

# CNHP Conservation Planning Team



Dr. Ana Davidson

- Research Scientist in Macroecology
- Joint Faculty Fish, Wildlife, & Conservation Biology



Karin Decker

- Conservation Ecologist
- Climate change, plant community ecology & modeling



Michelle Fink

- Landscape Ecologist, Spatial Analyst
- Climate change, modeling (species distribution, prioritization, connectivity)



Lee Grunau

- Conservation Planner, Team Leader
- Collaborative planning, partner & stakeholder engagement, project mgmt & program administration



Renée Rondeau

- Ecologist, Conservation Planner
- Collaborative planning, climate change, field research & monitoring



# Drought Resilience Planning in the Mancos Watershed

**Goal:** ID strategies for increased drought

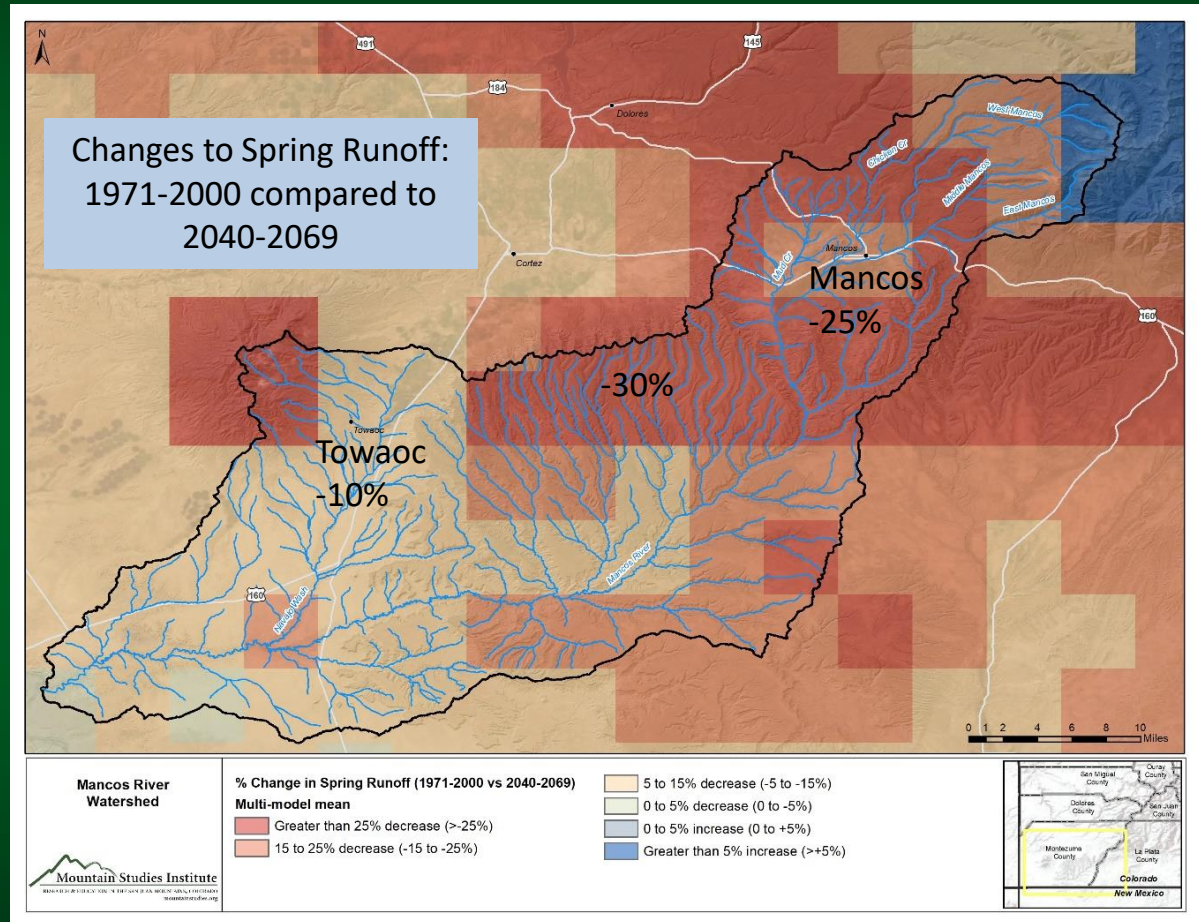
**Multi-partner:**

- Ute Mountain Ute
- Mancos Soil Conservation District
- private landowners
- NPS
- USFS
- Mountain Studies Institute

**Findings:**

- Among most vulnerable in CO – small, hot, lower elevation & snowpack
- Significant avg spring runoff by mid-Century
- #1 strategy = groundwater retention

**Report due:** June '20



# Roaring Fork Biodiversity & Connectivity Study

**Goals:** ID priorities for conservation, restoration, & connectivity; foster community-wide stewardship

**Multi-partner:**

- Aspen Ctr for Environmental Studies
- Aspen Global Change Institute
- Aspen Valley Land Trust
- BLM
- CO Parks & Wildlife
- Pitkin County OS & Trails
- Roaring Fork Conservancy
- USFS
- Watershed Biodiversity Initiative

**Report due:** Spring '21



# Crazy French / Fisher's Peak Conservation Planning

**Approach:** Co-planning to build consensus → biodiversity conservation & recreation



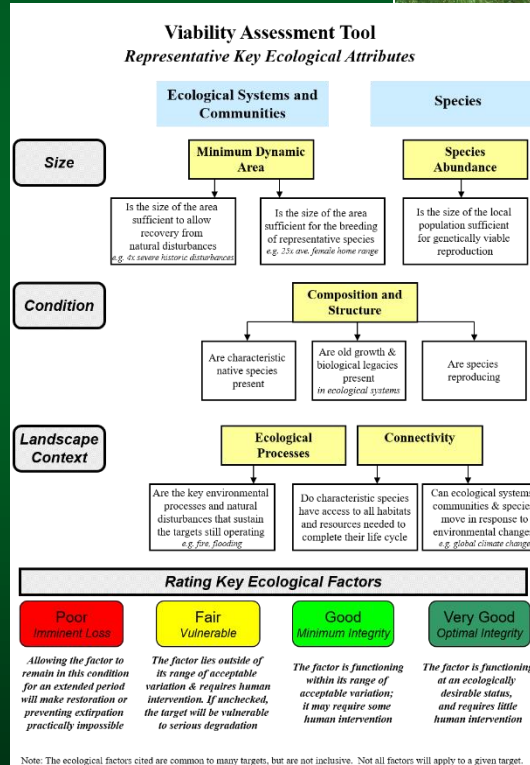
## Multi-day planning workshops

- ❖ Targets and Viability (Feb)
- ❖ Situation Analysis (Mar)
- ❖ Strategies (Apr)

Field inventory, bioblitz(es), and data sharing

- ❖ 2019 & 2020
- ❖ Bioblitz June 2020

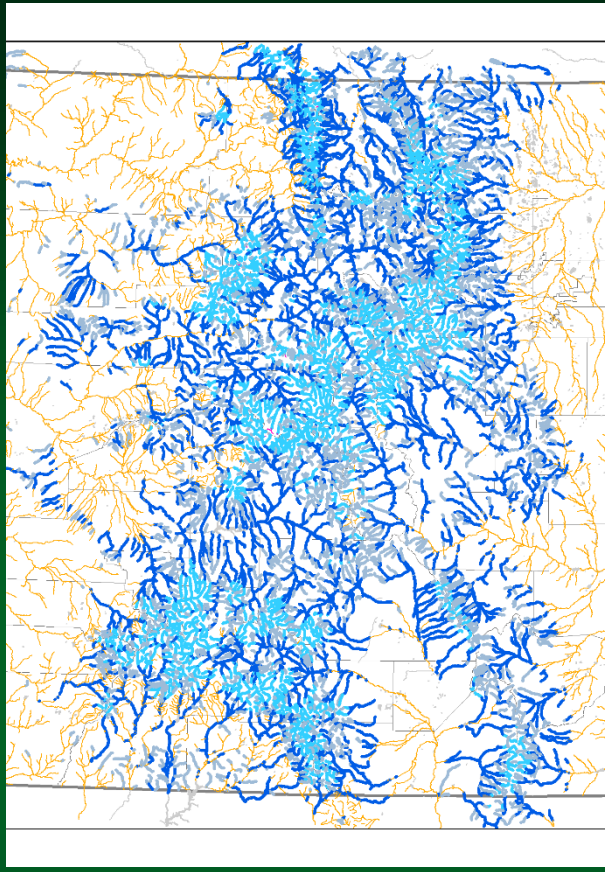
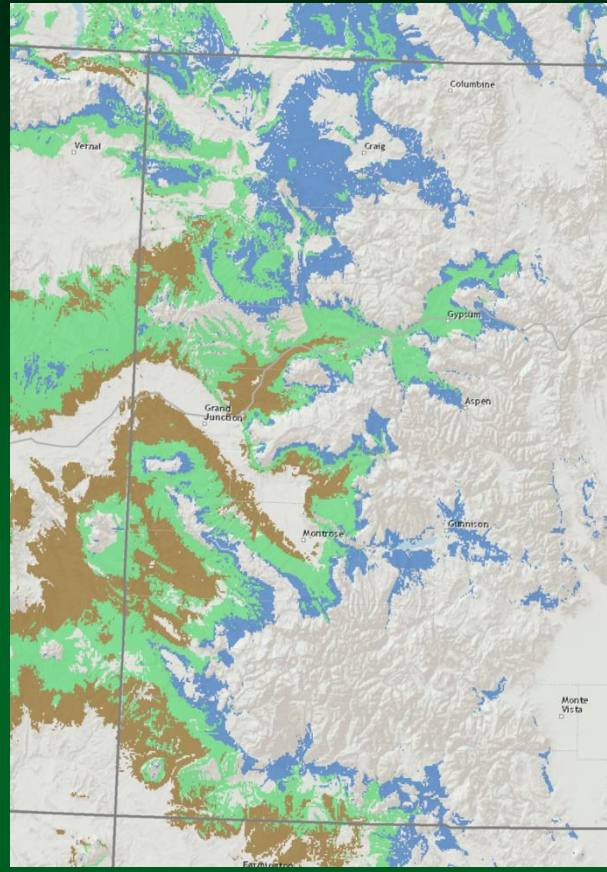
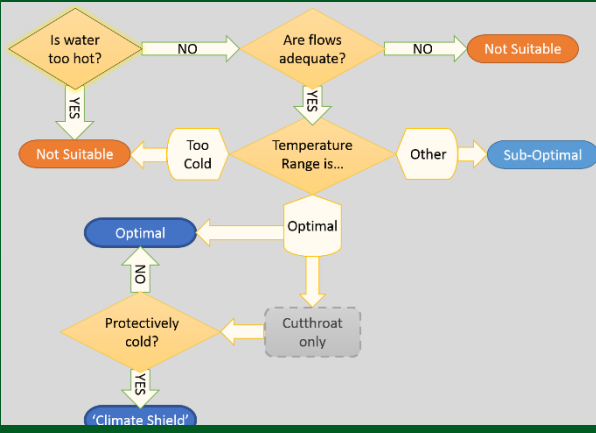
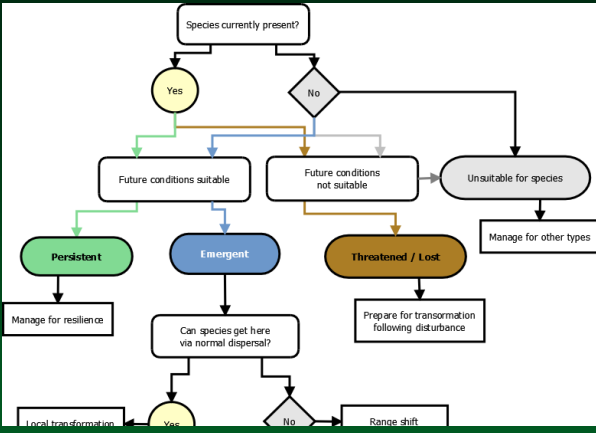
Report expected Fall 2020



## Partners:

- TNC (co-lead)
- CPW (co-lead)
- GOCO
- Landscape Resource Ecosystem Planning, Inc.
- CSU NREL
- Berbur Consulting
- Many, many species experts & volunteer naturalists





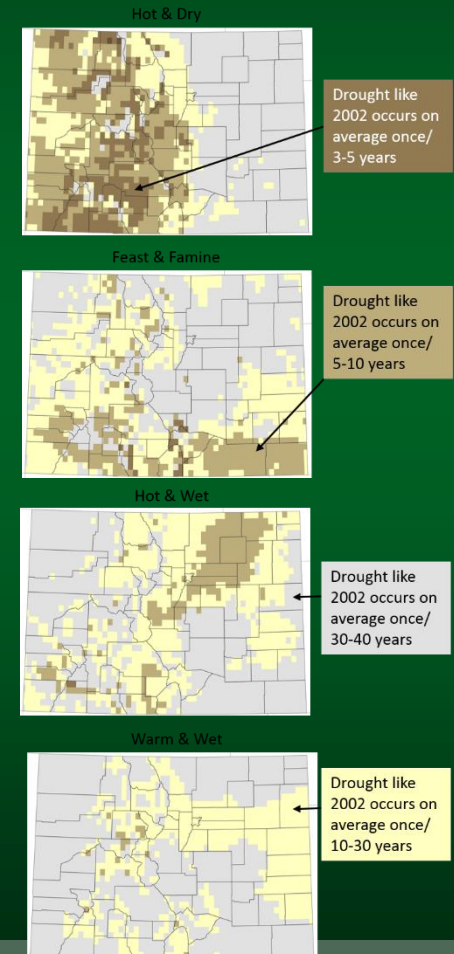
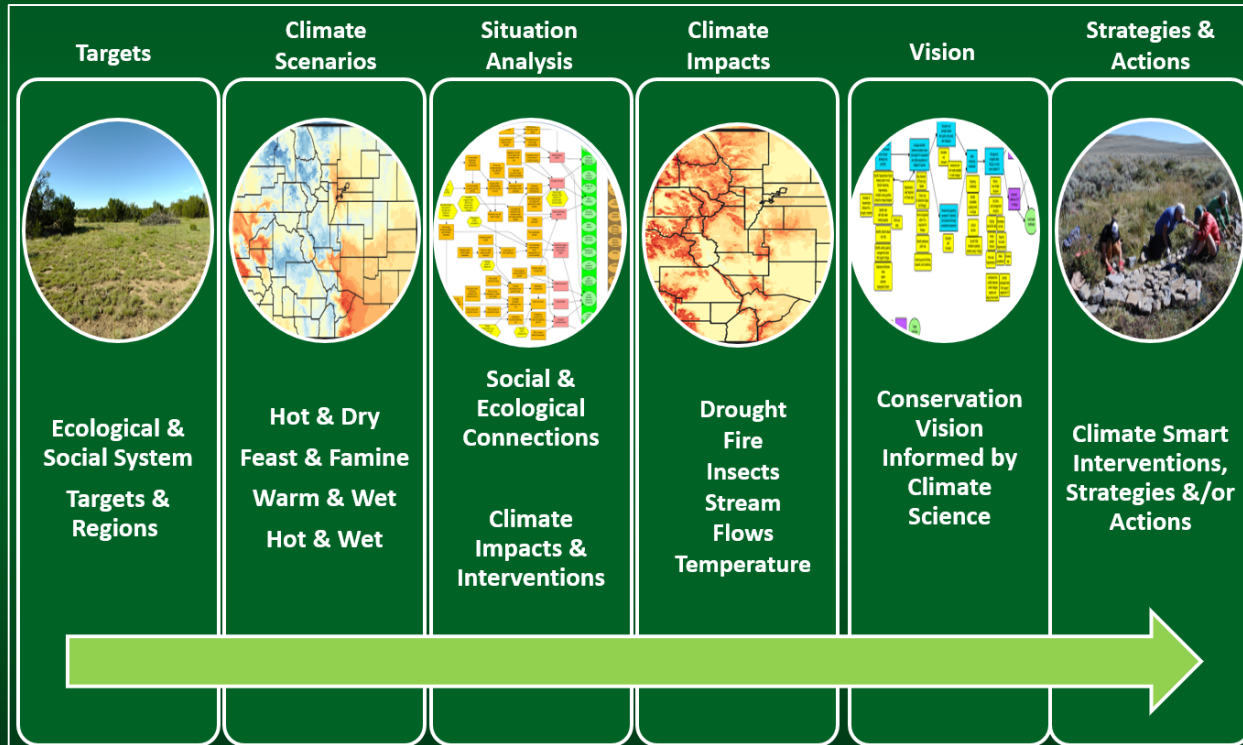
	Measurable Climate Indicator	Impact Assessment Factor	Metric	Hot & Dry	Hot & Wet	Feast & Famine	Warm & Wet	Confidence Level
<b>PINYON-JUNIPER WORKING LANDSCAPE – PINYON JUNIPER WOODLANDS</b>								
Restoration	Pinyon and juniper regeneration	Winter moisture	Percent departure	2	2	0	1	Moderate
Mortality	Pinyon and juniper mortality	Frequency of severe growing season drought (like 2002 and 2012)	Extreme event frequency (Climate Water Deficit Apr-Sep)	-3	-1	-3	0	Moderate
	Increased fire risk	Frequency of severe growing season drought (like 2002 and 2012)	Extreme event frequency (Climate Water Deficit Apr-Sep)	-3	-1	-3	0	Moderate
Position	Loss of persistent PI stands	Change in environmental suitability	Bioclimatic niche models ( <i>Pinus edulis</i> , <i>Juniperus monosperma</i> )	-1	-1	-1	-1	Moderate
	Loss of PI obligate birds, (e.g., Pinyon Jay, Gray Vireo, Juniper Titmouse)	Change in environmental suitability	Bioclimatic niche models ( <i>Pinus edulis</i> , <i>Juniperus monosperma</i> )	-1	-1	-1	-1	Moderate
<b>SHRUB-STEPPE WORKING LANDSCAPE: WINTERFAT SHRUB-GRASSLAND</b>								
	Shallow-rooted shrub, grass, forb production	Frequency of severe growing season drought (like 2002 and 2012)	Extreme event frequency (Climate Water Deficit Apr-Sep)	-3	-1	-3	0	Moderate
	Blue grama abundance	Spring (Apr-Jun) Minimum Temperature (Mar-May average temp as a surrogate)	1 C increase leads to a 1/3 loss of blue grama growth	-3	-3	-2	-2	High
	Blue grama mortality	Frequency of severe growing season drought (like 2002 and 2012)	Extreme event frequency (Climate Water Deficit Apr-Sep)	-3	-1	-3	0	High

# Environmental Change and the Bureau of Land Management



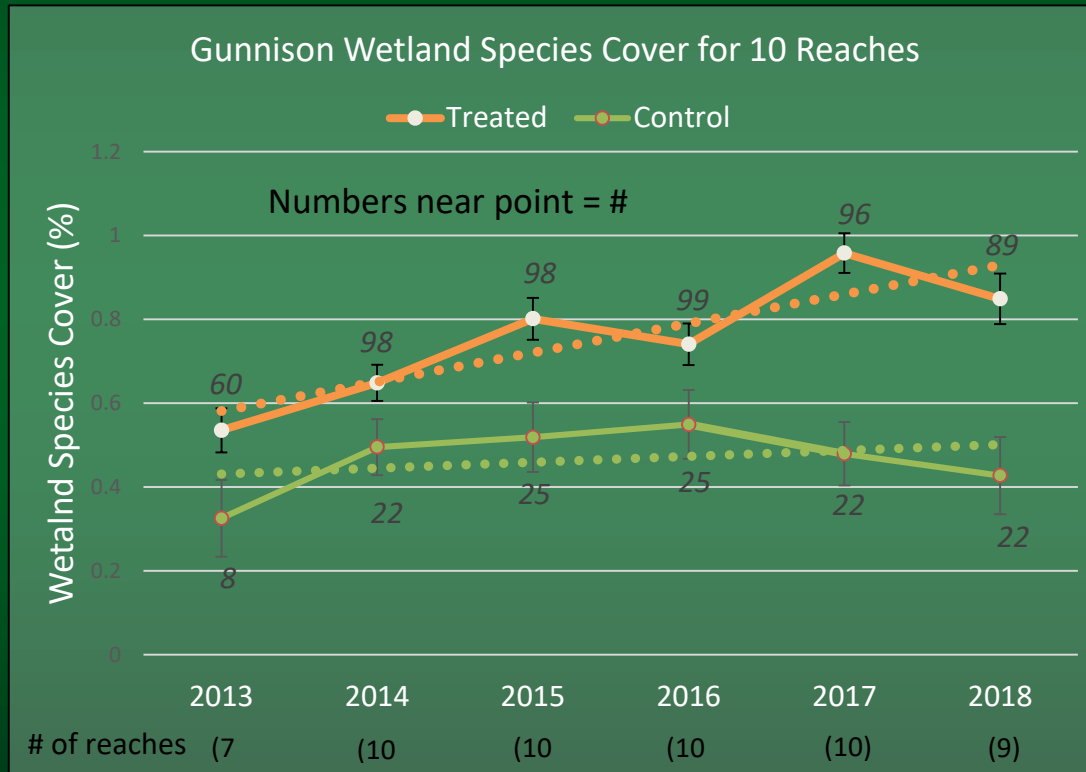
# The Nature Conservancy: CO Climate Impacts & Opportunities

- **Partners:** TNC (lead), Western Water Assessment, University of CO
- Model soil moisture & departure from historic Climate Water Deficit
- Interpret ecological response(es) to changing climatic conditions



# Climate Adaptation in Gunnison Basin

Planning for the Future Leads to On-the-Ground Adaptation Strategies

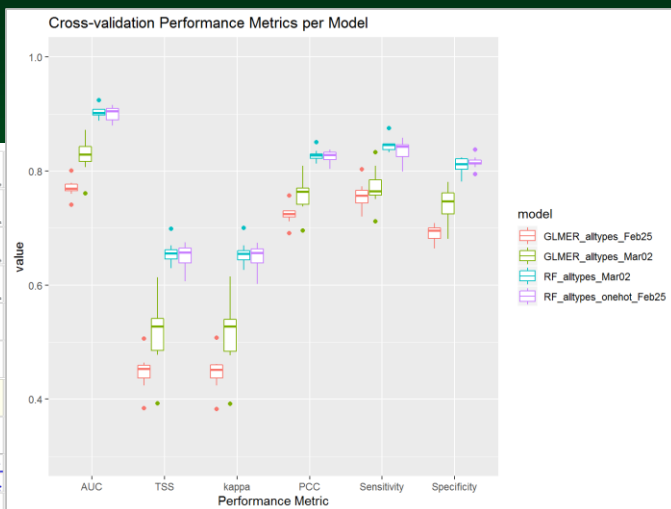
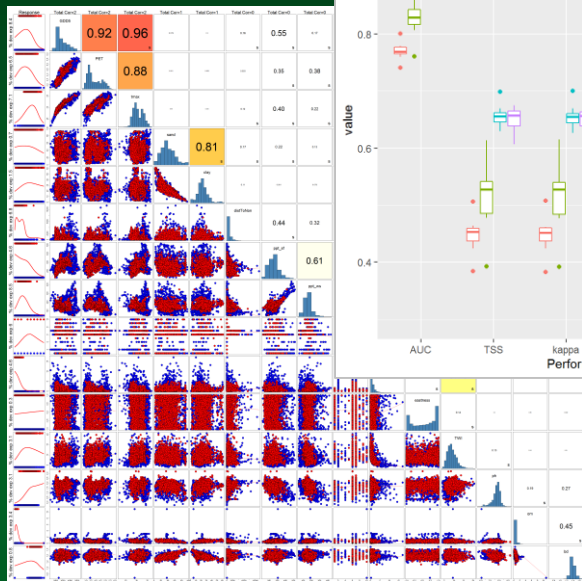


Wetland species cover increased 62% in treated sites

Control sites had virtually no change



# Identifying NA Grassland Conservation Priorities: Integrating Keystone Species, Land Use, & Climate Change

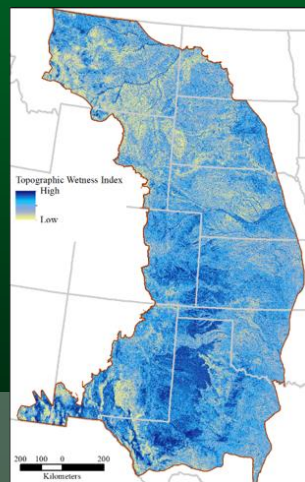
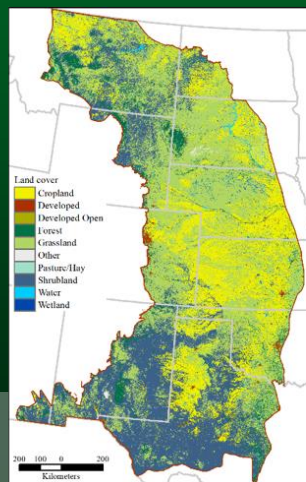
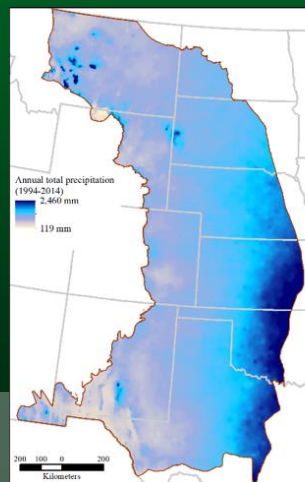
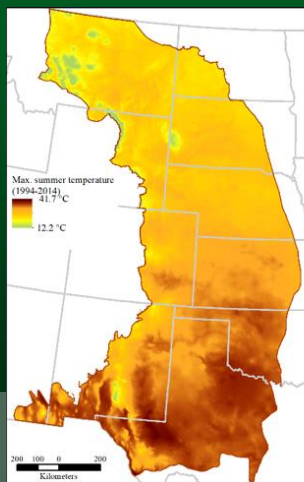
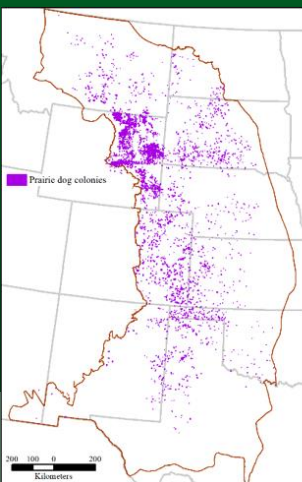


## Partners:

- KS Dept of Wildlife, Parks & Tourism
- WAFWA
- USDA Agricultural Research Service
- Prairie Dog Coalition
- Humane Society US

Model BTPD ecosystem across contiguous US range

- Ecological, political, social, and climatic factors
- Modeling BTPD habitat suitability, with climate projections included





# Participatory Research to Quantify Prairie Dog Impacts on Livestock Production in Western Grasslands



## *Partners:*

- USDA Agricultural Research Service
- Thunder Basin Grasslands Prairie Ecosystem Association
- University of Wyoming
- CO State University

## *Objectives:*

- Integrate livestock producers in design & execution of study
- Quantify relationship: cattle weight gain & prairie dog abundance
- Evaluate whether grazing patterns can explain above
- Determine if stakeholder participation affects trust in results
- Co-create decision support tools with stakeholders



# Excited for What's Next!

## Coming soon...

- ❖ *Understanding How To Manage Prairie Dog Population Dynamics In The Context Of Plague, Climate, And Livestock Production* (USDA – National Institute of Food & Agriculture)
- ❖ 2020 North American Congress for Conservation Biology symposium “Crossing the divide: Grassland conservation for wildlife and people” (Dr. Ana Davidson)
- ❖ Indigenous Species Management Strategies – NPS Wilderness Stewardship Performance Program

## Coming soon...maybe

- ❖ North-Central Climate Adaptation Science Center proposal “*Determining successful management and restoration strategies for maintaining pinyon-juniper communities in the face of change*”
- ❖ ReStore Colorado proposal “*Upscaling Western Colorado’s Wet Meadow Restoration-Resilience Building Project (2020-2023)*”

