



**WARNER COLLEGE OF
NATURAL RESOURCES
COLORADO STATE UNIVERSITY**

CODEX— a collaborative tool supporting decisions on Colorado's Lands

David Anderson,
Director



National Association of
State Trust Lands
Summer Conference

July 22, 2025

Overview

1. What is CNHP
2. Our work with Colorado SLB
3. What is CODEX
4. Statewide Natural Heritage Survey

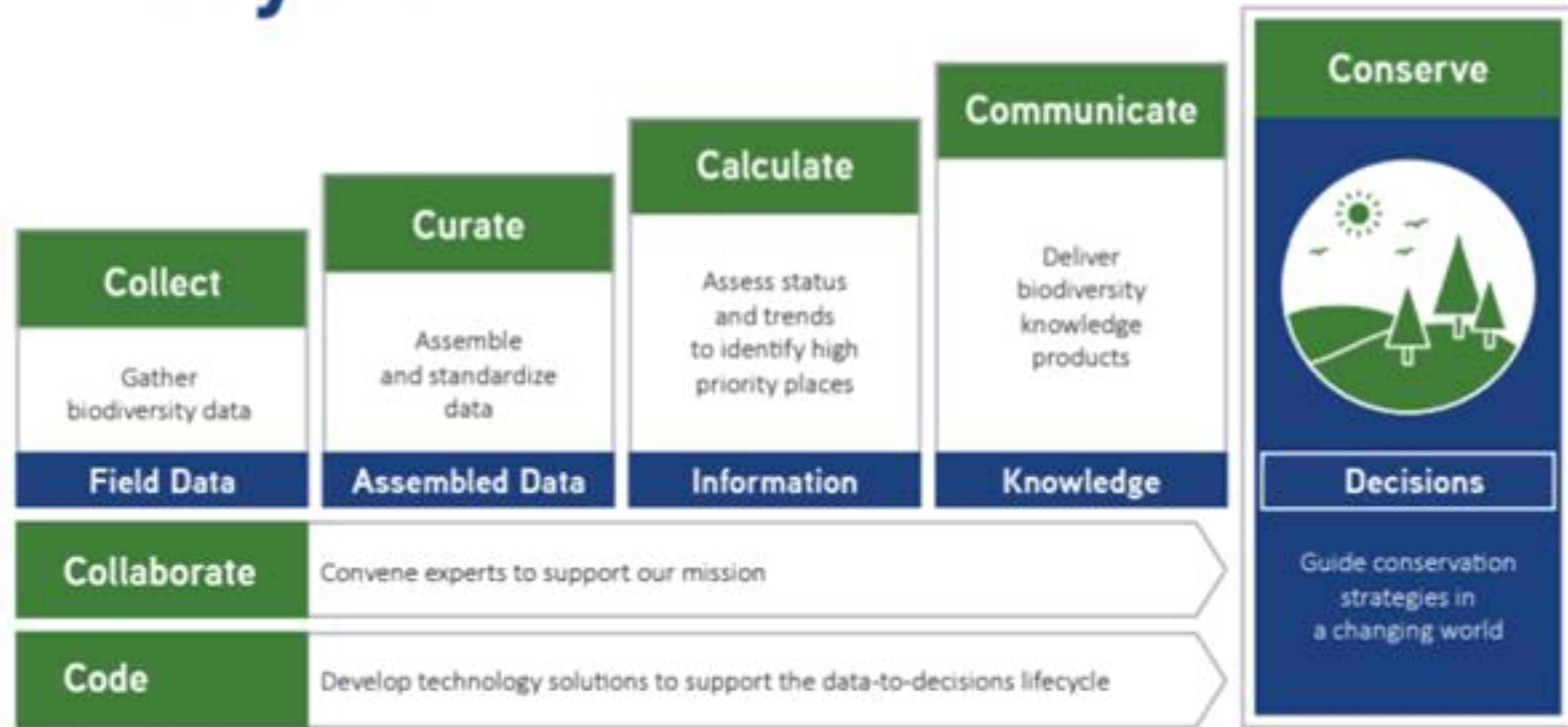


CNHP is...

- Colorado's trusted source of biodiversity and natural heritage data since 1979
- Part of Colorado State University and the NatureServe network
- Collaborators who support decisions by landowners, agencies, practitioners, and industry by tracking locations and status of rare plants, animals, and habitats
- Soft funded staff of over 50 experts



The Data-to-Decisions Lifecycle





Amphibians and
Reptiles



Arthropods and
Insects



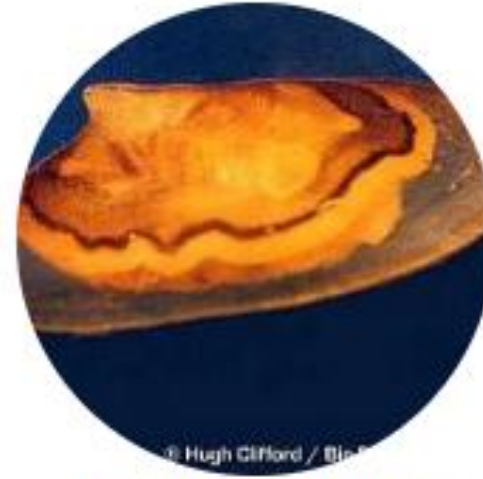
Birds



Fish



Mammals



Mussels and Clams



Nonvascular Plant



Plant Communities



Vascular Plants



Macrofungi

The Five Key Questions

1. What species and ecosystems exist in CO?
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?



Conservation Status Ranks

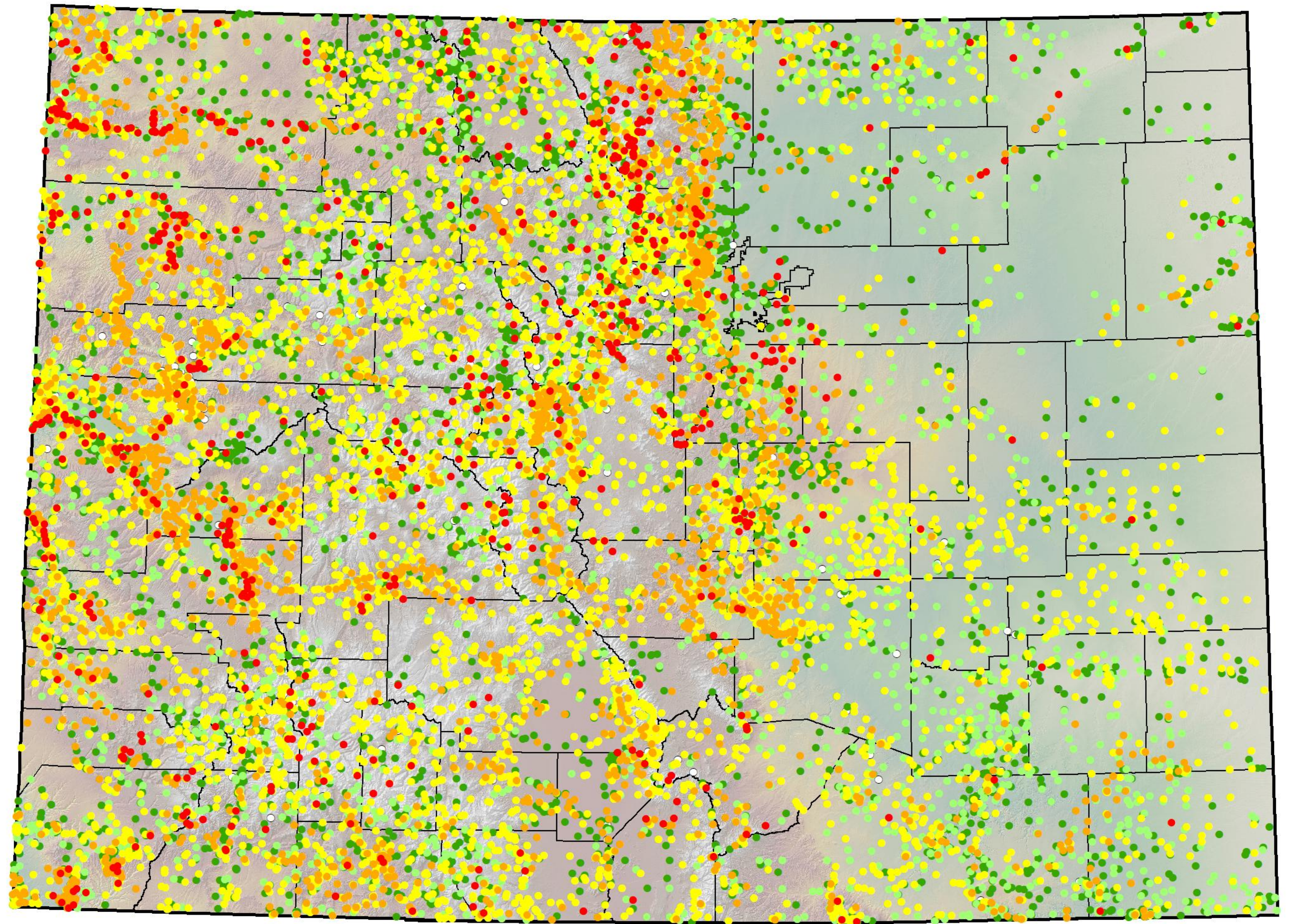
- Global (G) Ranks show the degree of rarity or imperilment on the global scale.
- State (S) Ranks show the degree of rarity or imperilment on the state scale.

- 1 Critically imperiled
- 2 Imperiled
- 3 Vulnerable to extirpation or extinction
- 4 Apparently secure
- 5 Demonstrably widespread, abundant, and secure



Element Occurrences

All EOs by Global
Conservation Rank



Location by Global Conservation Rank (G-Rank) • G1 • G2 • G3 • G4 • G5 • GH • GNR



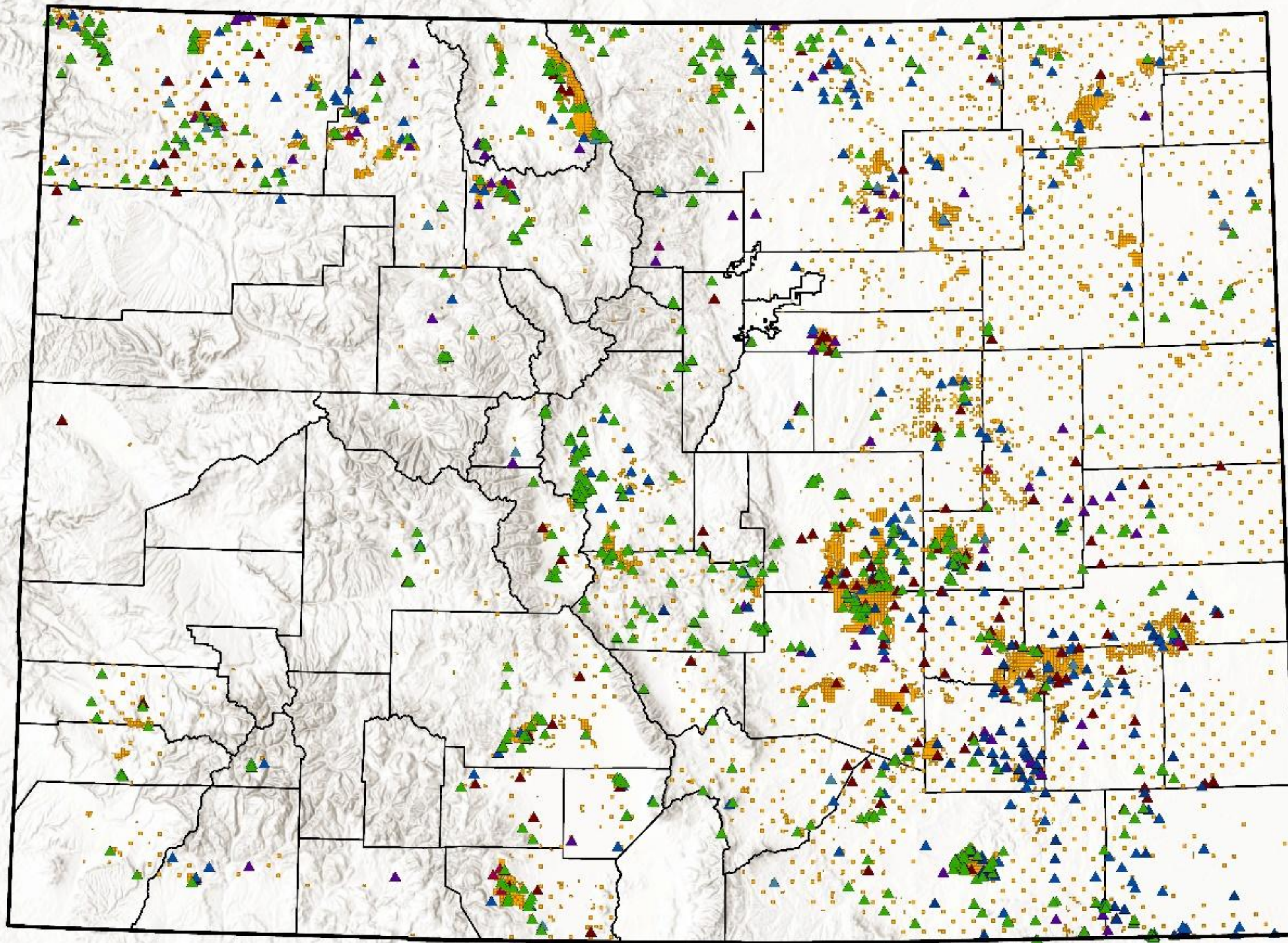
Supporting Colorado SLB

- Data sharing agreement
- Curation of element occurrence data on SLB lands
- Partner level CODEX support
- Collaborations to survey the biodiversity of SLB lands



COLORADO
State Land Board





CNHP Element Occurrences on State Land Board Lands

Element Occurrences

- Amphibians
- Birds
- Fish

- Insects
- Mammals
- Mollusks
- Natural Communities

- Nonvascular Plants
- Reptiles
- Vascular Plants

- State Land Board Lands
- Counties

N

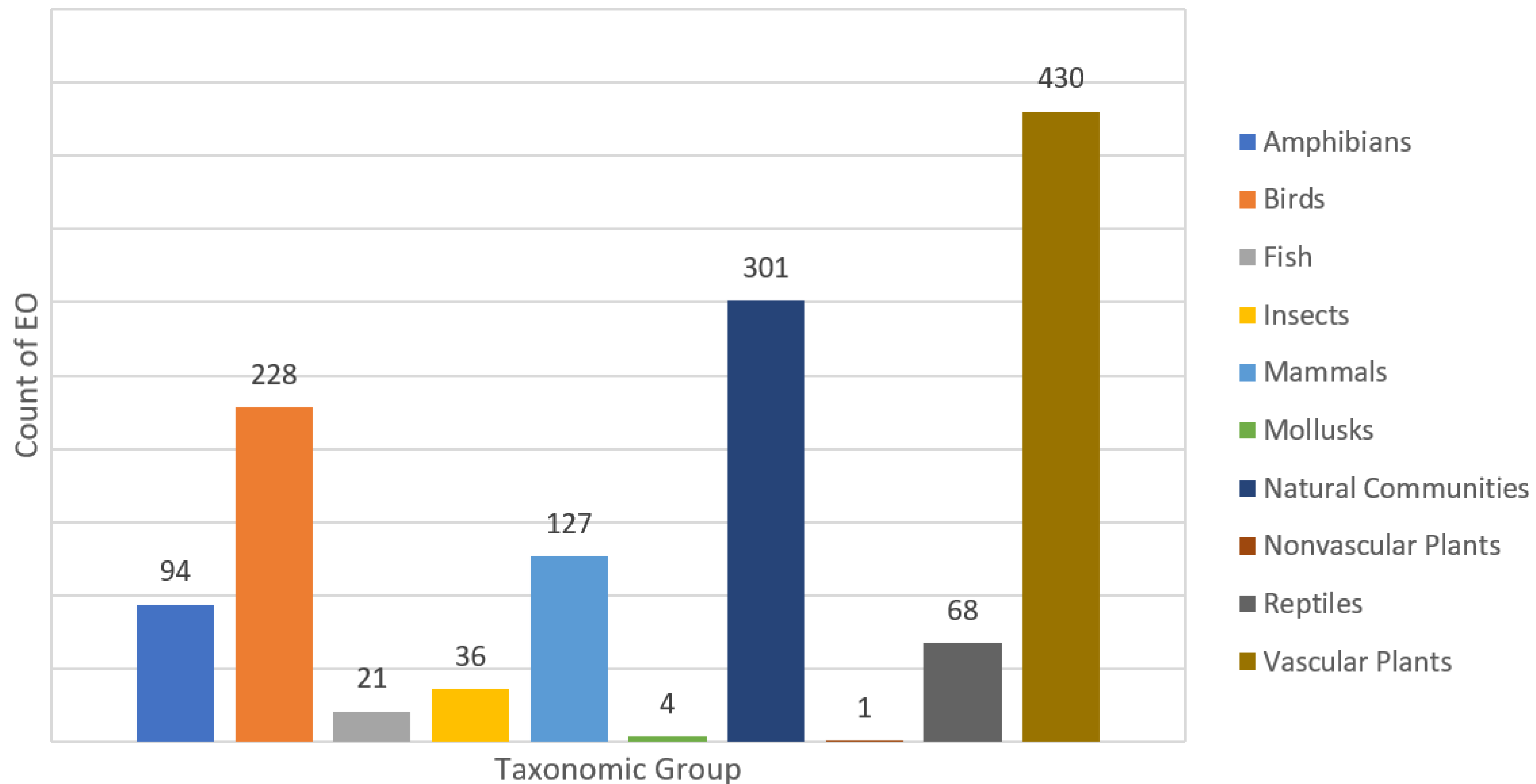
0

30

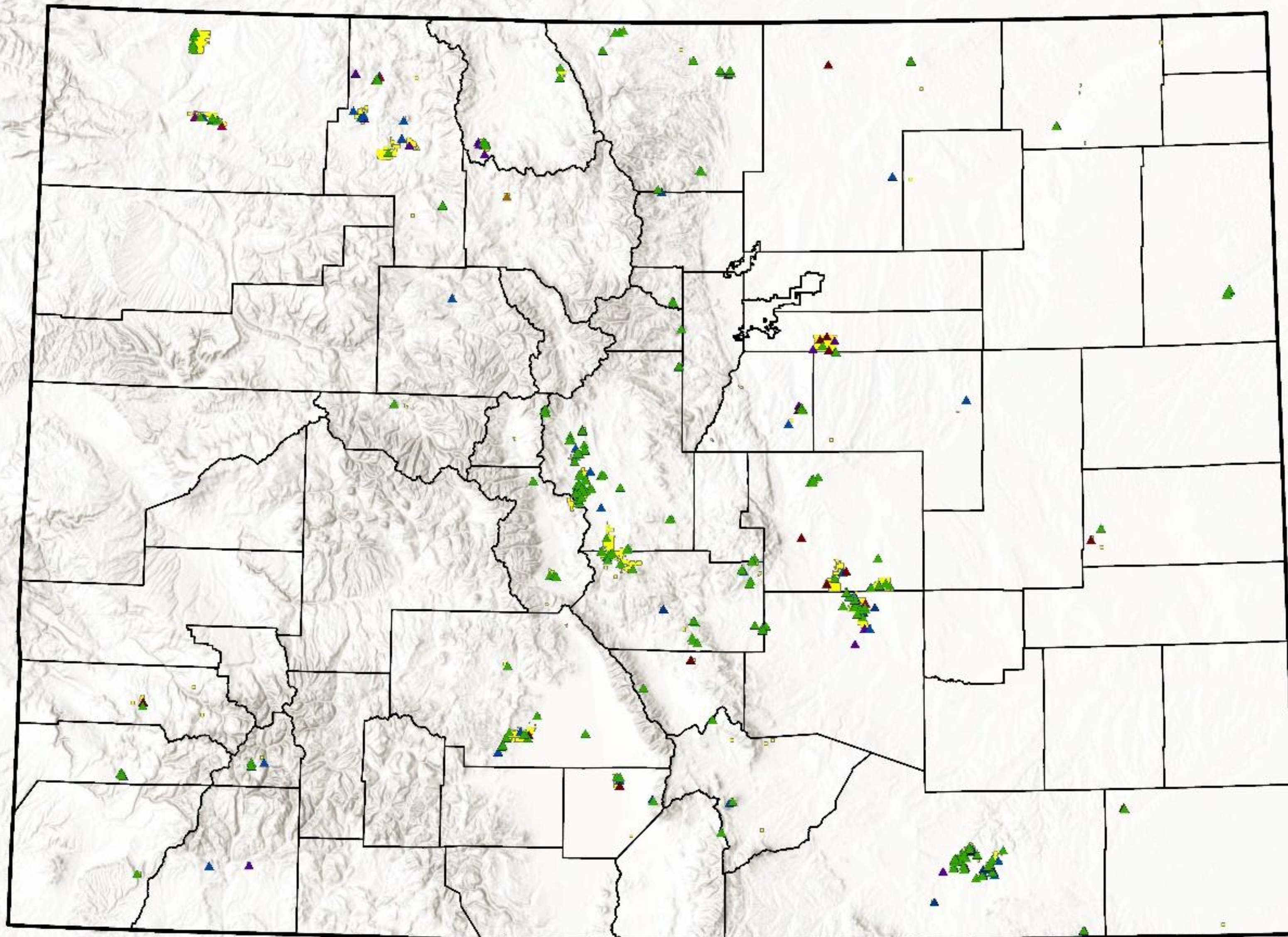
60

Miles

Count of Element Occurrences (EOs) on All SLB Lands



**Grand Total:
1310 records**



CNHP Element Occurrences on State Land Board Stewardship Trust Lands

Element Occurrences

- Amphibians
- Birds
- Fish

- Insects
- Mammals
- Mollusks
- Natural Communities

- Nonvascular Plants
- Reptiles
- Vascular Plants

- SLB Stewardship Trust Lands
- Counties

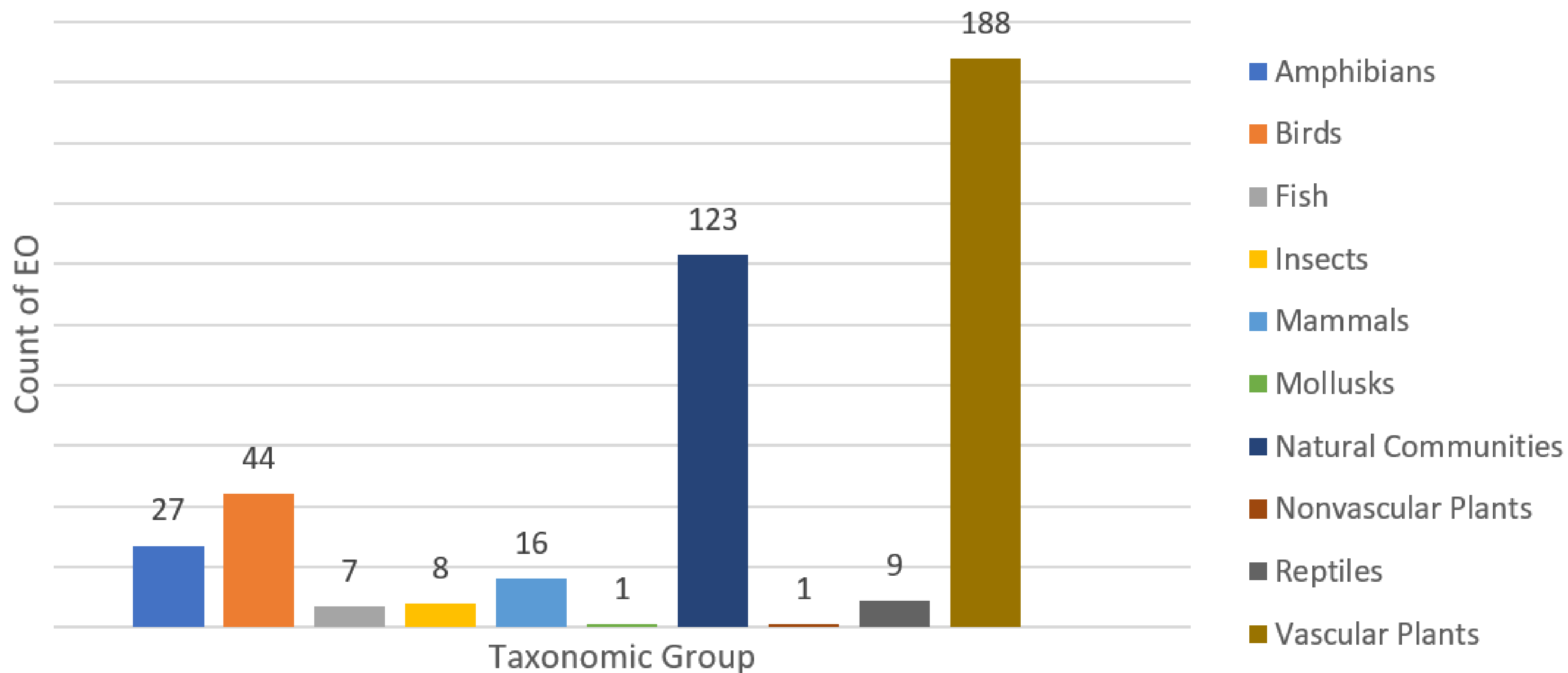


0 30 60
Miles



**Grand Total:
424 records**

Count of Element Occurrences (EOs) on SLB Stewardship Trust Lands

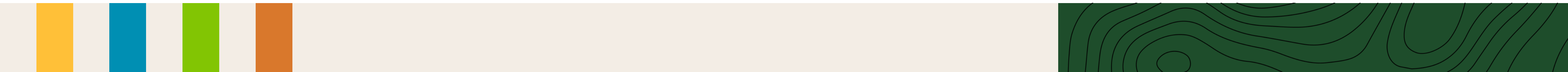




Density of Element Occurrences (per 1000 acres):

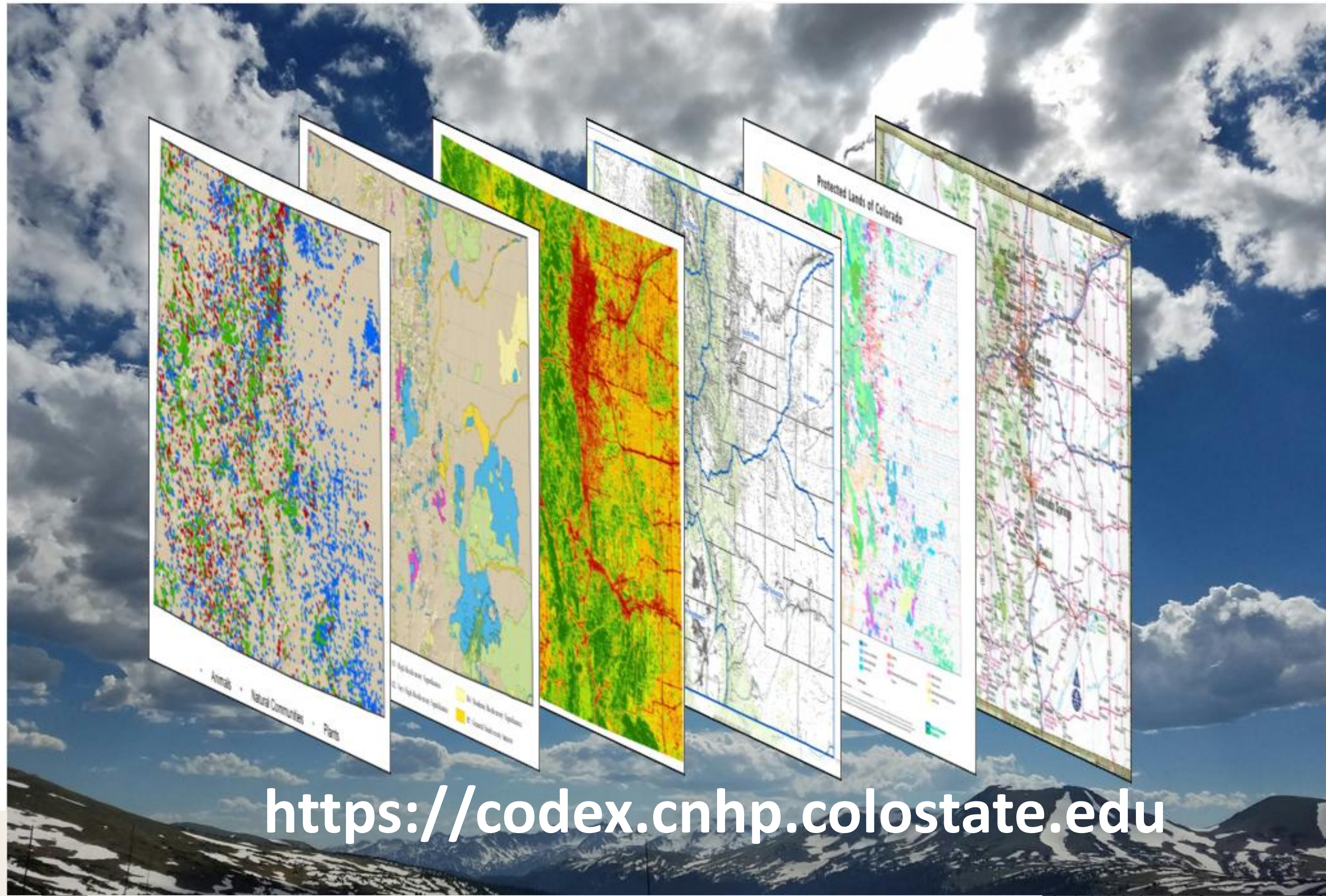
Density of EOs on ALL SLB Lands: **0.472**

Density of EOs on SLB Stewardship Trust Lands: **1.42**



CODEX

Colorado's Conservation Data Explorer



<https://codex.cnhp.colostate.edu>



The CODEX Partnership



Development team for building and maintaining CODEX



Home of CODEX, provide data, manage data layers and queries in the tool, develop new features, conduct trainings and provide support



Lead partner in providing critical data and key funding for CODEX



CODEX is the home for the legacy of data and tools supporting the COS



Thought leaders and data partners supporting the land trust community



Agency, Industry, and NGO partners using and supporting CODEX

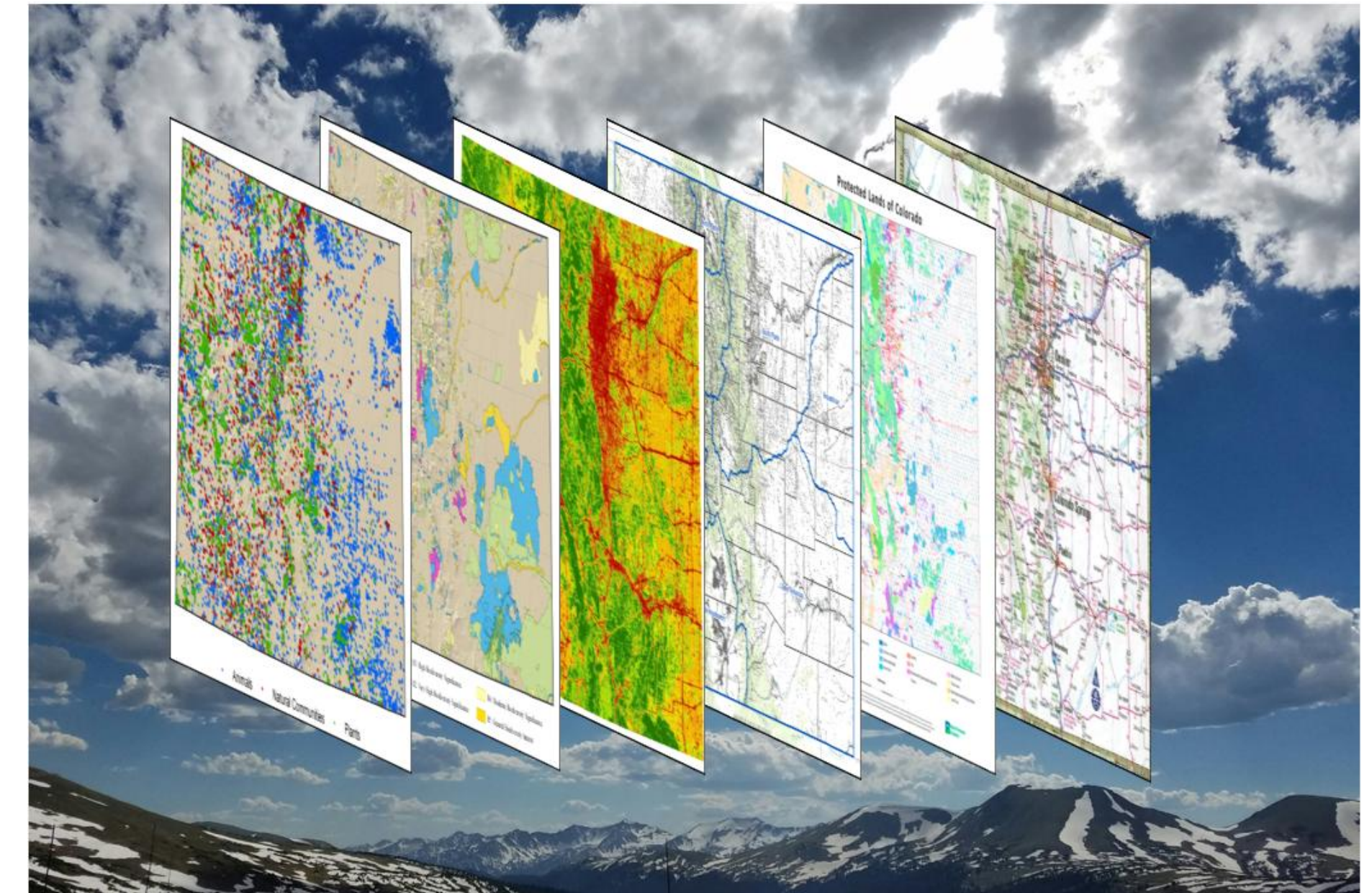


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Decisions supported in an online tool

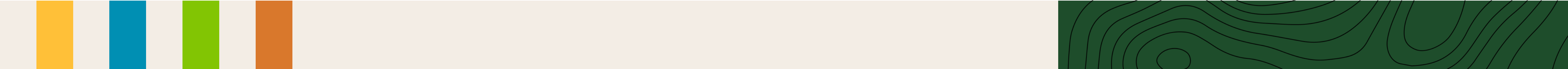
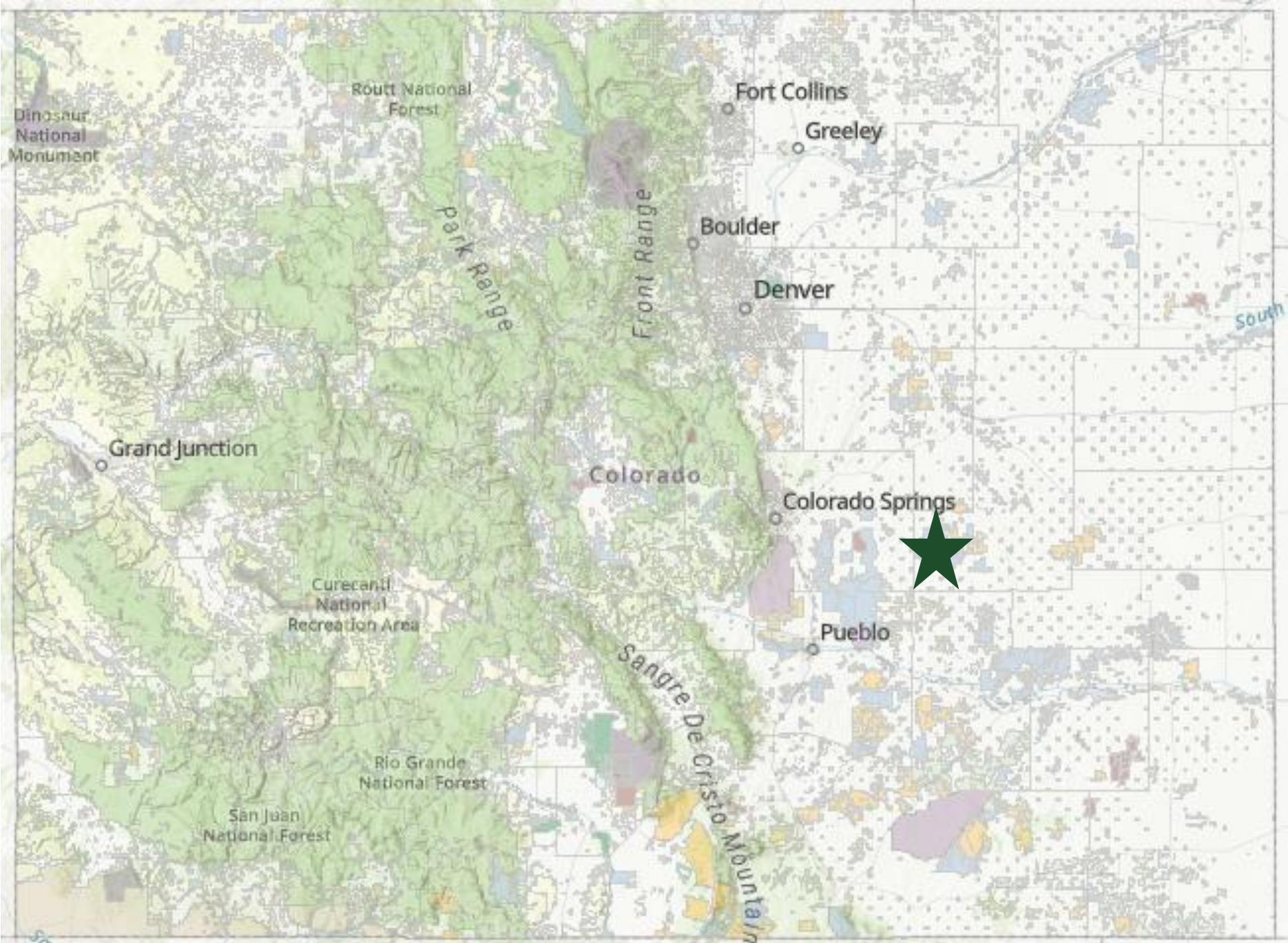
User identifies area of interest

Sensitive species
Critical habitats
Corridors
Models
Ranges
Protected lands
Ecological systems
Partner data
Wetland data
Etc.



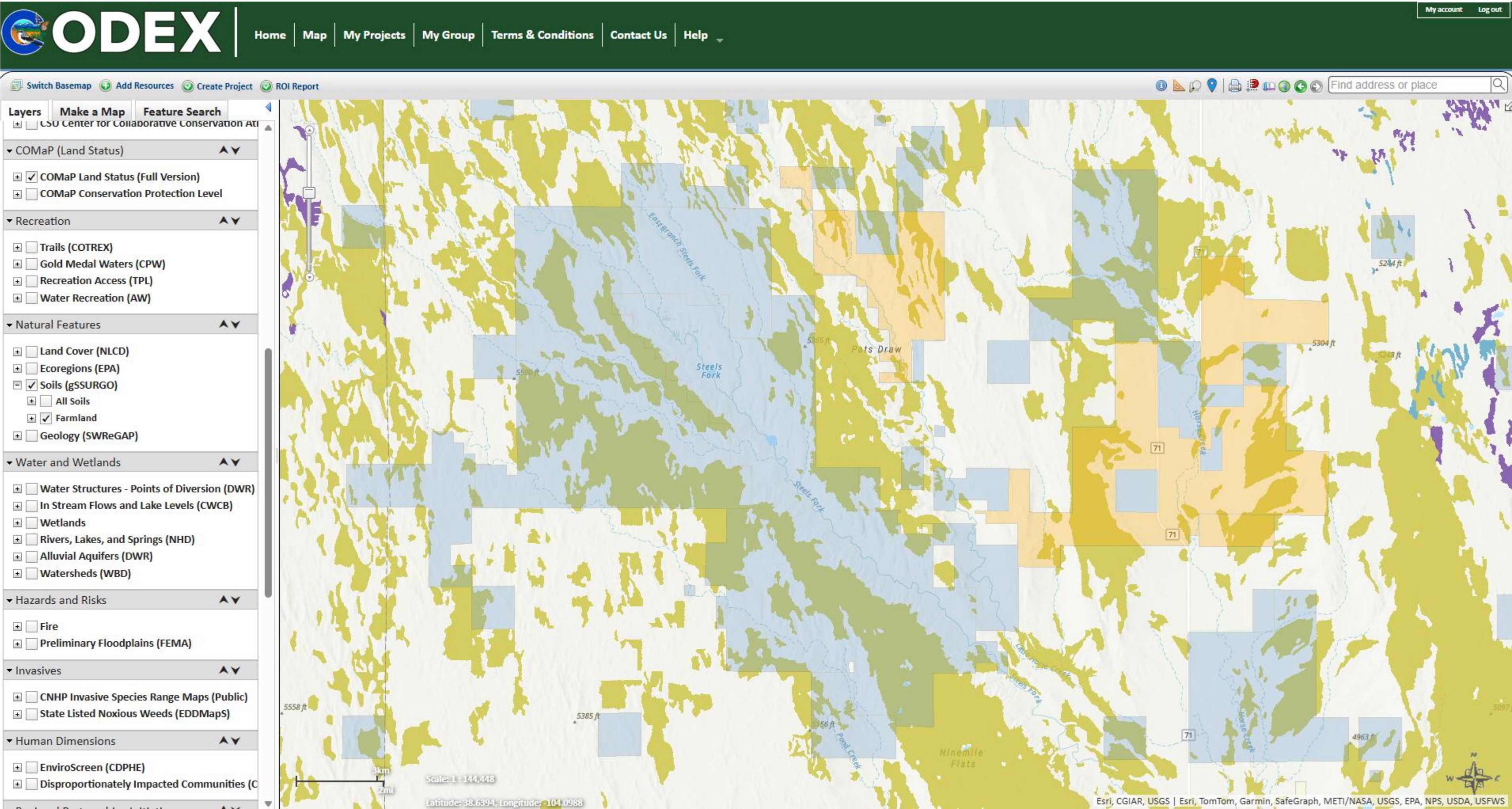
- Reports
- Decision support
- Printable maps
- Materials to submit for review

Brett Gray Ranch



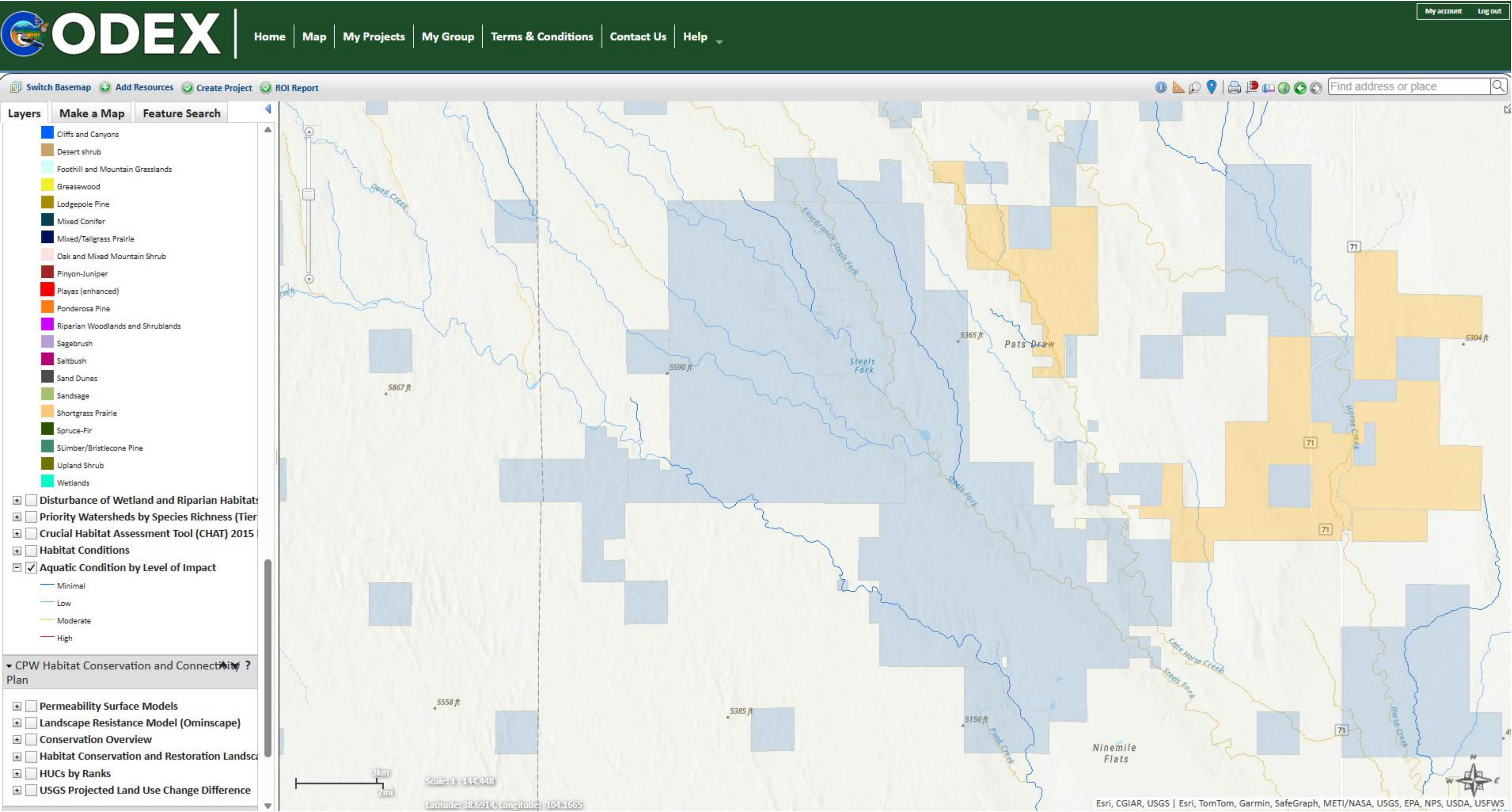
Brett Gray Ranch

COMaP and
Farmland Soils



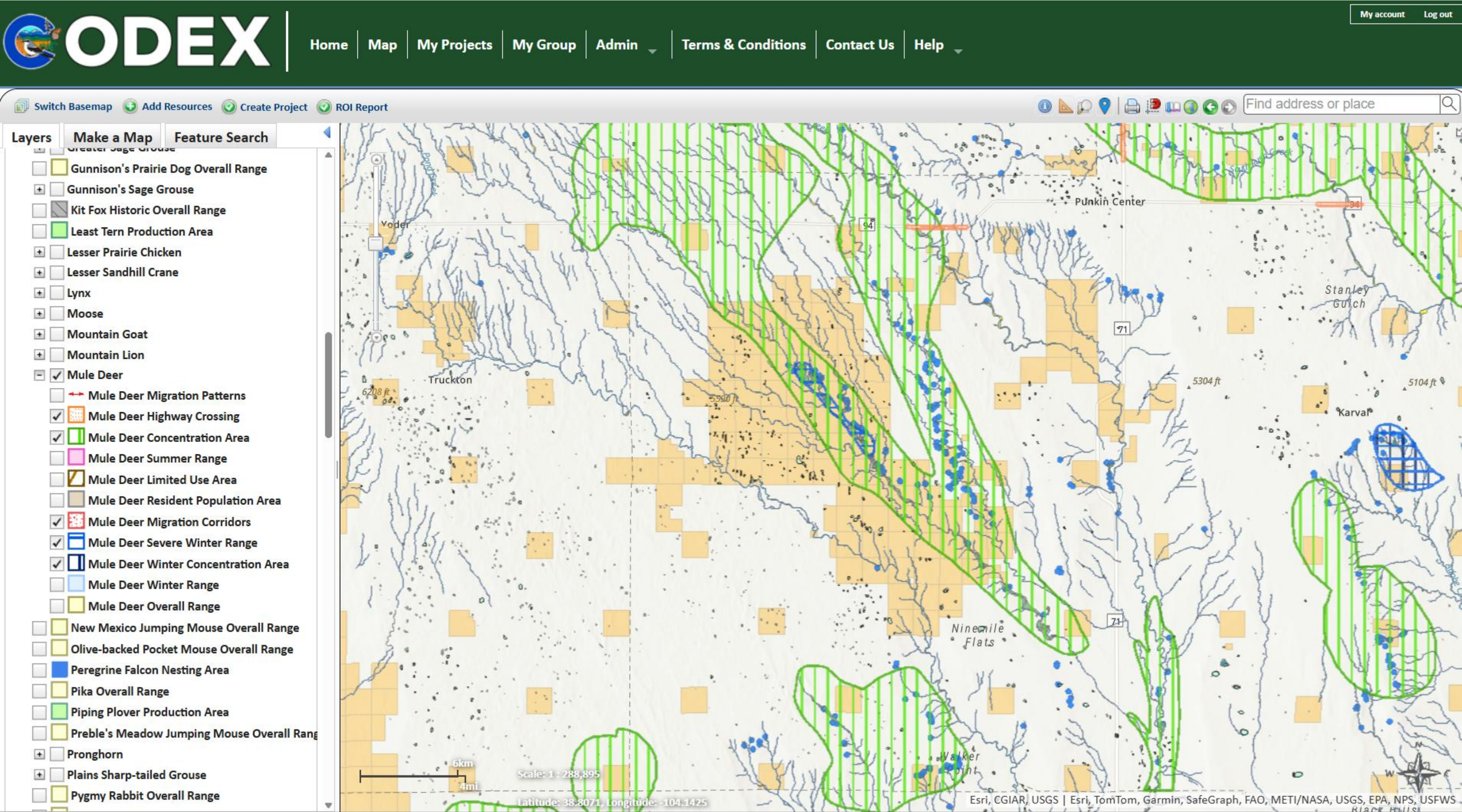
Brett Gray Ranch

2015 SWAP:
Aquatic
condition by
level of Impact



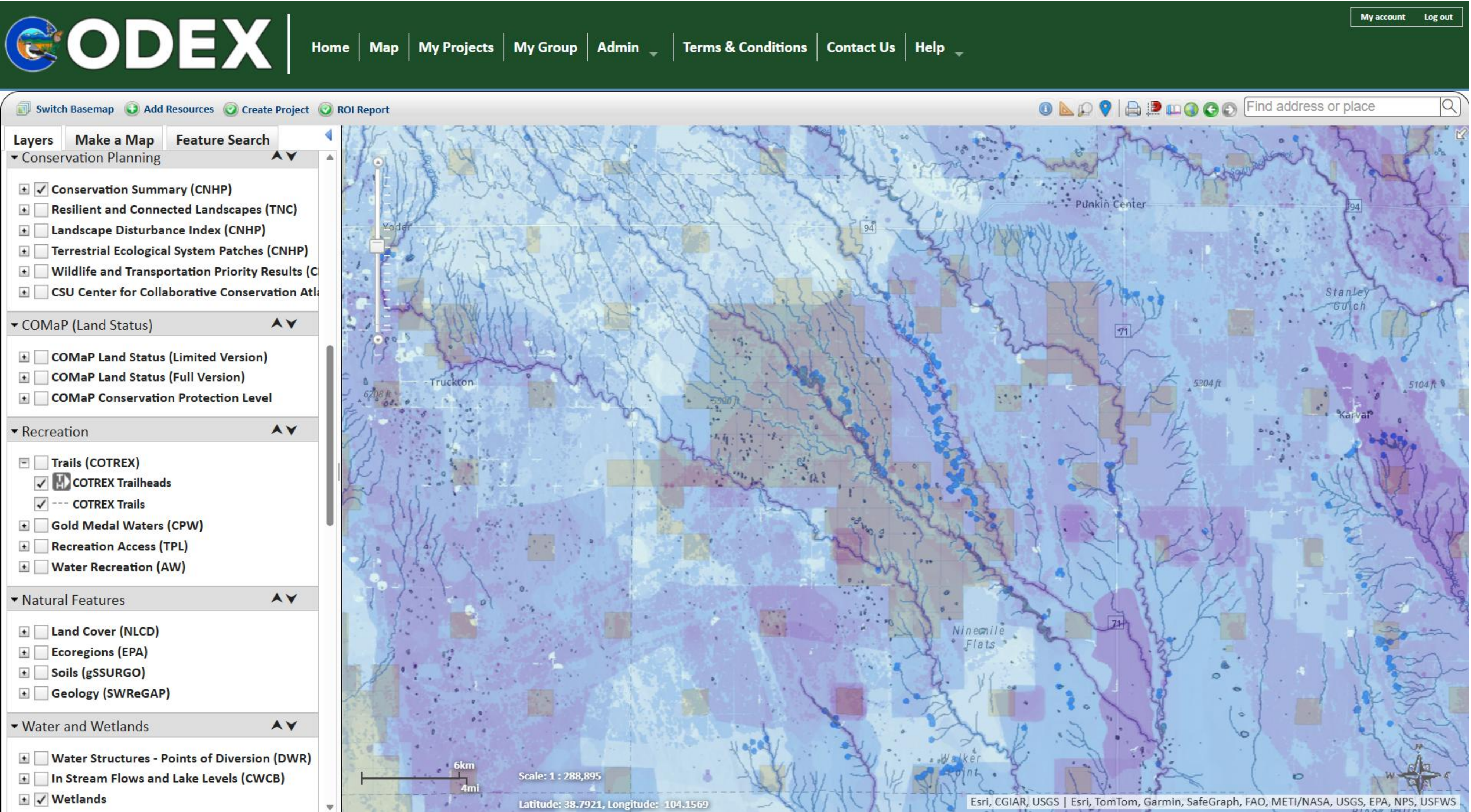
Brett Gray Ranch

CPW's Species
Activity Mapping
Data



Brett Gray Ranch

CNHP Conservation Summary



Project Report

Maps

Regulatory Species

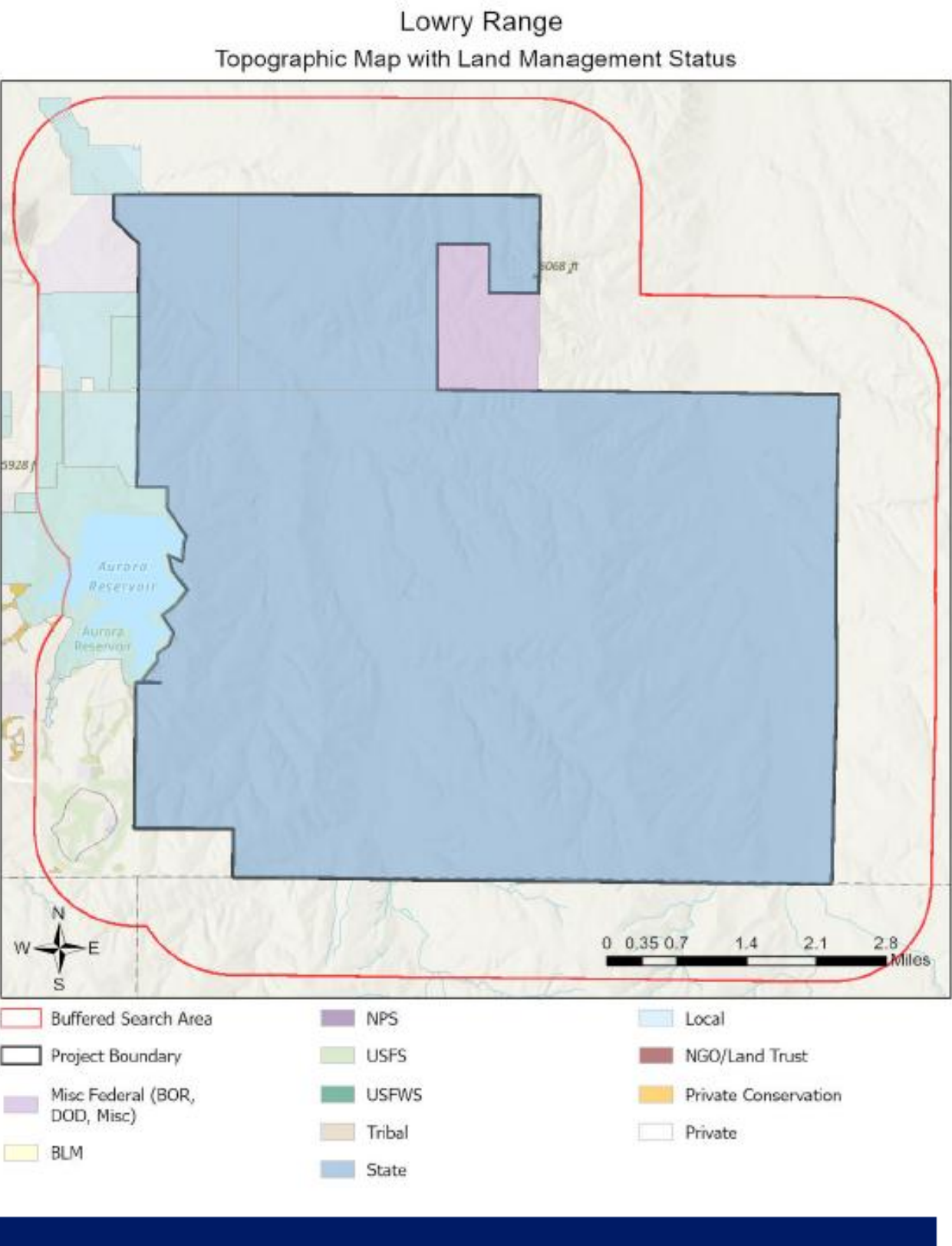
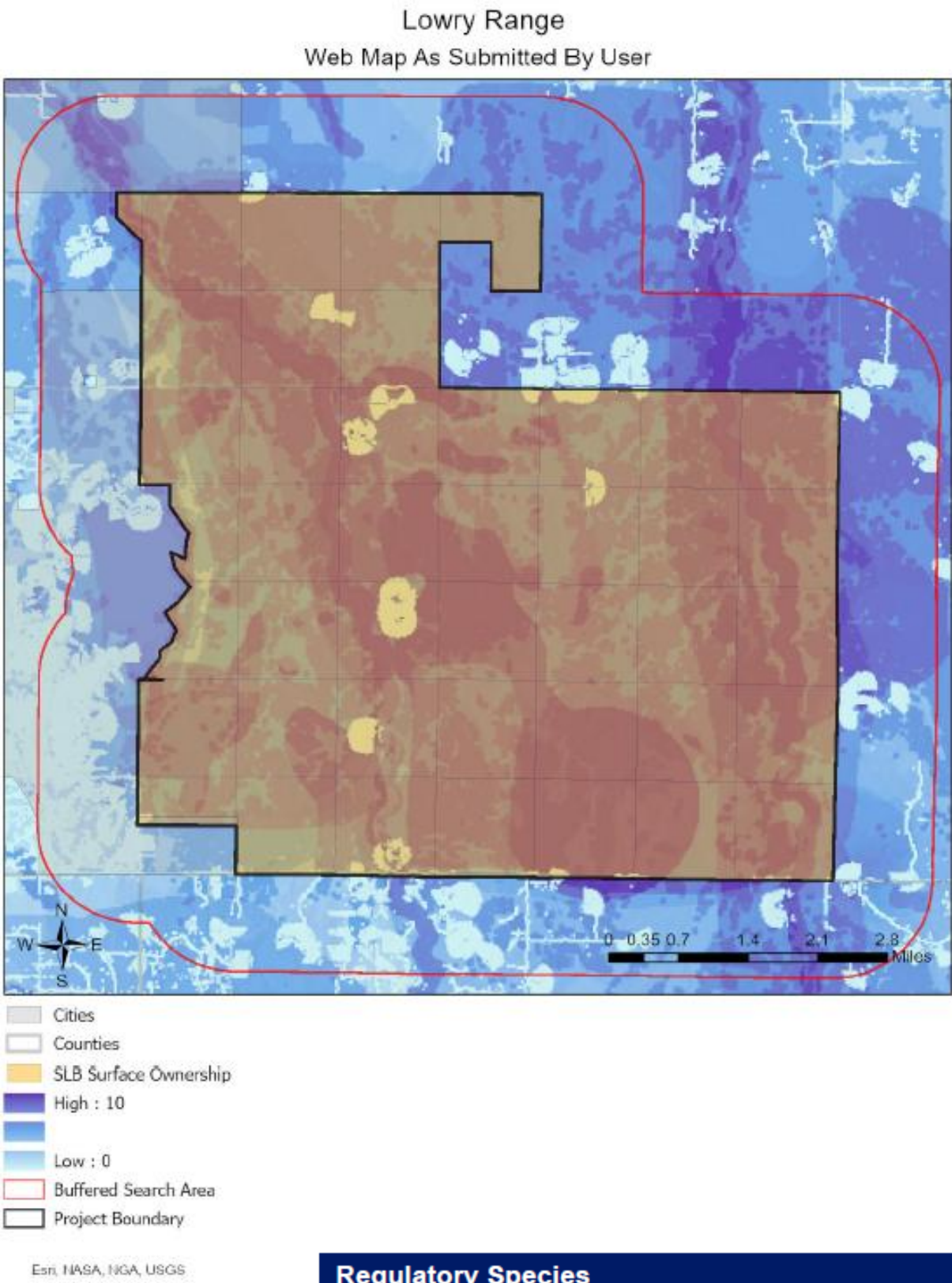
Documented and potential species listed under ESA or Federal protections

Other Species of Concern

Documented and potential sensitive species including SWAP, BLM and USFS sensitive lists

Special Areas, Land Status & Protection

Water and Wetlands



Regulatory Species

Table 1. Documented Occurrences Within 1 Miles Of Project Area

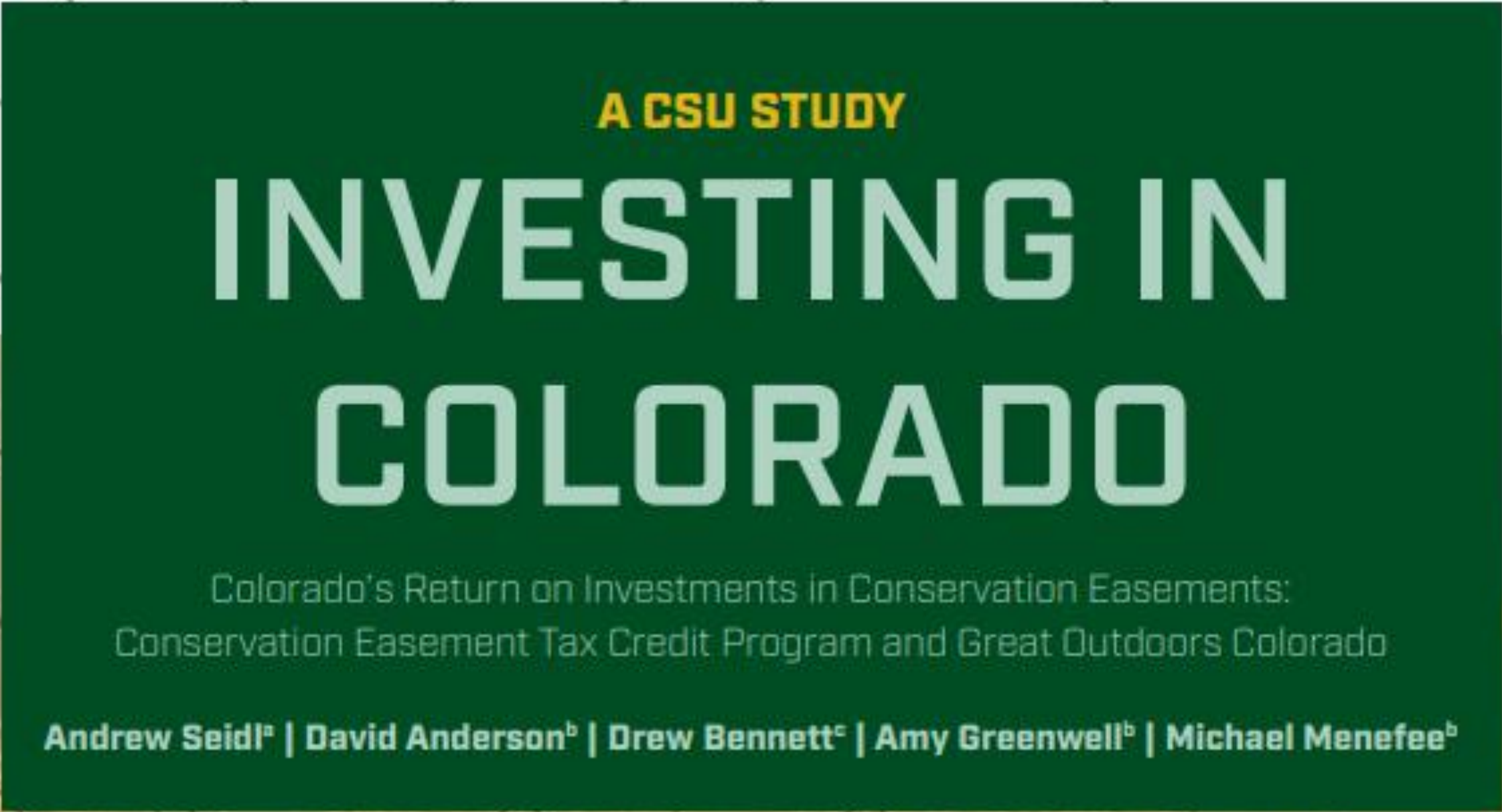
Major Group	Scientific Name	Common Name	Data Type	Global Rarity	State Rarity	Viability Rank	Last Observation	ESA Status	CO Status	Other Status	CNHP Identifier	Data Source
Birds	Haliaeetus leucocephalus	Bald Eagle	CNHP EO	G5	S3B,S3N	E	2019-99-99		SC	BGEPA/BLM/SWA P Tier 2/USFS	14965	CNHP 20 240711
Birds	Haliaeetus leucocephalus	Bald Eagle	CPW Nest Sites	G5	S3B,S3N				SC	BGEPA/BLM/SWA P Tier 2/USFS		CPW 20 231222
Birds	Haliaeetus leucocephalus	Bald Eagle	CPW Nests	G5	S3B,S3N		2022-01-01		SC	BGEPA/BLM/SWA P Tier 2/USFS		CPW 20 231222
Birds	Haliaeetus leucocephalus	Bald Eagle	CPW Winter Concentration Area	G5	S3B,S3N				SC	BGEPA/BLM/SWA P Tier 2/USFS		CPW 20 231222

Water and Wetlands

Table 8. National Wetland Inventory (NWI) Features within Project Area

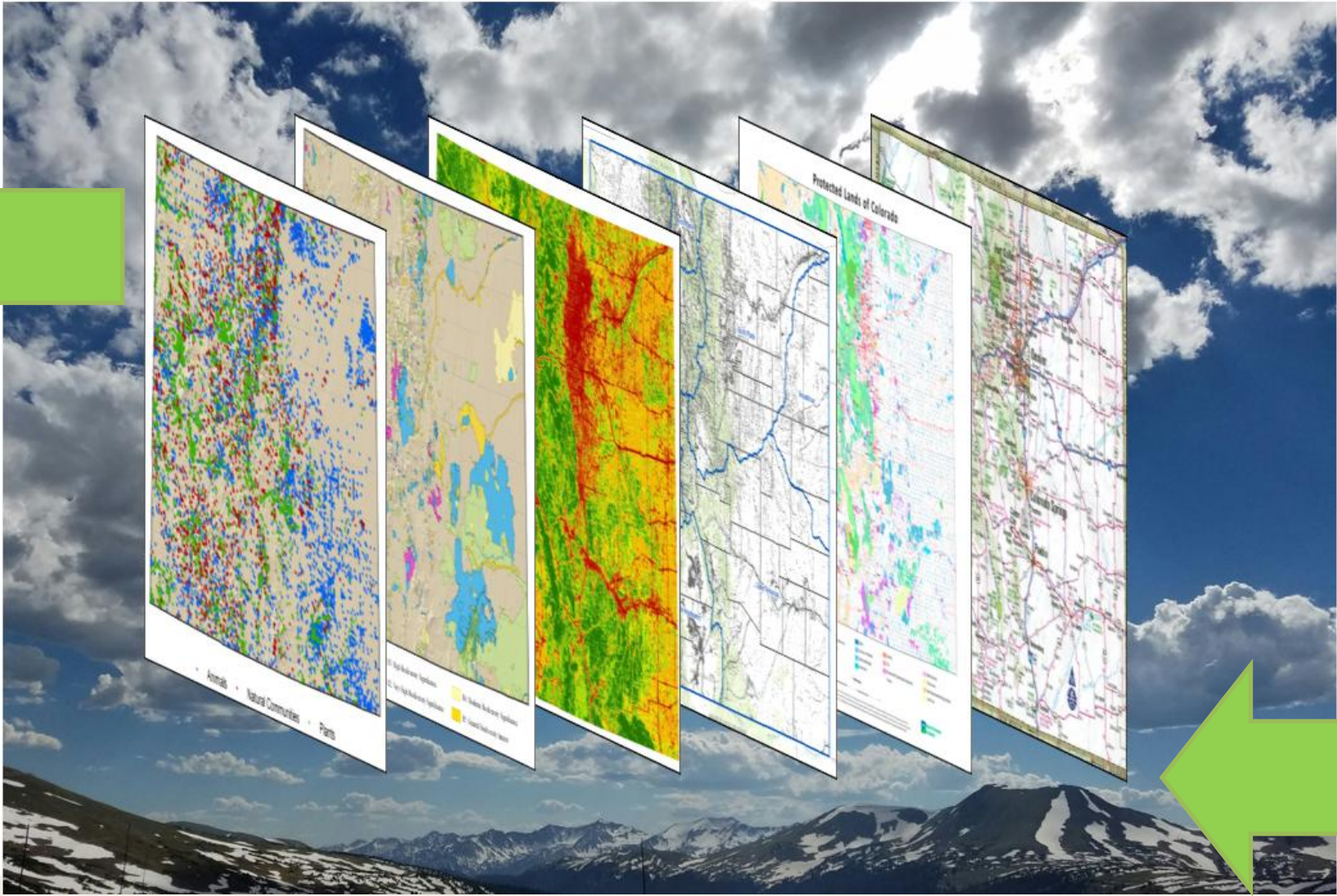
NWI Code	Wetland Type	Total Acres	System	Class	Water Regime	Modifier	Data Source
PABF	Pond	0.36	Palustrine	Aquatic Bed	Semipermanently Flooded	None	CNHP 20231001
PABFx	Pond	0.87	Palustrine	Aquatic Bed	Semipermanently Flooded	Excavated	CNHP 20231001
PEM1A	Emergent	4.11	Palustrine	Emergent/Herbaceous	Temporarily Flooded	None	CNHP 20231001
PEM1C	Emergent	20.21	Palustrine	Emergent/Herbaceous	Seasonally Flooded	None	CNHP 20231001
PEM1F	Emergent	2.19	Palustrine	Emergent/Herbaceous	Semipermanently Flooded	None	CNHP 20231001
PUBF	Pond	3.07	Palustrine	Unconsolidated Bottom	Semipermanently Flooded	None	CNHP 20231001
PUSCx	Other	0.23	Palustrine	Unconsolidated Shore	Seasonally Flooded	Excavated	CNHP 20231001
R4SBA	Rivers & Streams	281.86	Riverine	Stream Bed	Temporarily Flooded	None	CNHP 20231001
R4SBC	Rivers & Streams	194.09	Riverine	Stream Bed	Seasonally Flooded	None	CNHP 20231001

Return on Investment Report



Ecosystem Type	Low	High
Agriculture	\$141.50	\$348.82
Barren Land	Not valued	Not valued
Deciduous Forest	\$478.29	\$1,081.77
Developed - High Intensity Urban	Not valued	Not valued
Developed - Low Intensity Urban	\$238.61	\$2,000.90
Emergent Herbaceous Wetland	\$965.14	\$1,456.27
Evergreen Forest	\$476.15	\$1,081.77
Grassland/Herbaceous	\$104.86	\$169.06
Mixed Forest	\$476.15	\$1,082.84
Open Water	\$265.36	\$328.49
Perennial Snow/Ice	Not valued	Not valued
Scrub/Shrub	\$18.19	\$751.14
Woody Wetland	\$965.14	\$1,456.27

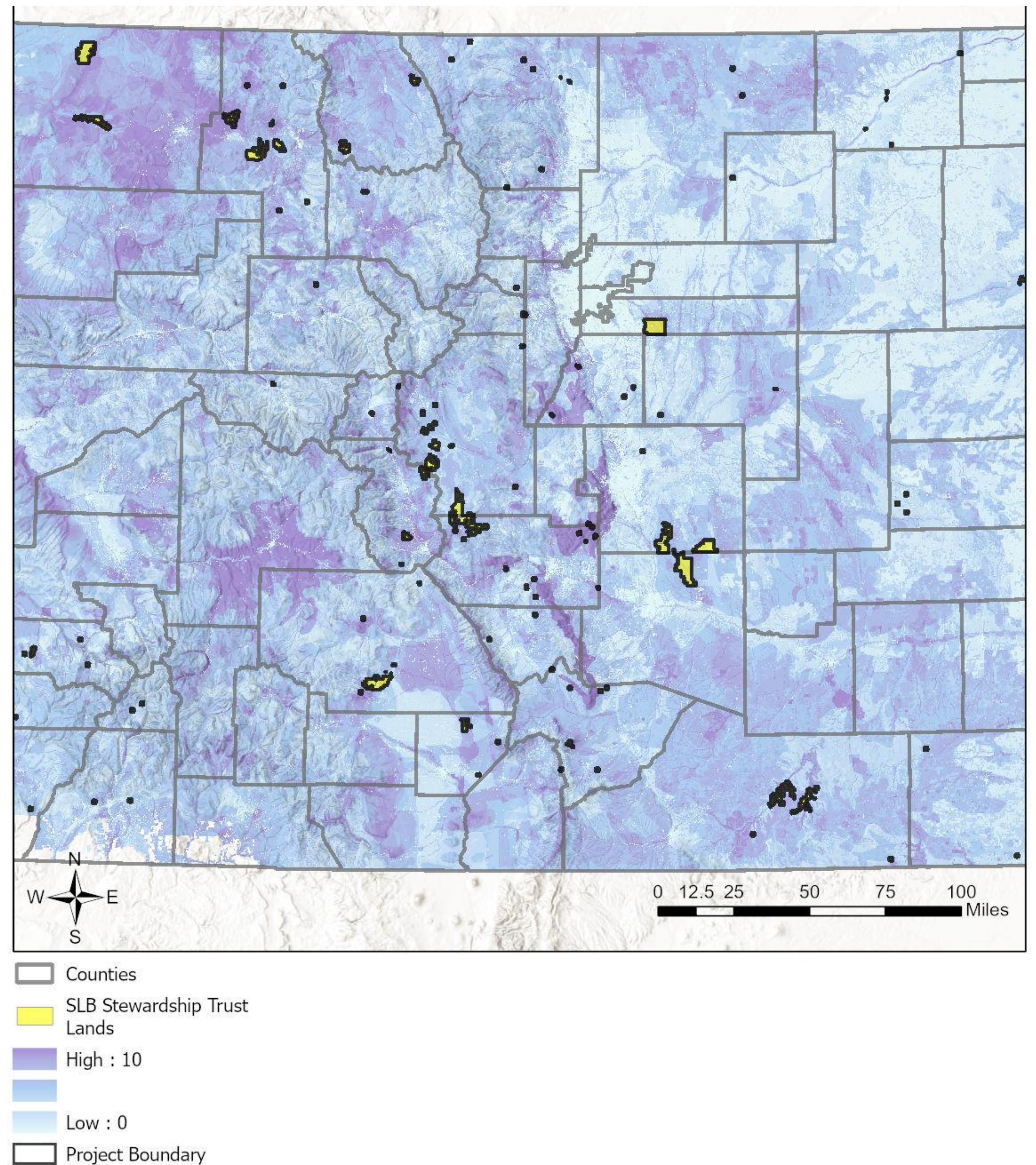
ROI
for your area
of interest



Stewardship Trust Parcels: Valuation of Ecosystem Services

- 296,760 acres
- Estimated total annual benefit of conserved Ecosystem Services:

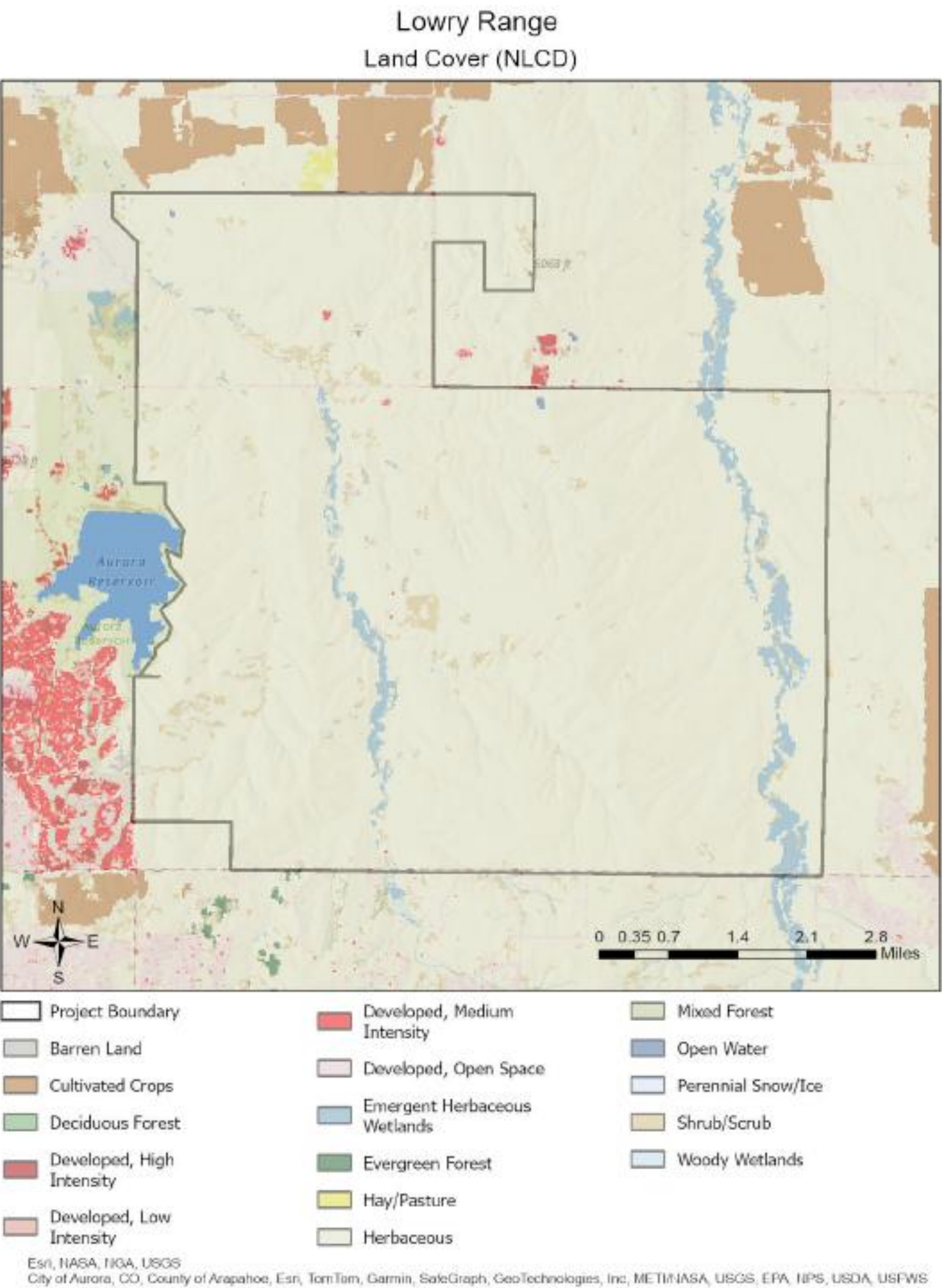
\$272,537,884.47–\$451,744,183.57



Lowry Range ROI

- 26,100 acres
- Estimated total annual benefit of conserved Ecosystem Services:

\$ 27,555,106- \$46,316,752



What is the Statewide Natural Heritage Survey?

- An expansive project that will level-up natural heritage data of Colorado
- Targeted surveys with willing landowners to map rare species and habitats so that we can plan on their behalf
- Engaging community scientists to greatly expand our reach
- Connecting with our Tribes to empower them in the collection of natural heritage data
- Collaborating with the Regional Partnerships, land trusts, and other conservation partners to connect with communities and landowners
- Sharing data via CODEX and building a dashboard where all Coloradans can access information



Collaborating with RPs

- Need for data equity within each Regional Partnership to support their planning for robust and sustainable economic growth through recreation and conservation
- The time for this is now, as we implement the Colorado Outdoors Strategy, setting a baseline against which to measure our progress

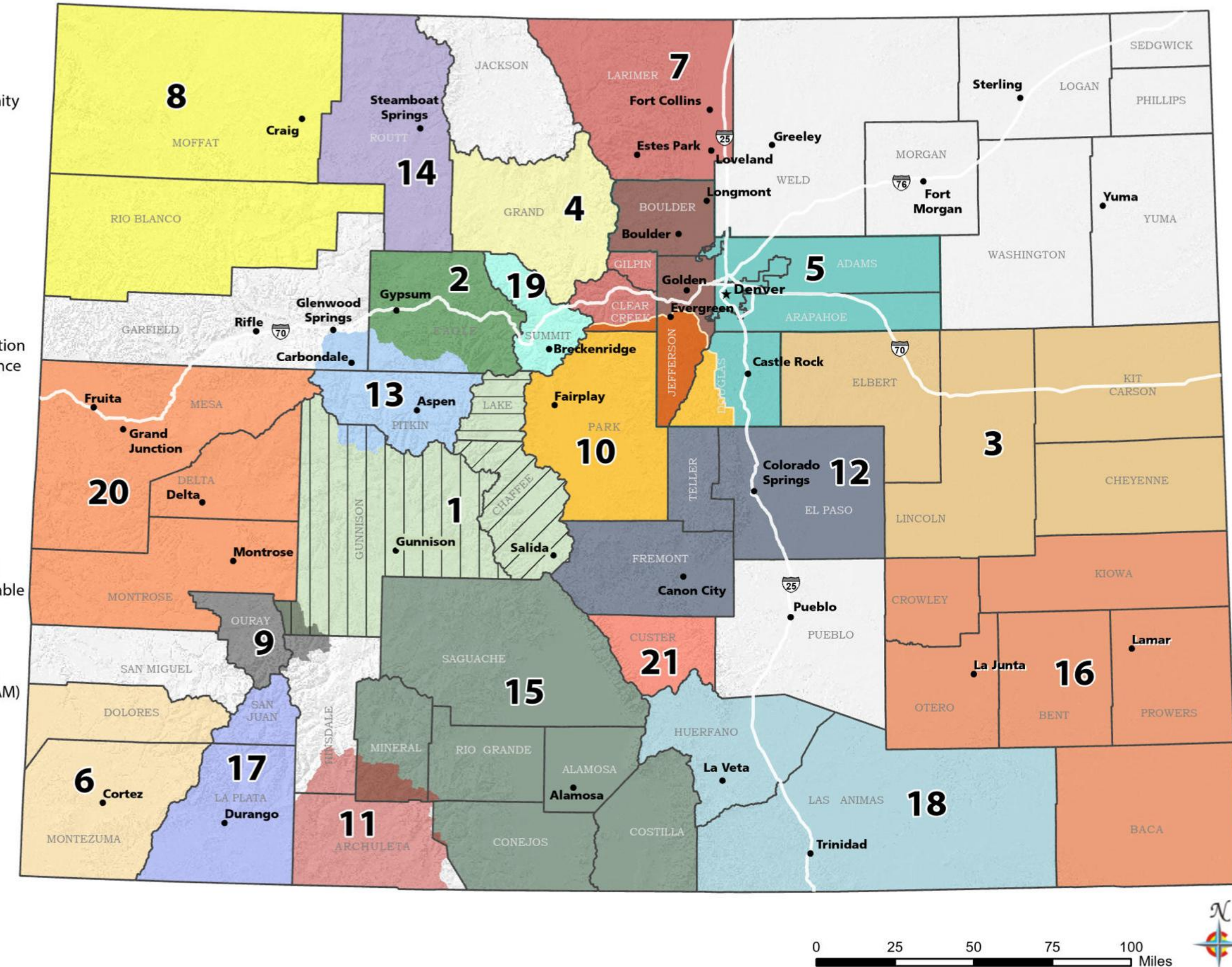


Colorado Outdoor Regional Partnerships January 2025



www.copartnership.org

1. Central Colorado Recreation Partnership
 - Envision Chaffee
 - Gunnison STOR
 - Lake County
 - Outdoor Alliance
2. Eagle County Community Wildlife Roundtable
3. Eastern Grassland Coalition
4. Grand PLACES 2050
5. Metro Denver Nature Alliance (Metro DNA)
6. Montelores
7. NoCo Places
8. Northwest Colorado Outdoor Coalition (NCO)
9. Ouray Regional Recreation and Conservation Alliance (ORRCA)
10. Outside 285
11. Pagosa Area Recreation Coalition
12. Pikes Peak Outdoor Recreation Alliance (PPORA)
13. Roaring Fork Outdoor Coalition
14. Routt Recreation and Conservation Roundtable
15. San Luis Valley Great Outdoors
16. Southeast Colorado Rec. Outdoor Alliance Movement (SECO ROAM)
17. Southwest Colorado Conservation & Outdoor Recreation Roundtable
18. Spanish Peaks Outdoor Coalition
19. Summit County Outdoor Coalition
20. West Slope Outdoors Alliance
21. Wet Mountain Valley Outdoors





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Thank you!

Questions?

David.Anderson@colostate.edu

<https://cnhp.colostate.edu/>

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