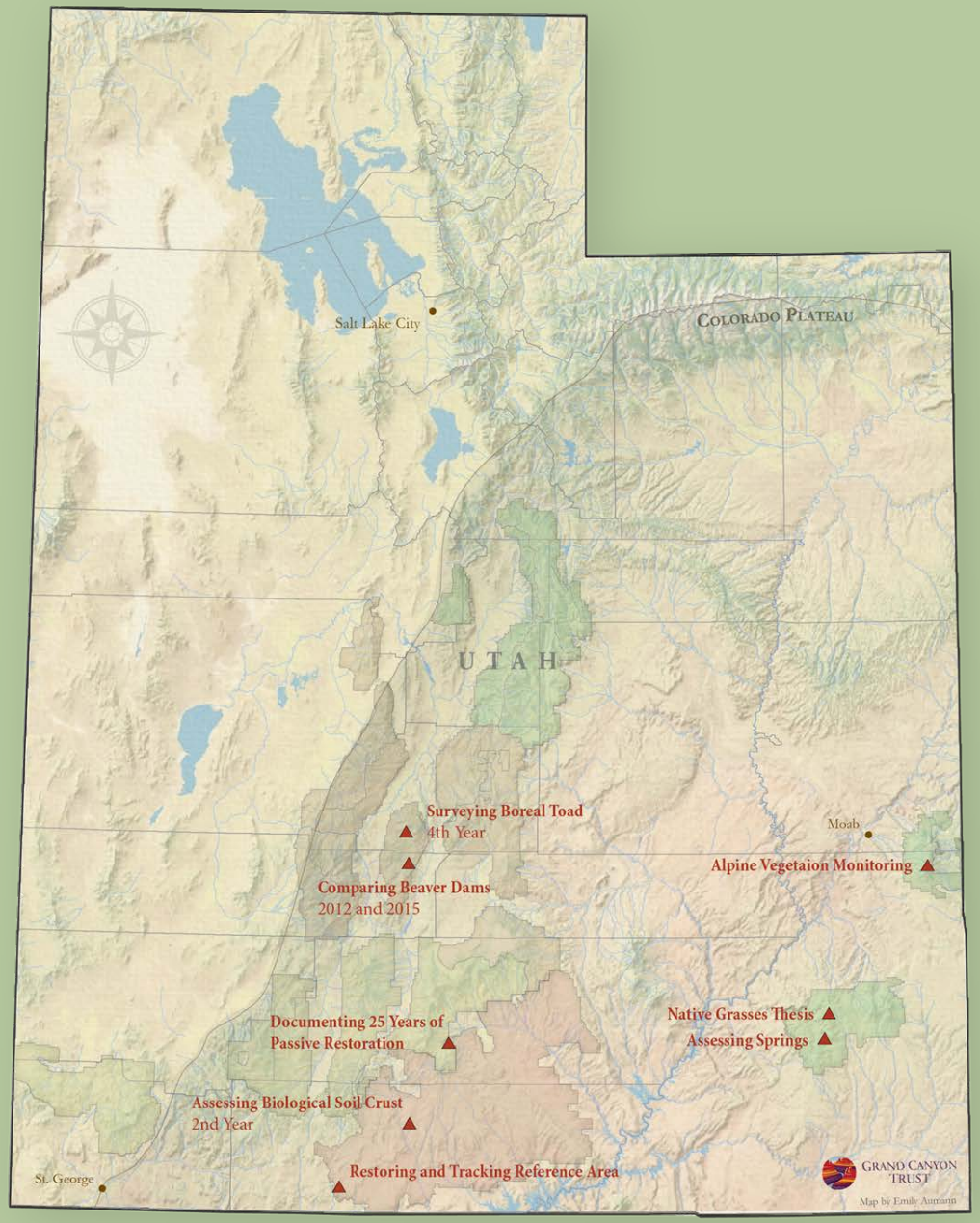
Seven Interns & Seven Projects

A summary of Grand Canyon Trust's Utah Forests Program projects
Summer 2015

GRAND CANYON TRUST

Photo by Marra Clay

Summer 2015 Intern Projects


Salt Lake City
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Surveying Boreal Toad
4th Year
Comparing Beaver Dams
2012 and 2015
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Alpine Vegetaion Monitoring
Native Grasses Thesis
Assessing Springs
Documenting 25 Years of
Passive Restoration
Assessing Biological Soil Crust
2nd Year
Restoring and Tracking Reference Area
St. George
Grand Canyon Trust
Map by Emily Ammann

Assessing Biological Soil Crust

Grand Staircase Escalante National Monument

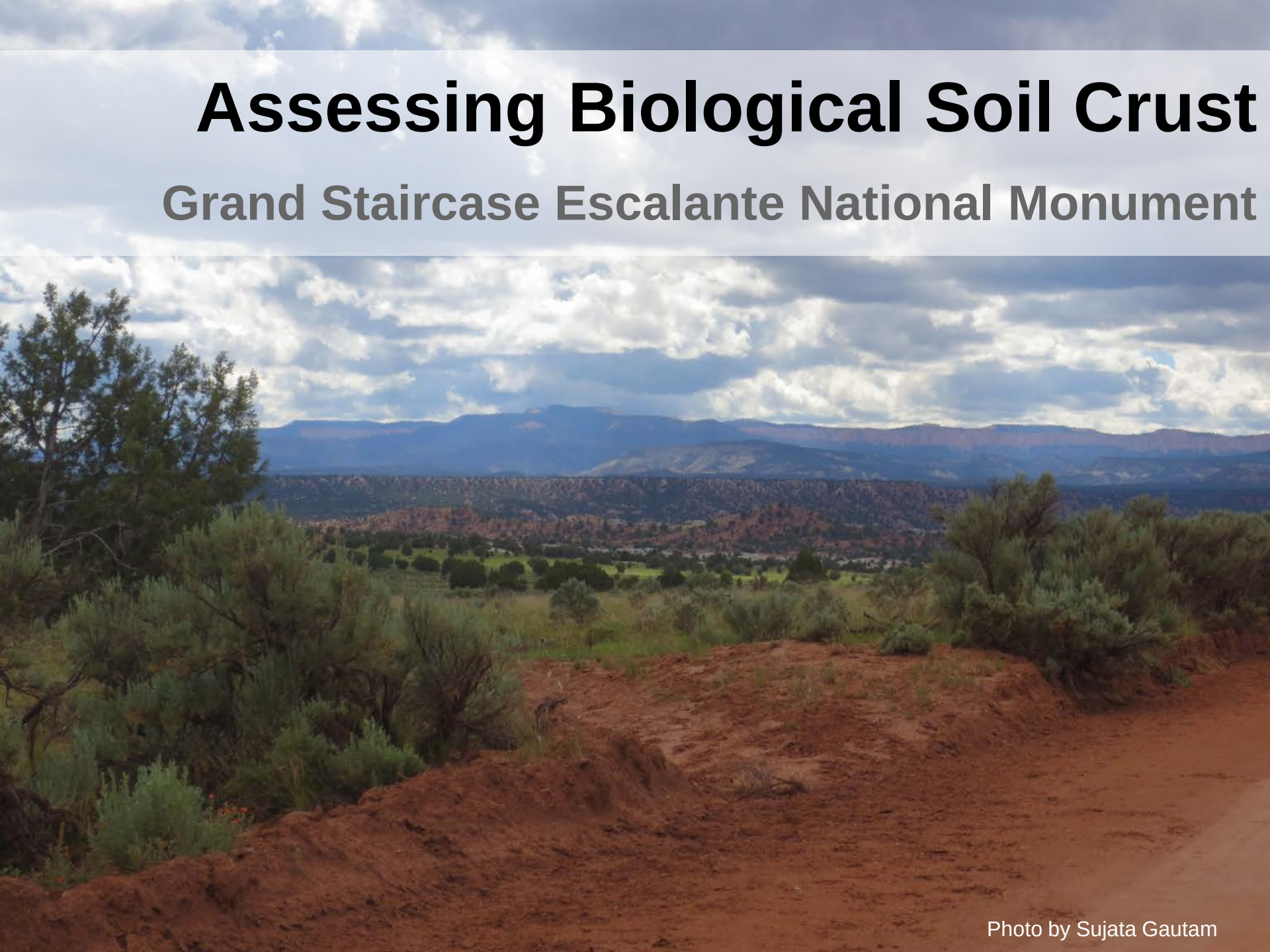

Photo by Sujata Gautam


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Assessing Biological Soil Crust

Grand Staircase Escalante National Monument

Objective: To monitor cattle grazing impacts on biological soil crust formation

Photo by Sujata Gautam

Photo by Marra Clay

Assessing Biological Soil Crust

Grand Staircase Escalante National Monument

What is it?

- A living network of cyanobacteria, moss, lichen and microfungi that binds soil particles to form a crust

Why do we care?

- Surface stability
- Water infiltration and retention
- Nitrogen and carbon fixation
- Biodiversity

Photo by Marra Clay

Photo by Marra Clay


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Assessing Biological Soil Crust

Grand Staircase Escalante National Monument

What did we do?

- Ran 100 m transects at previously established BLM sites (2001-2003)
- Recorded vegetation and ground cover every 2m
- Compiled results for comparison with data from previous years


Photo by Stacie Vance


Photo by Stacie Vance

Assessing Biological Soil Crust

Grand Staircase Escalante National Monument

What did we accomplish?

- We successfully surveyed 6 sites for further analysis (rain interfered)
- The data that we gathered will be compared with previous results and used to predict biological soil potential in GSENM
- Data will be used to support the Trust's proposal on the BLM's grazing plan for GSENM


Photo by Sujata Gautam


Photo by Marra Clay

Native Grasses Thesis

White Mesa Cultural and Conservation Area

Photo by Marra Clay


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The Project

- Ten days in the White Mesa Cultural and Conservation Area (WMCCA) with Sue Smith, who is researching native grass recovery in this ungrazed area
- Grass species are an indicator of ecosystem health, providing habitat for insects, birds and small mammals
- Because the WMCCA hasn't been grazed for twelve years now, it is important to record species found in different habitats (e.g., ponderosa pine, meadow)


Photo by Stacie Vance


Photo by Sujata Gautam

The Process

- Set up three transects per site
- Characterize the site
- Record species on each transect
- Collect unidentified plant species
- Note exotic grass species
- Assess species richness

Significance

- Establishes a baseline for rereading in 8 years
- Provides information for:
  - Grand Canyon Trust
  - Ute Mountain Ute Tribe
  - Manti-La Sal NF
- Tracks the fate of native grasses among exotics
- Species diversity promotes healthy ecosystems

What Was Accomplished

- We completed 17 sites, a total of 51 transects
- Continued monitoring is important to see if native grasses are able to bounce back after being encroached upon by exotic species
- The data we collected has established a baseline which can then be used to for future comparisons

To learn more specifics about this project, please visit the blog post here or visit the Grand Canyon Trust's website.

Assessing Springs

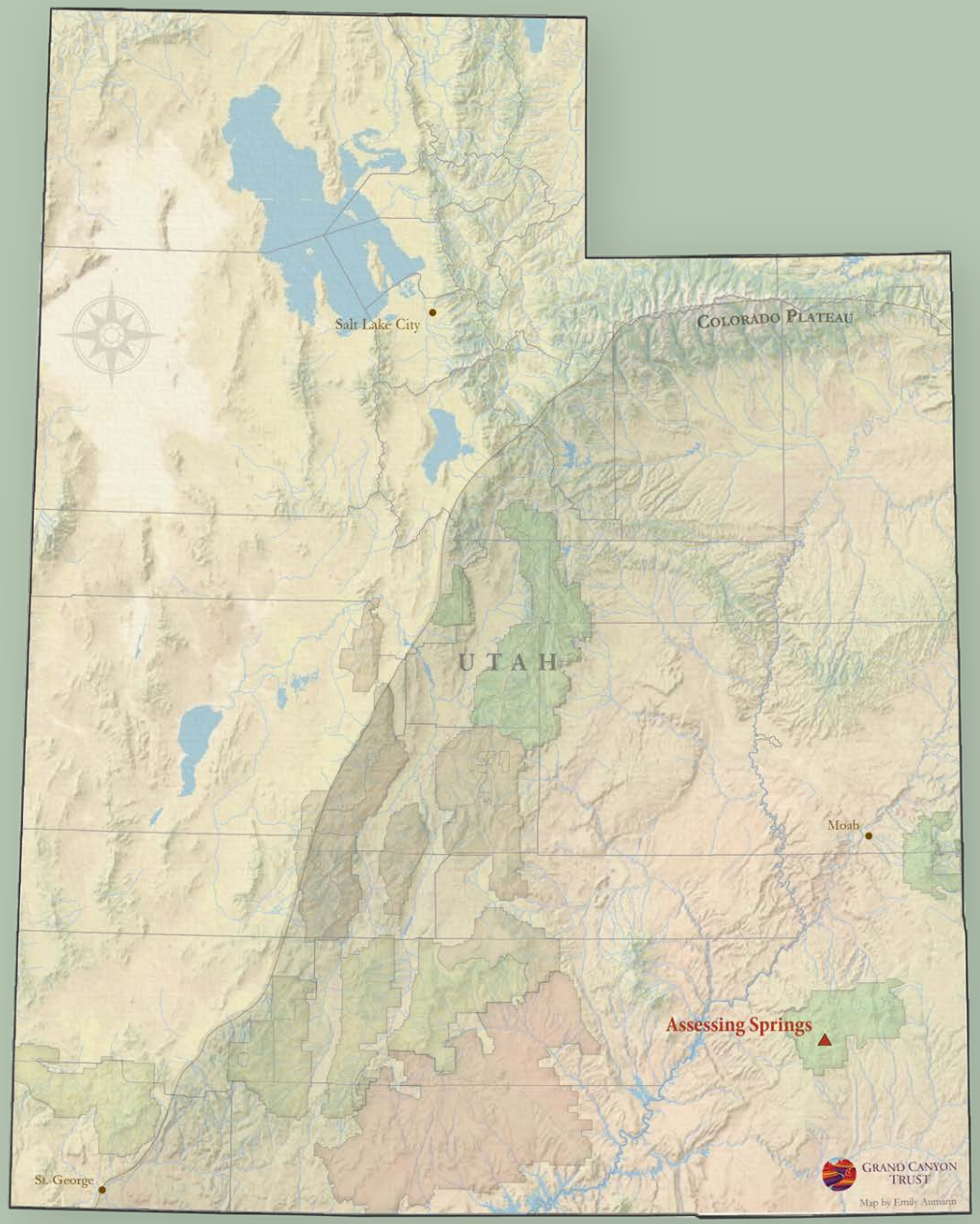
Elk Ridge

Goal: Create a comprehensive database to understand the network and condition of springs particularly on White Mesa Cultural and Conservation Area

Compile a database from recognized sources to create a reference of all current locations at which groundwater reaches the surface and understand their trend in terms of water supply

Locate, observe, and comment on spring condition and ungulate activity; collect water samples

Photo by Marra Clay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Elk Ridge Springs

Groups involved:

- Grand Canyon Trust
- Utah Valley University
- Ute Mountain Ute Tribe

Purpose:

- Share knowledge of current spring locations
- Monitor spring conditions
- Conduct groundwater quality research

Why Observe Springs?

- Understand spring conditions without cattle impacts
- Water sample results tell story of age, movement, and quality of groundwater
- Understand spring vulnerability in the context of climate change

Springs Progress Summer 2015

Looked for 18 springs in the compiled database, and...

Elk Ridge Springs Sampling

… collected water samples at 21 locations over three days, including an additional lake, reservoir, and pond, all possibly fed by groundwater

Photo by Marra Clay

Photo by Dave Erley

Elk Ridge Springs: Moving Forward

Utah Valley University:
Process water samples and analyze results
Apply for grant to expand springs research

Grand Canyon Trust:
Continue to locate and monitor springs with no cattle on WMCCA, understand as reference area

Ute Mountain Ute Tribe:
Grow interest in Cultural and Conservation Area as permittee

ALL:
Use Elk Ridge springs database to record and compile current data and most recent observations, draw connections to form bigger picture

Photo by Marra Clay

Beaver Habitat Assessments

Monroe Mountain

Photo by Marra Clay

The Volunteer group led by Andrew Mount, Claire Martini, and Mary O'Brien

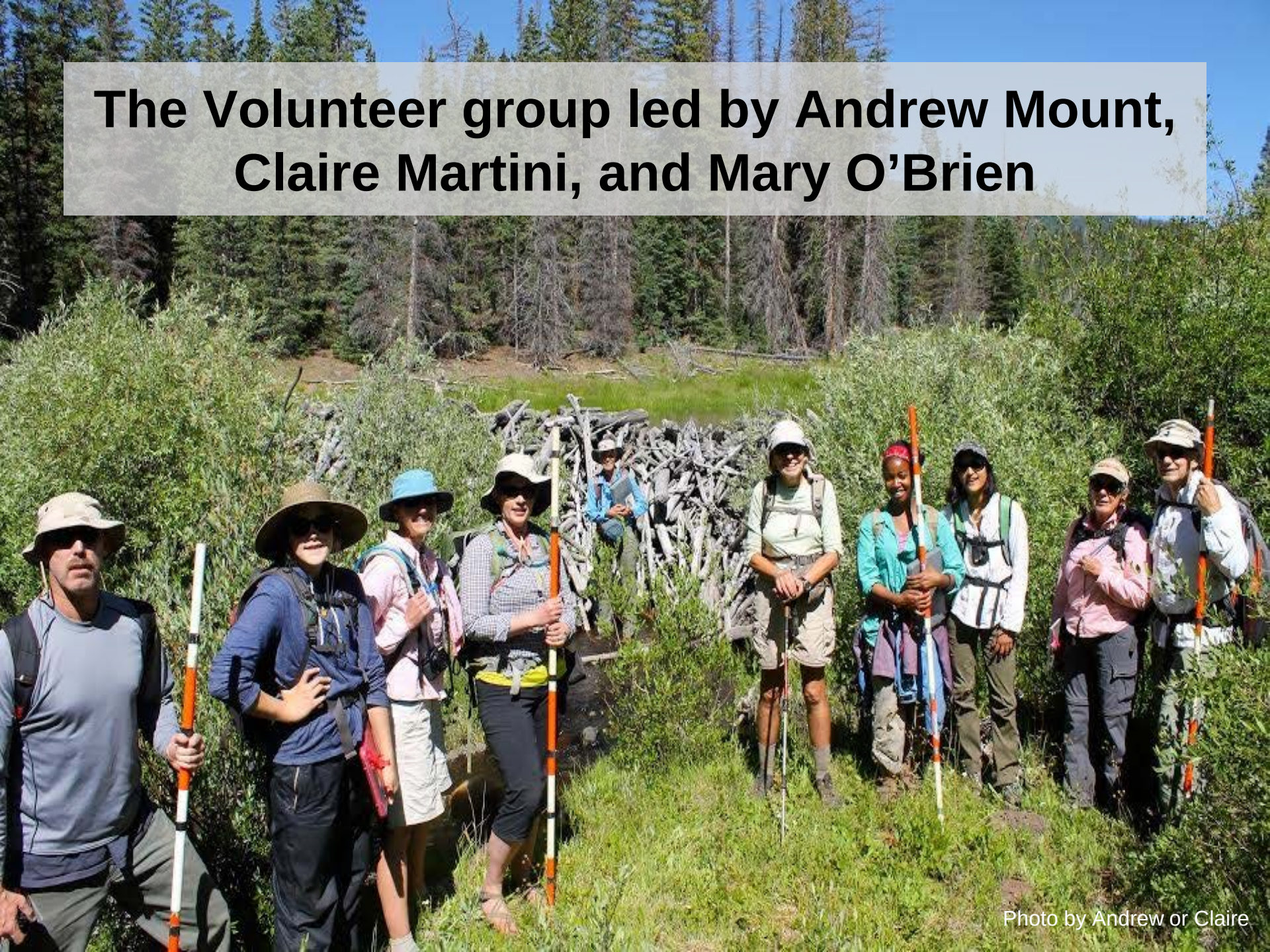

Photo by Andrew or Claire


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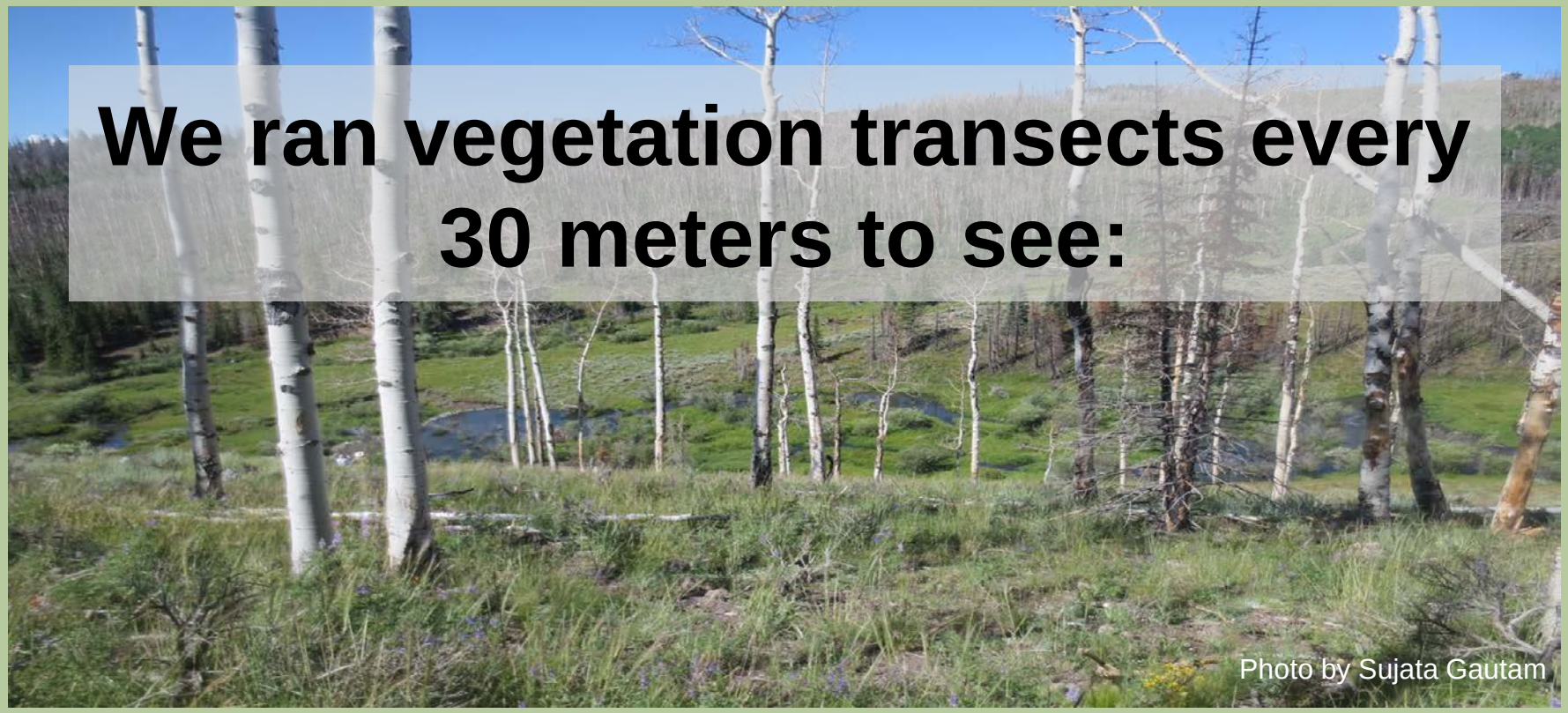
View of North Box Creek from river left

Photo by Sujata Gautam


Photo by Sujata Gautam

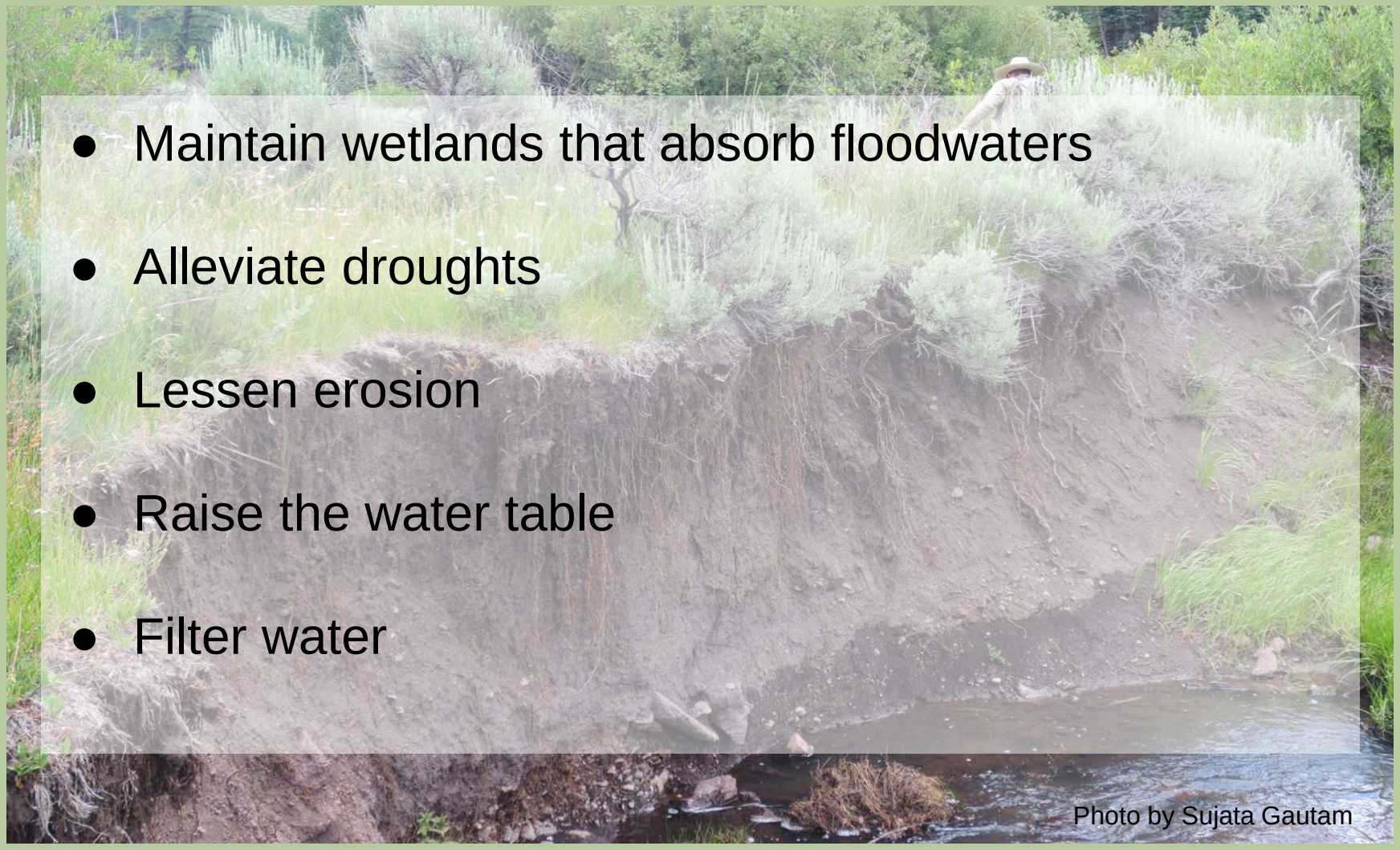
Dam Observations:

- Activity level
- Current or historic
- Sediment height upstream and downstream
- Water depth upstream and downstream
- Breaks in the dam
- Lodge presence



- How far willow extends back from the bank
- Distance to nearest aspen
- Willow and aspen density
- Presence or absence of browsing

Why Beaver?



- Maintain wetlands that absorb floodwaters
- Alleviate droughts
- Lessen erosion
- Raise the water table
- Filter water

Photo by Sujata Gautam

Conclusion

- These assessments in Box Creek and Tasha Creek were done in past years
- We re-assessed them to see if the number of active dams has changed or not
- MORE BEAVERS!

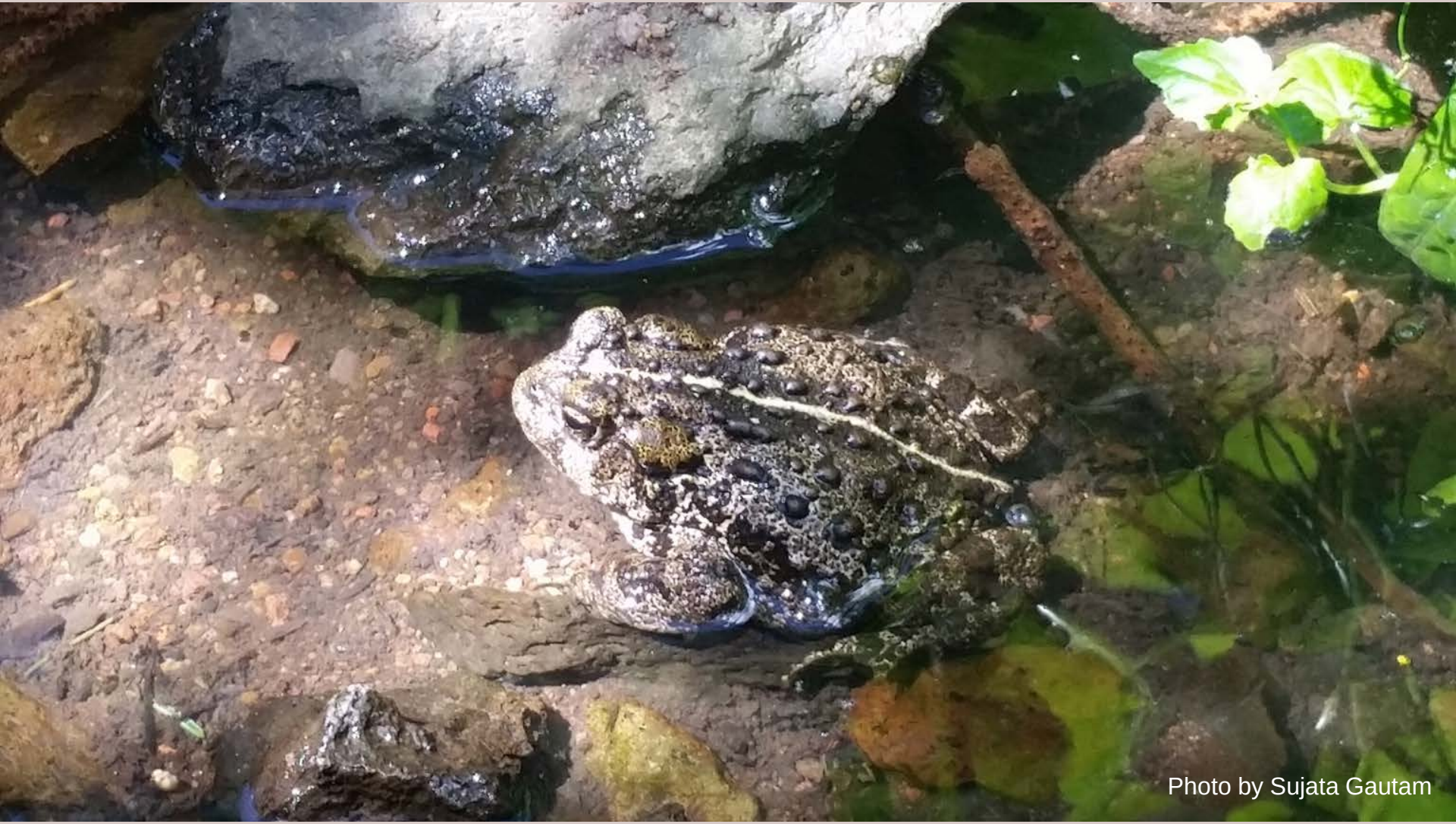
Photo by Sujata Gautam

Surveying Boreal Toads

Monroe Mountain

Photo by Sujata Gautam

Boreal



Toad

Chytrid fungus decimates toad populations

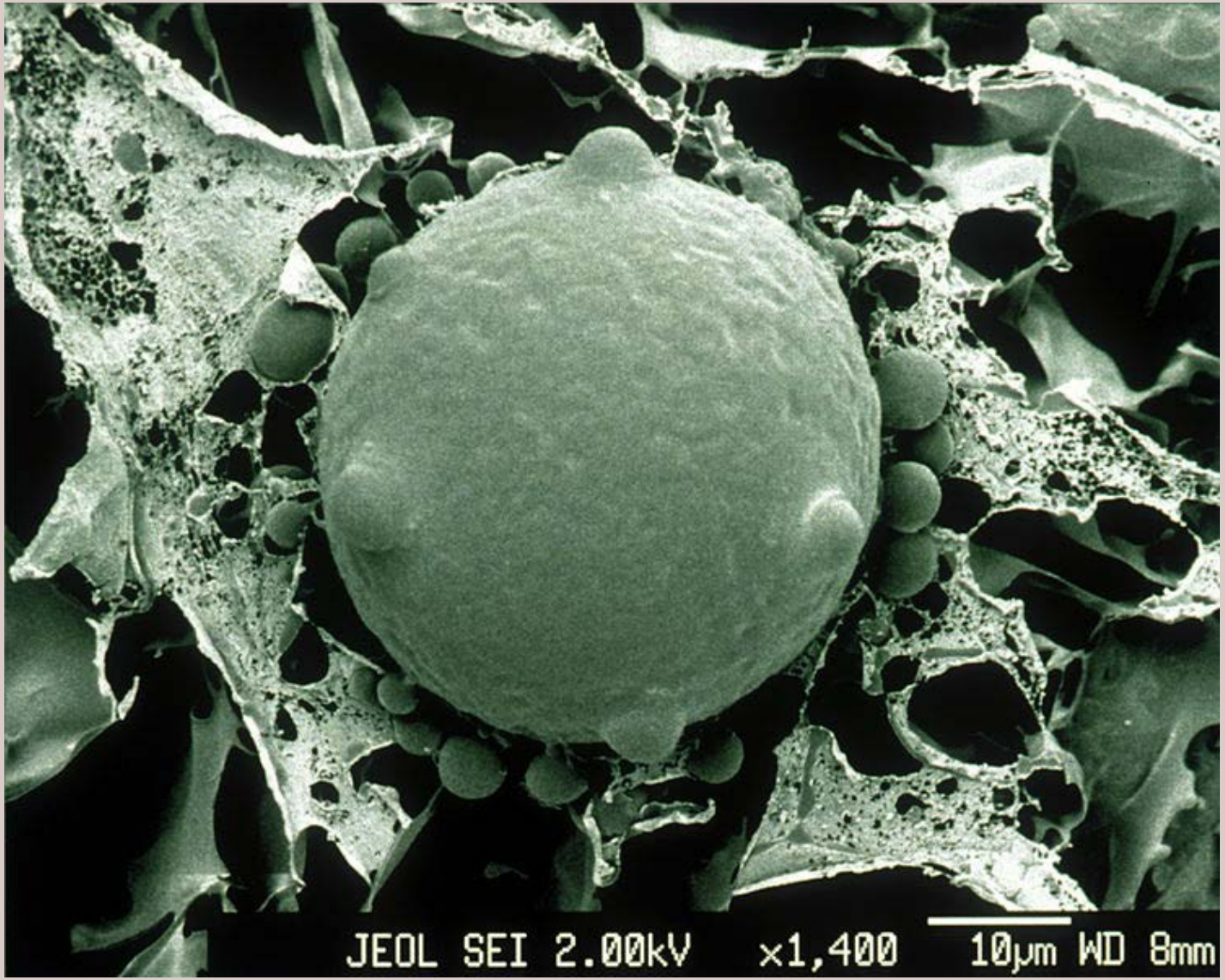


Photo Source Dr. Alex Hyatt, CSIRO

Our Team:

Photo by Trust Volunteer

The Monroe Toad Lickers


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Photo by Sujata Gautam

Boreal toads breed in ponds

Photo by Sujata Gautam

Results at the End of the Week:

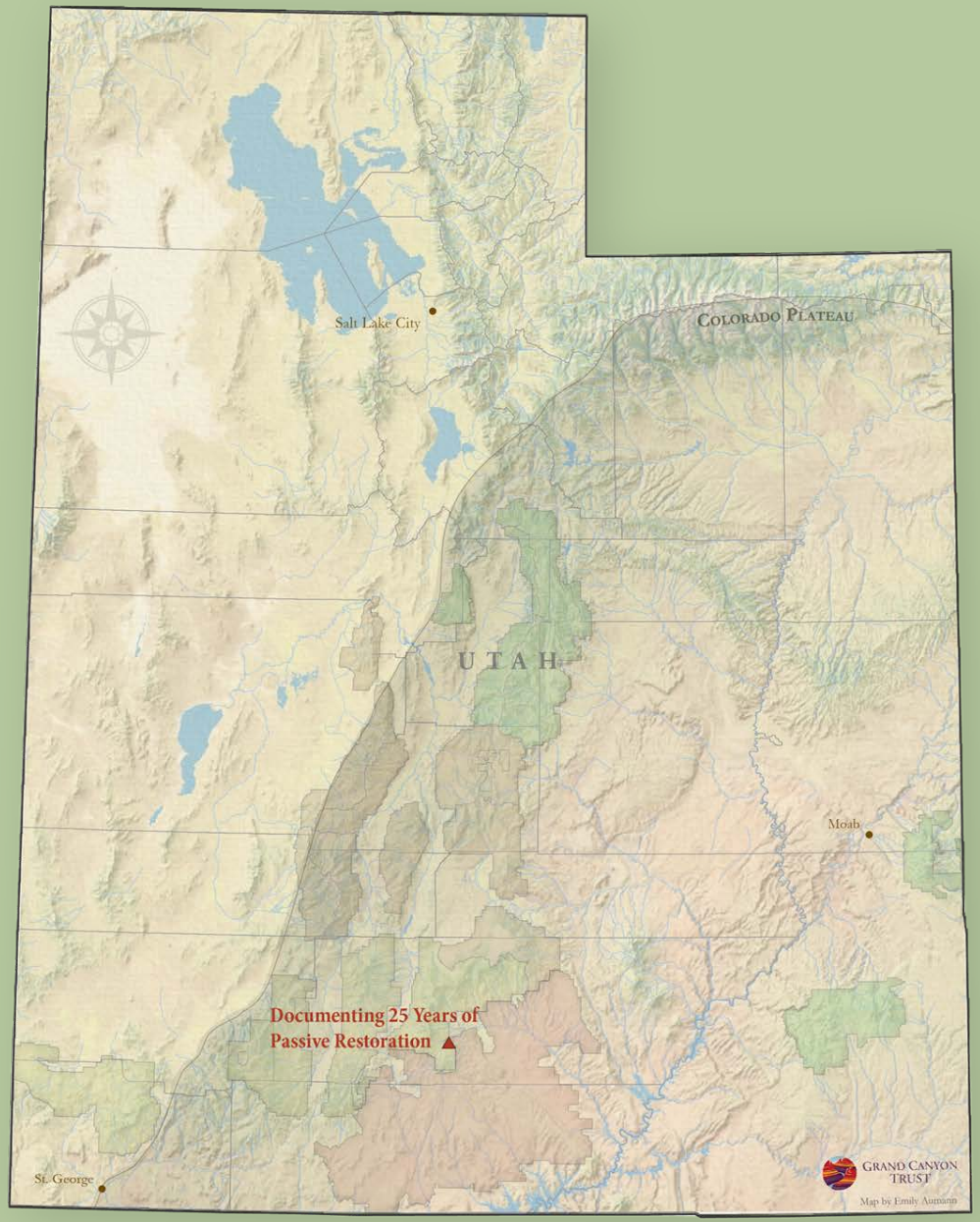
Toad Count:

15-Year trend indicated by Kevin Wheeler
(UT Division of Wildlife Resources)

Photo by Trust Volunteer

South Hollow:
25 Years of Passive Restoration
Escalante, Utah

South Hollow Property
Photo by Marra Clay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Documenting 25 Years of
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Map by Emily Ausmann

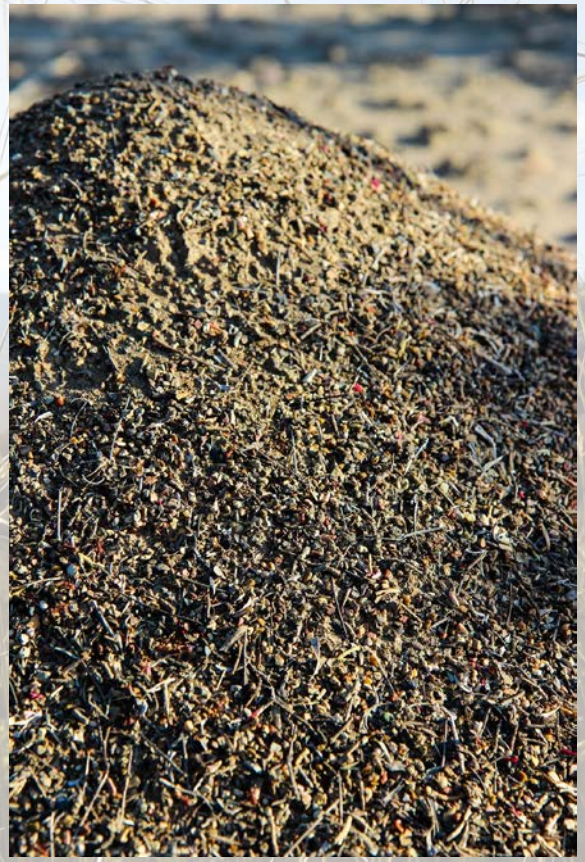
The Project

- South Hollow land purchased by the Bramble family in 1992
- Passive restoration project
- Adjacent to Dixie National Forest
- 145 acres

Dennis Bramble
Photo by Marra Clay

Documented Improvements

- Increase in native grasses
- Raised water table
- Increase in mammals
  - Coyotes
  - Elk
  - Deer
- Recovery of riparian areas
- Increased ant populations
- Filling in of arroyos



Native Needle-and-Thread *Hesterostipa comata*
Photos by Marra Clay

Significance to the Grand Canyon Trust

South Hollow

Dixie National Forest

Serves as a comparison between grazed Forest Service land and livestock-free land

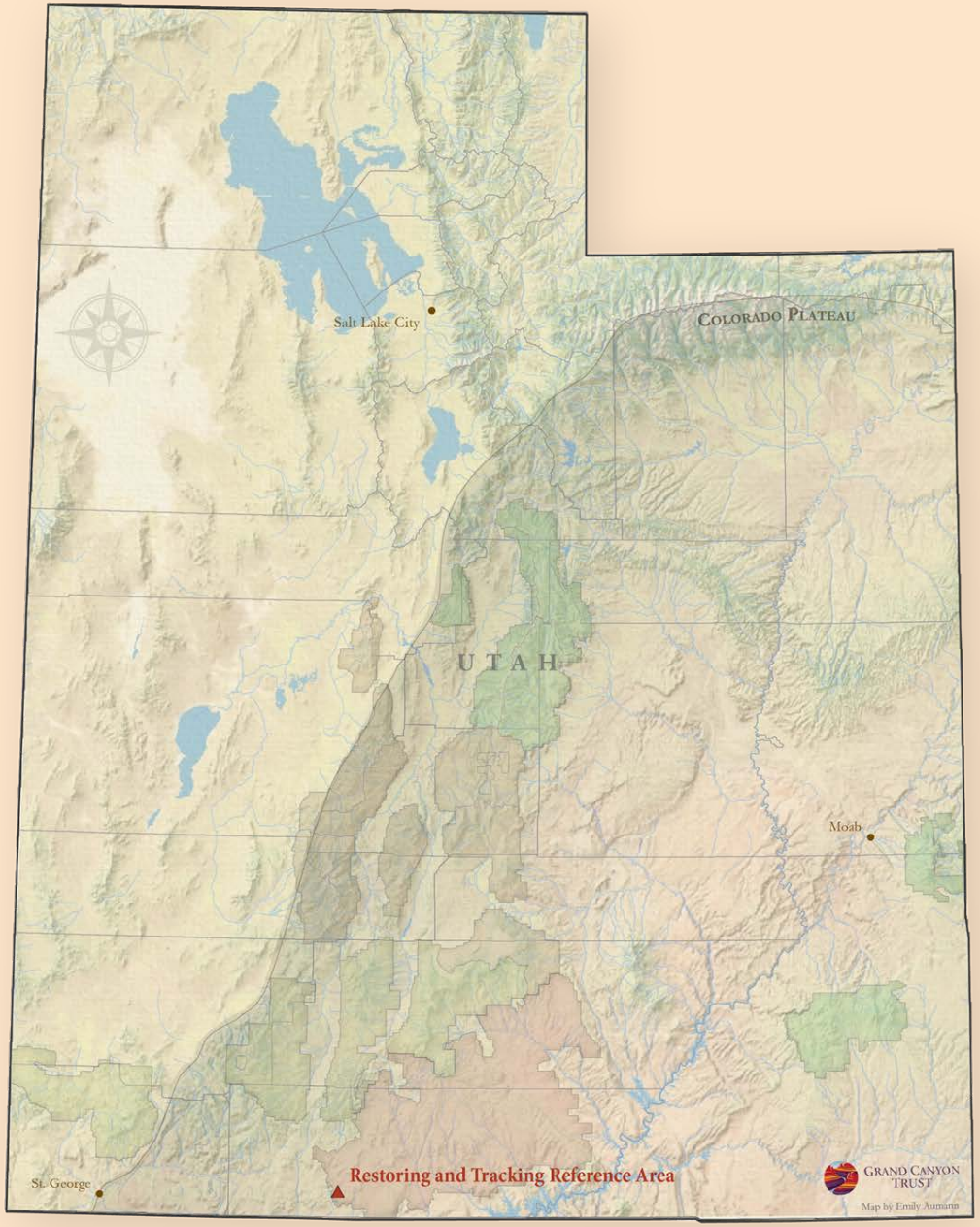
Significance to the Grand Canyon Trust

Provides inspiration for other private and public lands restoration projects

Johnson Lakes Canyon: Restoring and Protecting a Reference Area

Kanab, UT

Johnson Lakes Canyon Property
Photo by Marra Clay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Map by Emily Aumann

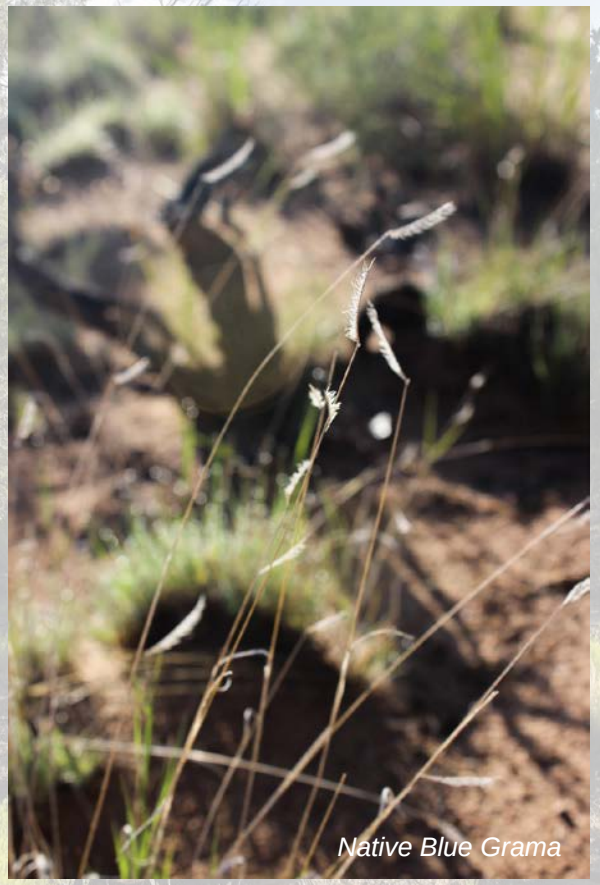
The Project

- Property purchased by Rick and Susie Knezevich
- Active and passive restoration
- Adjacent to Grand-Staircase National Monument
- Site of Native American ruins

Rick and Susie
Photo by Ellen Morris Bishop

Documented Improvements

- Increase in:
  - Native grasses
  - Cottonwoods
  - Willows
- Improved riparian habitats
- Raised creek bed
- Reduced Russian Olive



Native Blue Grama

Photos by Marra Clay

Significance to the Grand Canyon Trust

Volunteer Trips: Invasive removal team May, 2015

Significance to the Grand Canyon Trust

Protection of ancient Native American civilizations: pictographs, sharpening rocks, grainery, pot shards

Significance to the Grand Canyon Trust

Strong example of a private restoration project

What to take away from both restoration projects….


Photo by Marra Clay


Photo by Marra Clay

- Demonstrate improvements as a result of both passive and active restoration projects
- Private restoration projects can serve as references for surrounding public lands

Alpine Vegetation Monitoring

La Sal Mountains

Photo by Cameron Hancock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St. George
Grand Canyon Trust
Map by Emily Aumann

Project Goal

- Establish monitoring protocol for four different sensitive plant species

Senecio fremontii Var. *inexpectatus*
(Fremont's Grounsel)

Draba abajoensis
(Abajo Draba)

Androsace chamaejasme Var. *carinata*
(Sweetflower Rockjasmine)

Erigeron mancus
(La Sal Daisy)

Photos by Cameron Hancock

Project Goals

- Establish monitoring protocol for four different sensitive species
- Set up trail cameras at pre-established utilization cages
- Record goat signs

Photo by Cameron Hancock

Why Alpine Vegetation Monitoring?

- La Sal alpine zone is a “Sky Island”

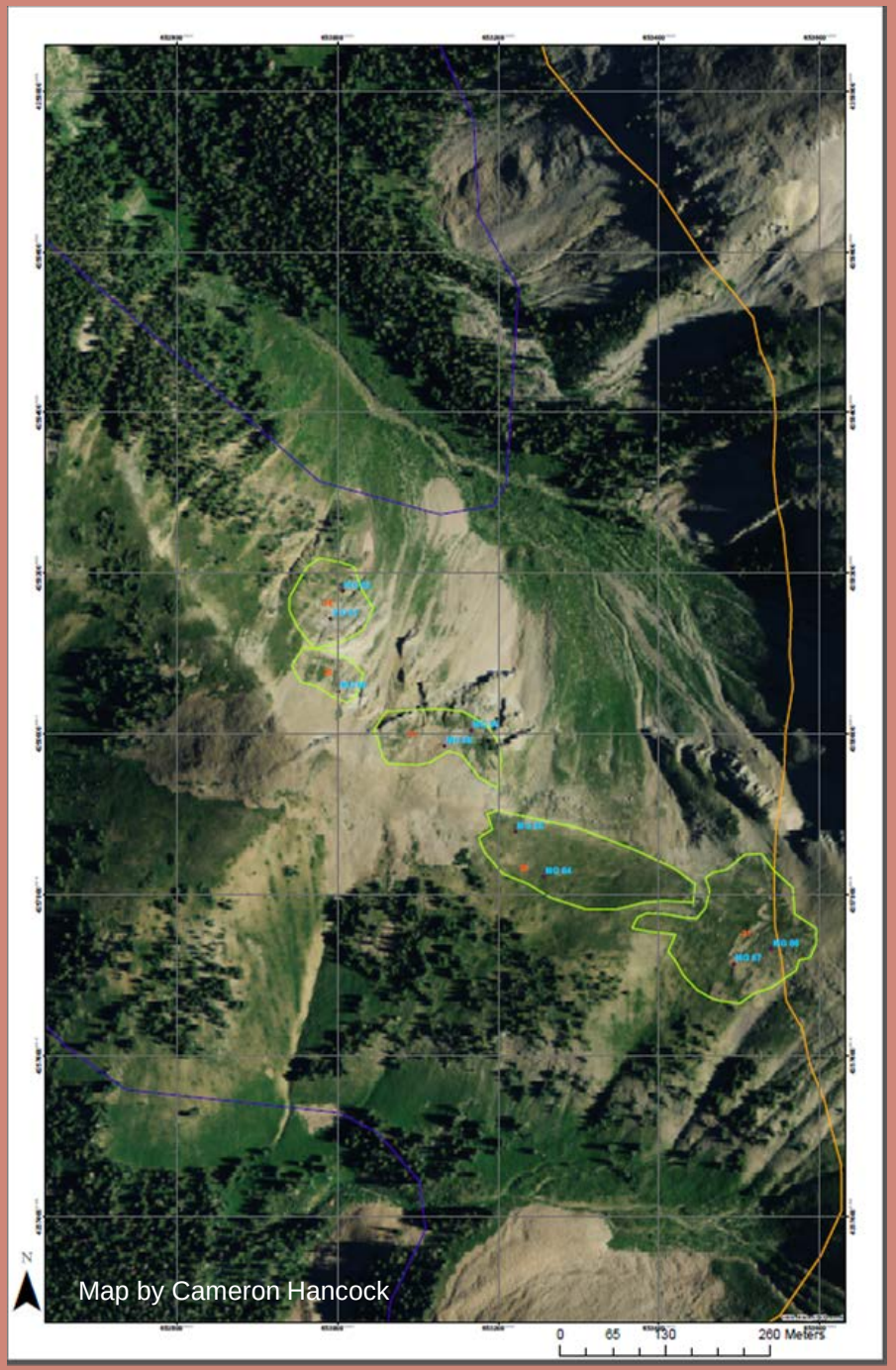
- Mountain goats pose a threat to this fragile ecosystem

- Response from plant community could constitute grounds for mountain goat removal

Putting Goals into Action

Monitoring Plan:

- Map alpine turf-rock on Laurel Ridge
- Revise protocol to better fit plant community
- At each site: measure rooted frequency, ground cover, plant list, site description
- Established 42 sites thus far, more to come this season



Trail Cameras

Photo by Cameron Hancock

- Set up four trail cameras at utilization cages
- Less than initial goal due to feasibility, access and resources

Goat Observations

- Sightings
- Damage (goat and/or other ungulate)
- Observations on behavior and side effects of human presence

Current Progress

- Habitat and growth habits of the four sensitive species
- Extent of goat damage and looking to the future
- How to monitor alpine vegetation using a new protocol
- Getting all concerned parties (FS, GCT, UDWR,) on same page

Other Work in the La Sals

- Wild Utah Project goat impact surveys
- Dr. James Fowler La Sal Daisy (*Erigeron mancus*) study on Laurel Ridge

Moving Forward

- Monitoring efforts every year for the next five years
- Whitman College Senior Thesis work
- Looking at efficacy of this protocol for measuring impacts: what can we see and what are we missing?
- Comparison with other studies in La Sals
- Analysis of methods and results in terms of Research Natural Area policy, sensitive species policy and management of habitat

Additional Intern Projects…

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- Volunteer thistle removal trip
- Canyon of the Ancients National Monument - proposed cattle return
- Wildcat Knolls seeding experiment with Forest Service
- South Monroe Mountain post-burn aspen transects
- Repeat of North Creek and Pando Clone photo points

Special Thanks to…..

Mimi Trudeau & Gerrish Willis
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Erik Secrist and Darin Menlove
for graciously hosting Collin Smith

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for providing the vegetables for this evening

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for his constant support and calming presence

Doris Duke Conservation Scholars Program
Whitman College Environmental Studies Program