

2013-2014 Partners Meeting

USGS Fort Collins Science Center

January 14, 2014

10:00AM-3:30PM



Colorado Natural Heritage Program
Colorado State University
www.cnhp.colostate.edu



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Purpose of Today's Meeting

- Connect the key members of Colorado's Conservation Community
- Updates from CNHP and Partners on current activities
- Highlight successful partnerships
- Discuss the future: how can we all do a better job of achieving conservation goals?



Acknowledgments

- USGS- Jeff Morisette, Shelbey Vallejo
- Ken Wilson and the FWCB Department
- Allan Cox, Montana NHP
- Lee Grunau, CNHP
- And of course, you!



Our Agenda

- 10:00-10:30** **Welcome**
- 10:30-11:30** **CNHP Highlights**
- 11:30-12:00** **Directions for the future**
- 12:00-1:00** **Lunch on-site**
- 1:00-1:05** **Welcome from Joyce Berry**
- 1:05-2:30** **Partner Presentations**
- 2:30-3:15** **Moderated Partner Roundtable**
- 3:15-3:30** **Summary and Wrap-Up**
- 3:30-?** **Happy Hour at El Monte Grill**



What is CNHP?

Colorado
State
University



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Fish, Wildlife, and Conservation
Biology

Human Dimensions of Natural
Resources

Ecosystem Science and Sustainability

Forest and Rangeland Stewardship

Geosciences



- Service, research, teaching, extension
- Self funded



We are part of the NatureServe Network



What is CNHP?

- Objective and Science-based
- Support conservation, management and development with science, information, and data
- Five Teams:
 - Botany
 - Ecology
 - Zoology
 - Conservation Data Services
 - Conservation Planning



The Five Key Biodiversity Conservation Questions



1. What species and ecosystems exist?
2. Which are at risk or otherwise significant?
3. Where precisely are those found?
4. How are they doing at those locations?
5. What are the most important and urgent places to protect?

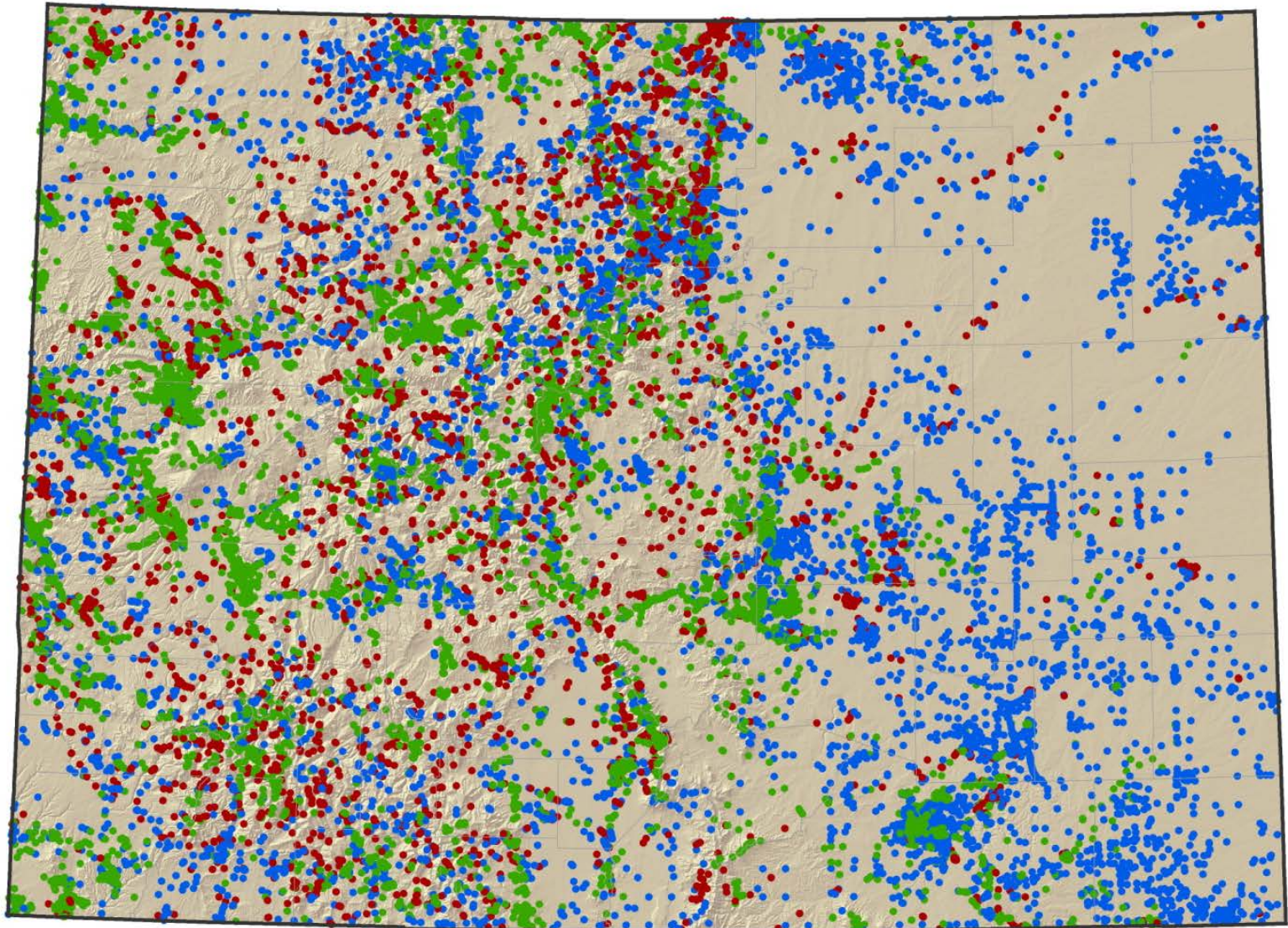


How do we answer these questions?

- Build and share data on the location, status, and conservation priority of Colorado's rare and imperiled species
 - Field surveys
 - Monitoring
 - Scientific research
 - Spatial analysis
 - Modeling
 - Planning
 - Database development
 - Payment for Ecosystem Services
 - Climate change assessment
 - Citizen science
 - Mapping
 - Online mapping tools
 - Protected areas data management
 - Disaster assistance
 - Restoration and reclamation
 - Teaching
 - Career development



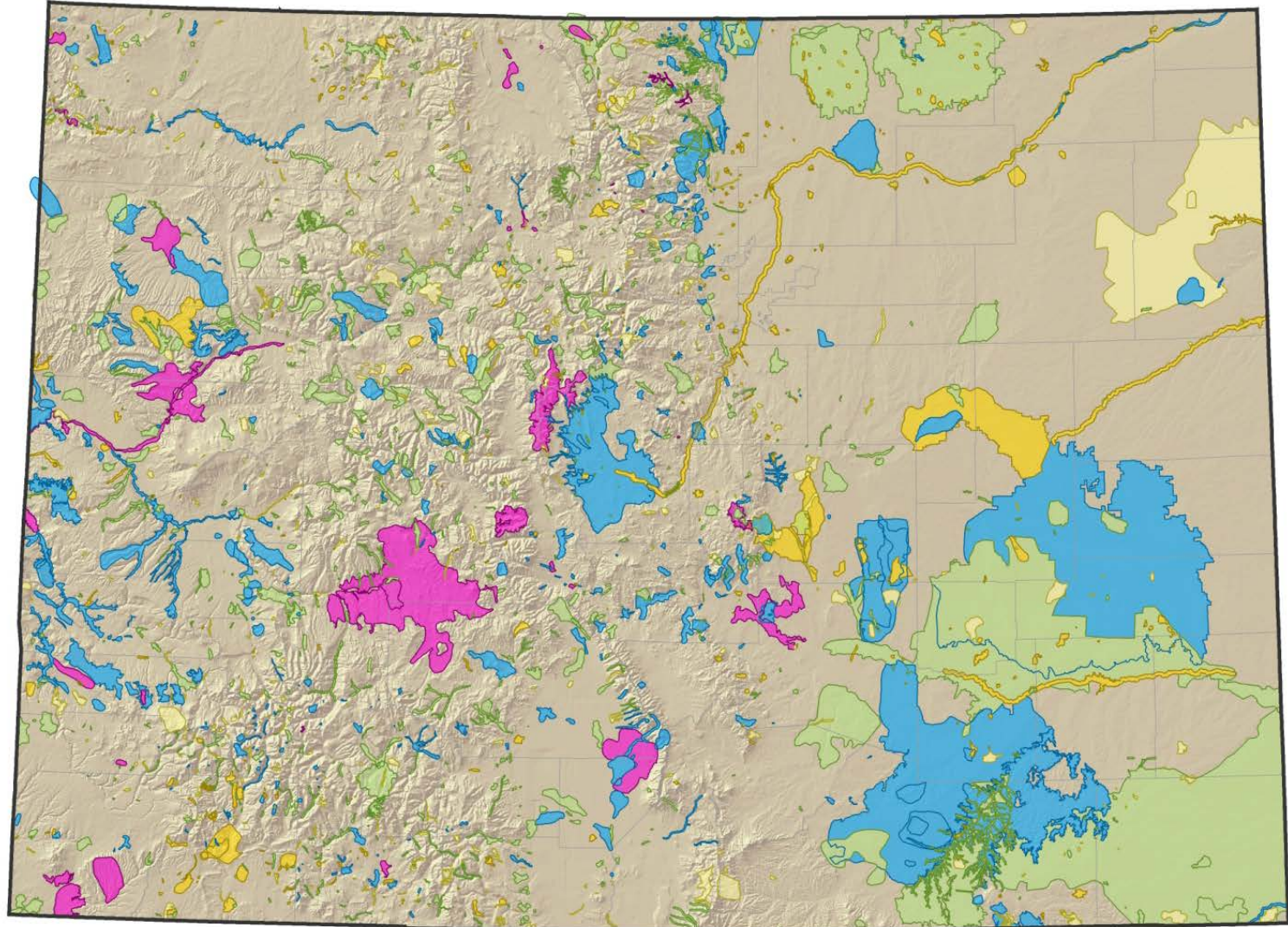
Colorado's Element Occurrences








• Animals • Natural Communities • Plants



Colorado's Potential Conservation Areas



Biodiversity Significance Rank

- | | | |
|---|---|--|
|  B1: Outstanding Biodiversity Significance |  B3: High Biodiversity Significance |  B4: Moderate Biodiversity Significance |
|  B2: Very High Biodiversity Significance |  B5: General Biodiversity Interest | |

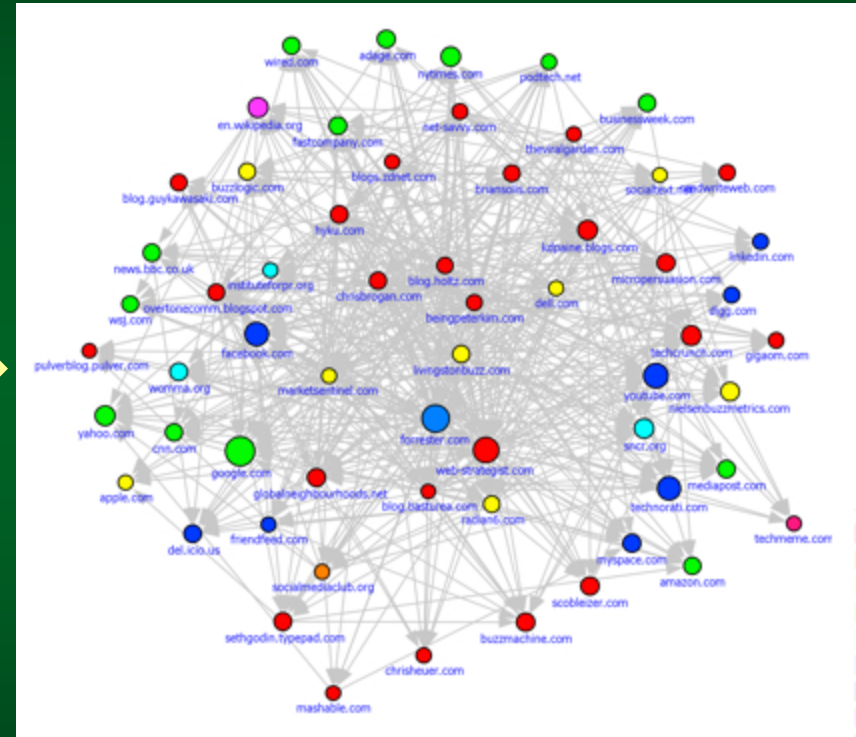
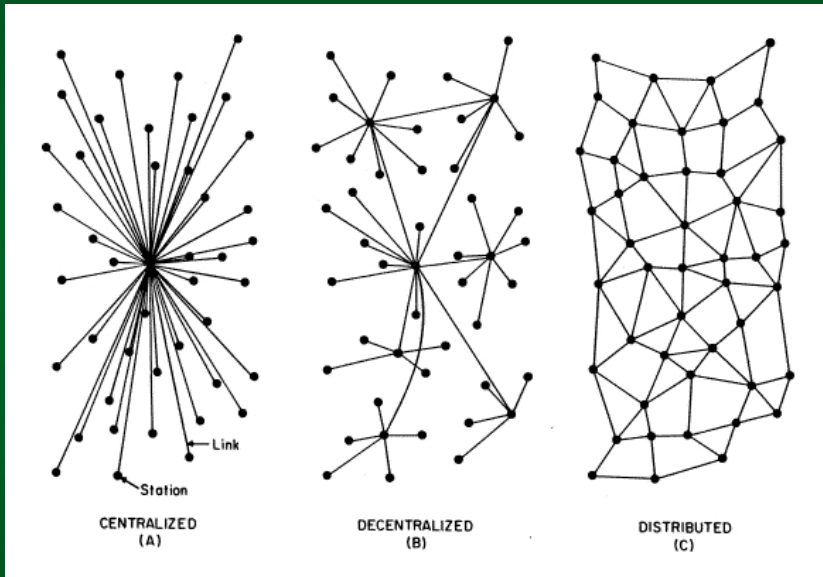


What is CNHP?

- We work through partnerships
- We work with all segments of the conservation community
 - Today, we have 75 RSVPs
 - 32 Different Entities:
 - Federal
 - State
 - Local
 - Educational Institutions
 - Land trusts
 - Conservation Organizations



Topology of Social Networks



CNHP Highlights



Botany Team



Jill Handwerk, Botany Team Leader
Colorado Natural Heritage Program
www.cnhp.colostate.edu



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Botany Team Members



Jill Handwerk,
Botany Team Leader
and Information
Manager



Bernadette Kuhn,
Botanist



Pamela Smith,
Botanist



*Susan
Spackman-
Panjabi,* Botanist



Delia Malone,
West Slope Ecologist
and Botanist



Denise Culver,
Collaborating
Ecologist



Botany Overview

Core Functions:

- Rare Plant Database
- Rare Plant Surveys
- County Inventories
- Vegetation/Rare Plant Monitoring
- Habitat Modeling
- Climate Change Vulnerability Assessments
- Weed Research and Mapping
- Outreach



Rare Plant Database

BIOTICS

- 500+ tracked species
- 5000 element occurrences
- 13,500+ mapped locations

Rare Plant Guide

Rare Plant Symposium

Rare Plant Conservation
Initiative

Best Management Practices

USFS R2 Species Assessments

Colorado Rare Plant Guide


[Rare Plant Lists »](#) | [About The Rare Plant Guide »](#) | [Information »](#) | [Colorado Natural Heritage Program](#)

 *Aliciella sedifolia*
(Stonecrop gilia)

Polemoniaceae (phlox family)

 [Printable Format](#)

 [Current Research Activities](#)



Close up of *Aliciella sedifolia* by Bob Beehler
Click image to enlarge.

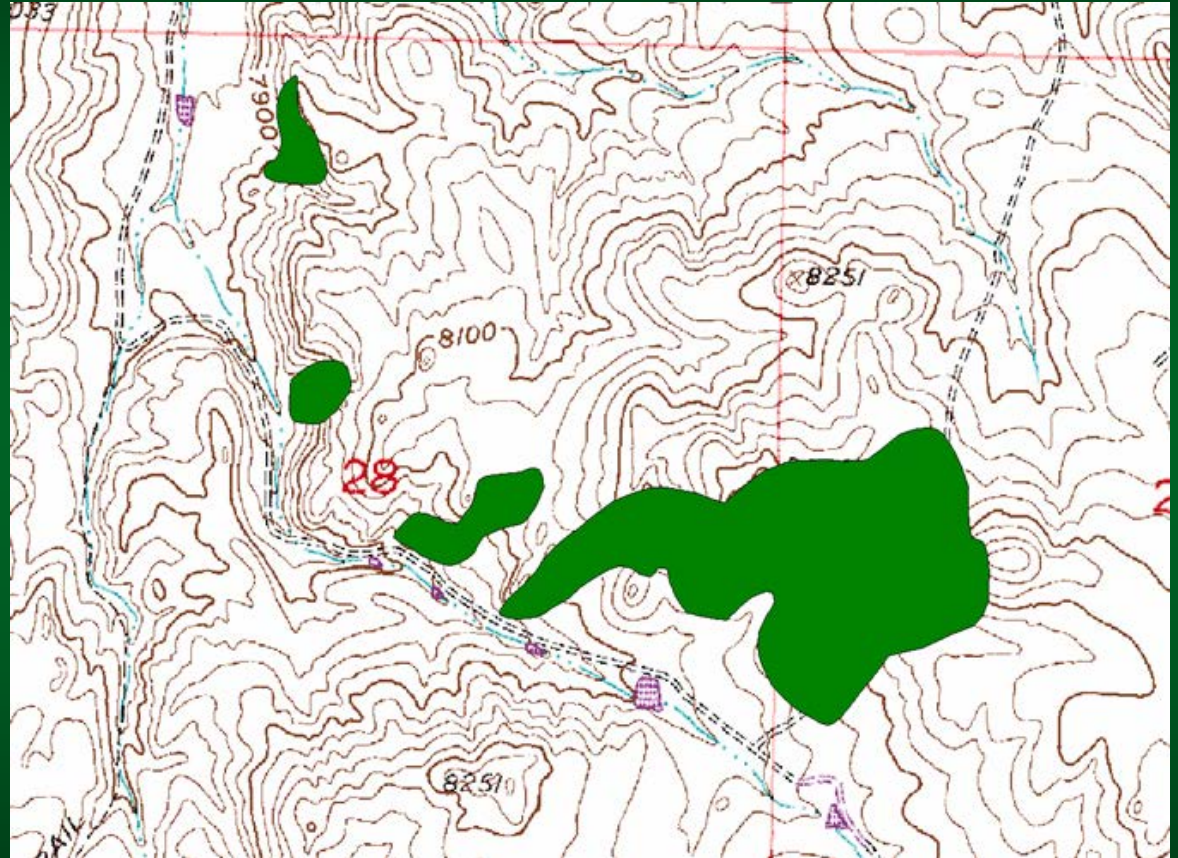
Taxonomic Comments
=*Gilia sedifolia*

Ranks and Status
Global rank: G1
State rank: S1
Federal protection status: USFS Sensitive, BLM Sensitive
State protection status: None



Rare Plant Surveys

- Focus on G1-G2, Federally listed and Sensitive species
- Over 25 years of data compilation
- Results support ACEC, RNA and Colorado Natural Area designations



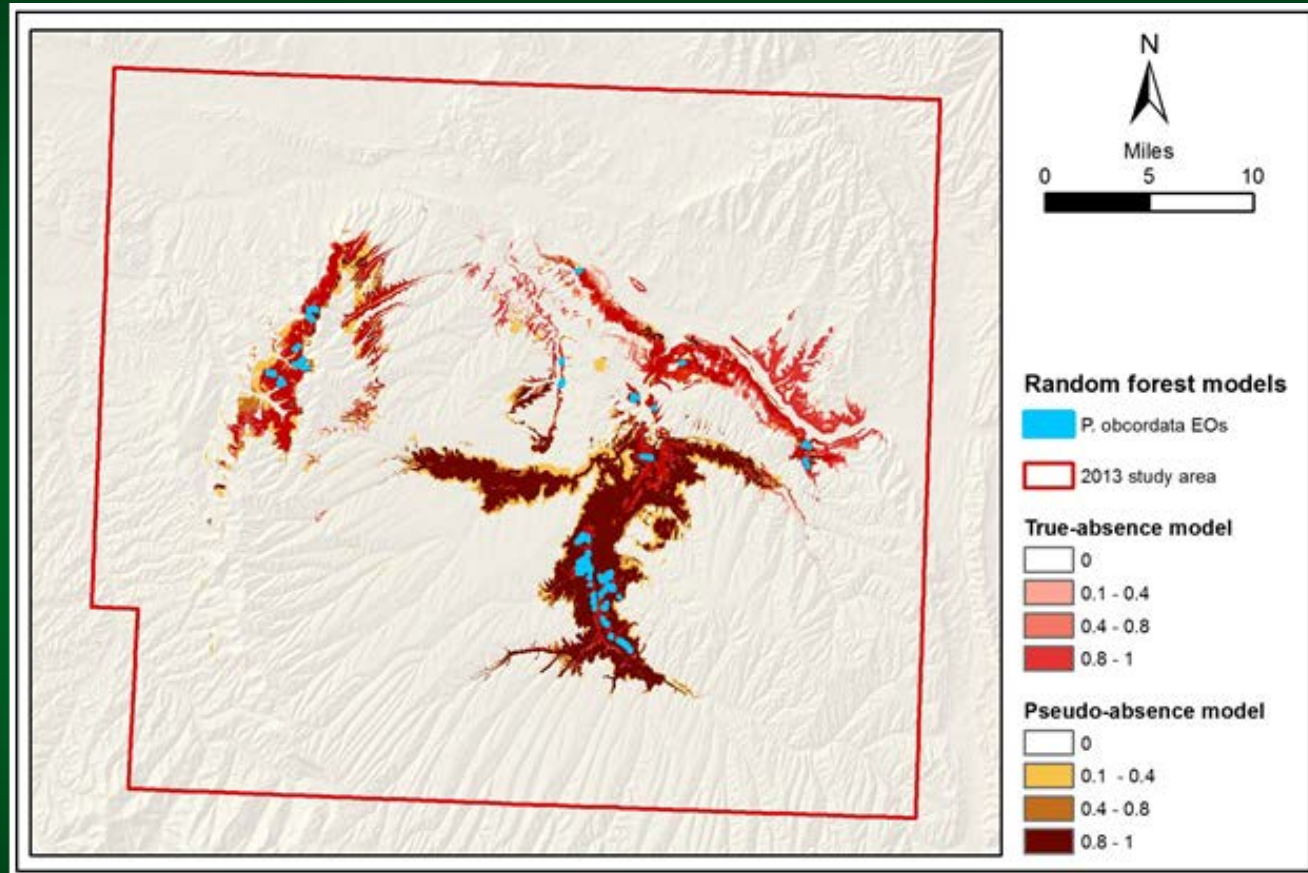
Vegetation/Rare Plant Monitoring

- Assess habitat condition and demographic trends of imperiled species
- Monitor vegetation changes over time in response to management activities
- Results guide land management decisions and species conservation



Habitat Modeling

- Developed with Maxent and CART methodology
- Spatial data available to land managers
- Results guide rare plant habitat conservation in areas of intensive energy development



Predicted suitable habitat for *Physaria obcordata*, random forest (CART) models.



Climate Change Vulnerability Assessments

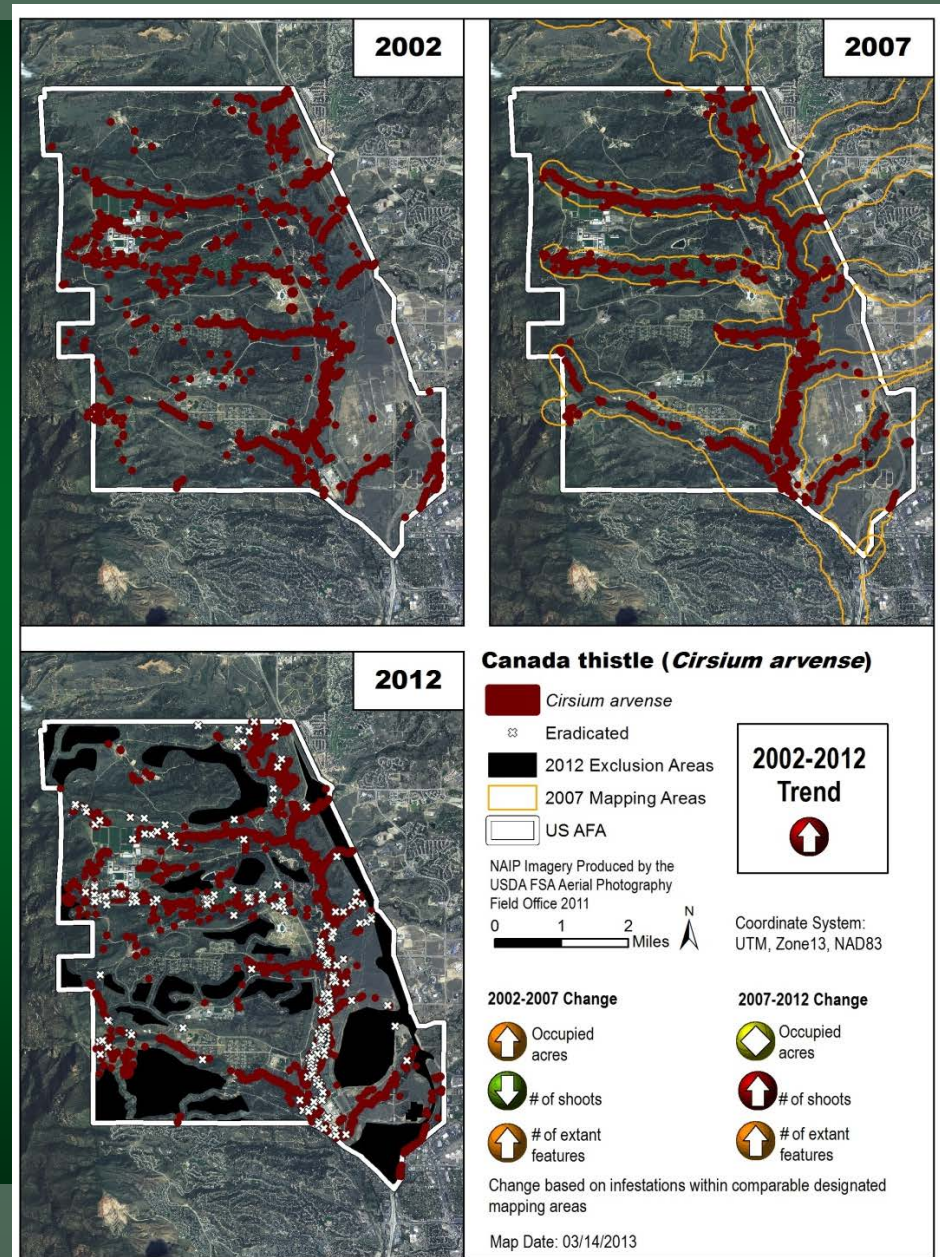
- Over 150 G1-G2, Federally listed and Sensitive plant species assessed so far
- Use NatureServe CCVI tool
- Results guide species adaptation strategies

Species	Common Name	Ecosystem	Index Score	Confidence
PLANTS				
<i>Aliciella sedifolia</i>	Stonecrop gilia	Alpine	Extremely Vulnerable	L
<i>Astragalus anisus</i>	Gunnison milkvetch	Low elevation sagebrush	Presumed Stable	M
<i>Astragalus iodopetalus</i> *	Violet milkvetch	Montane sagebrush	Extremely Vulnerable	M
<i>Astragalus microcymbus</i>	Skiff milkvetch	Low elevation sagebrush	Extremely Vulnerable	H
<i>Astragalus molybdenus</i>	Leadville Milkvetch	Alpine	Extremely Vulnerable	M
<i>Boechnera crandallii</i>	Crandall's rock cress	Low elevation sagebrush	Highly Vulnerable	L
<i>Botrychium echo</i>	Reflected moonwort	Spruce-fir; Alpine	Moderately Vulnerable	M
<i>Botrychium furcatum</i> *	Forkleaved moonwort	Spruce-fir	Moderately Vulnerable	L
<i>Botrychium minganense</i>	Mingan's moonwort	Spruce-fir; Alpine	Moderately Vulnerable	M
<i>Botrychium pallidum</i>	Pale moonwort	Spruce-fir; Alpine	Moderately Vulnerable	M
<i>Botrychium paradoxum</i> *	Peculiar moonwort	Spruce-fir; Alpine	Extremely Vulnerable	H
<i>Botrychium pinnatum</i>	Northern moonwort	Spruce-fir; Alpine	Moderately Vulnerable	M
<i>Braya glabella</i> subsp. <i>glabella</i>	Arctic braya	Alpine	Extremely Vulnerable	M



Weed Research and Mapping

- Weed surveys and mapping to sub-meter accuracy
- Monitoring to assess treatment efficacy
- Results inform land management planning



Outreach

- CoNPS plant identification workshops
- Native Plant Master classes
- Adopt-a-Rare-Plant
- BioBlitz participation



Future Directions

- All counties surveyed
- Continue work in areas with energy development
- Expand monitoring efforts to include response to climate change
- Support incorporation of plants into the SWAP
- Climate change vulnerability assessments and habitat modeling for all tracked plant species
- Eliminate data backlog
- Expand weed monitoring and mapping
- Exotics database



Ecology Team



Joe Stevens, Ecology Team Leader
Colorado Natural Heritage Program
www.cnhp.colostate.edu



Colorado State University



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Ecology Team Members



Joe Stevens,
**Ecology Team
Leader and
Project Manager**
Vegetation
Ecologist



Joanna Lemly,
**Wetland
Ecologist**
Sub-Team Lead
and Project
Manager



Denise Culver,
**Ecologist and
Botanist**
Lead author on
wetland plant
field guides, over
15 years
experience
managing County
Surveys.



Delia Malone,
**Ecologist and
Botanist**
West slope field
office



Ecology Team Members



**Laurie Gilligan,
Wetland
Ecologist**

Field lead for condition assessment projects, protocol development, training, and data analysis.



**Gabrielle Smith,
Wetland / GIS
Specialist**

Wetland mapping and spatial analysis, lead on developing online data sharing tools.



**Jeremy
Sueltenfuss,
Wetland / GIS
Specialist**

Wetland mapping and restoration specialist, lead on developing restoration prioritization tools.



**Renee Rondeau,
Collaborating
Ecologist**

Conservation Planning Team Leader, West Slope Field Office



Ecology Team Overview

Core Mission:

- *To document, classify, and assess native ecosystems in Colorado and the west, and to disseminate this information to public and private partners engaged in land management and conservation.*

Core Functions:

- Natural Communities Database
- US National Vegetation Classification
- Vegetation Inventories
- Restoration Studies
- Monitoring Studies
- Wetland Studies



Natural Communities Database

Biotics:

- 3,608 Community Element Occurrence Records
- 544 Tracked Natural Communities
- 5,338 Mapped Locations
- US NVC Associations
- NatureServe Ecological Systems



US National Vegetation Classification

USNVC:

- The Nature Conservancy
- NatureServe, FGDC, ESA, State Heritage Programs, Federal Agency Partners
- 2008 Revised Hierarchy
- Federal Geographic Data Committee Standard
- www.usnvc.org

Hierarchy Level	Criteria
Upper:	Physiognomy plays a predominant role
L1 - Formation Class	Broad combinations of general dominant growth forms.
L2 - Formation Subclass	Combinations of general dominant and diagnostic growth forms.
L3 - Formation	Combinations of dominant and diagnostic growth forms.
Middle:	Floristics and physiognomy play predominant roles
L4 - Division	Combinations of dominant and diagnostic growth forms and a broad set of diagnostic plant species.
L5 - Macrogroup	Combinations of moderate sets of diagnostic plant species and diagnostic growth forms.
L6 - Group	Combinations of relatively narrow sets of diagnostic plant species (including dominants and co-dominants), broadly similar composition, and diagnostic growth forms.
Lower:	Floristics plays a predominant role
L7 - Alliance	Diagnostic species, including some from the dominant growth form or layer, and moderately similar composition.
L8 - Association	Diagnostic species, usually from multiple growth forms or layers, and more narrowly similar composition.



County Biological Inventories

Natural Community inventories
in 38 Counties

Funding from GOCO, EPA, USFS,
BLM, CPW, the Counties, and
others

Final Report

Mapped Locations

Quality Ranks

Conservation Guidance

Land Planning and Land Use
Decisions

Southeastern Colorado
Survey of Critical Biological Resources
2007

Survey of Critical Wetlands of
Gilpin County Colorado
2011

Survey of Critical Biological Resources
Jefferson County, Colorado
2010-2011



Colorado
State
University

Colorado
State
University



NPS Vegetation Inventories

Rocky Mountain National Park

Great Sand Dunes National
Park and Preserve

Bent's Old Fort and Sand Creek
Massacre National Historic
Sites

Bighorn Canyon National
Recreation Area

Lake Mead National Recreation
Area



Restoration Studies

Colorado Springs Utilities Southern Delivery System

Rare Species Concerns
Restoration Specification Review
Seed Mix Species Recommendations
Pre Disturbance and Post
Restoration Evaluations



Monitoring

GLORIA High Elevation Climate Change Monitoring

Yellowstone NP

Grand Teton NP

Rocky Mountain NP

Great Sand Dunes NP&P

Vegetation Monitoring

Lesser Prairie Chicken

Pueblo Chemical Depot

TNC-CDOT Conservation
Easements

TNC Wetland Restoration



Wetland Studies

Ecology Team Wetland Group...



Documenting Colorado's Wetland Resources



Jeremy Sueltenfuss
Colorado Natural Heritage Program
Colorado State University
www.cnhp.colostate.edu



CNHP's Wetland Program Plan

Strategic Directions

1. Wetland Types
2. Extent and Location
3. Wetland Assessment Methods
4. Wetland Condition Assessment
5. Biodiversity Significance
6. Empowering Public and Private Partners

Colorado Natural Heritage Program

Wetland Program Plan

A Vision for Building Comprehensive Wetland

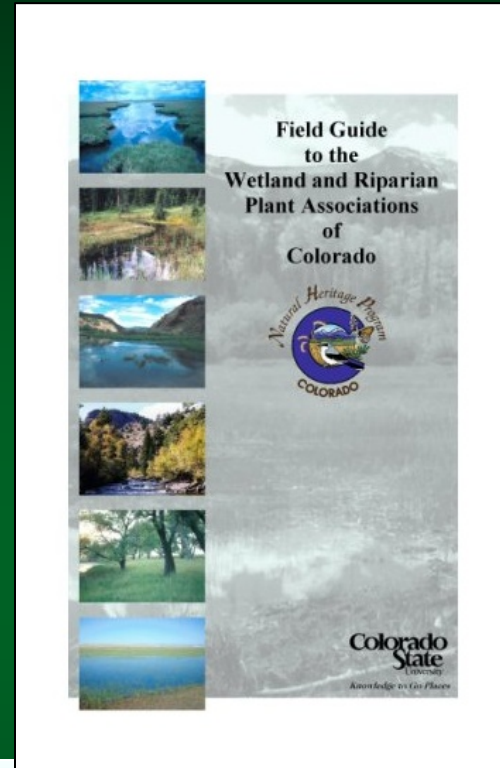
Information for the State of Colorado

Planning Years 2011-2015



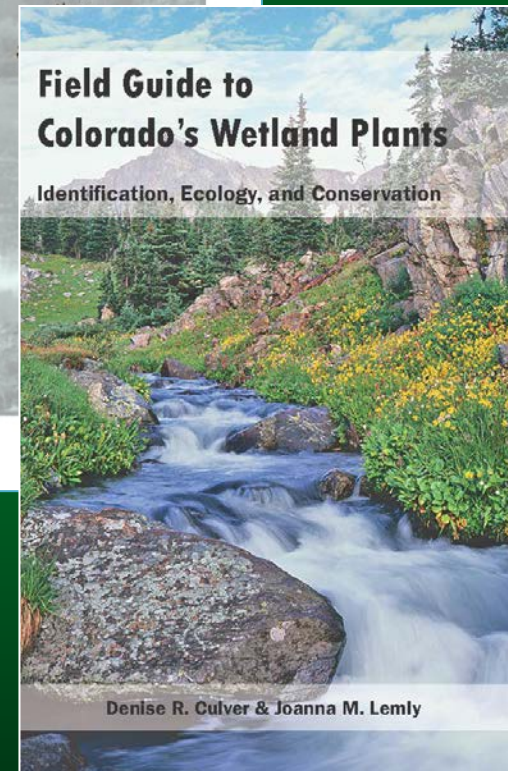
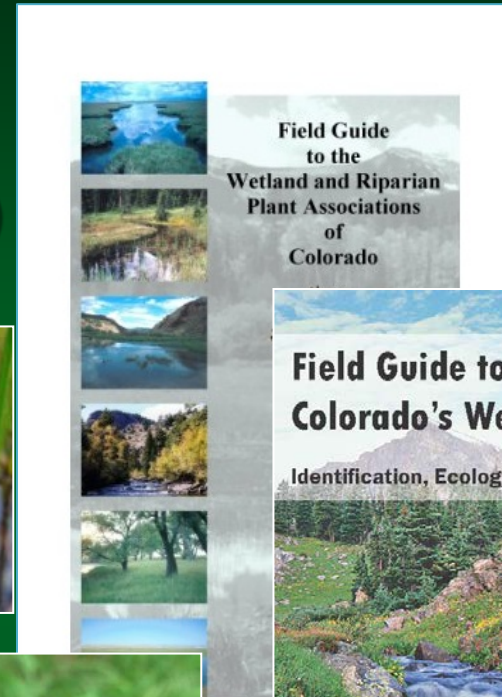
Wetland Types: Classification and Identification

- Field Guide to the Wetland and Riparian Plant Associations of Colorado (2003)



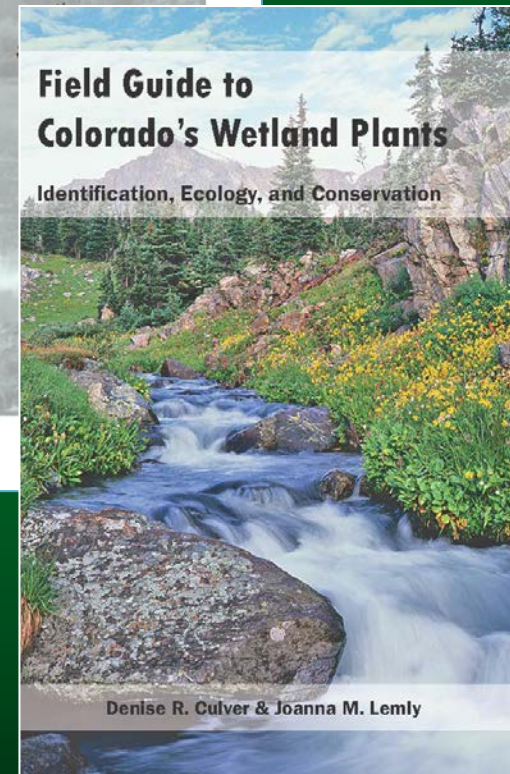
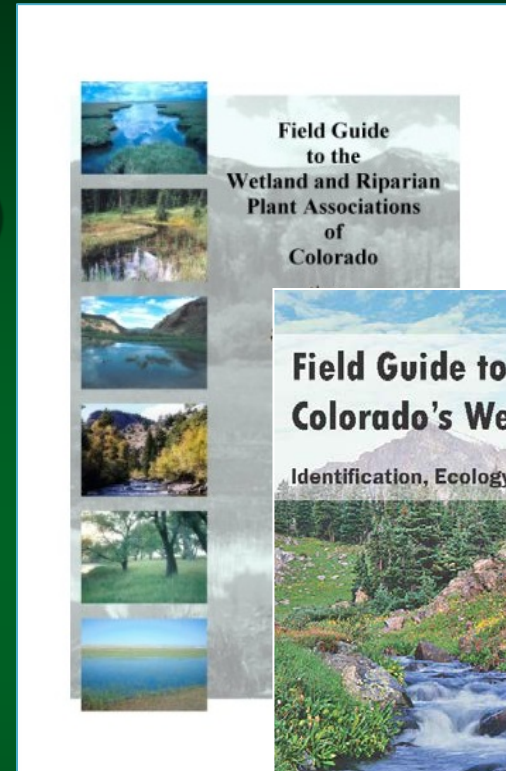
Wetland Types: Classification and Identification

- Field Guide to the Wetland and Riparian Plant Associations of Colorado (2003)
- Field Guide to Colorado's Wetland Plants (2013)



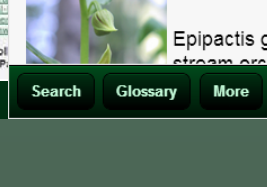
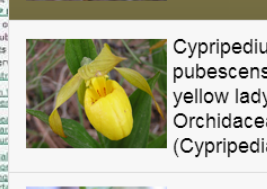
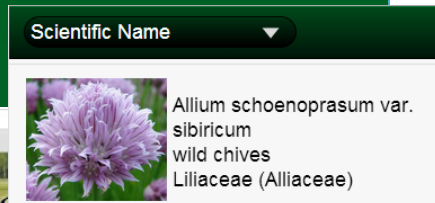
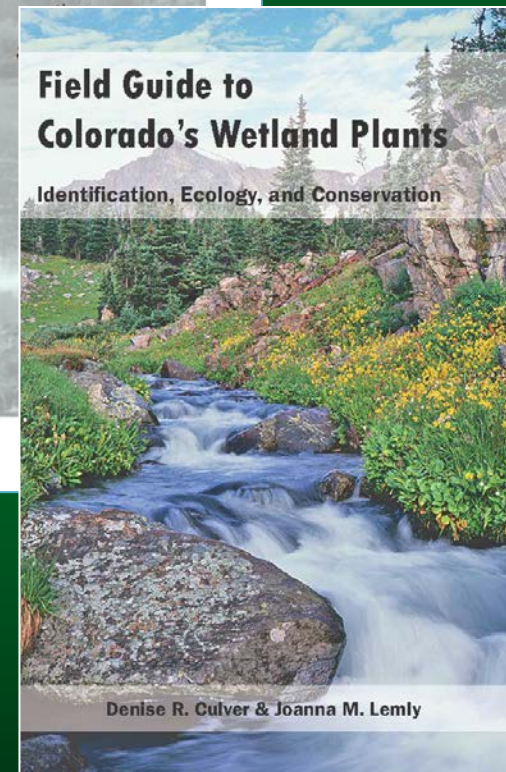
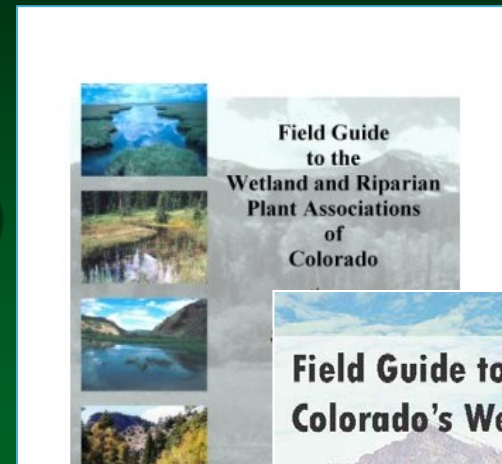
Wetland Types: Classification and Identification

- Field Guide to the Wetland and Riparian Plant Associations of Colorado (2003)
- Field Guide to Colorado's Wetland Plants (2013)
- Pocket Guide to Common Wetland Plants of Colorado's Eastern Plains (2014)



Wetland Types: Classification and Identification

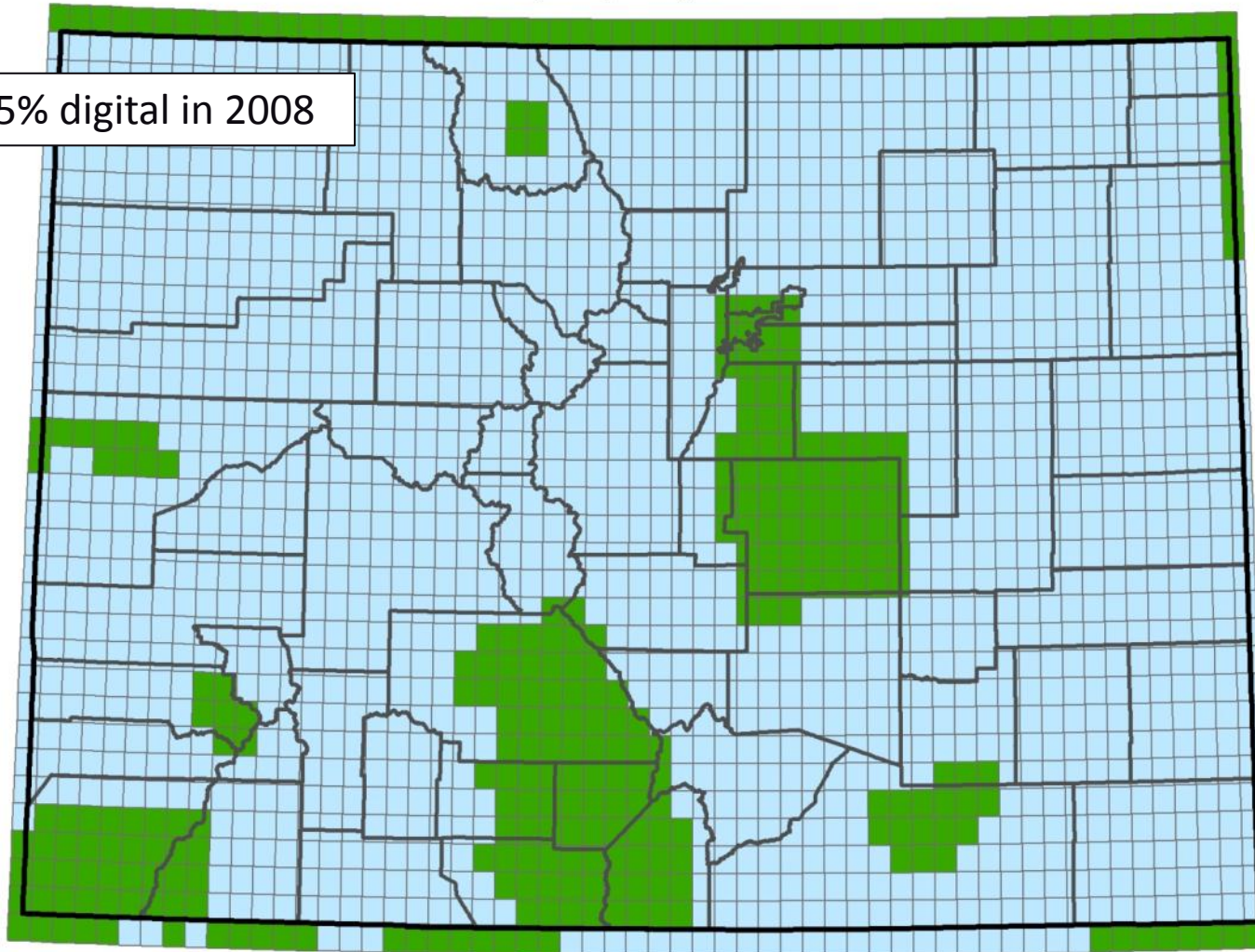
- Field Guide to the Wetland and Riparian Plant Associations of Colorado (2003)
- Field Guide to Colorado's Wetland Plants (2013)
- Pocket Guide to Common Wetland Plants of Colorado's Eastern Plains (2014)
- Colorado Wetland Information Center
- Colorado Wetland Mobile App



Extent and Location: Wetland Mapping

Colorado Wetland Mapping Status, 2008
by 7.5" quadrangles

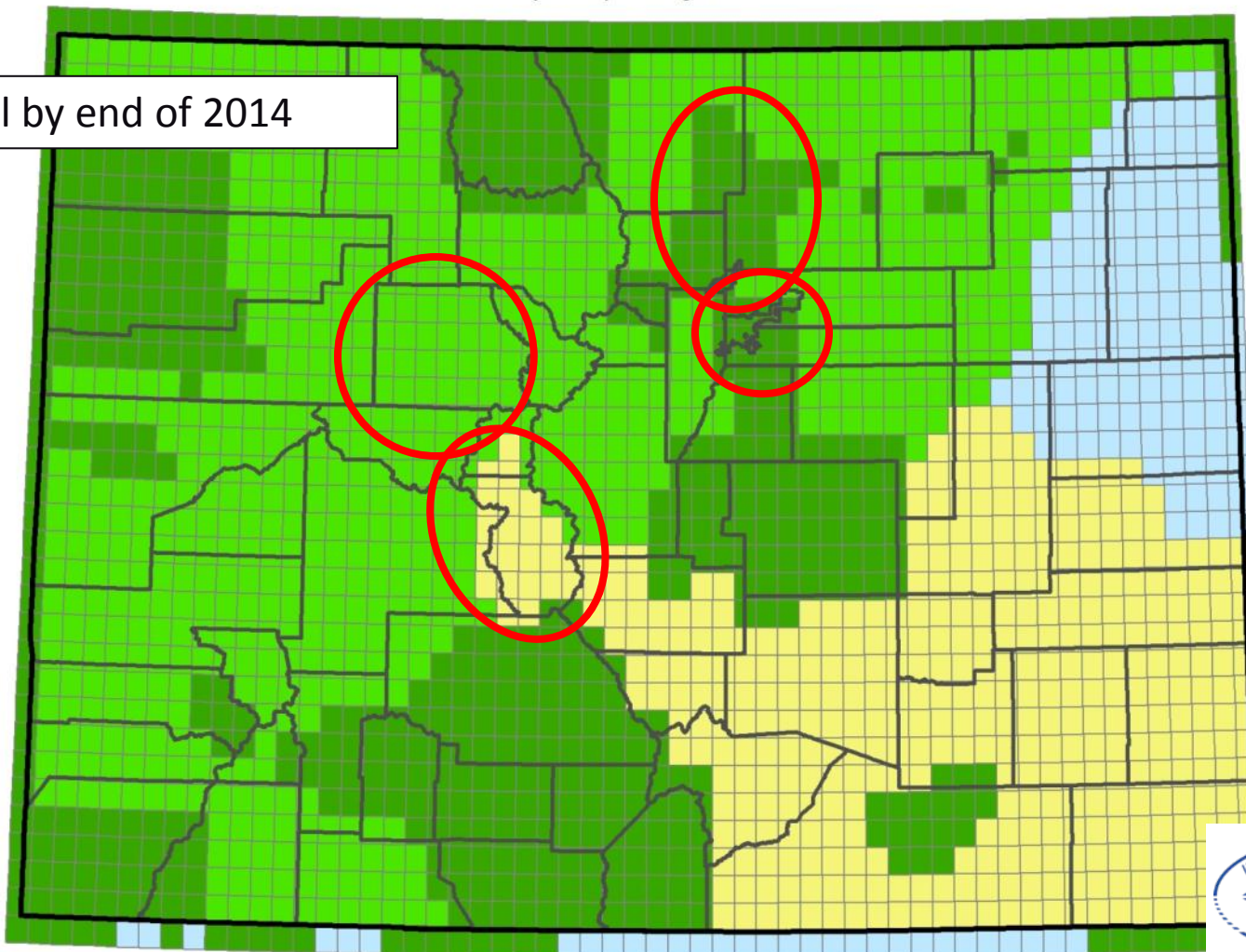
Less than 15% digital in 2008



Extent and Location: Wetland Mapping

Colorado Wetland Mapping Status, 2013
by 7.5" quadrangles

100% digital by end of 2014



- Digital Data
- Submitted to NWI
- Planned for 2013
- Non-Digital Data



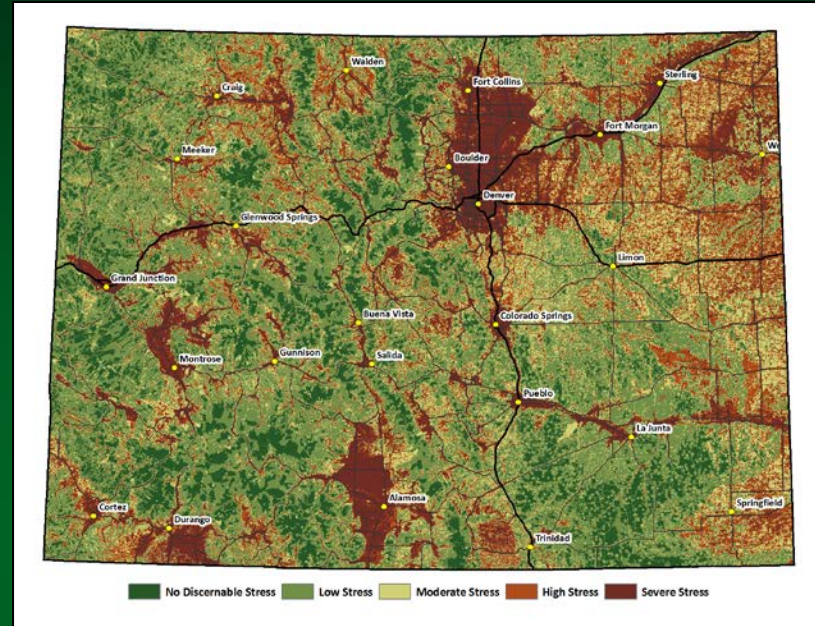
Wetland Condition: Assessment Methods

Modeling

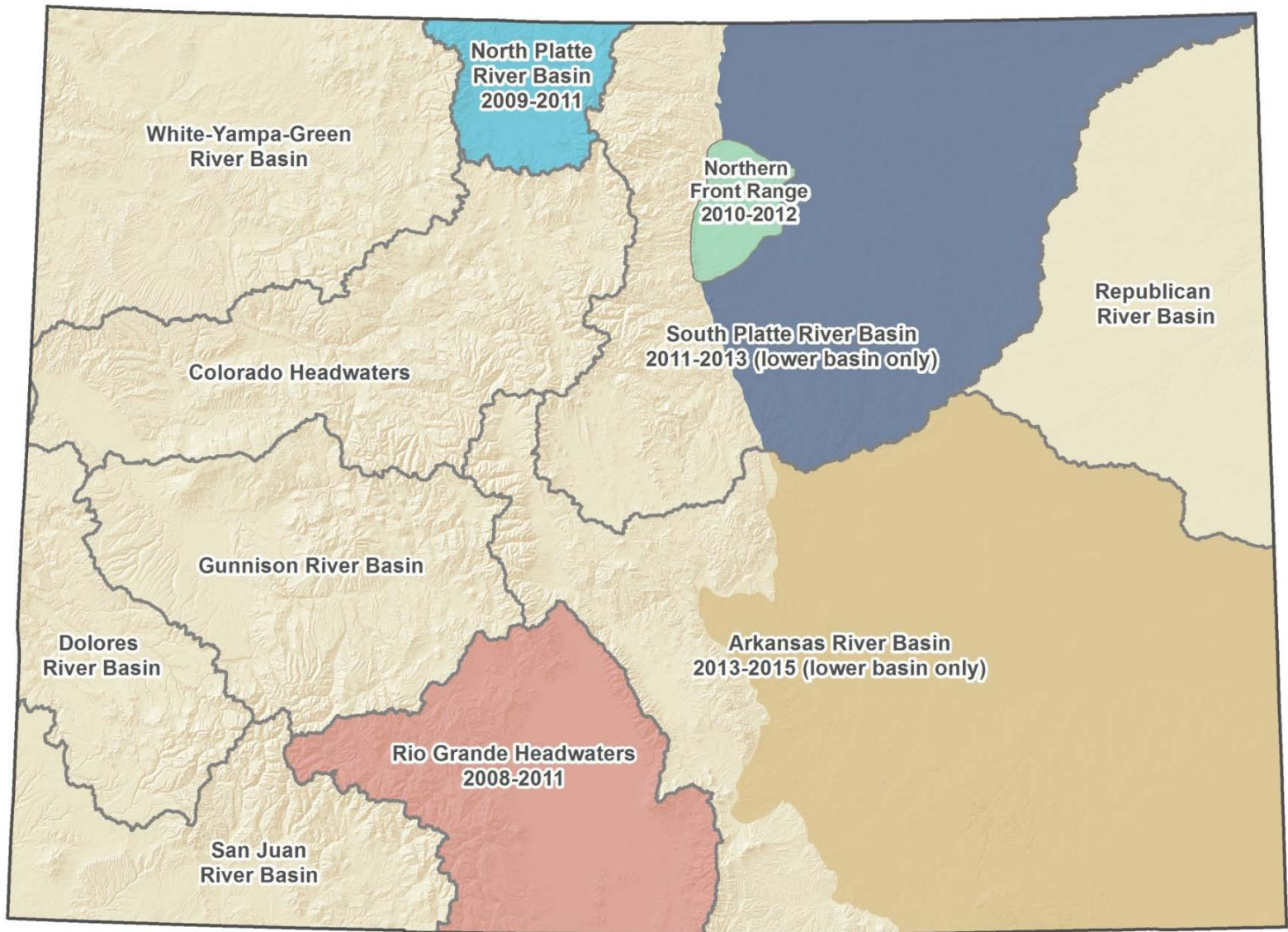
- Landscape Integrity Model (LIM)

Field Studies

- Ecological Integrity Assessment (EIA)
- Floristic Quality Assessment (FQA)
- Vegetation Index of Biotic Condition (VIBI)



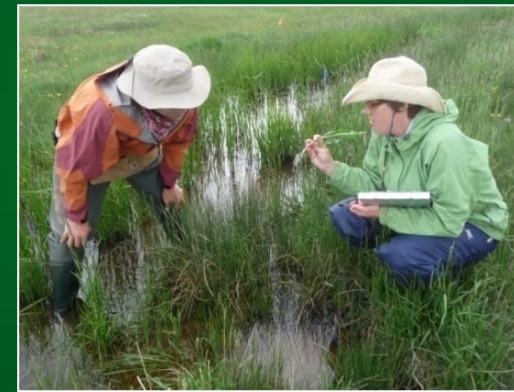
Wetland Condition: Basin Assessments



Wetland Condition: Basin Assessments

Field Surveys

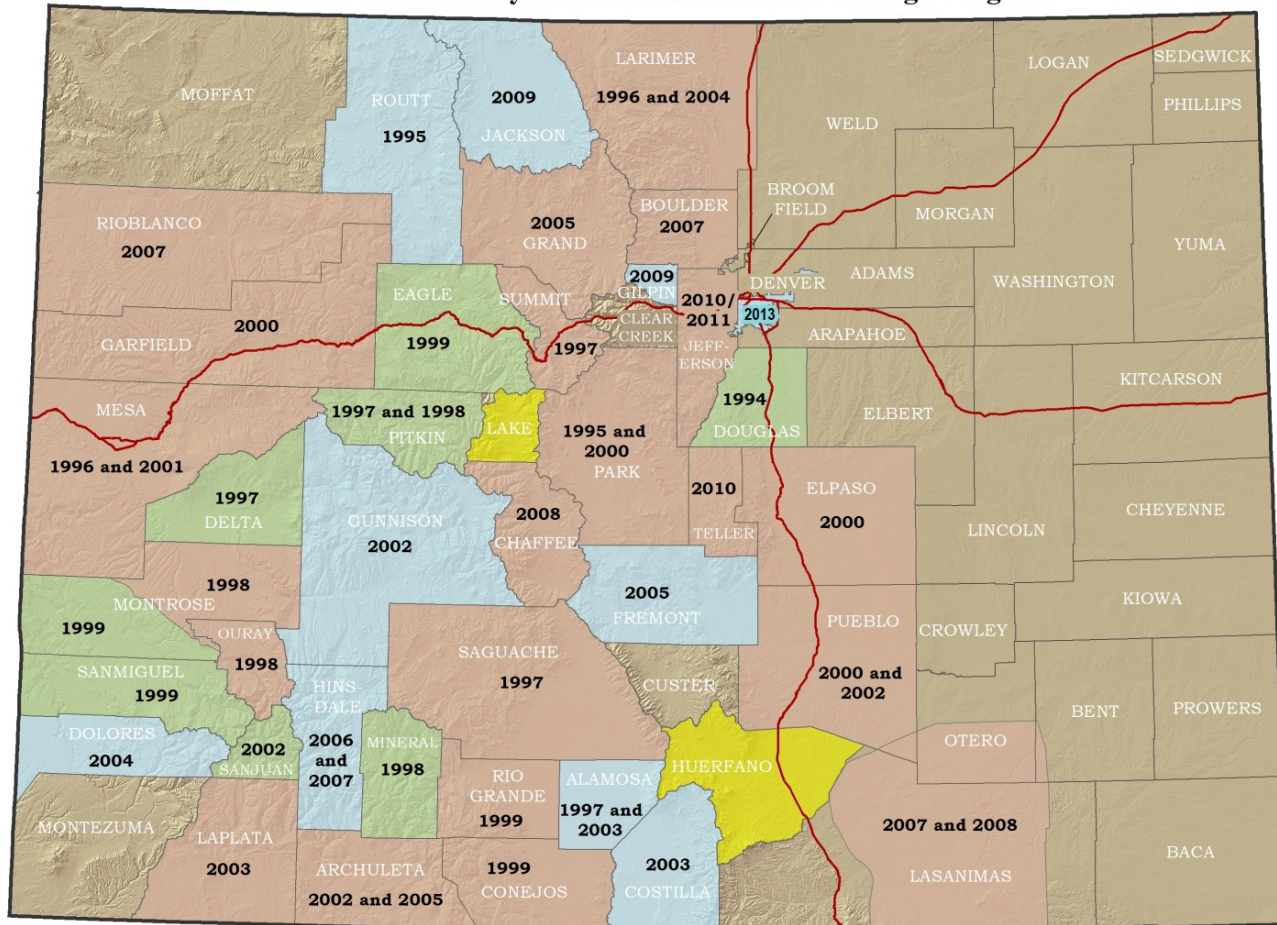
- Targeted “reference” wetlands
- Randomly selected wetlands
 - Vegetation surveys
 - Soil pits
 - Basic water chemistry
 - Landscape and local scale stressors
 - Habitat quality indices



Biodiversity Significance: County Surveys



Counties Inventoried by the Colorado Natural Heritage Program



Version Date: September 30, 2013

Type of Inventory

- Comprehensive
- Wetland Focus
- Upland Focus
- Proposed



Empowering Partners: Data into Decisions

CNHP Projects

Partners

Benefits

Randomized Wetland Assessments



CPW



Prioritization of Wetland Restoration Funding

Targeted Wetland Assessments



USFS
National
Forest



Prioritize Management Actions

Watershed Approach to Wetland Mitigation



ACOE/ EPA /
CDOT



Mitigation Decision Making and Review Criteria



Future Directions

Statewide Collaborative Wetland Program Plan

Watershed Planning Toolbox

Wetland Water Quality Research

Statewide Reference Network



Zoology



Jeremy Siemers
Colorado Natural Heritage Program
Colorado State University
www.cnhp.colostate.edu



CNHP's Zoology Team



Jeremy Siemers,
**Zoologist &
Team Leader**

- Bat Projects
- Vertebrate Ranking & Assessment



Brad Lambert,
Herpetologist

- Boreal Toad
- Amphibian & Reptile Inventory



Rob Schorr,
Animal Ecologist

- Preble's Meadow Jumping Mouse
- Bat Projects



John Sovell, Invertebrate
**Zoologist & Animal
Ecologist**

- Pawnee Montane Skipper
- County Inventories



CNHP's Zoology Team

Core Functions

- **Animal Conservation Ranking and Mapping**
- **Inventory** to identify new populations
- **Monitoring** the condition of animal populations
- **Research** to answer questions of conservation and management interest



Zoology Inventory

Current & Recent Inventory Projects

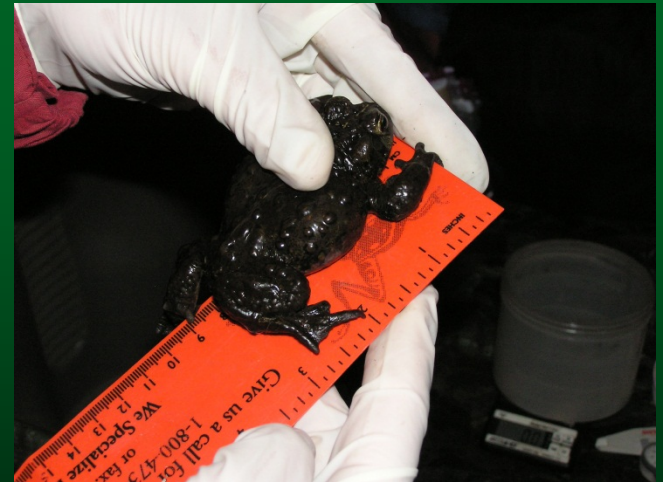
- County & Local Government Inventories
- Boreal Toad breeding site inventory
- Pygmy Shrew inventory on USFS lands
- Buckley AFB Bird Inventory
- State Land Board Stewardship Trust
- Southeastern Colorado Inventory
- Lowry Range Inventory
- Small Mammal Atlas
- Pygmy Rabbit survey



Zoology Monitoring

Current & Recent Monitoring Projects

- Boreal Toad breeding site monitoring
- Preble's Meadow Jumping Mouse population monitoring on USAFA
- Pawnee Montane Skipper
- White-nose Syndrome surveillance
- Lesser Prairie Chicken habitat monitoring
- Prairie reptile and bird habitat monitoring
- Occupancy of amphibians on Routt NF



Zoology Monitoring

Boreal Toad

- Chaffee County
- Mark-recapture of largest population in Colorado
- 15 years
- Population trend
- Chytrid fungus surveillance



Recent Publications

- **Pilliod et al. 2010.** Effects of amphibian chytrid fungus on individual survival probability in wild boreal toads. *Conservation Biology*.
- **Muths et al. 2010.** Unbiased survival estimates and evidence for skipped breeding opportunities in females. *Methods in Ecology & Evolution*.
- **Scherer et al. 2008.** Effects of weather on survival in populations of boreal toads in Colorado. *Journal of Herpetology*.



Zoology Monitoring

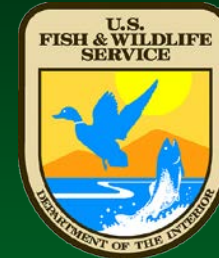
Preble's Meadow Jumping Mouse on the US Air Force Academy

Longest-running monitoring of this
Threatened subspecies.

Mark-recapture demographic survey

Survival, recruitment, trend

Population genetics analysis of connectivity



Recent Publications

- **Schorr. 2012.** Using a temporal symmetry model to assess population change and recruitment in Preble's meadow jumping mouse (*Zapus hudsonius preblei*). *Journal of Mammalogy*.
- **Schorr et al. 2009.** Body mass and winter severity as predictors of overwinter survival in Preble's meadow jumping mouse. *Journal of Mammalogy*.



Zoology Research

Current & Recent Research Projects

- Longnose Leopard Lizard Habitat Evaluation
Schorr et al. 2011. *Herp. Con. Bio.*
- Wildlife Fence Escape Ramp Monitoring
Siemers et al. 2013. *ICOET Proceedings*
- Pueblo Chemical Depot Small Mammal & Grasshopper
Schorr et al. 2007. *SW Naturalist*
- Bird population estimation on USAFA



Zoology Research

Bat Research Projects

- Bats and Inactive Mines Project
- Cave Inventory and Monitoring on White River National Forest
- Jackson County Bat Inventory
- Bat Population Modeling
Schorr et al. In review. Acta Chiropterologica
- Bat Hibernacula Selection
Hayes et al. 2011. J. Wildlife Mgmt
- Pallid Bat Roost Site Selection
Schorr & Siemers. 2013. SW Naturalist



Zoology Future Directions

- Aquatic animal ecology – vertebrate & invertebrate
- Bird ecology
- Sampling methodology
- Population estimation of rare species
- Invertebrate conservation
- Invasive species
- Disease ecology



Conservation Data Services Team



Michael Menefee, Data Distribution Coordinator
Colorado Natural Heritage Program
www.cnhp.colostate.edu



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Conservation Data Services Team



Michael Menefee, Data Distribution Coordinator

Data distribution, environmental review, IT and project management.



Kirstin Holfelder, Database and Web Developer

Developer of wetland plant field guide app, database designer and website administrator.



Amy Greenwell, GIS Program Manager

Manages BIOTICS data, coordinates GIS for CNHP, spatial analysis.



Gabe Scott, Systems Administrator

Information technology specialist, provides IT support for all CNHP staff.

Making CNHP Data Useful and Available

We bring it all together!

- Connecting CNHP's data with our partners
- Implementing the latest information management tools to support data use and sharing
- Rolling up data from many sources into formats useful for the conservation community
- Continually looking for new ways to make our data more available and accessible



Conservation Data Services Team

Core Functions:

- Information Management
- GIS Mapping and Modeling
- Spatial Analysis
- Database Design and Management
- Website and App Development
- Project Environmental Review
- Sensitive Species Data Distribution
- Publication Production
- Dataset and Website Hosting



Biodiversity and Tracking Conservation System

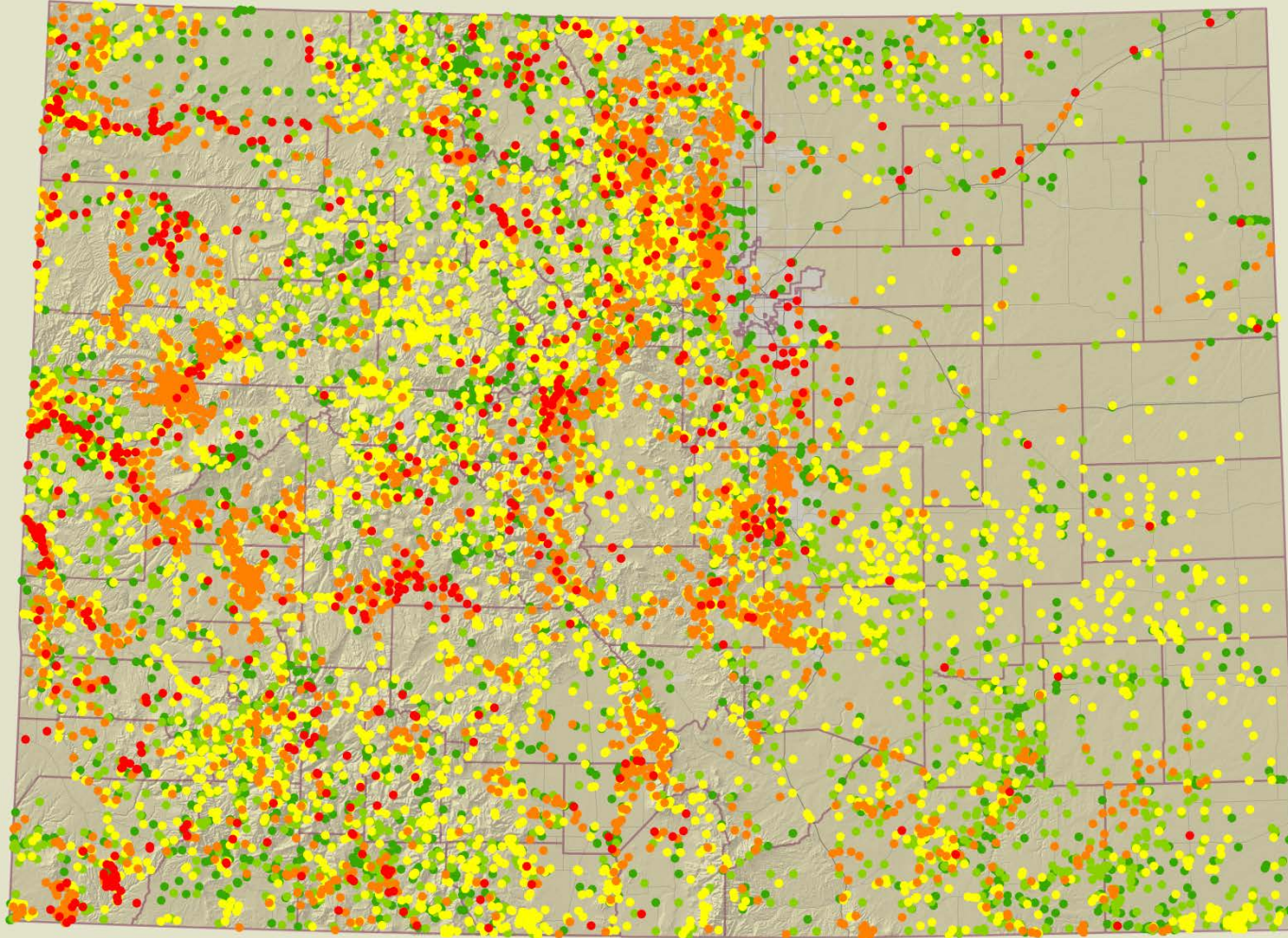
The BIOTICS Database

- Advanced Biodiversity Data Management Software
- 13,190 Element Occurrence Records
 - 4,994 Botany Records
 - 3,608 Ecology Records
 - 4,588 Zoology Records
- 33,016 Mapped Locations in all Statewide
- 1,919 Potential Conservation Areas and 34 Network of Conservation Areas



Biodiversity and Tracking Conservation System

All Mapped Locations by Global Rarity



Location by Global Conservation Status Rank (G-Rank)

● G1 ● G2 ● G3 ● G4 ● G5

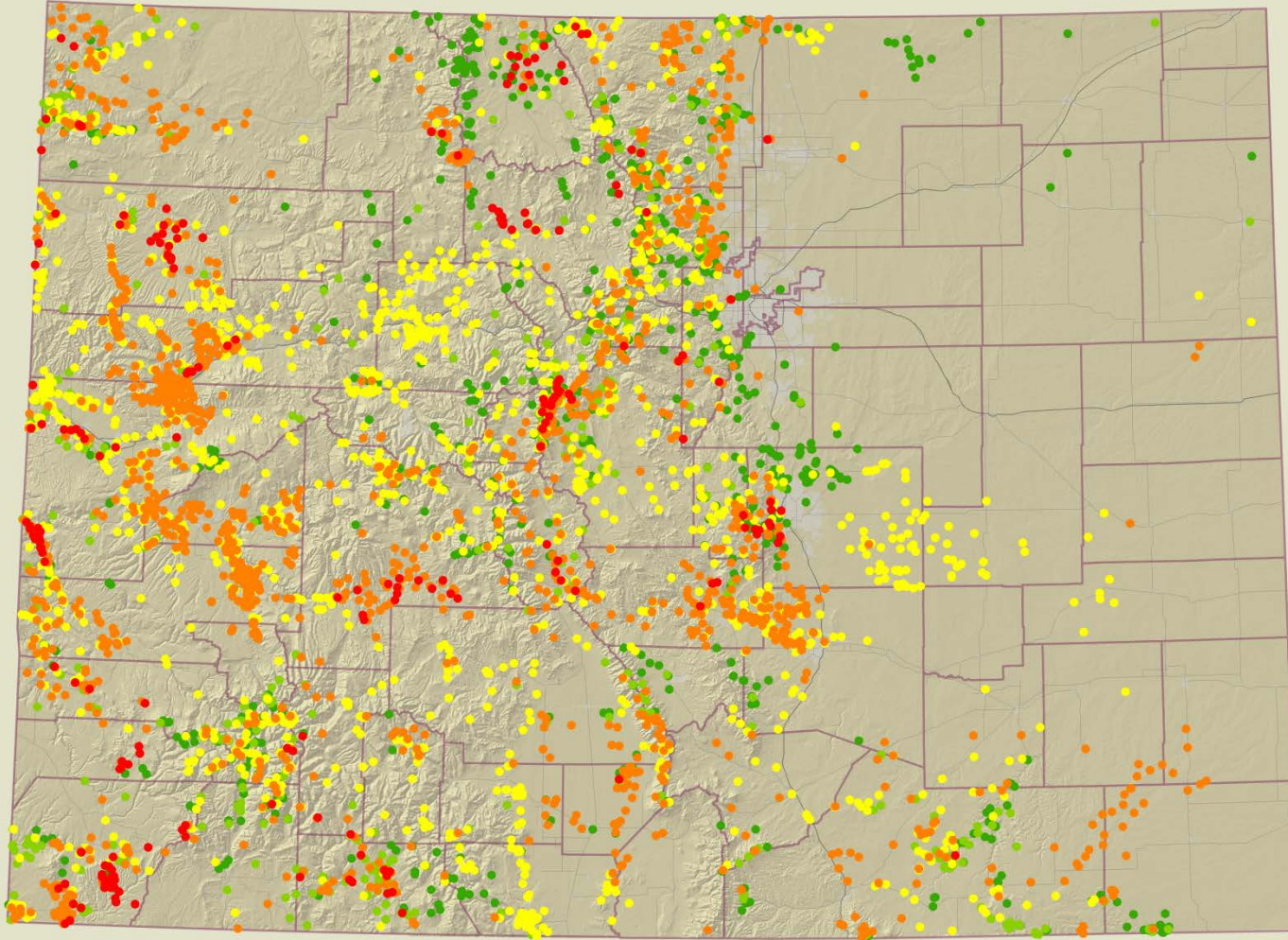
Map created by Michael Mendelsohn, CIPRPI
UTM: NAD 83, 21S, Version Date 01-19-2014

0 10 20 40 60 80 Miles



Biodiversity and Tracking Conservation System

Plant Species by Global Rarity



Location by Global Conservation Status Rank (G-Rank)

● G1 ● G2 ● G3 ● G4 ● G5

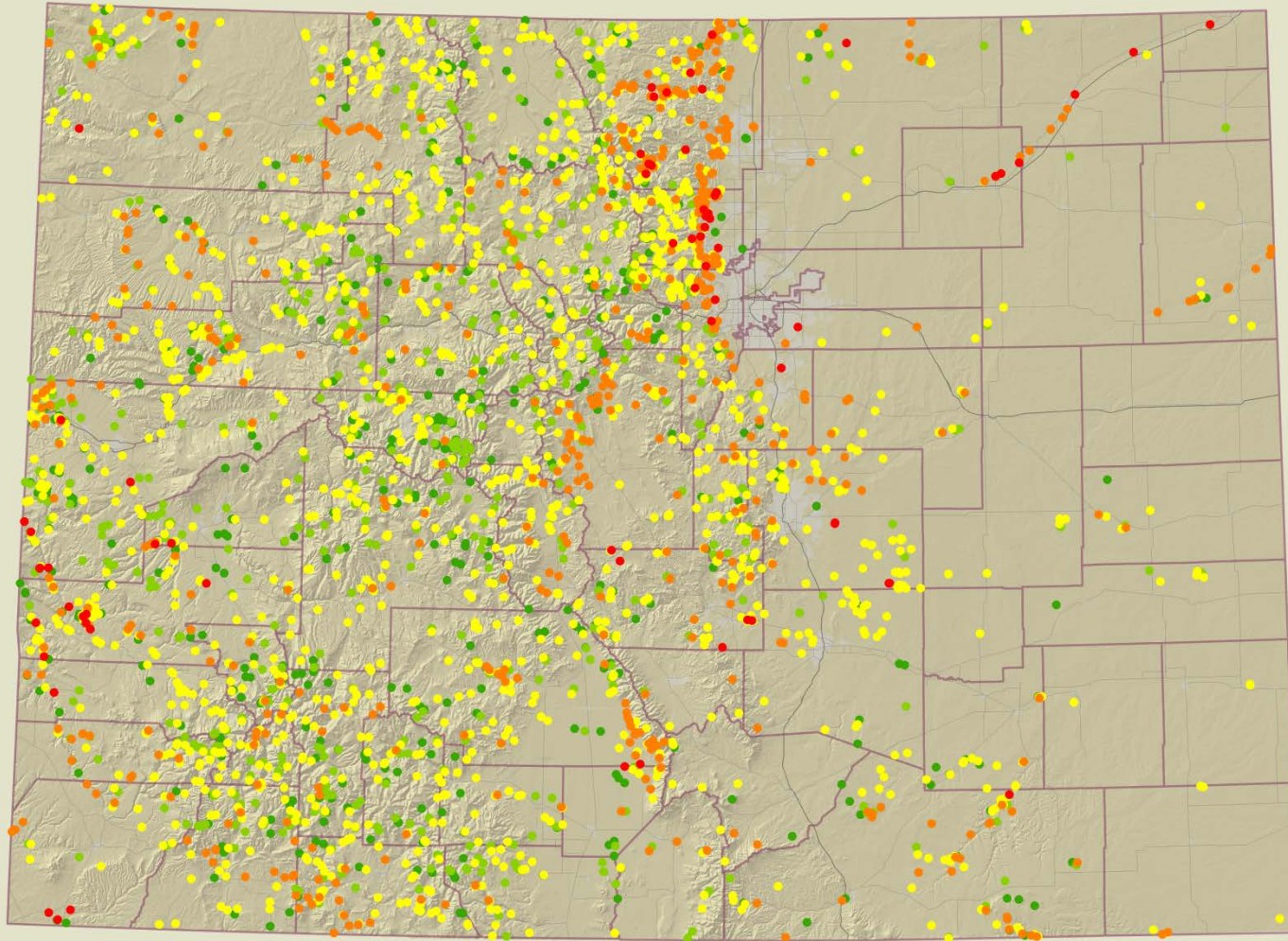
Map created by Michael Meredith, CIPR
UTM: NAD 83, 21S, Version Date 01-19-2014

0 10 20 40 60 80 Miles



Biodiversity and Tracking Conservation System

Natural Communities by Global Rarity



Location by Global Conservation Status Rank (G-Rank)

● G1 ● G2 ● G3 ● G4 ● G5

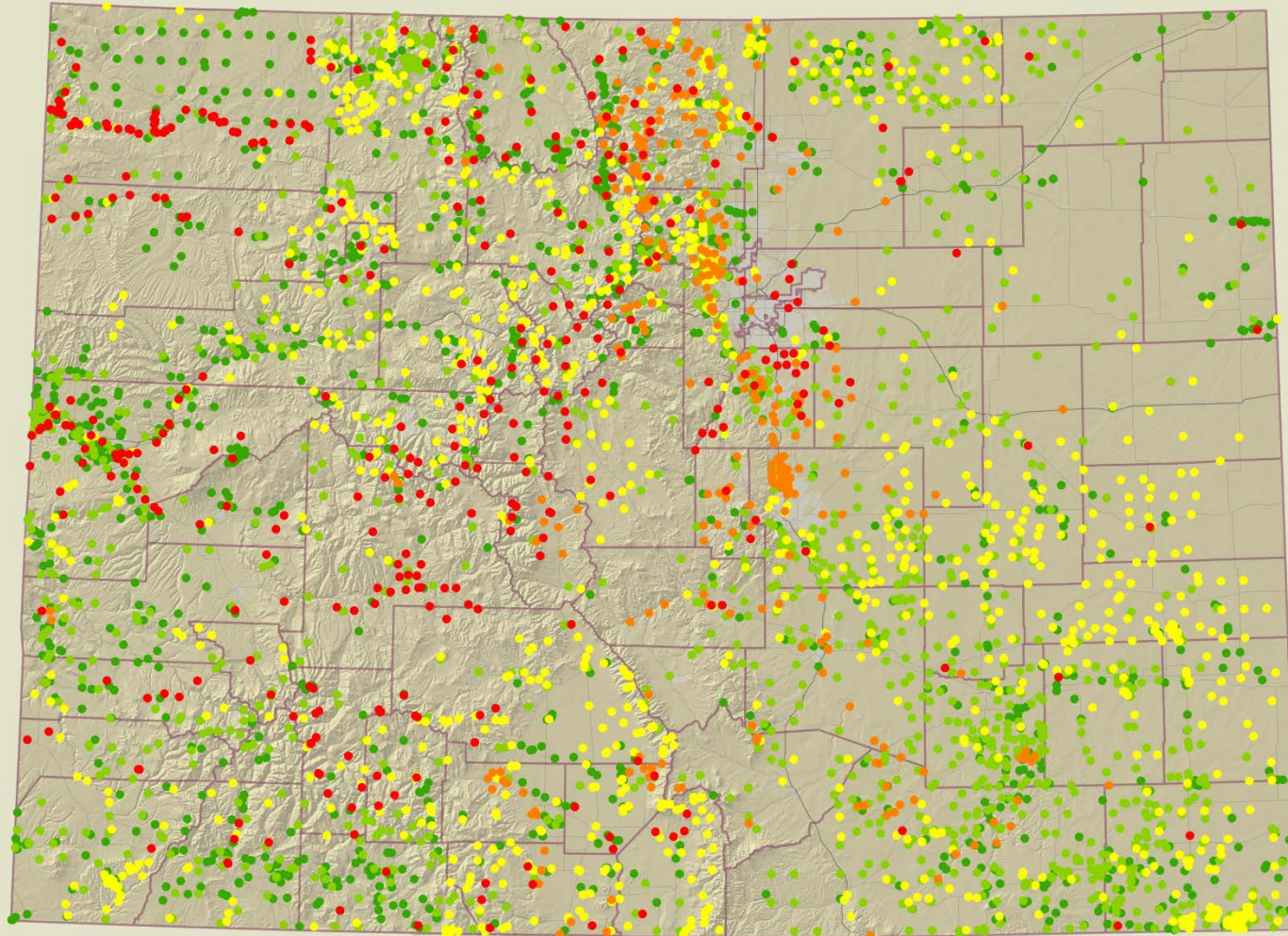
Map created by Michael Mendelsohn, CIJRP
UTM: NAD 83, 21S, Version Date 01-19-2014

0 10 20 40 60 80 Miles



Biodiversity and Tracking Conservation System

Zoology Elements by Global Rarity



Location by Global Conservation Status Rank (G-Rank)

● G1 ● G2 ● G3 ● G4 ● G5

Map created by Michael Meredith, CIPR
UTM: NAD 83, 21S, Version Date 01-19-2014

0 10 20 40 60 80 Miles



CNHP Data Requests

CNHP Data Distribution and Environmental Review Projects

- Accurate, current, comprehensive biological data
- Vital resource for a variety of planning, natural science, and information technology professionals
- Data are available for site based, regional and statewide planning and are interpreted from state, national and global perspectives
- CNHP handles data requests from a range of clients including governmental agencies, consultants, land trusts, nonprofits, researchers, landowners and many more



CNHP Data

CNHP Data are Available in Many Formats:

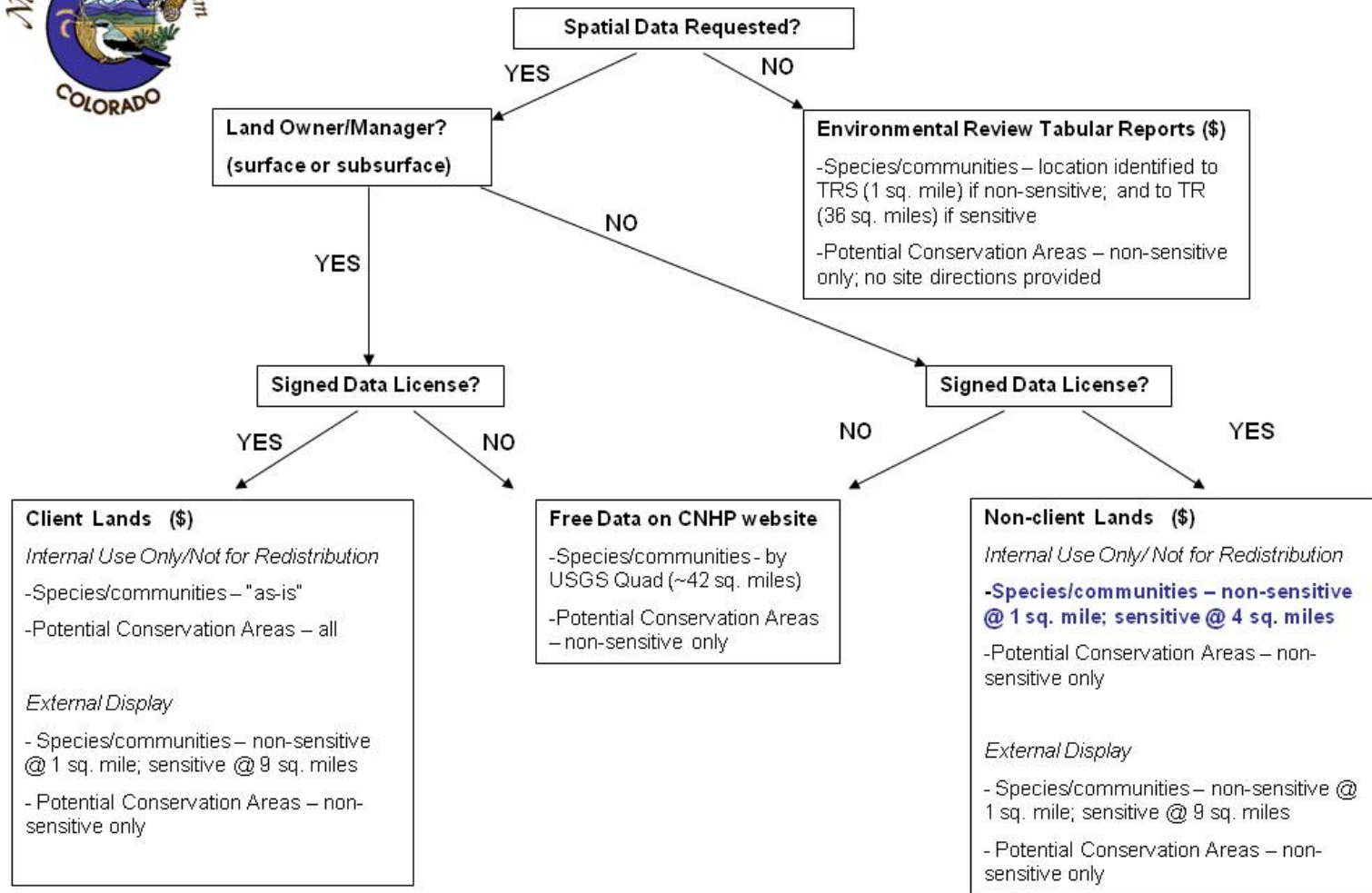
- Spatial Data
- Tabular Reports
- Statewide Datasets
- Hyperlink GIS Projects
- Data is provided with extensive training and support



CNHP Sensitive Data Policy



Colorado Natural Heritage Program Data Distribution Policy



CNHP Sensitive Data Policy

Three Tiers of Access:

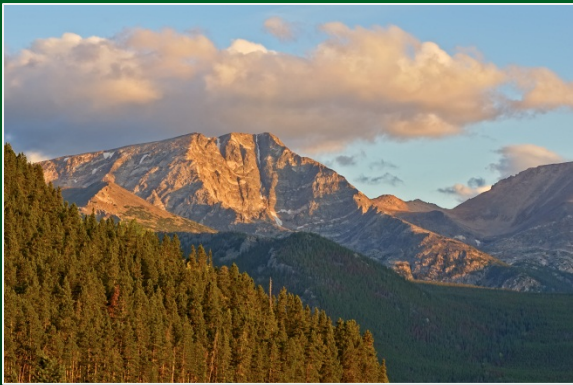
- Tier I: Spatial Data (requires data license)
- Tier II: Tabular Reports by Area/Species (generalized)
- Tier III: Free Data Available on the Web (heavily generalized)



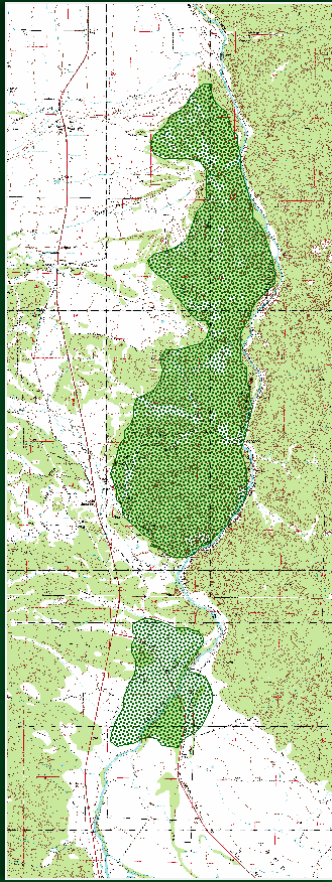
CNHP Sensitive Data Policy

Three Levels of Detail:

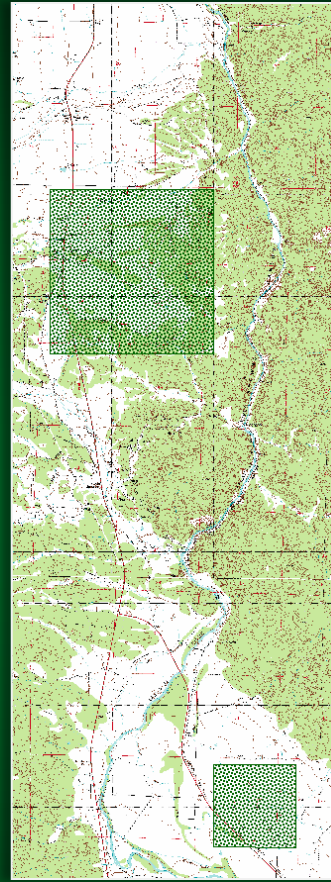
- Level I: Precise data (internal use only) provided on lands with landowner permission
- Level II: Data generalized one to four miles (internal use only) provided for all other lands
- Level III: Heavily generalized data for public display



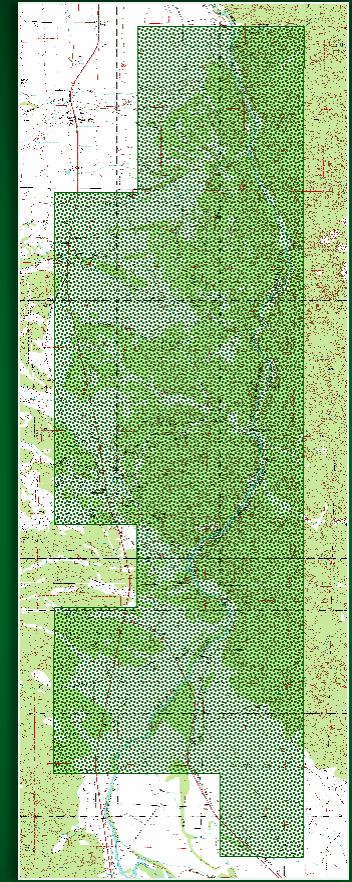
CNHP Sensitive Data Policy



Level 1 Data



Level 2 Data



Level 3 Data



Hyperlink GIS Projects

The image displays two software windows side-by-side. The left window is ArcMap, showing a map of a region with various colored overlays representing different data layers. A red box highlights a lightning bolt icon in the top toolbar, with a red arrow pointing to a specific location on the map. The right window is Adobe Acrobat Pro, displaying a PDF report titled "Level 1 Potential Conservation Area (PCA) Report".

Level 1 Potential Conservation Area (PCA) Report

Name: Dudley Bluffs Site Code: S.USCOFO*63

Site ID: 1276 IDENTIFIERS Site Class: PCA

Site Alias: Horse Draw
Site Alias: Piceance Creek Bluffs
Site Alias: Yellow Creek Bluffs
Site Alias: Yellow Creek at Pinto Gulch
Site Alias: Duck Creek
Site Alias: Ryan Gulch

Network of Conservation Areas (NCA)

NCA Site ID	NCA Site Code	NCA Site Name
2469	S.USCOHP*27038	Piceance

Site Relations: Overlaps Piceance Creek (S.USCOHP*26598) and Yellow Creek (S.USCOHP*26915).
Overlaps and shares a boundary with Dry Fork Piceance Creek (S.USCOHP*27014).
Contained in Piceance (S.USCOHP*27038).

LOCATORS

Nation	United States	Latitude	395806N
State	Colorado	Longitude	1082056W

Quad Code	Quad Name
39108-G3	Rock School
39108-H3	Square S Ranch
39108-H2	Greasewood Gulch
39108-H4	Wolf Ridge
40108-A3	Barcus Creek SE
40108-A4	Barcus Creek
40108-A2	White River City

County: Rio Blanco (CO)

Watershed Code	Watershed Name
1405006	Piceance-Yellow

Site Directions: The site is south of Highway 64 between Rangely and Meeker along the Piceance and Yellow creek drainages in central Rio Blanco County. Most of the area is accessible from County Road 5 along Piceance Creek using County Road 20, County Road 24, and BLM Roads 1174 and 1175.

SITE DESCRIPTION

Minimum Elevation	5,850.00 Feet	1,783.08 Meters
Maximum Elevation	6,870.00 Feet	2,093.98 Meters

Site Description

The site is situated in central Rio Blanco County, south of Highway 64 between Rangely and Meeker along the Piceance and Yellow creek drainages. It is irregularly shaped, but basically extends approximately 16 miles north to south and 12 miles east to west. The soils are decomposing shale of the Green River and Uinta Formations. These formations create a landscape of dissected tablelands in the Dudley Bluffs area. Shale outcrops are exposed along dry drainages through erosion from downcutting of streams (Spackman et al. 1997). Two rare plant species listed as federally Threatened grow on the exposed shale barrens. Associated plants in the rare plant communities include pinon pine (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*), fringed sagebrush (*Artemisia frigida*), white sagebrush (*Artemisia ludoviciana*), Wyoming sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), shadscale (*Atriplex confertifolia*), rabbitbrush (*Chrysothamnus nauseosus*), skunkbush (*Pinus arizonica trilobata*), lavender-leaf evening primrose (*Calylophus lavandulifolius*), dwarf sand verbena (*Abronia elliptica*), Italian parsley (*Ateles anisates*), Barnet's thistle (*Cirsium barnetii*), sparrowtail wild buckwheat (*Eriogonum lonchophyllum*), spurge (*Euphorbia* sp.), ballhead pomopsis (*Gilia congesta*), greasewood (*Sarcobatus vermiculatus*), fineleaf hymenopappus (*Hymenopappus filiformis*), rayless aster (*Macarantneria grindeloides*), many-stem stickleleaf (*Nuttallia multicaulis*), Torrey's bitterweed (*Tetrateanus torreyana*), thickleaf beardtongue (*Penstemon pachyphyllus*), heliotrope phacelia (*Phacelia crenulata*), Hood's phlox (*Phlox hoodii*), lotieleaf squimetal (*Elymus elymoides*), and Indian ricegrass (*Achnatherum*

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Print Date: 5/13/2013

CNHP Has Many Data Partners

Some of our key statewide data partners other partners too!!!

- The Nature Conservancy
- Colorado Parks and Wildlife/Colorado Natural Areas Program
- Colorado State Game Boards
- Natural Resources Conservation Service
- USDA Forest Service
- Citizen Scientist Management
- Denver Botanic Gardens
- US Fish and Wildlife Service



Custom Online Data Management Systems

Conservation Easements Online Management System



Easements Home Contacts Maps Reports Search

Editing easement information for Pueblo001

General information

Record number: Pueblo001
 Recording number: 1313698
 County acreage: 338
 Deed acreage: 338
 Mapped acreage: 316.103
 County: Pueblo
 Easement date: 12/29/1999

Key provisions

Subdivision allowed: No
 Subdivision notes:
 Building envelope: Yes
 Envelope acreage:
 Envelope number: 1

Envelope notes: residential building envelope; allows ability to maintain, rep current residences; no acreage given; caps on square footage

Save

Conservation purposes

(2) Biological/wildlife habitat and ecological
 (3) Agricultural, scenic, and government policy

Recreational and educational

Amendments

Reports: Overall summary

Select a criteria below to filter this page.

County: Pueblo Grantee: The Nature Conservancy Grantee certification level: Certified

Total number of easements: 10

Acreage statistics

	Mean	Median	Total	Records with data
Deed acreage:	4493	2640	44932	10
Mapped acreage:	4543	2556	45428	10
County recorded acreage:	4493	2640	44932	10

Building envelopes

Allow building envelopes: 1
 Don't allow building envelopes: 9
 Unknown: 0
 Average number of envelopes per easement: 3
 (1 records with data)
 Average acreage of envelopes per easement: 15
 (1 records with data)
 Average % of easement in envelope(s): 0.07%

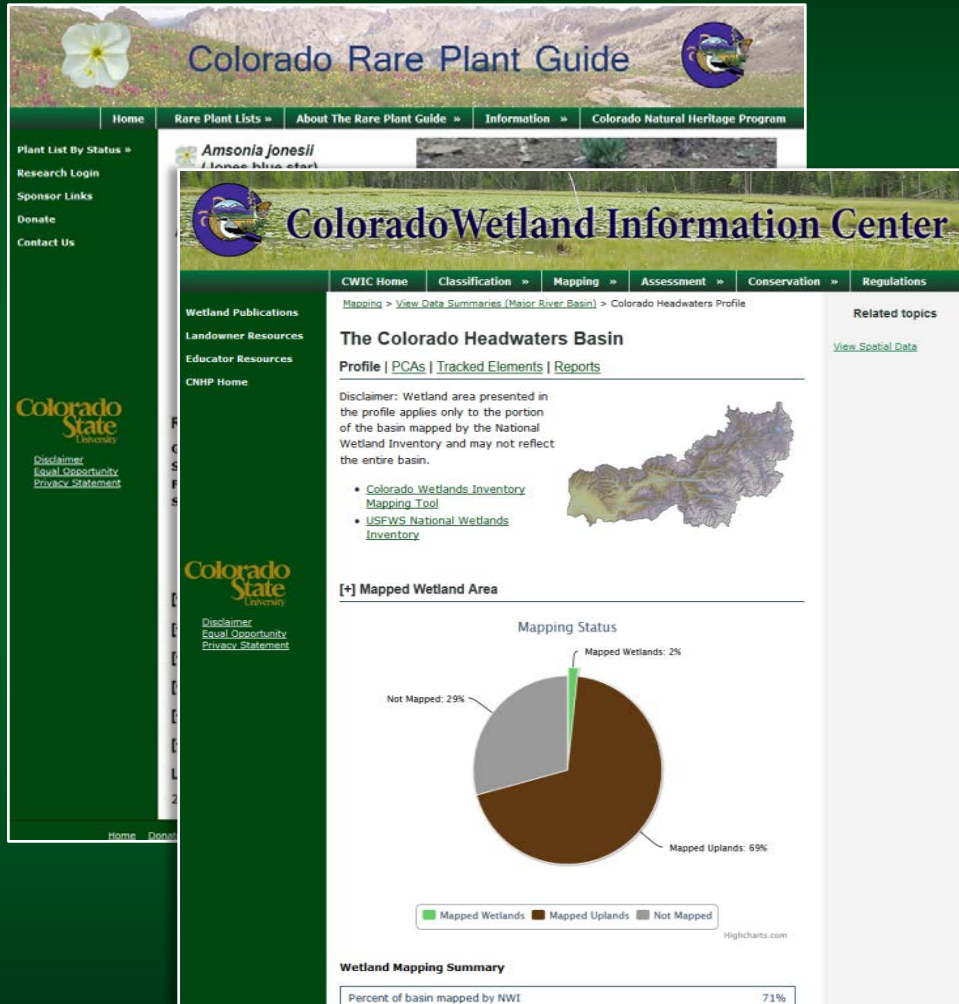
Conservation purposes

An easement can have one, some, or all of the following conservation purposes.

	Number of easements	Mean deed acreage	Total deed acreage
(1) Recreational and educational	1	960	960
(2) Biological/wildlife habitat and ecological	10	4493	44932
(3) Agricultural, scenic, and government policy	9	4886	43972
(4) Historical	0	0	0



CNHP Website and Wetland App



Colorado Rare Plant Guide

Home | Rare Plant Lists » | About The Rare Plant Guide » | Information » | Colorado Natural Heritage Program

Plant List By Status » | Research Login | Sponsor Links | Donate | Contact Us

Amsonia Jonesii
(Lance blue star)

Colorado Wetland Information Center

CWIC Home | Classification » | Mapping » | Assessment » | Conservation » | Regulations

Mapping » View Data Summaries (Major River Basin) » Colorado Headwaters Profile

Wetland Publications
Landowner Resources
Educator Resources
CNHP Home

Colorado State University
Disclaimer
Equal Opportunity
Privacy Statement

The Colorado Headwaters Basin

Profile | PCAs | Tracked Elements | Reports

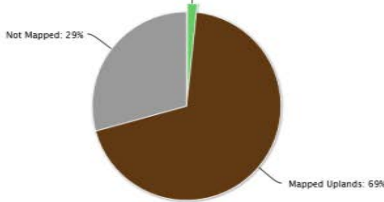
View Spatial Data

Disclaimer: Wetland area presented in the profile applies only to the portion of the basin mapped by the National Wetland Inventory and may not reflect the entire basin.

- Colorado Wetlands Inventory Mapping Tool
- USFWS National Wetlands Inventory

[+] Mapped Wetland Area

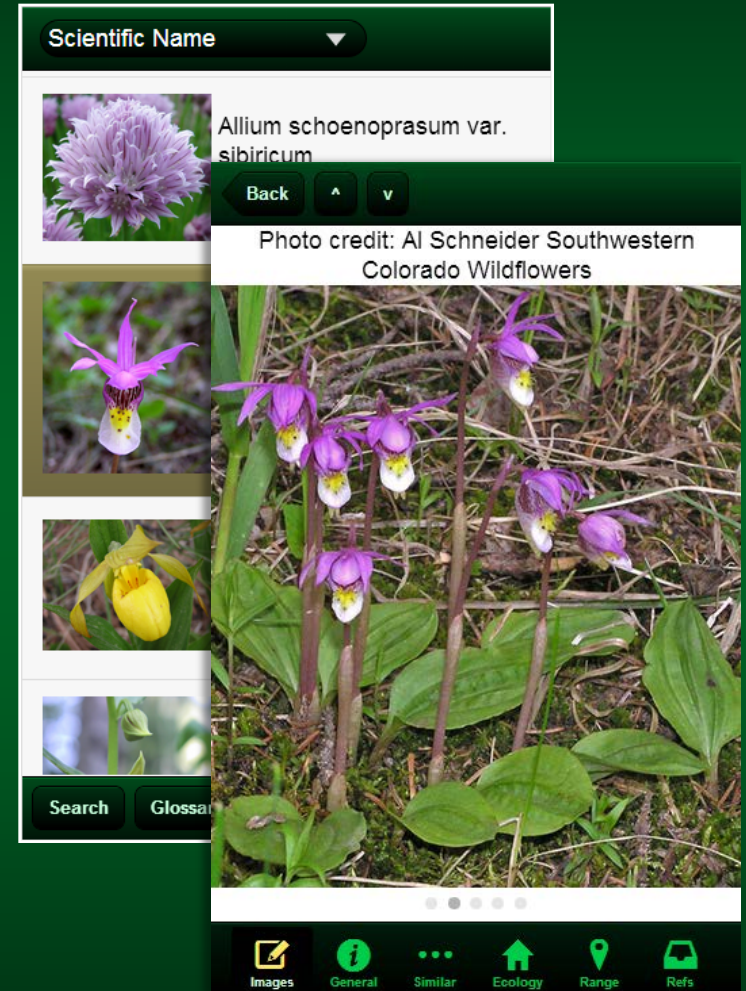
Mapping Status



Category	Percentage
Mapped Wetlands	2%
Mapped Uplands	69%
Not Mapped	29%

Wetland Mapping Summary

Percent of basin mapped by NWI	71%
--------------------------------	-----

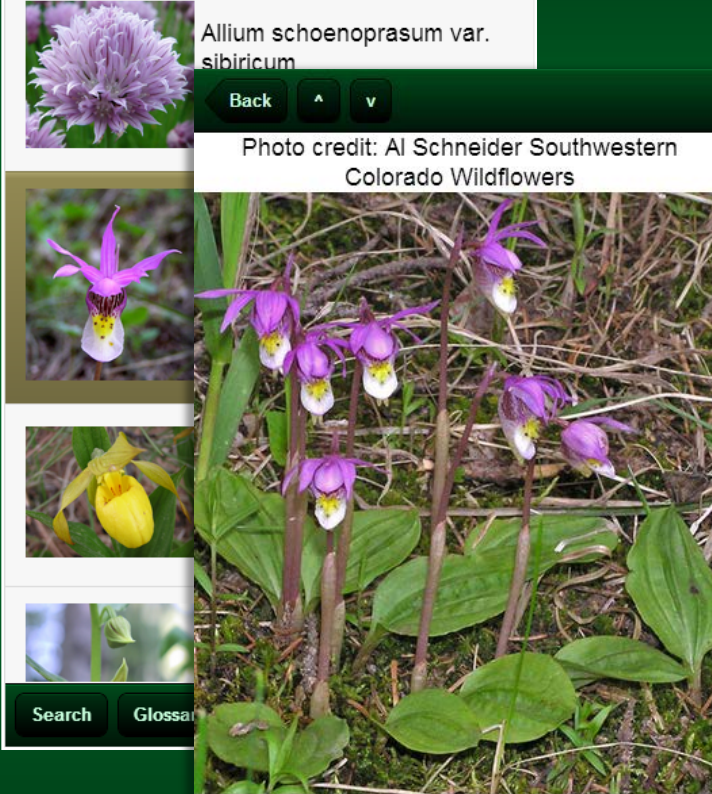


Scientific Name

Allium schoenoprasum var. *sibiricum*

Back | ^ | v

Photo credit: Al Schneider Southwestern Colorado Wildflowers



Search | Glossary

Images | General | Similar | Ecology | Range | Refs



CNHP Social

Find us on:

- The CNHP Blog
- Facebook
- Twitter
- YouTube
- Flickr



- CNHP is a part of
- Colorado State University
- Topics
- About CNHP
 - Awards and Recognitions
 - Biodiversity Scorecard
 - Botany
 - Climate Change
 - CNHP in the News
 - Collaborations
 - Conferences
 - Conservation Data
 - Services
 - Conservation Planning
 - County Inventory
 - Ecology
 - Education
 - Employment and Volunteering
 - Field Techniques
 - Fire
 - Friends and Partners
 - GIS
 - International Year of Biodiversity
 - Internships
 - National Forest
 - National Parks
 - Potential Conservation Areas



New GOCO funding will support:

Demo Edition

Introduction

Choose a Location

Select Lands to Review

Attach a Note

Draw a New CPAD Unit

Edit a CPAD Unit

Upload a Shapefile or KML

You can upload an ESRI Shapefile or a KML file of your holdings and see it on the map. For Shapefiles, you must first compress them into one .zip file, and be sure to include a .prj file.

Browse your computer to select your .zip or .kml/kmz file, then click "Show on Map" to upload and display on the map.

Shapefile or KML:
 No file selected.

MapCollaborator™

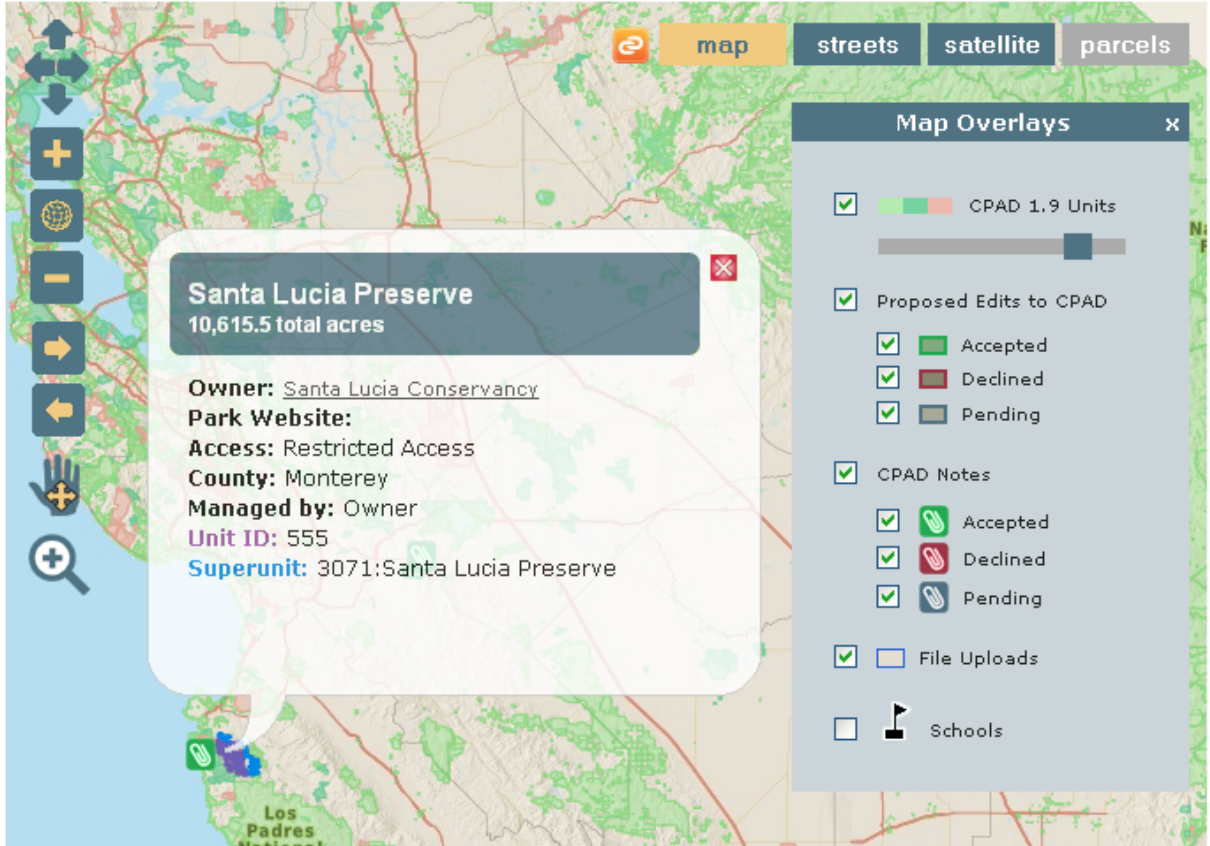
map streets satellite parcels

Santa Lucia Preserve
10,615.5 total acres

Owner: [Santa Lucia Conservancy](#)
Park Website:
Access: Restricted Access
County: Monterey
Managed by: Owner
Unit ID: 555
Superunit: 3071:Santa Lucia Preserve

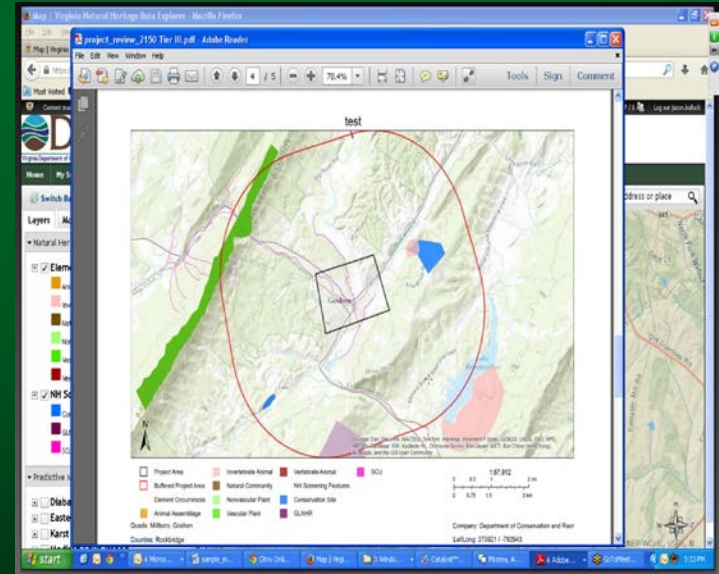
Map Overlays

- CPAD 1.9 Units
- Proposed Edits to CPAD
 - Accepted
 - Declined
 - Pending
- CPAD Notes
 - Accepted
 - Declined
 - Pending
- File Uploads
- Schools



Future Directions

- Implementing BIOTICS 5 in Summer 2014
 - The future of biodiversity data management
 - Upgrade the program's features to current standards
 - Interoperability and data sharing through web services
- Providing Online Data Access
 - NatureServe Data Explorer
 - Improved accessibility and broadened data offerings
 - CNHP is working on finding partners to help us bring this tool online



Conservation Planning



Renée Rondeau
Ecologist/Conservation Planner



CNHP's Conservation Planning Team



Renee Rondeau,
Ecologist and
Conservation
Planner
Team Leader



Karin Decker,
Ecologist and
Landscape
Analyst



Michelle Fink,
Landscape
Ecologist and GIS
analyst



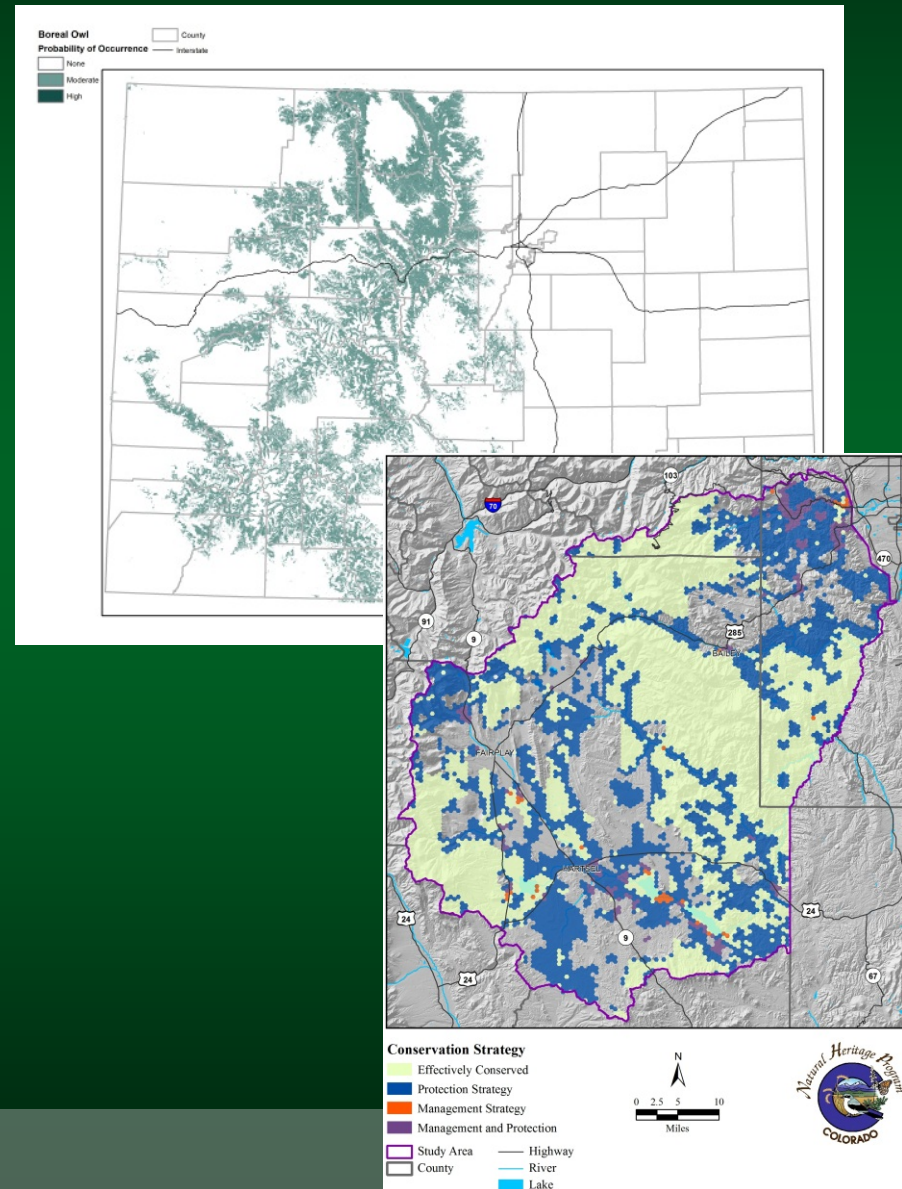
Lee Grunau,
Conservation Planner



CNHP's Conservation Planning Team

Core Functions

- Collaboration with partners to apply scientific information at multiple scales
- Spatial analysis that brings CNHP and other natural resource data together to synthesize complex issues
 - species & habitat distribution modeling
 - impact analysis
 - optimization modeling
- Planning for climate change
- Monitoring, management, mitigation, and site conservation plans



Conservation Planning

Statewide, Regional, and Site-level Scales

All of our planning work is a collaborative effort with multiple partners, including The Nature Conservancy, Colorado Parks & Wildlife, NatureServe, USGS, State Land Board, and many others

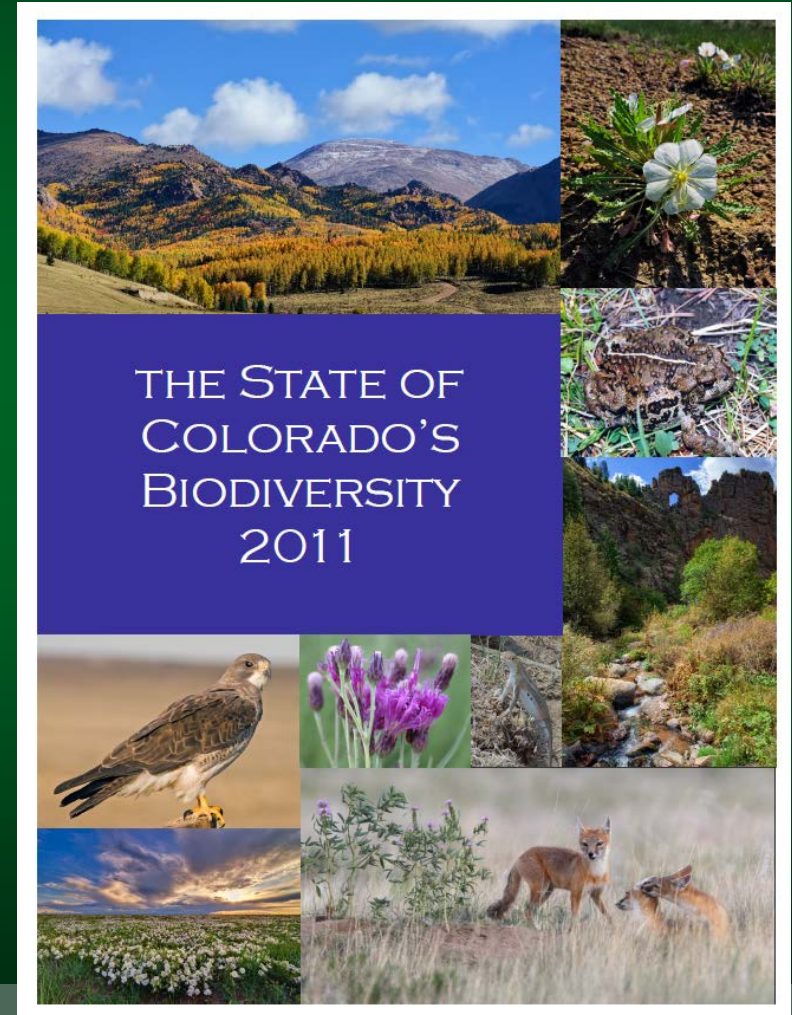
- State of Colorado's Biodiversity
- State Wildlife Action Plan
- Climate change vulnerability and adaptation assessments
- Environmental sustainability planning for transportation and energy development
- Ecoregional assessments and partnership initiatives



Conservation Planning

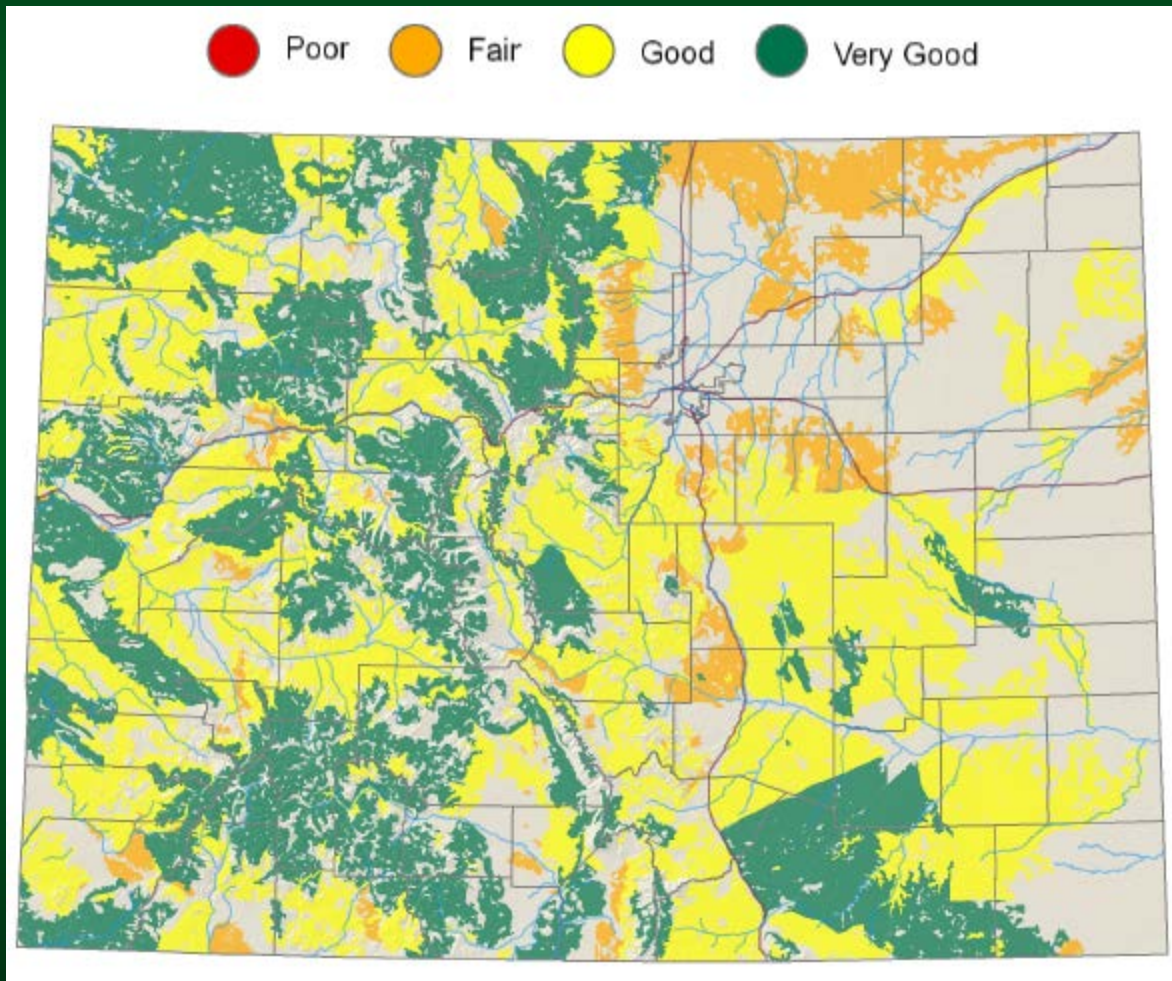
The State of Colorado's Biodiversity

- Conservation status for:
 - Major ecosystems
 - Species of Concern
 - Regions
- Considered:
 - Condition
 - Threats
 - Level of protection



Conservation Planning

The State of Colorado's Biodiversity: Ecosystem Condition

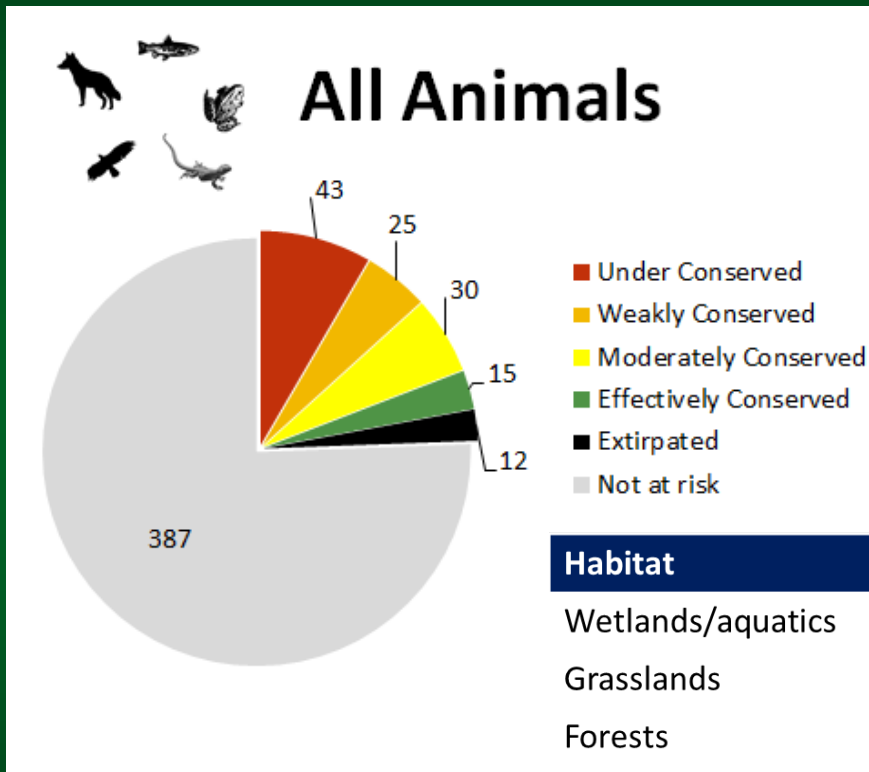


- 18 terrestrial ecosystems analyzed for *size*, *condition*, *threats*, and level of *protection*.
- The prairie is one of our least protected systems, but there are still opportunities to conserve large intact patches.



Conservation Planning

The State of Colorado's Biodiversity: Animals of Concern

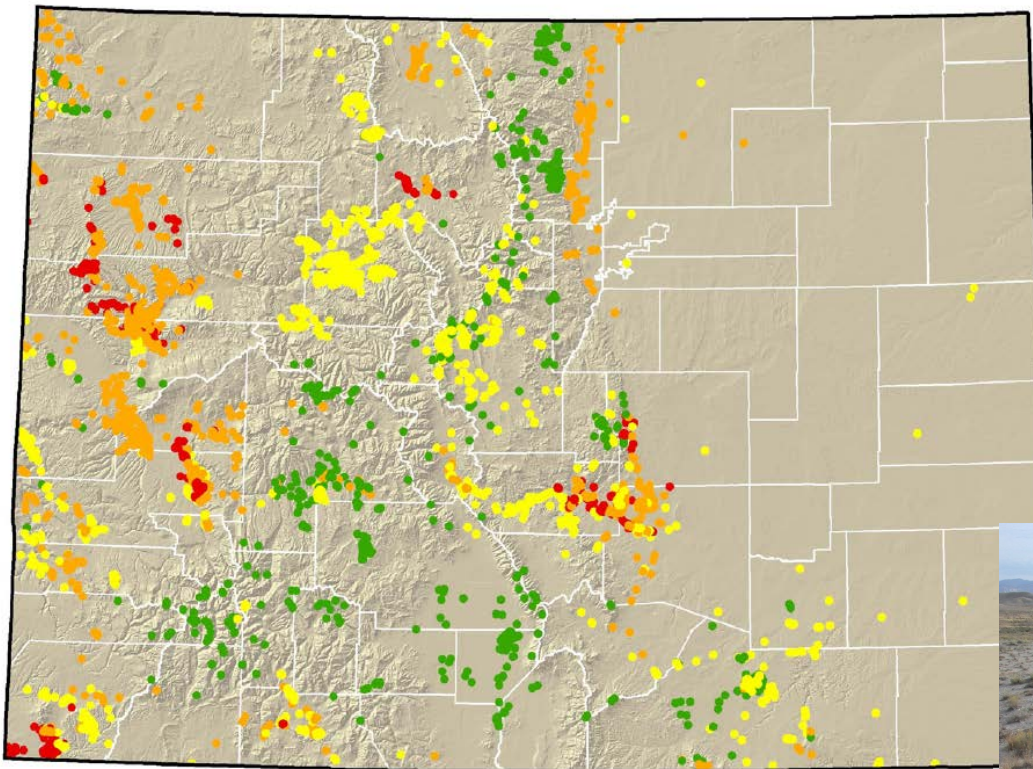


Habitat	Number of Species
Wetlands/aquatics	46
Grasslands	28
Forests	13
Shrublands	10
Cliff and canyon	7
Pinyon-juniper	7
Alpine	1



Conservation Planning

The State of Colorado's Biodiversity: Plants of Concern



Plant Element Occurrences by Overall Conservation Status

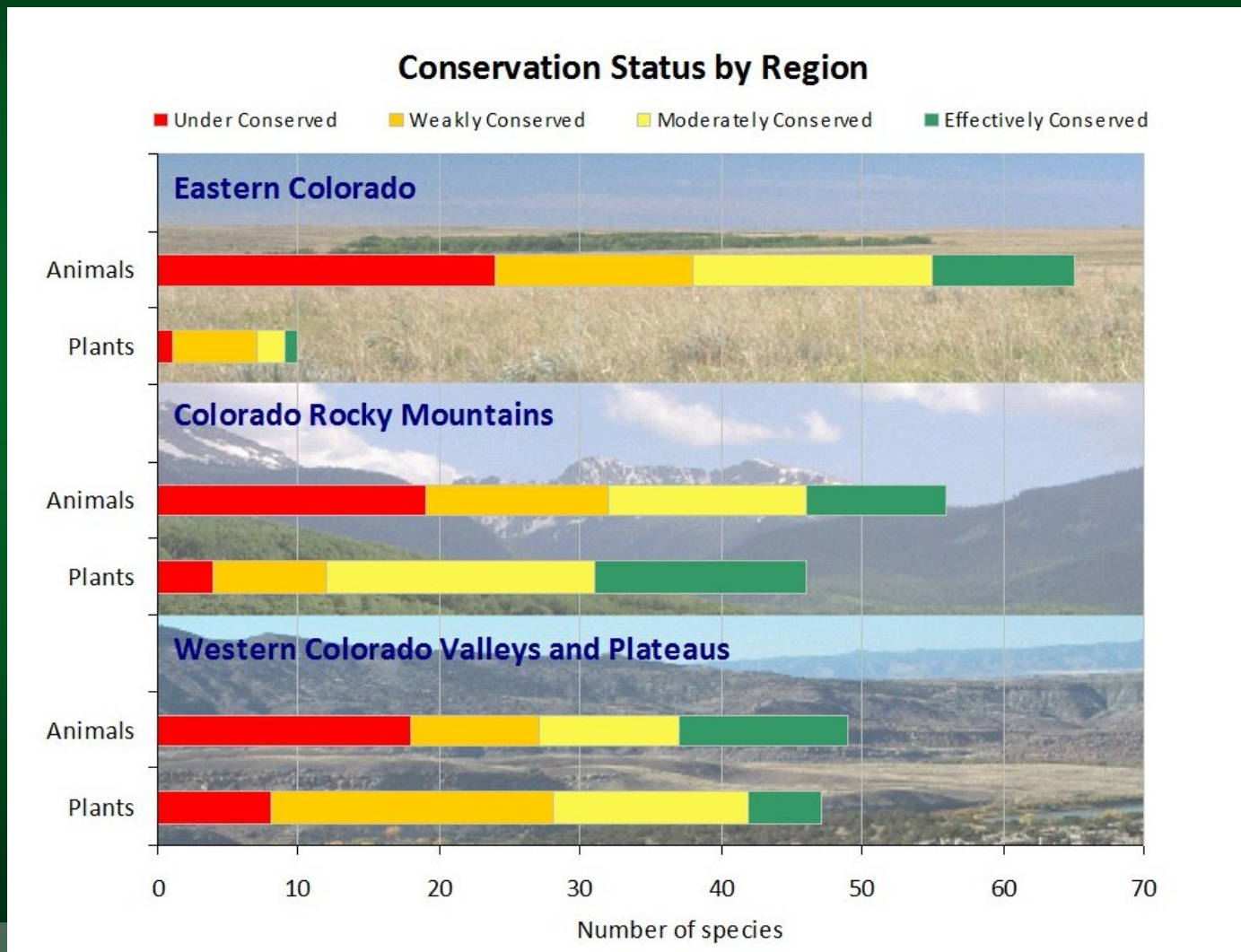
Poorly Conserved → Effectively Conserved

- 103 G1-G2's analyzed
- Barrens <1% of landscape, but support 80% of our most threatened species.



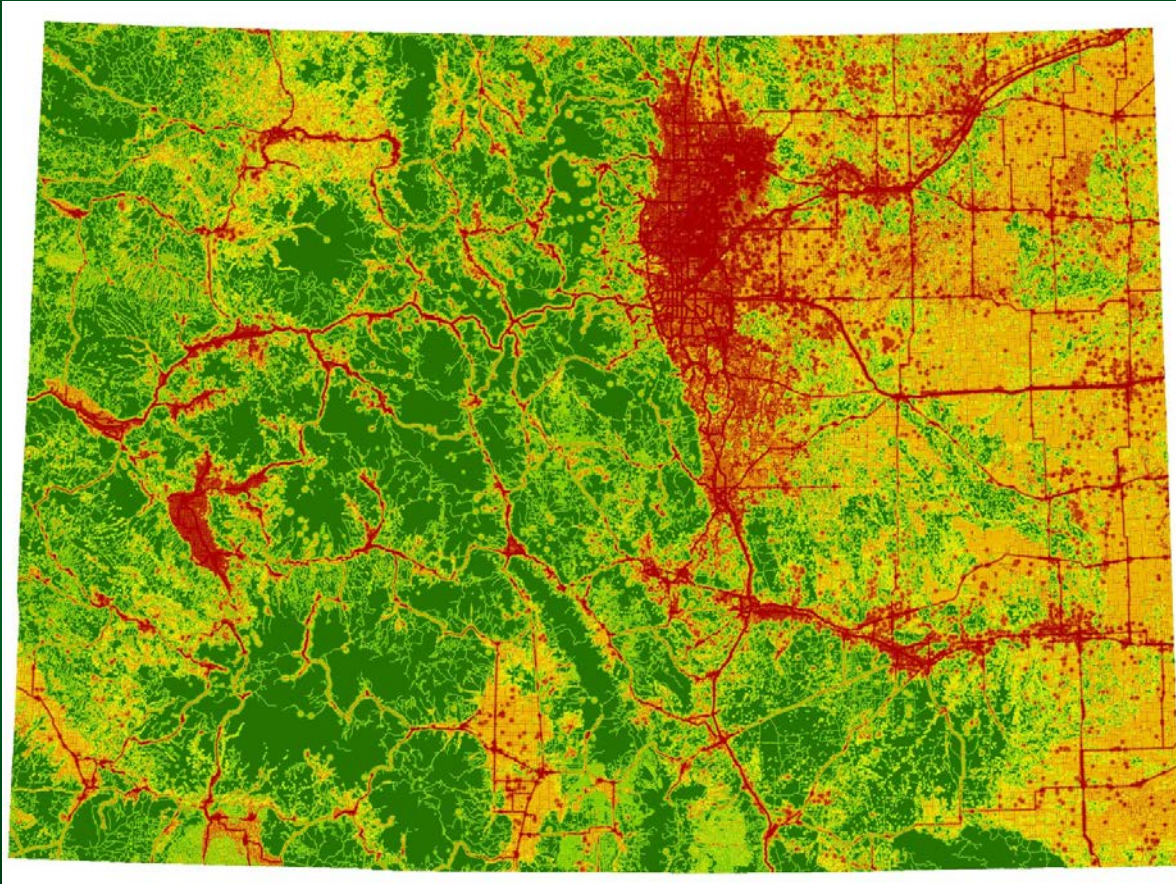
Conservation Planning

The State of Colorado's Biodiversity: by region



Conservation Planning

Impact Analysis



- Distance-decay method used to model effects of disturbance
- We analyzed:
 - Development
 - Agriculture
 - Transportation
 - Energy
 - Mining
- Impacts combined for cumulative score
- Models can be general or species-specific



Conservation Planning

Climate Change: Vulnerability and Adaptation Projects

Gunnison Basin
San Juan Basin
SWAP
BLM

Habitat	Vulnerability Score	Current Condition	Confidence in Score
Xeric tundra	Highly vulnerable	Very Good	High
Mesic tundra	Highly vulnerable	Very Good	High
Spruce-fir	Moderately vulnerable	Good	Low
Mixed conifer	Presumed Stable to Slight Increase	Good	Medium
Aspen	Moderately vulnerable	Fair to Good	Medium
Lodgepole	Moderately vulnerable	Good	Medium
Ponderosa Pine	Moderate Increase	Good	Low
Pinyon-Juniper	Presumed Stable to Moderate Increase	Good	Medium
Bristlecone pine	Highly vulnerable	Good	Low



Current and Ongoing Conservation Planning Projects

- State Wildlife Action Plan
 - Climate change vulnerability assessment for wildlife and habitats
 - Revision to include wildlife and rare plant components
- Climate Change
 - San Juan treeline study & ecosystem vulnerability assessments
 - Gunnison Basin resilience, restoration, and adaptation
 - Social-ecological climate resilience in SW Colorado
- Species Distribution Modeling
- Infrastructure Impacts
 - Transportation environmental planning
 - Energy by Design—Eastern plains



Future Directions

- Ecosystem services
- Comprehensive statewide climate vulnerability assessment
- Spatial modeling for climate vulnerability assessments
- “The State of Colorado’s Biodiversity” update
- Disaster recovery planning
- Potential Conservation Area database
- Engagement with social scientists



Directions for the Future



Colorado Natural Heritage Program
Colorado State University
www.cnhp.colostate.edu



WARNER COLLEGE OF
Natural Resources
Colorado State University

Purpose of Today's Meeting

- Connect the key members of Colorado's Conservation Community
- Updates from CNHP and Partners on current activities
- Highlight successful partnerships
- Discuss the future: how can we all do a better job of achieving conservation goals?



CNHP's 2011-2015 Strategic Plan

- Goal 1: Identify Areas for the Conservation of Colorado's Natural Heritage
- Goal 2: Develop, Interpret, and Deliver Information to Guide Conservation Action
- Goal 3: Maintain an adaptable, sustainable, and indispensable organization that is supported in its mission
- Goal 4: Support a High Quality Work Environment

Data

Services

Outreach,
Partnerships,
Education,
Innovation



Data

- We want to:
 - Be more comprehensive and accessible
 - Have “real time” data access
 - Expand data offerings and services
 - Connect to other databases (e.g., CHAT, Data Basin, Landscape, NRIS)



NatureServe's Heritage Data Explorer



Login/Register

Home Map About Us Contact Us Help Species/Community Search Terms and Conditions

Virginia Natural Heritage Data Explorer

Welcome to the Virginia Department of Conservation and Recreation's *Natural Heritage*

This site provides interactive access to various map data representing other conservation values in Virginia.

This site should be viewed in Firefox version 3.6 or higher. Google



Open Access: You can log in, if you are interested in planning or conservation. You can view and create maps, and create conservation values. Click the "Species" button to view the database and create Resources (i.e. rare species communities) by watersheds, and

Subscription Access: A subscription is required to access additional data, and/or to use the site for project review. If you represent a government agency looking for this service, [create a website account](#) and a subscription.

Visit our [homepage](#), for more information on the Virginia DCR - Div

User login

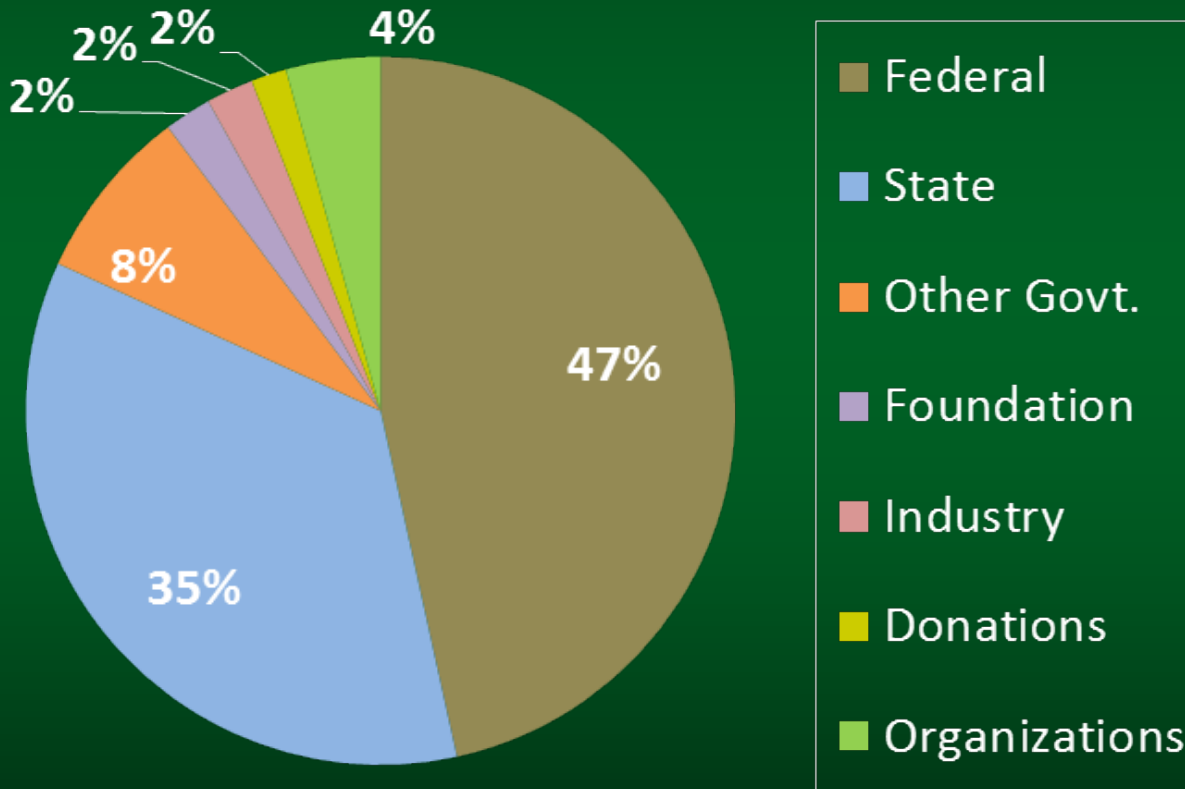
E-mail: *



How we are making it happen

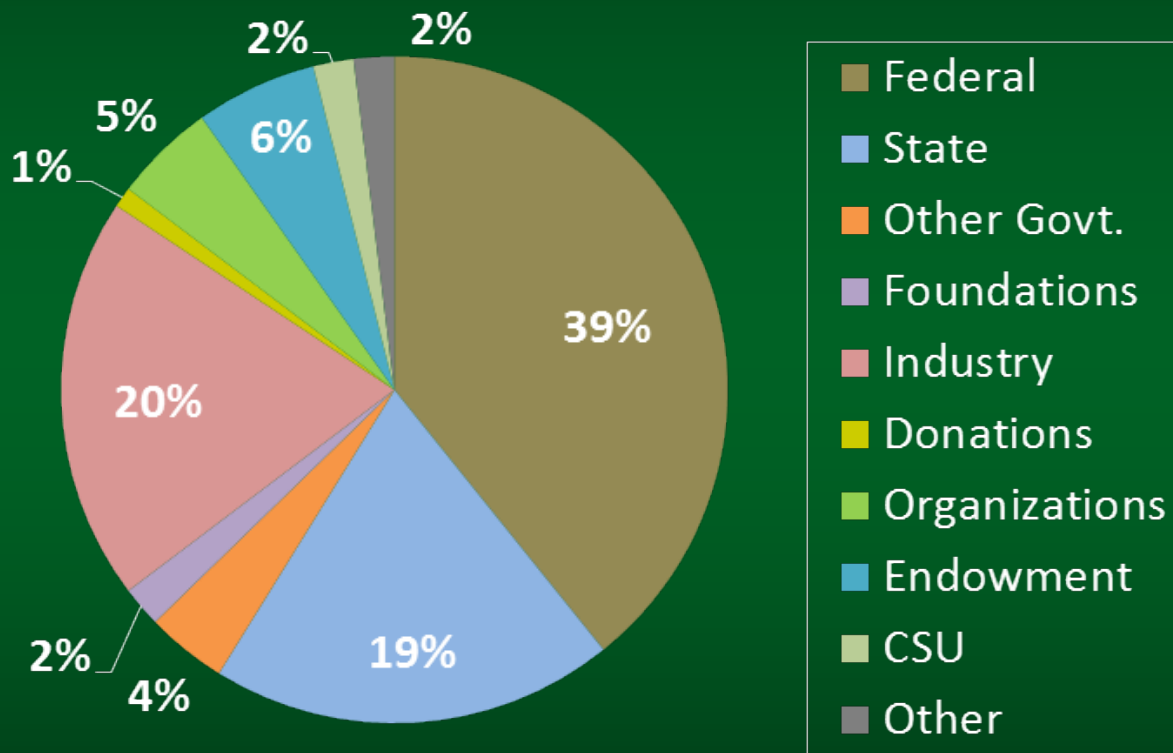
FY 2013 CNHP Budget

Total: \$1.7M



How we are making it happen

Desired Annual Budget Scenario

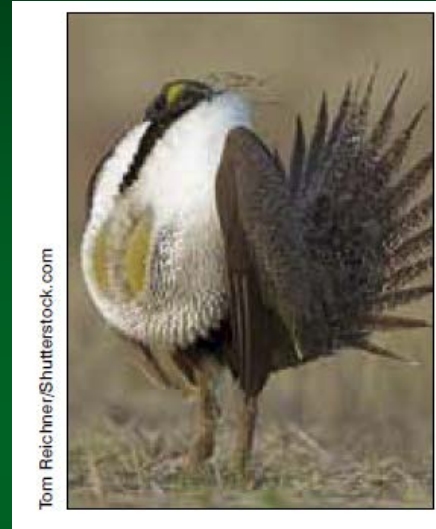


- Increase overall funding
- Diversifying and expanding our partnerships





Two Exciting Frontiers...


- Payment for Ecosystem Services
 - Colorado Habitat Exchange
 - Colorado Conservation Exchange
- Citizen Science
 - NatureServe's Citizen Science Strategy
 - Wetland Tools App
 - Adopt-a-Rare Plant Program




Scientific Name ▾

 *Allium schoenoprasum* var. *sibiricum*
wild chives
Liliaceae (Alliaceae)

 *Calypso bulbosa*
fairy slipper
Orchidaceae

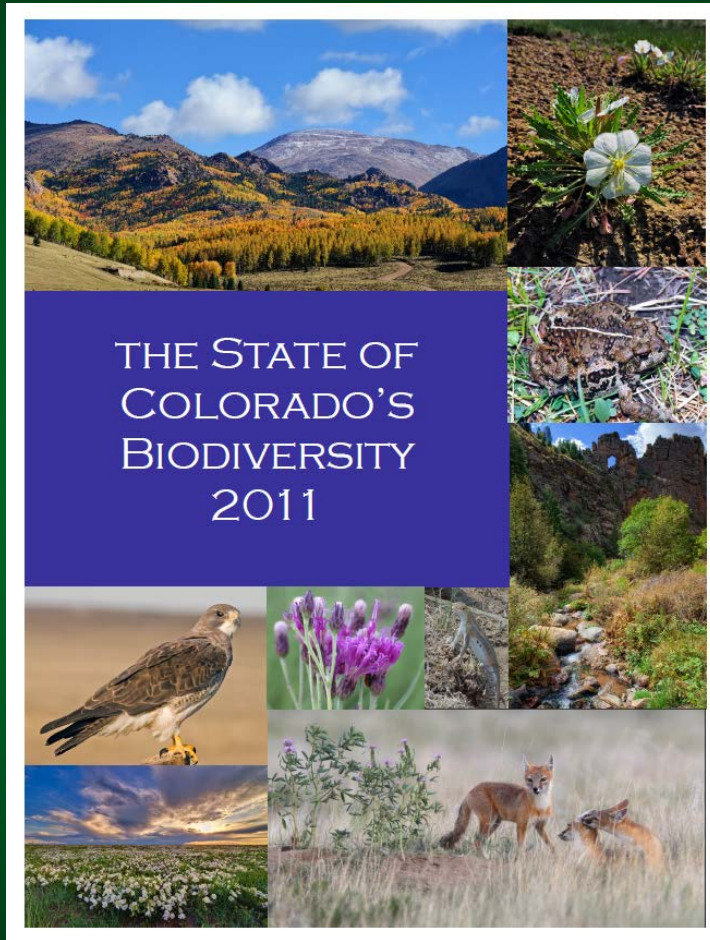
 *Cypripedium parviflorum* var. *pubescens*
yellow lady's slipper
Orchidaceae
(Cypripediaceae)

 *Epipactis gigantea*
stream orchid

[Search](#) [Glossary](#) [More](#)



State of Colorado's Biodiversity



- 2011: established a baseline



Our Partnership with Odell Brewing Co.



Partnering for Conservation

Training

Field Surveys

**Plan our
communities
and our future**

**Climate
Change**

**Work with
Industry**

**Support
Private Land
Owners**

**Disaster
Response**

**State Rare
Plant List**

**Work with
Tribes**

Mapping



Partnering for Conservation



- What do you need?
- What are you excited about?
- How can we all help?



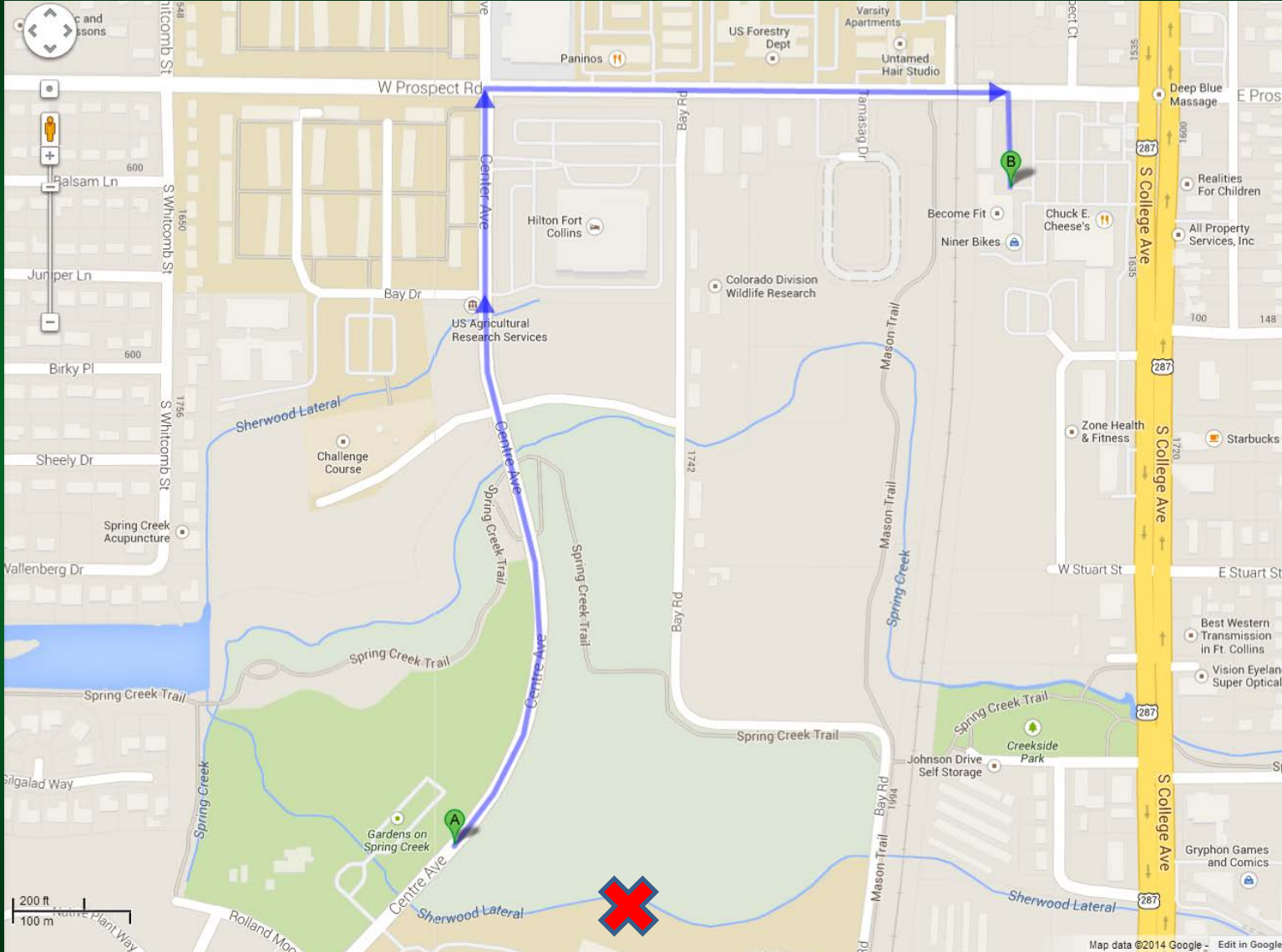
Partner Presentations



Moderated Partner Roundtable



Getting to El Monte from Here



Thank You!

