

Implementing Adaptation Strategies in the Gunnison Basin, Colorado

Betsy Neely, The Nature Conservancy
Nathan Seward, Colorado Parks & Wildlife
Gunnison Climate Working Group
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From Planning to Action

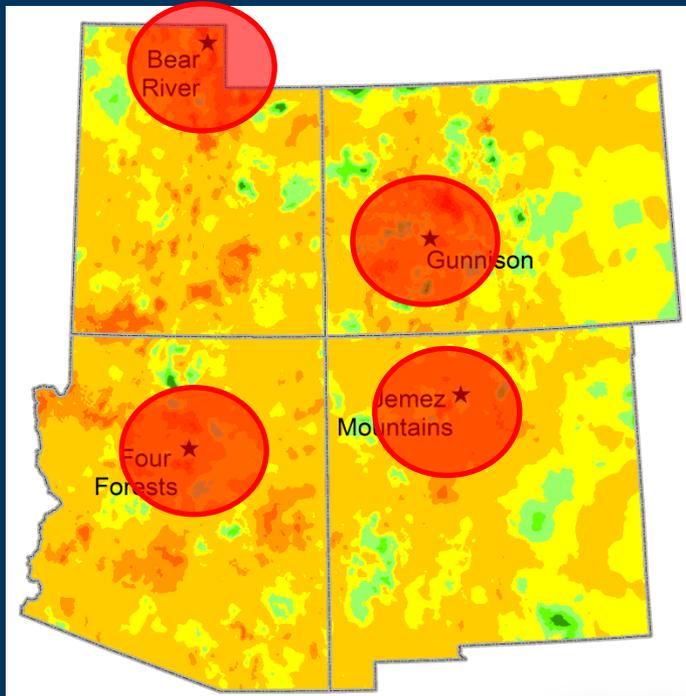
1. Planning
2. Enabling conditions
3. Challenges
4. Lessons learned





Southwest
Climate Change Initiative

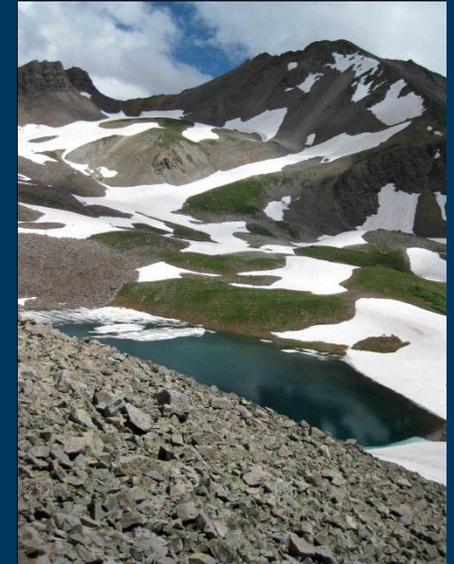
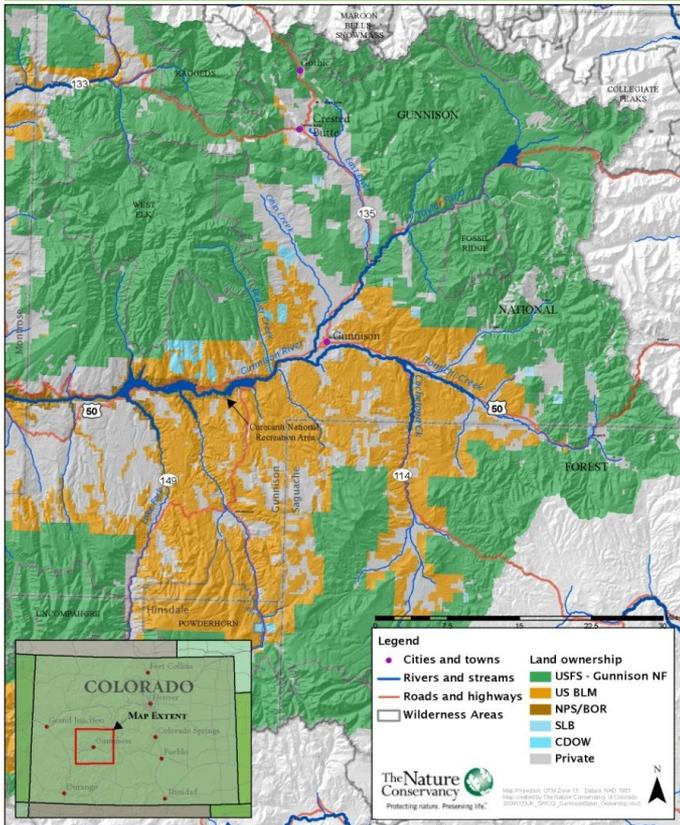
Landscape Adaptation Workshops 2009-2010



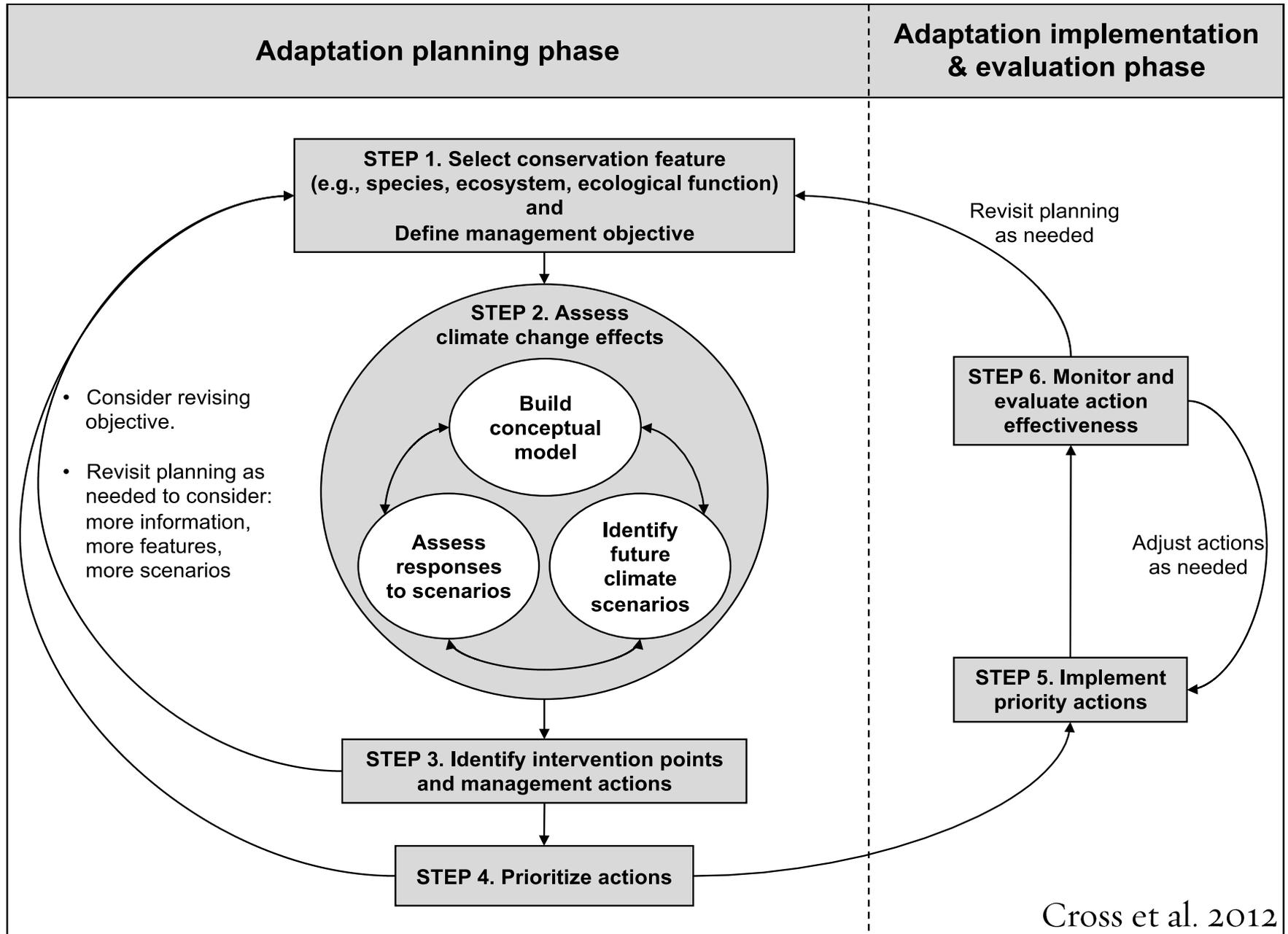


2009 Gunnison Basin Climate Adaptation Workshop

Gunnison Basin, Colorado



Adaptation for Conservation Targets (ACT) Framework



Management Objective

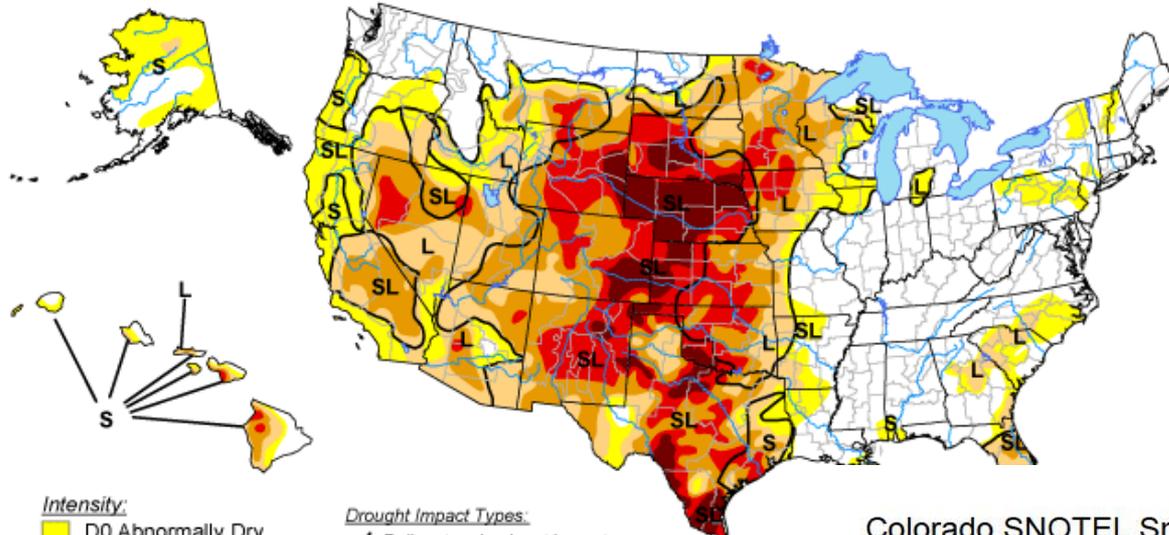
Increase and maintain the grouse population to greater than 3,500 individuals.



U.S. Drought Monitor

April 2, 2013

Valid 7 a.m. EDT



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

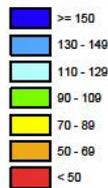
<http://droughtmonitor.unl.edu/>



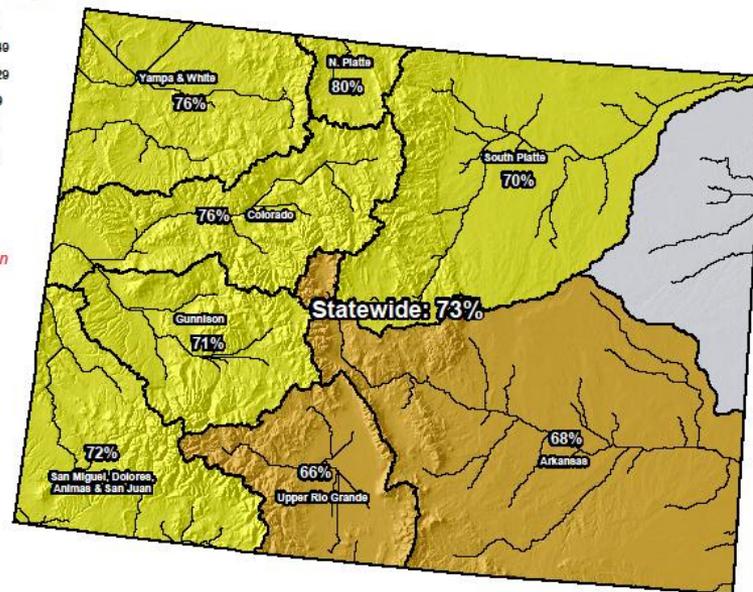
Release
Author: Rich

Colorado SNOTEL Snowpack Update Map

Percent of Average



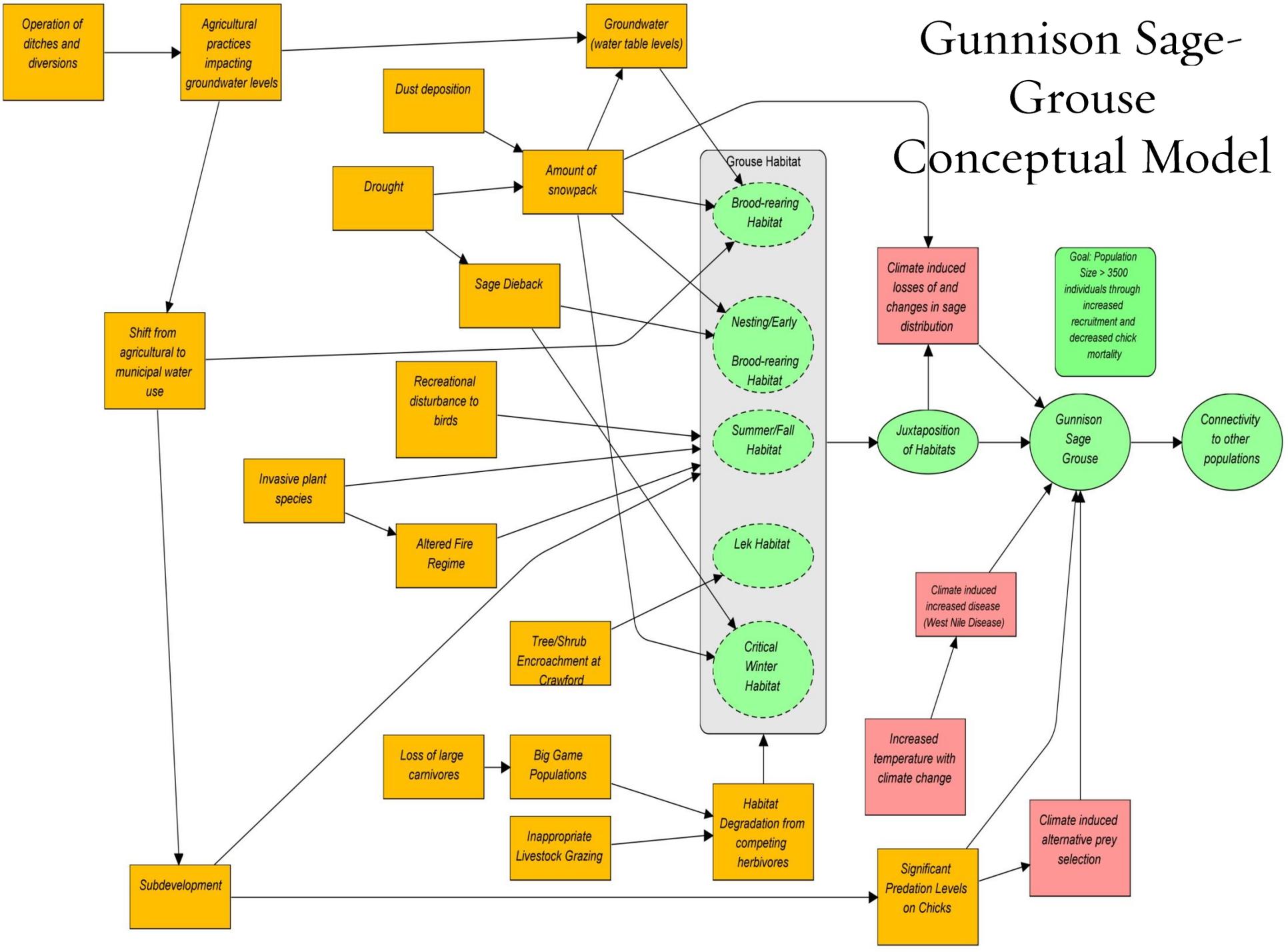
Provisional Data
Subject to Revision



Current as of Apr 03, 2013

*Data may not provide a valid measure of conditions

Gunnison Sage-Grouse Conceptual Model



Gunnison Sage-grouse

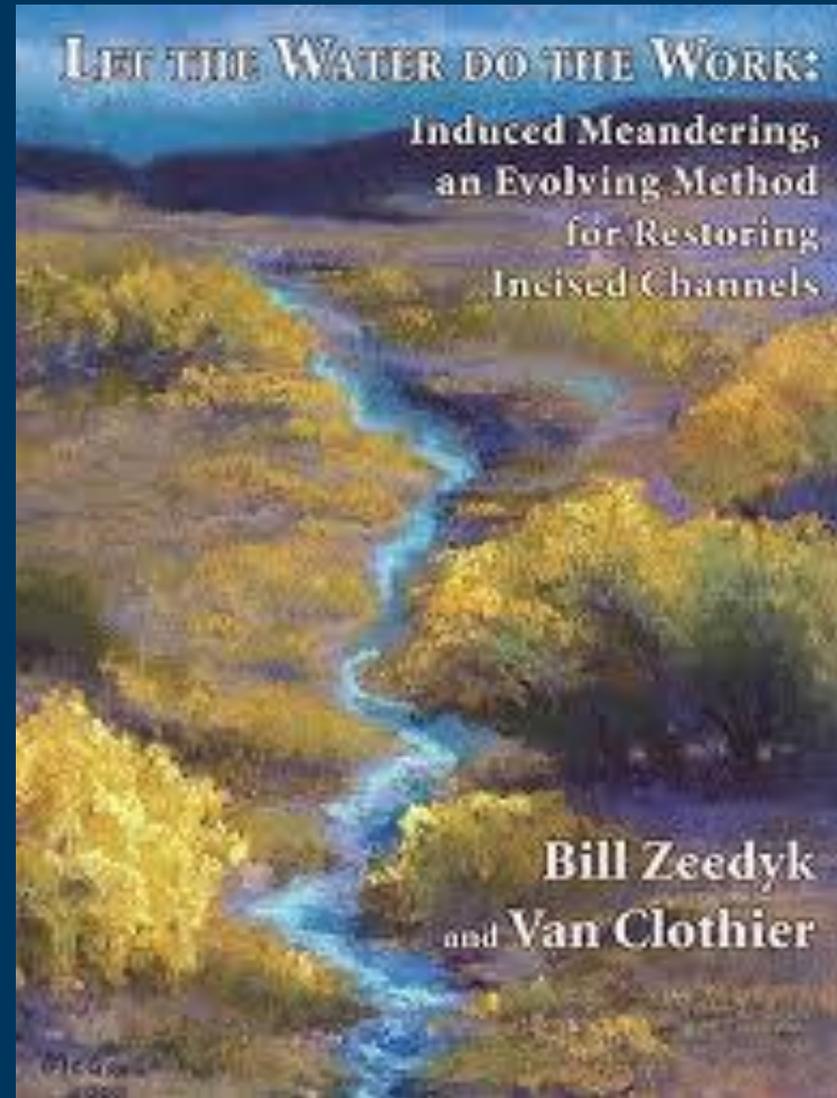
Climate Change Impact	Intervention Point	Strategic Action
<p>Brood rearing habitats: fewer mesic sites, lower quality, more erosion; may shift to higher elevation; located further from nesting; chick survival diminished</p>	<p>Snowpack and water management</p> <p>Agriculture practices</p>	<p>Retain H₂O in most vulnerable brood-rearing habitats</p> <ul style="list-style-type: none"> ● Restore seeps, springs; remove head-cuts, gullies; raise H₂O table ● Permanently tie water to land via easements ● Improve irrigation practices

Enhance resilience of brood-rearing habitat to help Gunnison Sage-grouse & other wildlife species adapt to climate change



Project Goals

1. Prioritize sites & design projects
2. Restore 500-800 acres
3. Establish monitor program
4. Share tools, methods & findings



Site Selection

Step 1:
Develop spatial units (i.e. potential sites) for GIS analysis

- Priority Brood-rearing habitat (GUSG Working group) split by catchments

Step 2:
GIS filter by climate-related and habitat factors

- Elevation
- Baseline sagebrush ecosystem performance
- Climate-changed sagebrush ecosystem performance by 2050
- Lek proximity
- Habitat area

Step 3:
GIS filter by feasibility factors

- NEPA status
- Land owner (federal, state, or private)
- CPW known degraded area
- Seeps and Springs (BLM)
- Willingness of landowner
- Distance to roads

Step 4:
Technical Team: review and select sites

Step 5:
Field survey selected sites

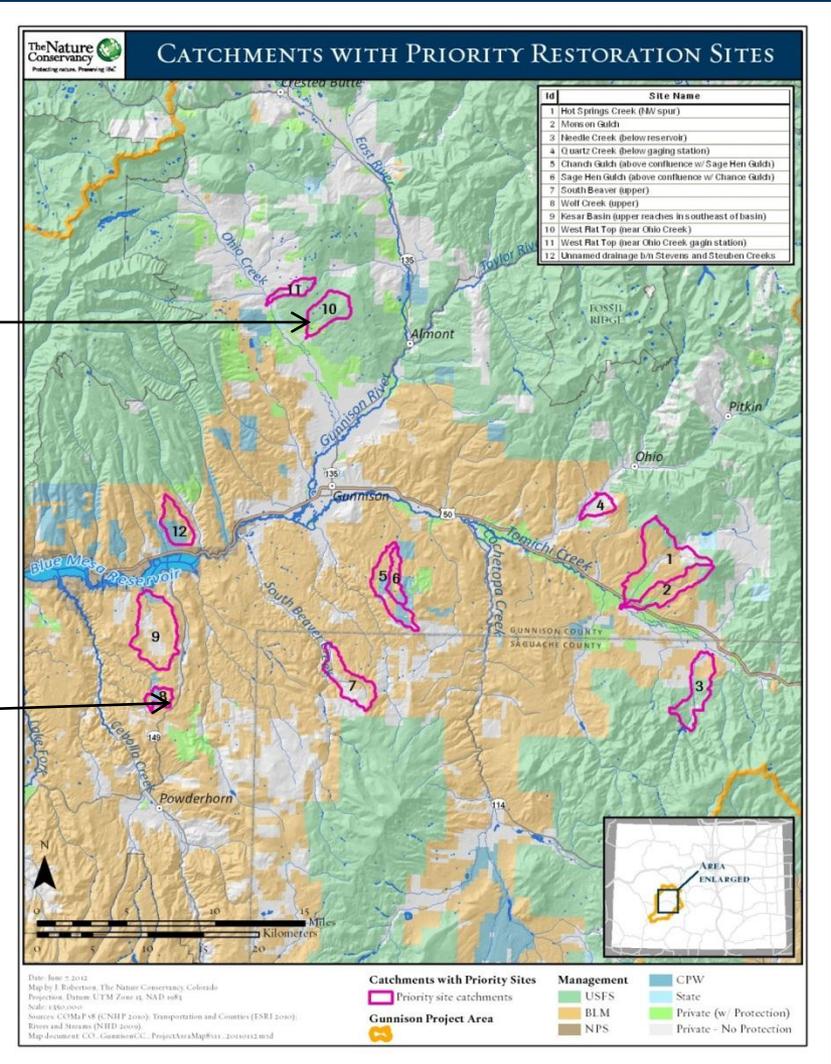
Step 6:
Final site selection for resiliency work



Redden Ranch, West Flat Top



Wolf Creek/Kaichen State Habitat Area





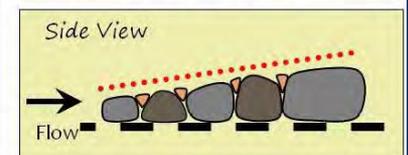
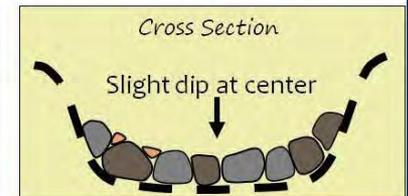
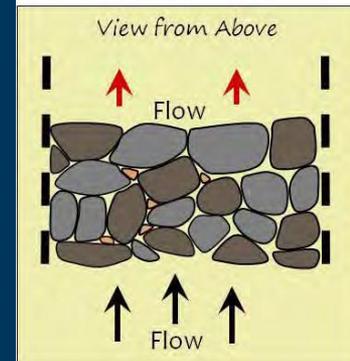
Use Simple Rock Structures to:

1. Reduce head cuts & erosion
2. Raise water table & improve base flows
3. Improve health & expand extent of riparian vegetation



One Rock Dam

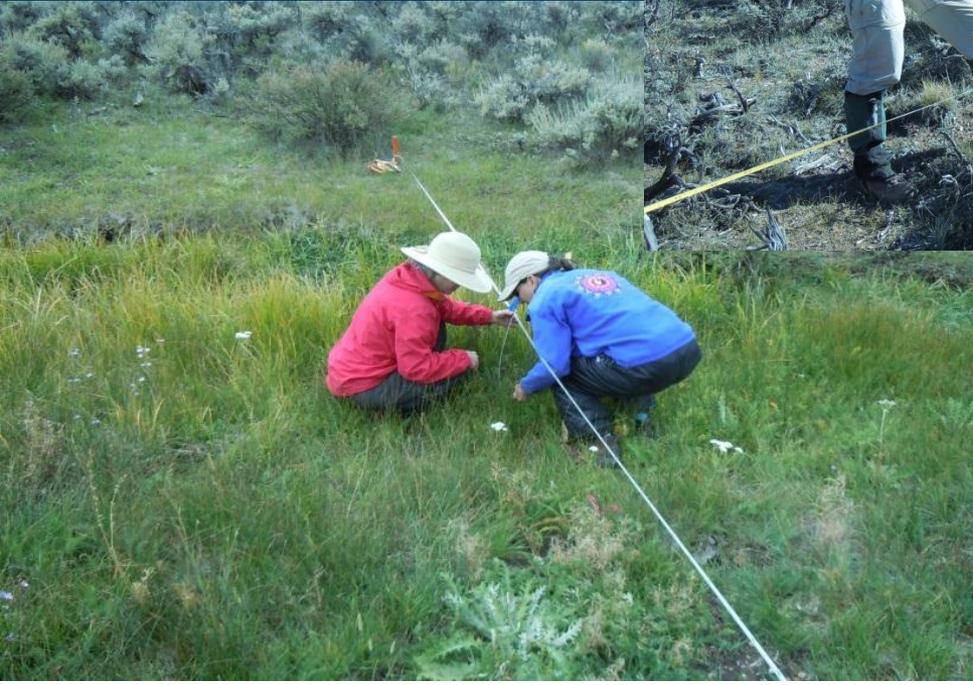
= 1 rock high + uniform surface



Key Preparation Steps



Monitoring





Enabling Conditions



Adaptation Workshop



University professors & students



Sage-grouse Strategic Committee

Challenges

1. Time for: contracts, ACE permits, landowner agreements, mapping, work days, NEPA....
2. Access to sites
3. Finding rock source & hauling



Lessons Learned

1. On-the-ground project creates understanding & support
2. Local champions
3. Consider long-term capacity to continue project



Special thanks!

Project Team & Gunnison Climate Working Group

Jim Cochran, Gunnison County

Renee Rondeau, CNHP

Christina Santana, Liz With, Chris Bove, NRCS

Brian St. George, Andrew Breibart, Gay Austin, BLM

Matt Vasquez, USFS

Ken Stahlnecker, NPS

Nathan Seward, CPW

Pat Magee, Jonathan Coop, Claudia Strijek, WSCU

Bill Zeedyk, Restoration Contractor

Jamie Robertson, Chris Pague, John Sanderson, TNC

Private Landowners: Brett Redden, Rufus Wilderson

Boulder High School- Jeanene Nelson, Andrew Arell

Claudia Strijek, WSCU

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