

So what do I do with this?

Using assessment data to inform decision-making in a technically sound, defensible way

Watershed and Aquatics Workshop

BLM Utah State Office, Salt Lake City, UT

February 5, 2016

Kevin H. Miller

Assessment and Monitoring Branch

National Operations Center

CONTEXT!

Outline

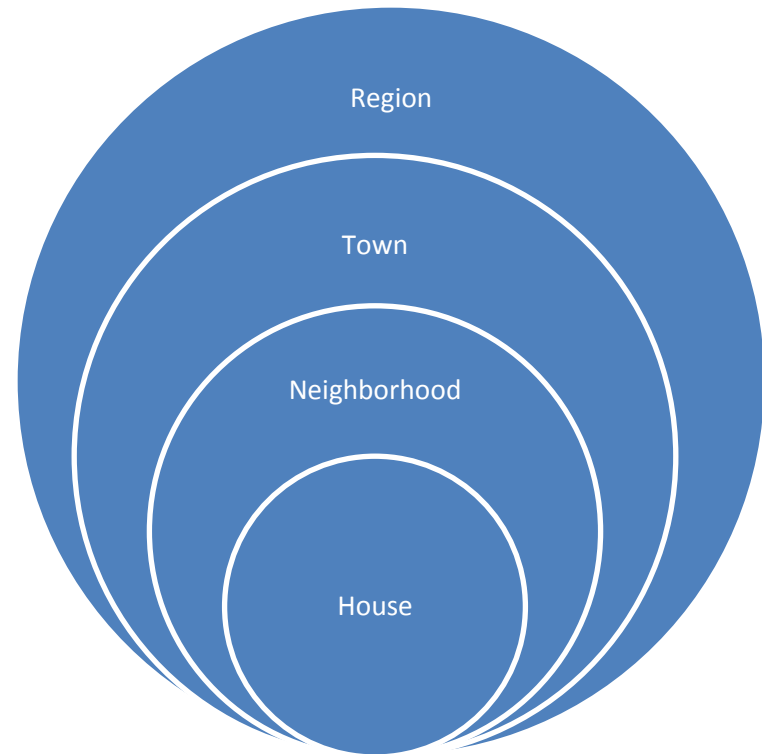
- Multi-scale decision making
- Landscape-scale data
 - example types (Story Map)
 - other agencies' approaches (Story Map)
- BLM examples
 - Utah/COP stepdown
 - Dillon FO (Centennial watershed)
 - San Luis Valley
 - GSENM (Story Map)
- Geospatial tool example: Context Tool
(shown with Utah/COP stepdown intactness data)



Multi-scale decision making

■ Picking a Retirement Home

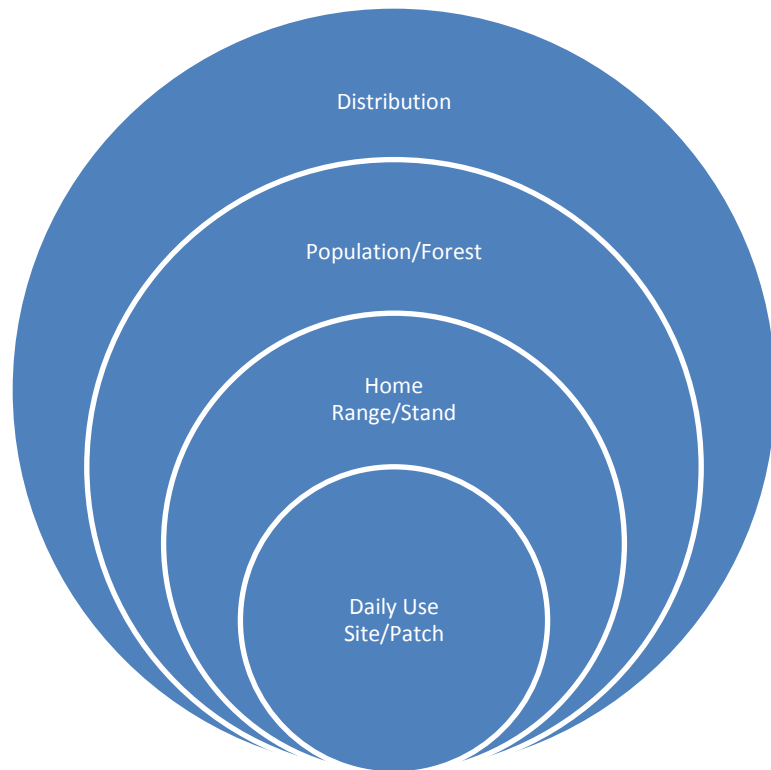
- Region: Mountains vs. Coast
 - Which mountain range?
 - East/West/Gulf coast?
- Town/Area: Rural/Urban
 - Population size
 - Proximity to ...?
- Neighborhood/Block:
 - Lakewood vs. Westminster
 - Opportunities
 - Recreation (trails/lakes/parks)
 - Schools
- House:
 - Ranch or Multi-level
 - # bedrooms/ # bathrooms



Increasing Detail

Multi-scale decisions

- Do you need macro or micro scale data to inform your decision?



Collecting/using the data depends on the question(s)

What is my question? – Include scale

- How will the range of sage-grouse shift with projected climate change in 2060?
- What restoration actions are needed to connect seasonal use areas for this population?
- How will prescribed grazing impact sage-grouse vital rates within this allotment?



An important distinction

- Landscape scale
 - Often considered to be large geographic extent
 - regional/national datasets
 - largest spatial scale available for a given issues
 - landscape as biological hierarchy
- Landscape approach (systems)
 - focus on conservation elements (CEs) and change agents (CAs)
 - process/information flow at multiple spatial/temporal scales (extent and resolution)
 - resulting understanding provides context for management questions/issues

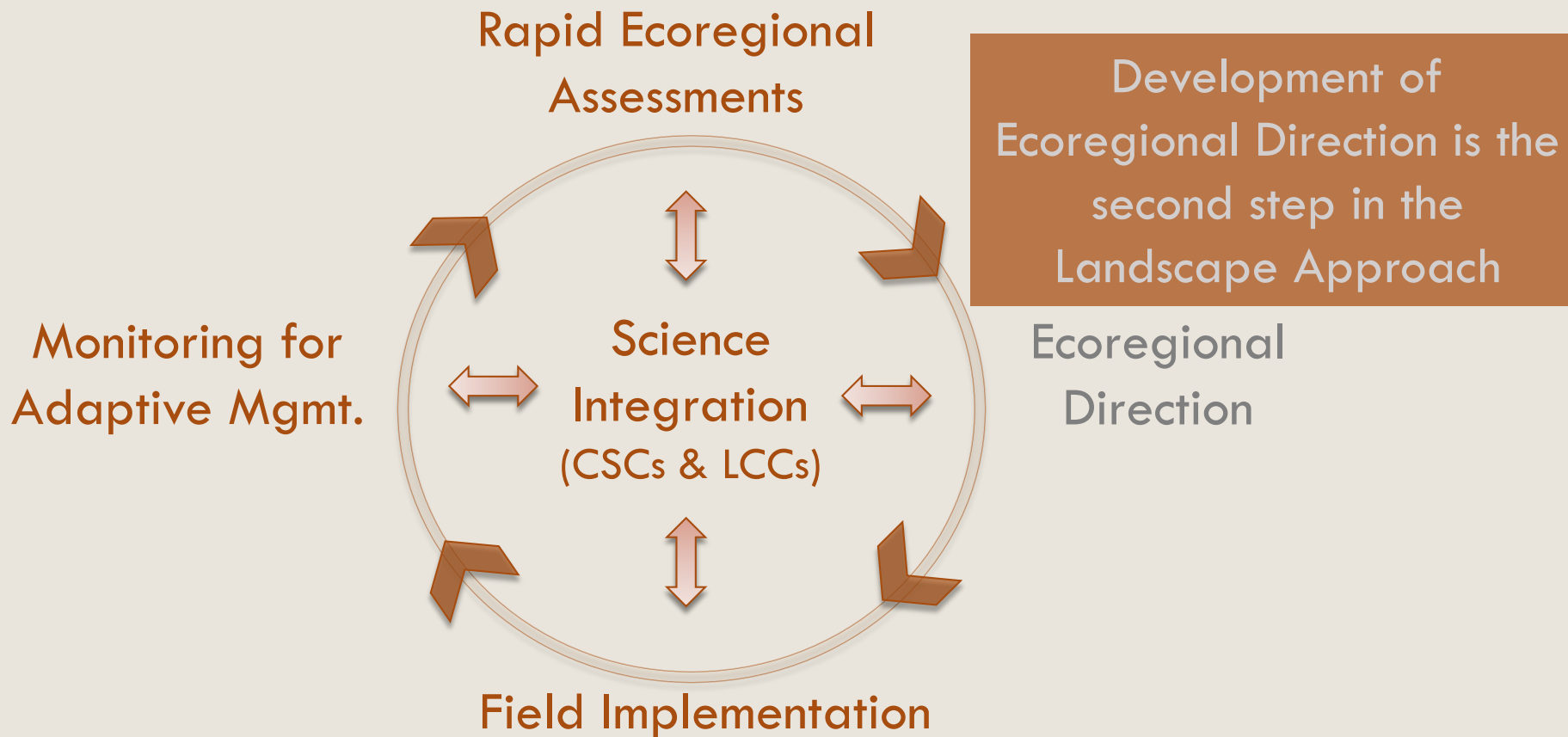


BLM Examples

- Utah/COP stepdown
- Dillon FO (Centennial watershed)
- San Luis Valley
- GSENM (Story Map)

BLM's Landscape Approach

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Step-Down & Ecoregional Direction

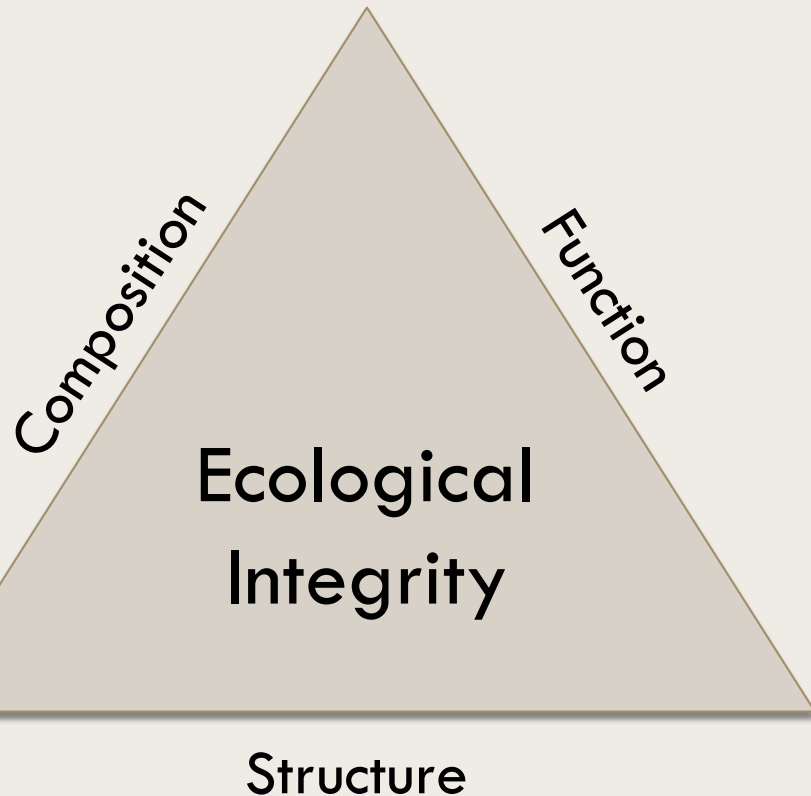
9

STEP-DOWN encompasses the activities of understanding what the REA tells us, developing a strategy to use the information and tools provided by the REA, and using those tools and information to manage resources on a landscape level to help meet the goals and objectives of land management entities.

ECOREGIONAL DIRECTION is a critical bridge between the REAs (a peer reviewed science product) and BLM's land use planning and other on-the-ground decision making processes and implementation. It is the application of the REA tools and information in managing resources on a landscape level basis.

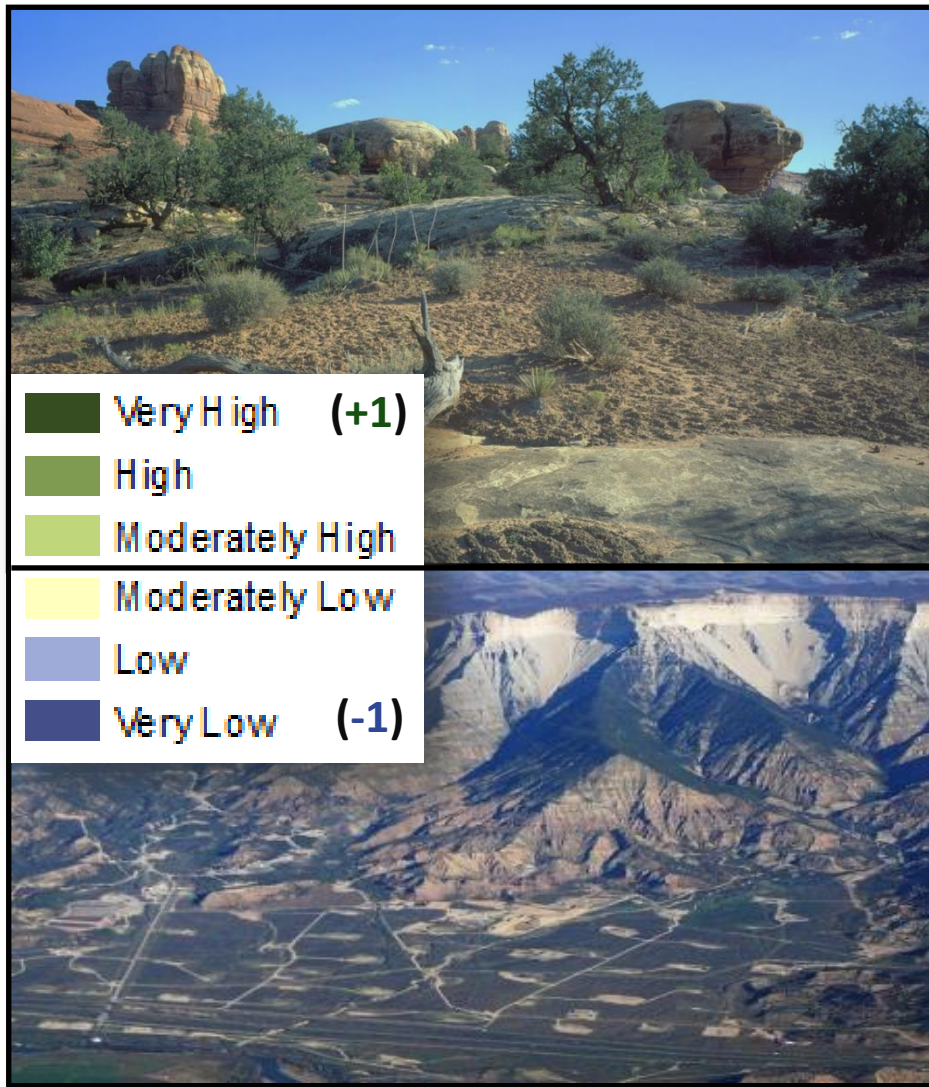


What is intactness?



Intactness is a quantifiable estimate of naturalness measured on a gradient of anthropogenic influence and based on available spatial data.





Measuring aquatic intactness:

A quantifiable estimate of **naturalness** measured on a gradient of anthropogenic influence and **based on available spatial data**.

Sites that are experiencing increasing levels of **disturbance** are considered to have **lower intactness**.

Prepare Data:
Summarize to
reporting units

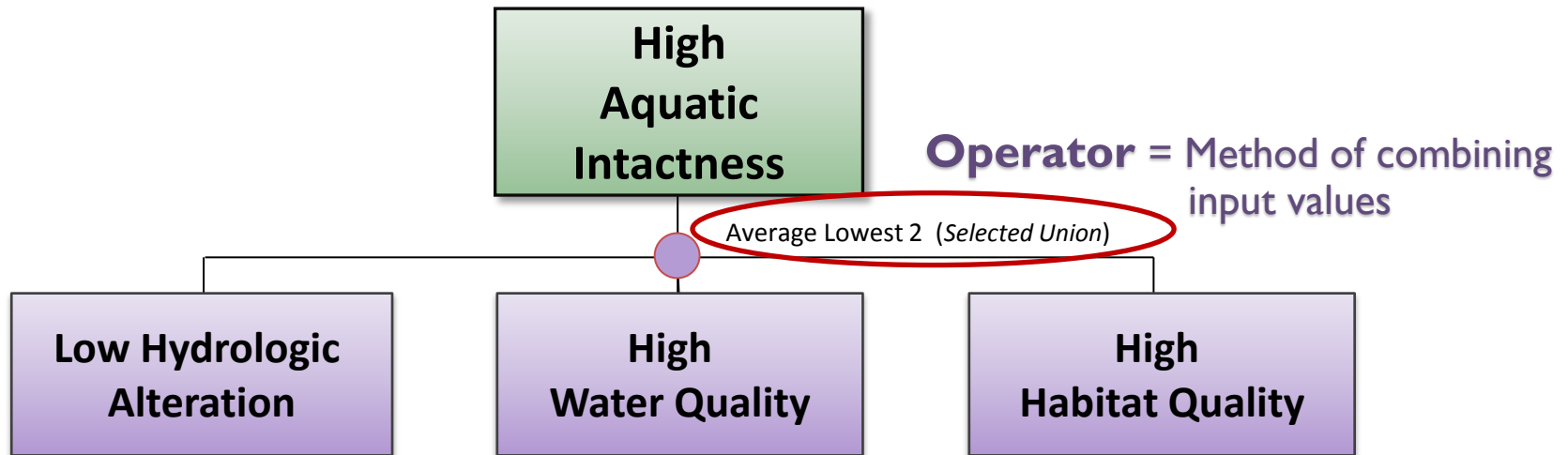


Create Model:
Structure, logic
operators,
weighting

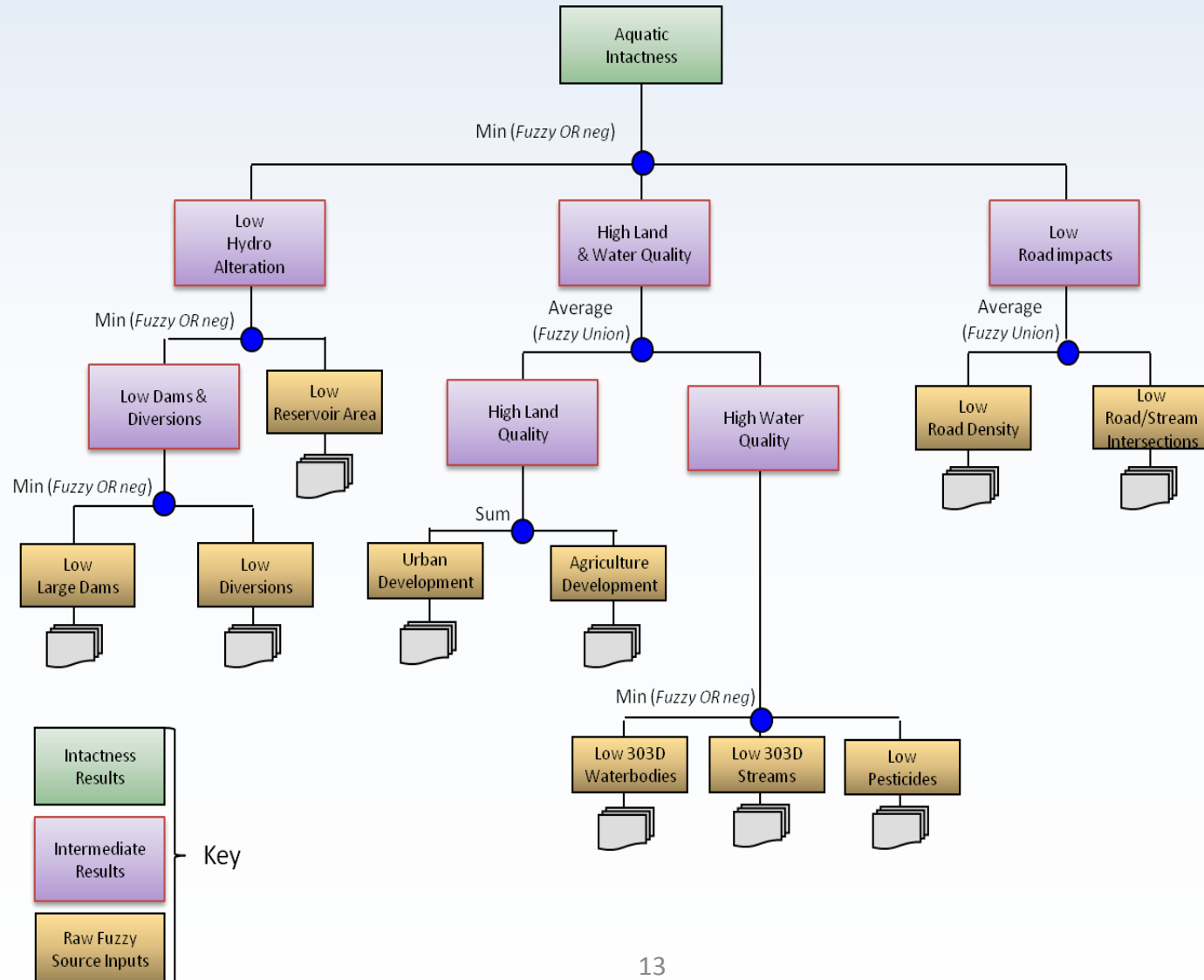


**Examine
Output:** Modify
based on expert &
user input

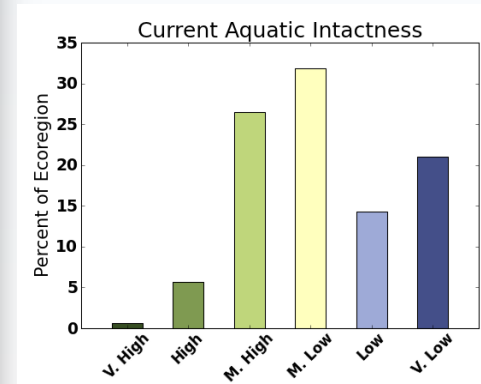
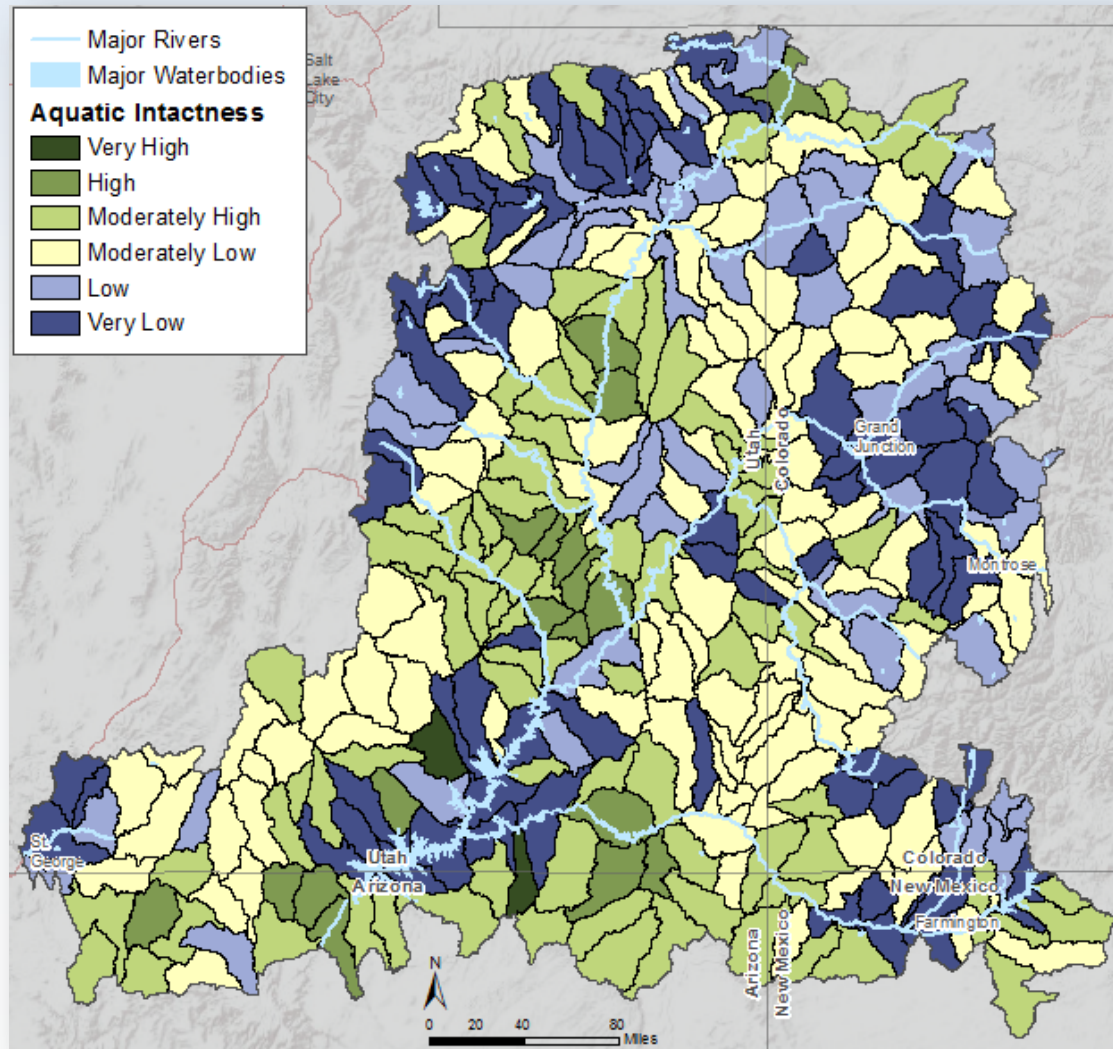
Aquatic Intactness Model Main Themes



COP: Original Aquatic Intactness model



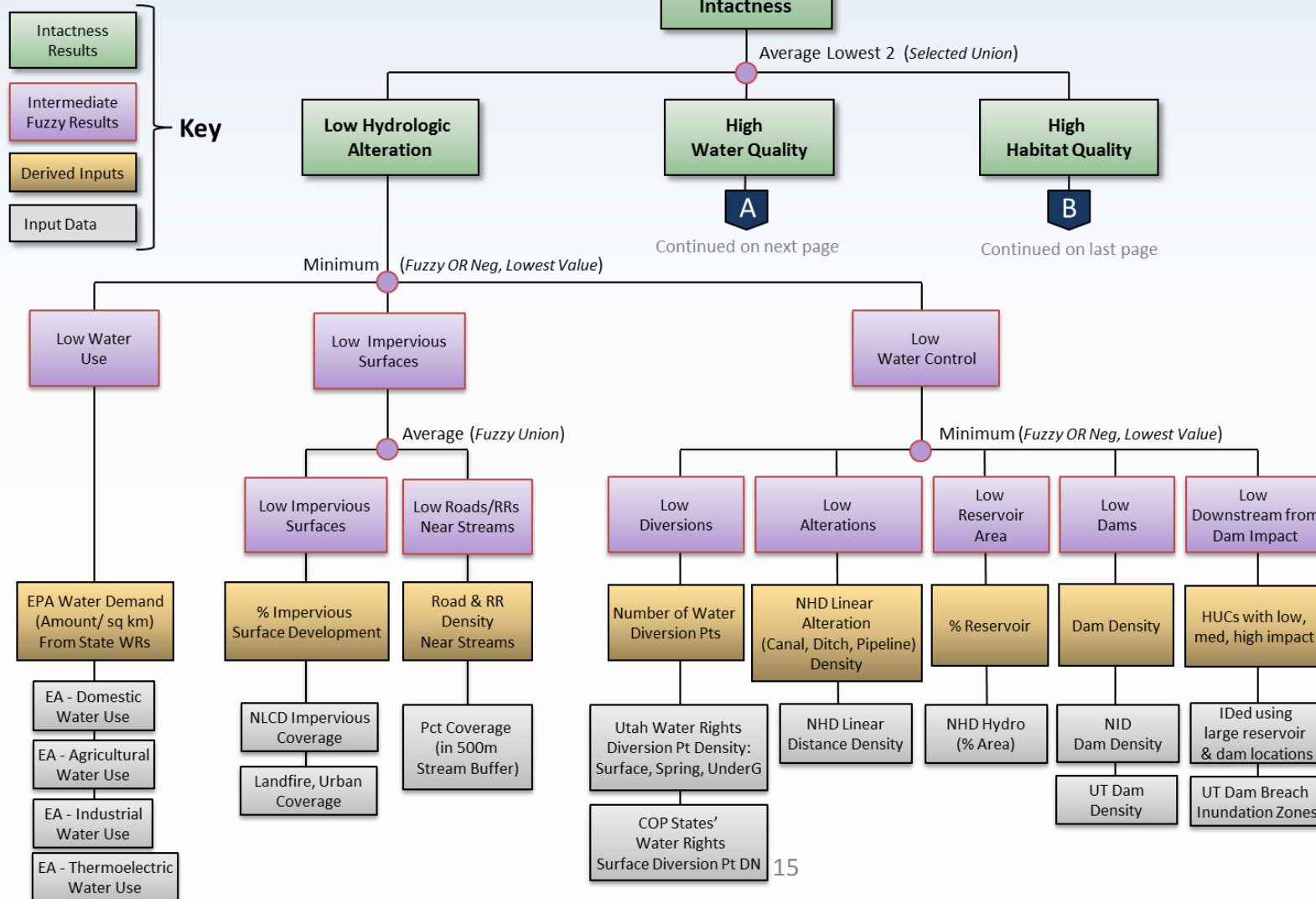
COP: Original Aquatic Intactness results



UT-COP: Revised Aquatic Intactness model

Utah & Colorado Plateau Aquatic Intactness Model, 12-Digit HUC

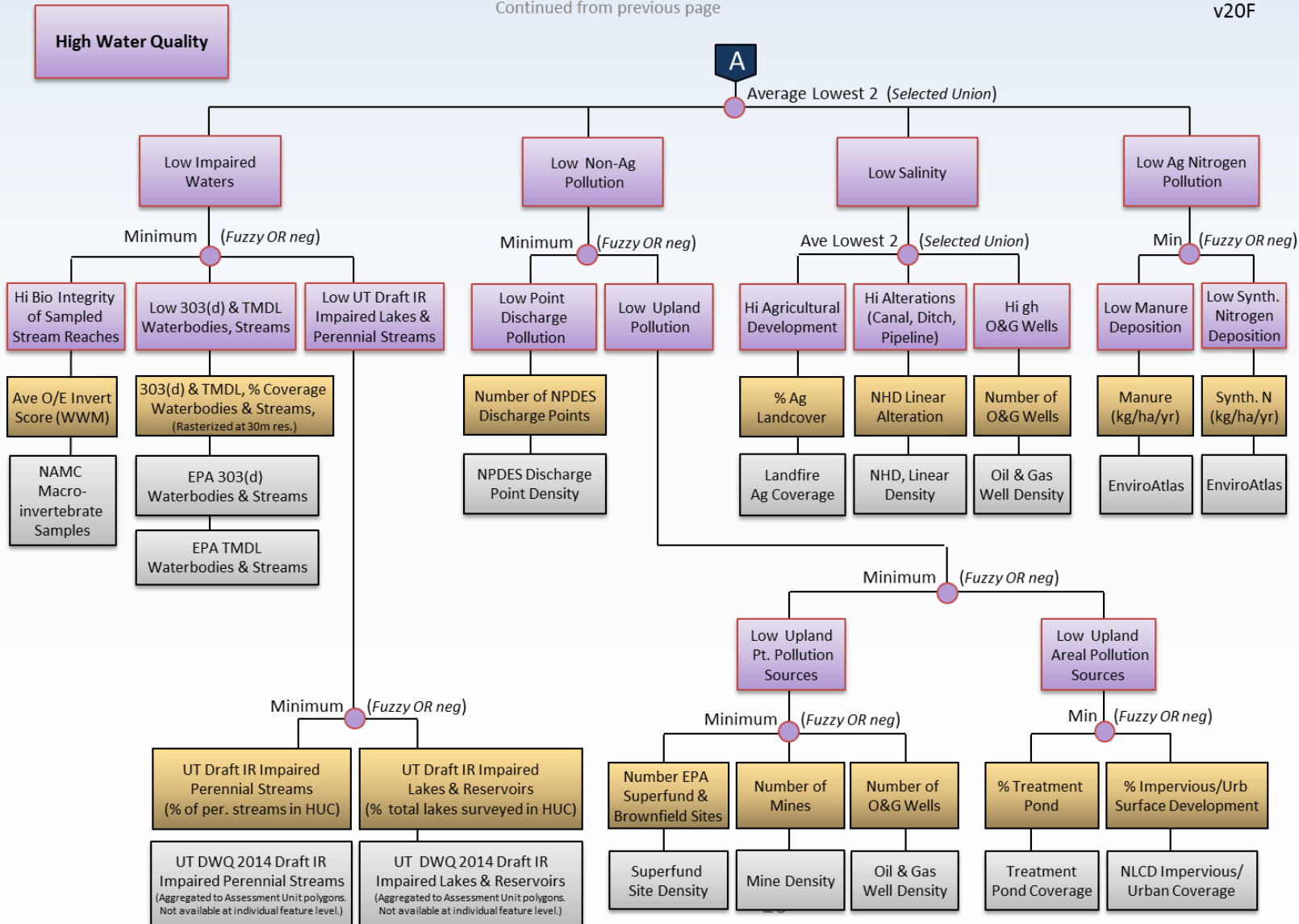
v20F



UT-COP: Revised Aquatic Intactness model

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v20F

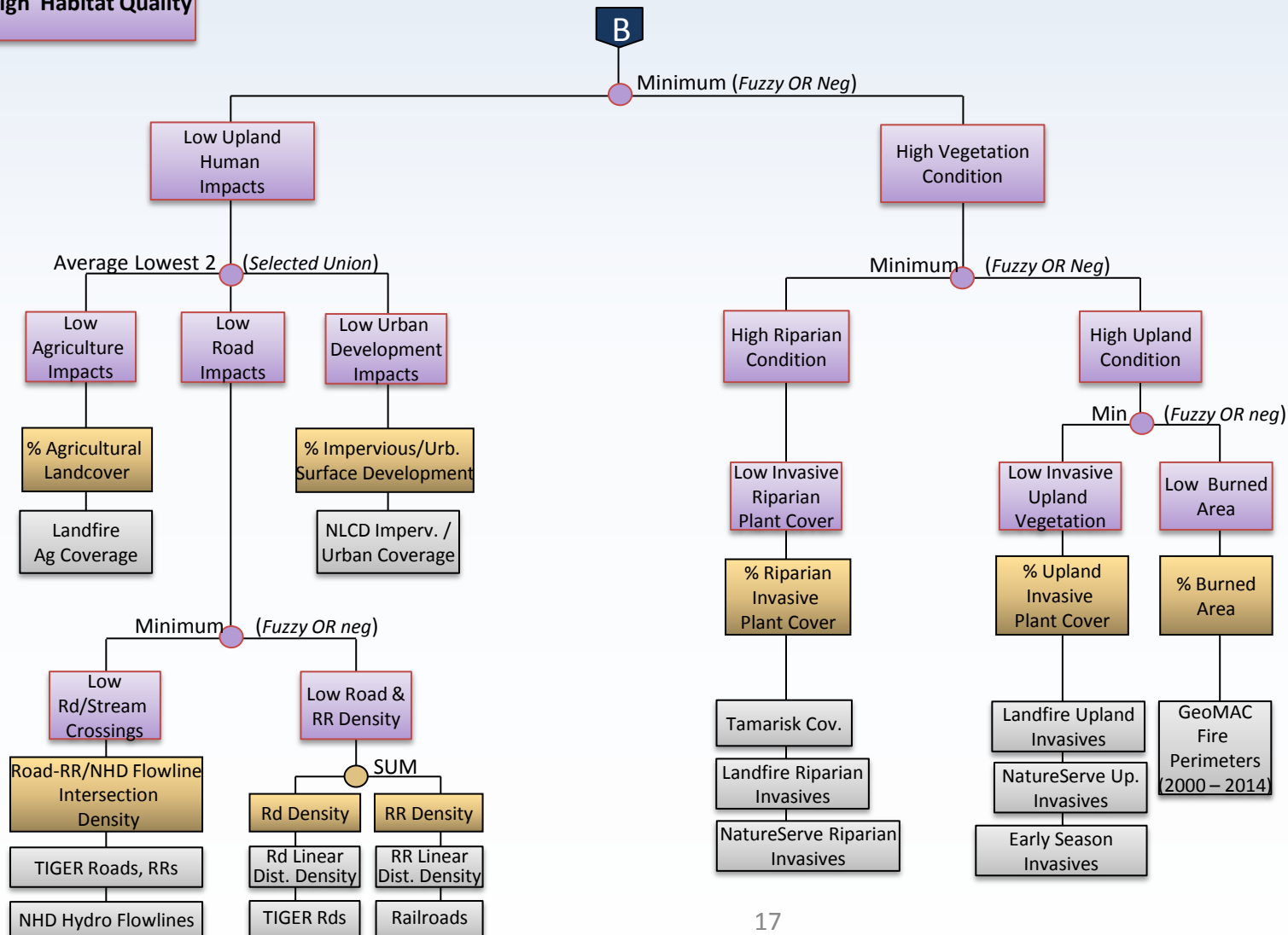


UT-COP: Revised Aquatic Intactness model

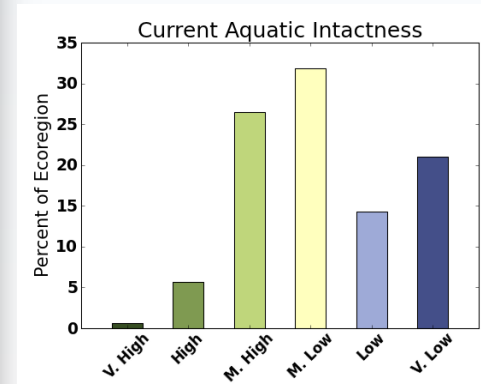
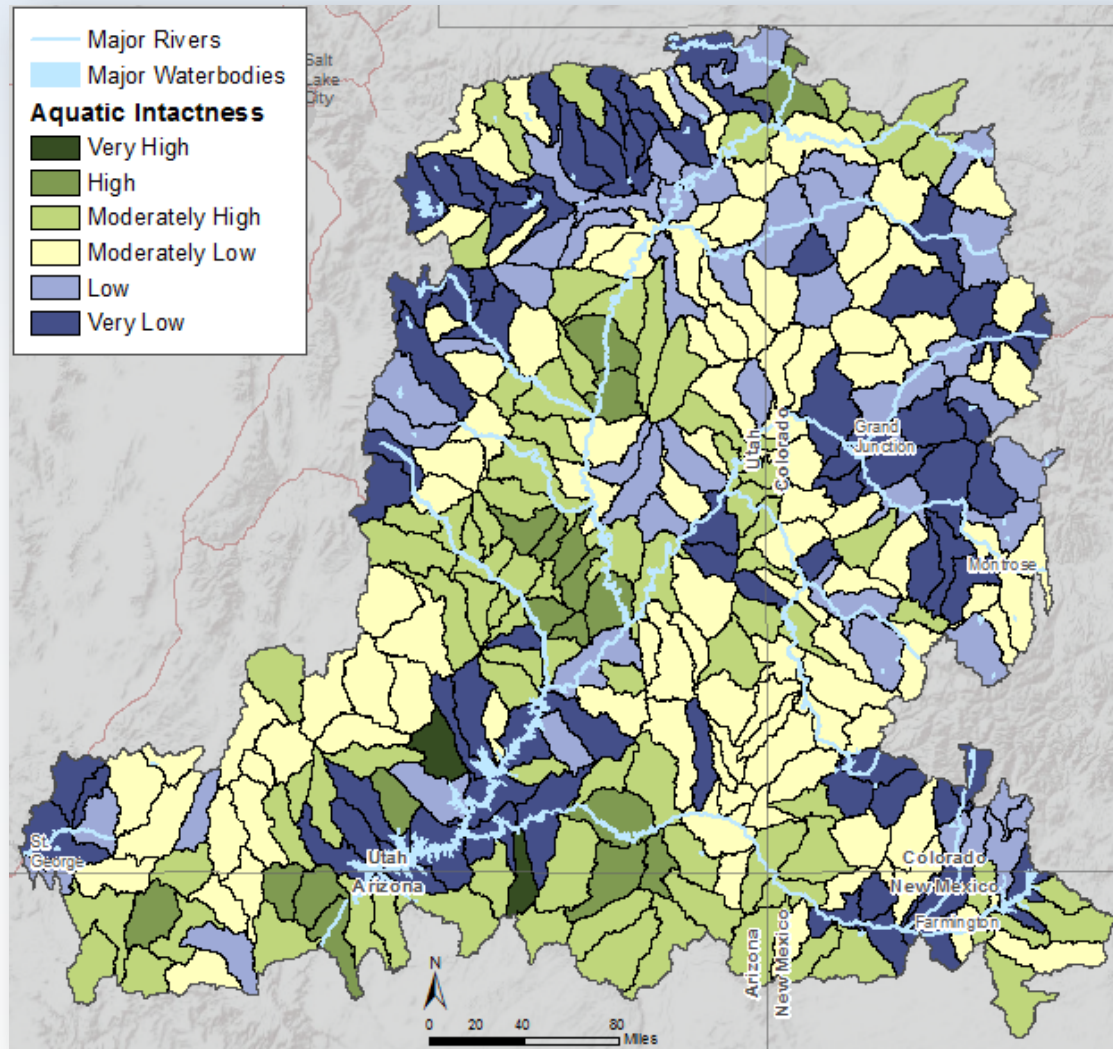
High Habitat Quality

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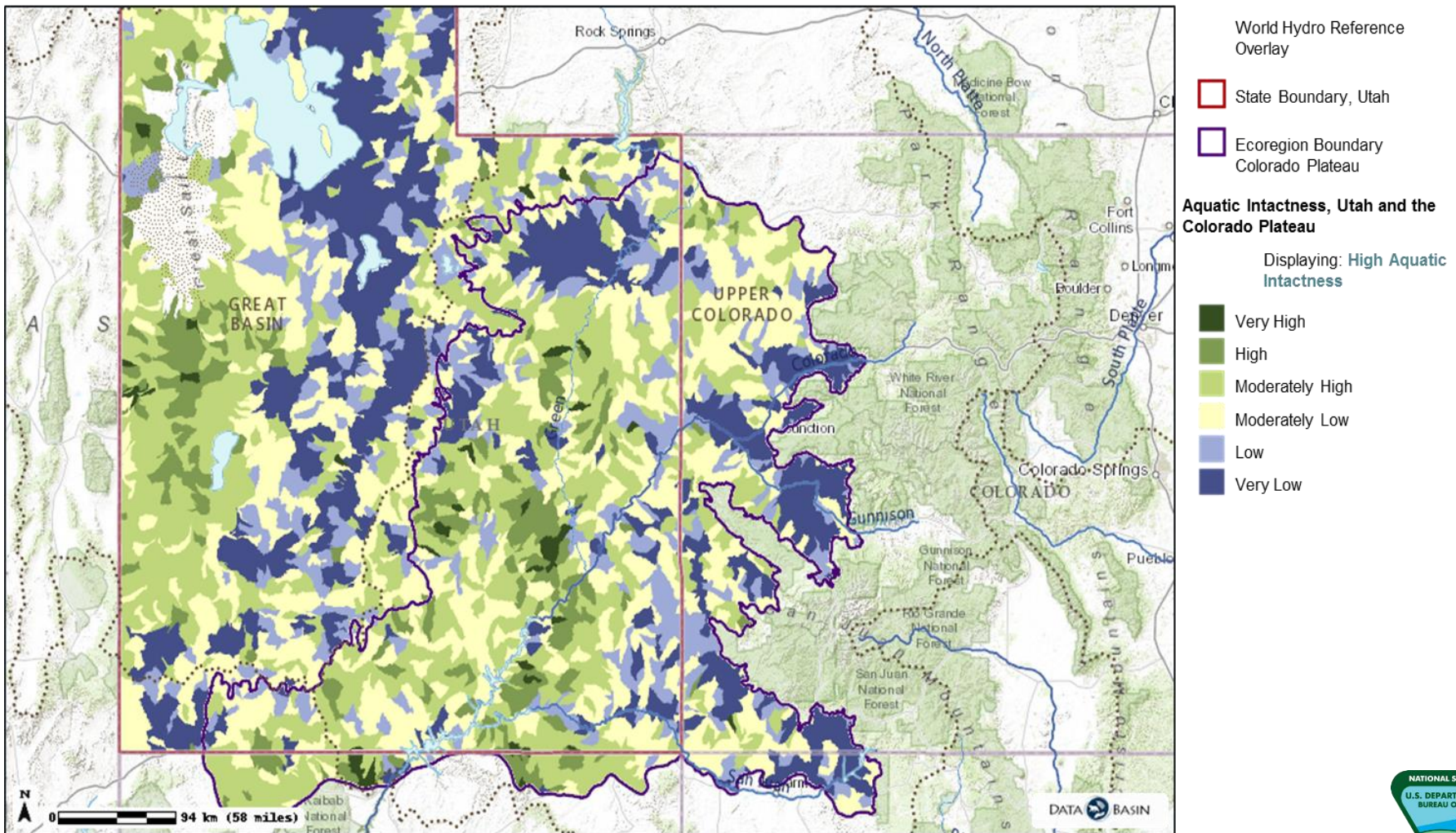
v20F

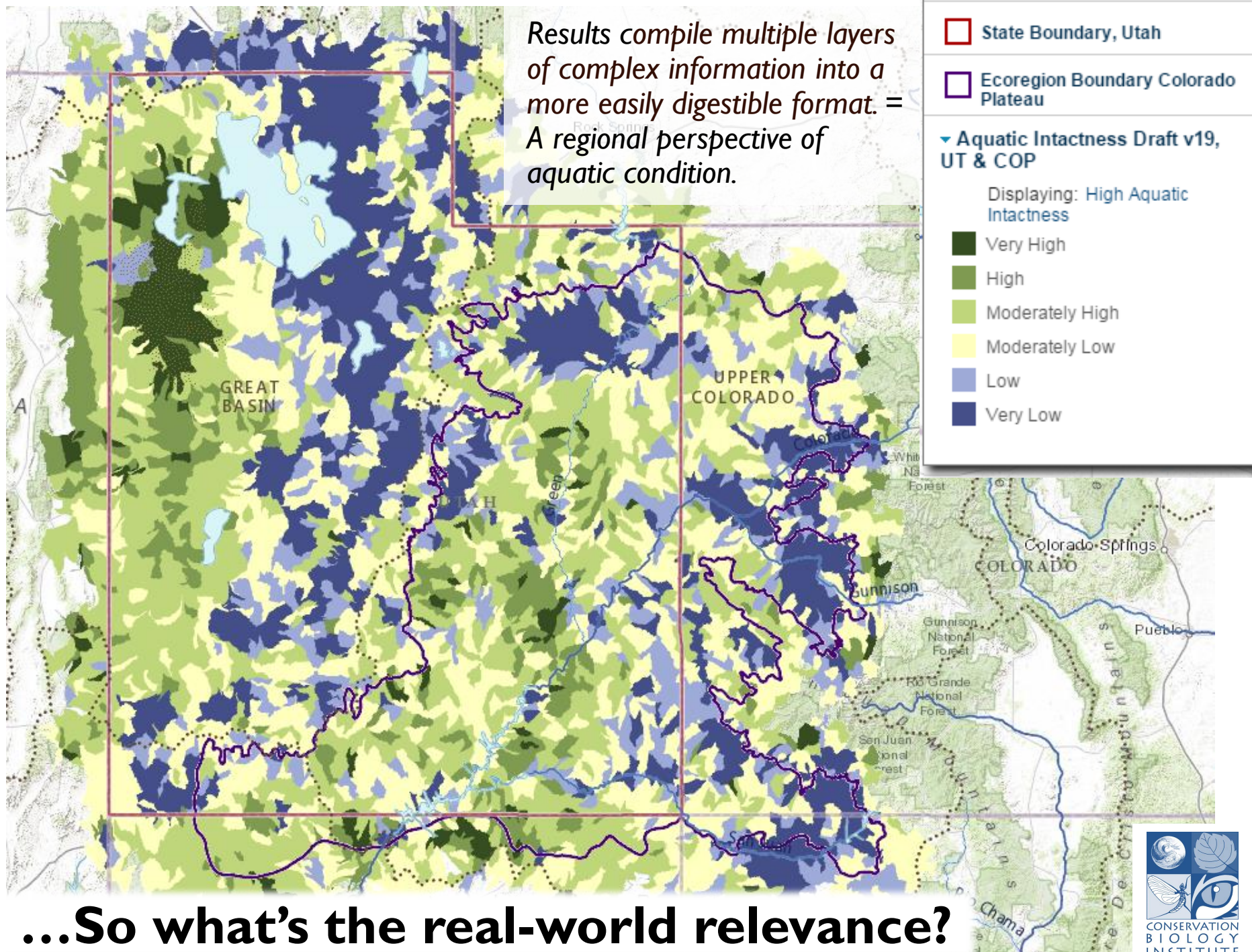


COP: Original Aquatic Intactness results



UT-COP: Revised Aquatic Intactness results





Applications & Advantages:

Process: Spatial data inventory & integration, gap analysis

Product: Increased accessibility of spatial data & expert knowledge

Interactive tool: Facilitates scientifically-sound, objective decision-making

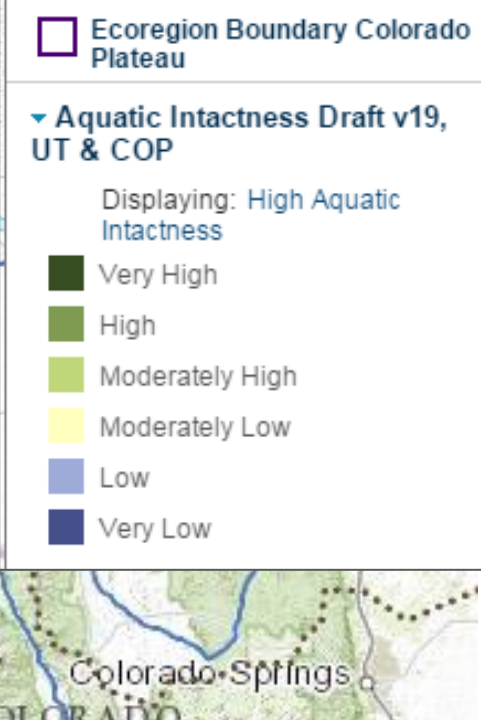
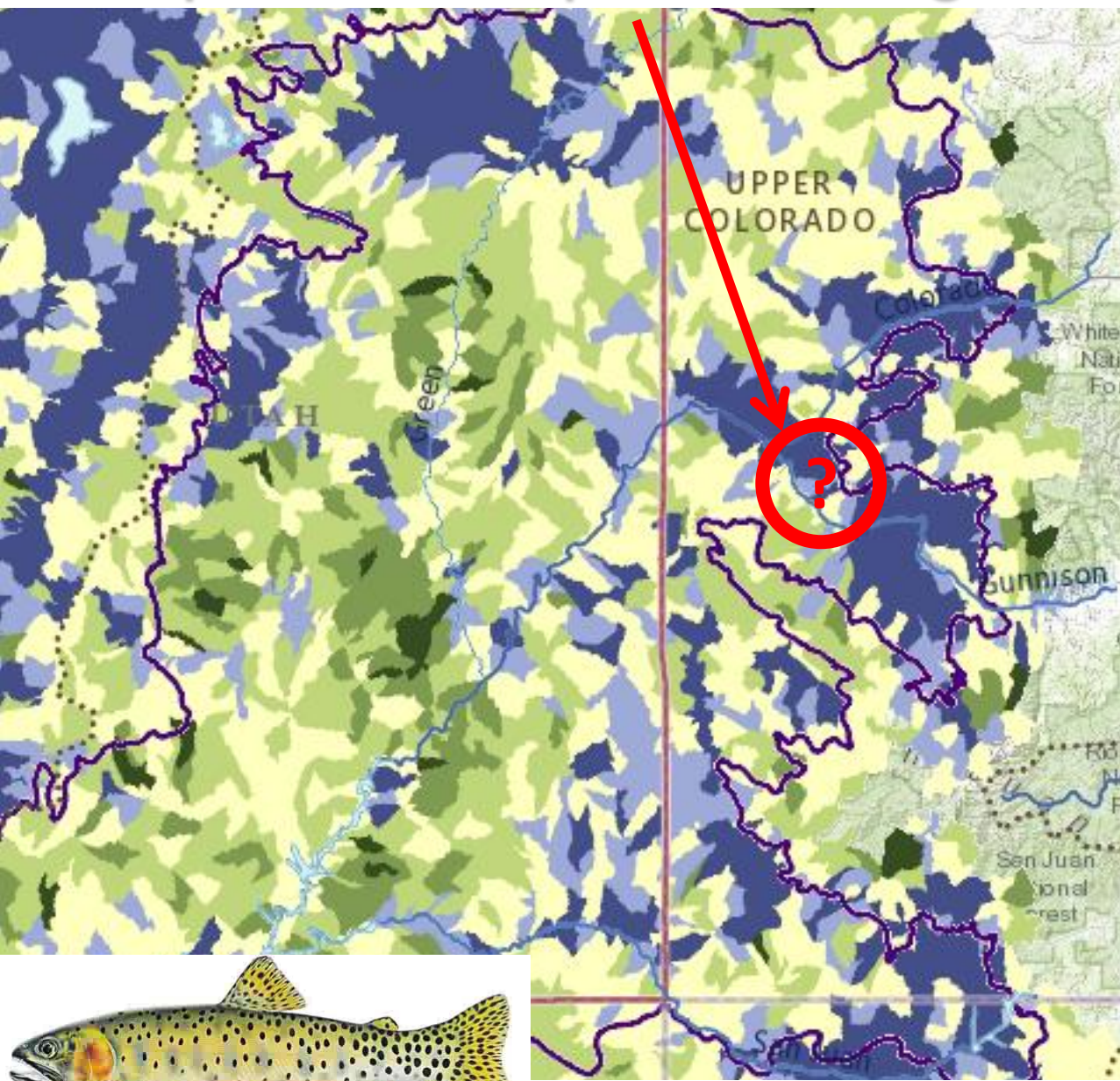
Framework: Participatory, transparent, adaptive management approach

Aquatic intactness map & results can be used...

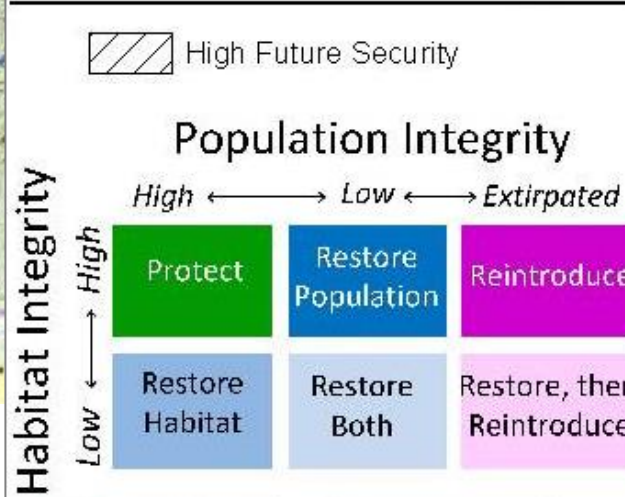
- a. To identify target areas for protection & restoration
- b. To establish baseline condition & measure management progress
- c. In combination with other data (climate, soil, species) to evaluate where to invest effort & funding
- d. To justify funding! – Data-driven, place-based approach, ability to integrate new data



Example: Land & species management



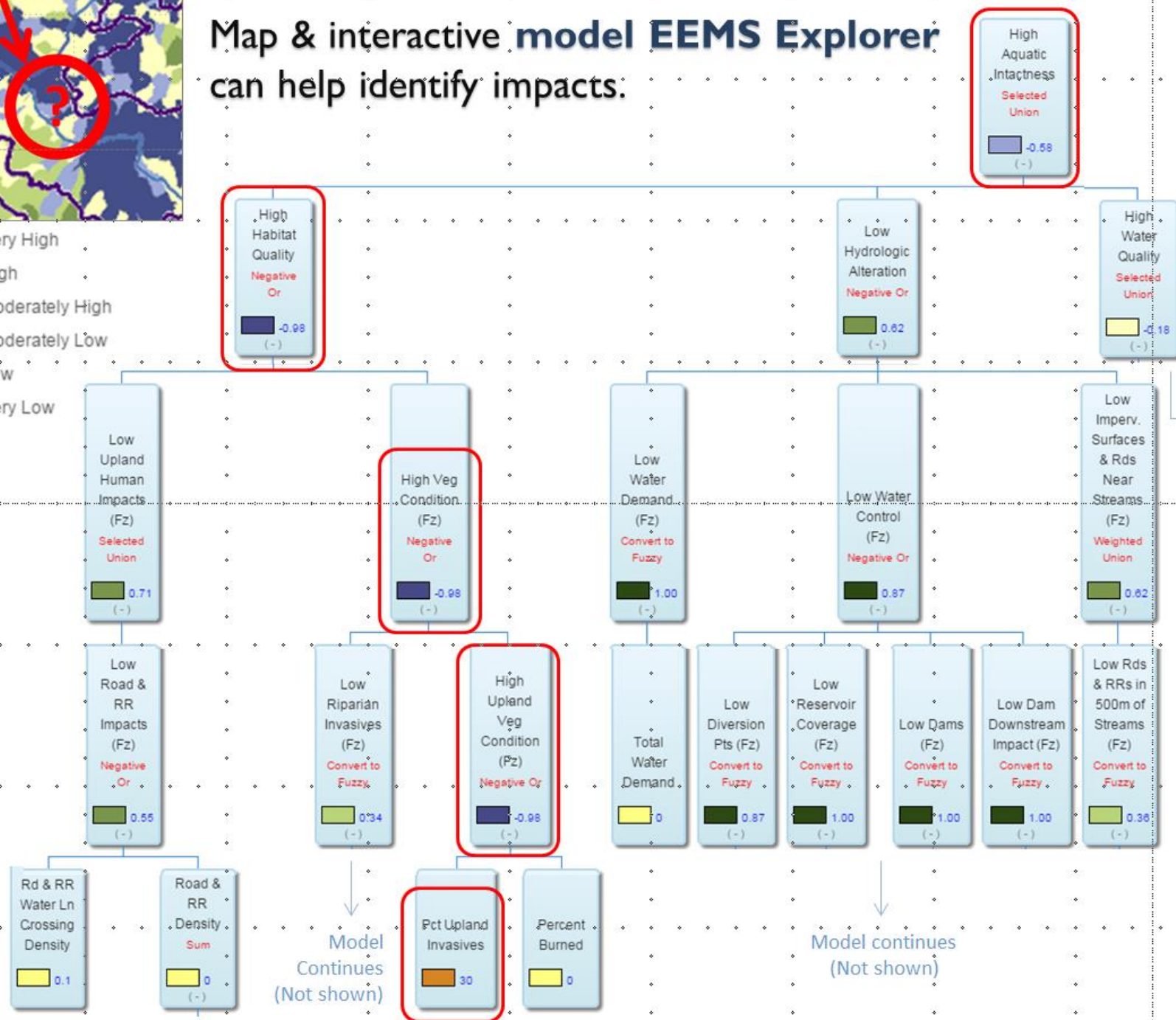
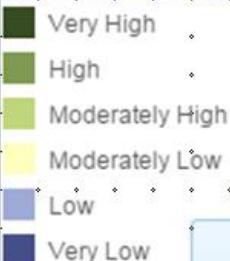
Colorado River Cutthroat Trout Conservation Success Index Conservation Strategy



Co. River Cutthroat Trout



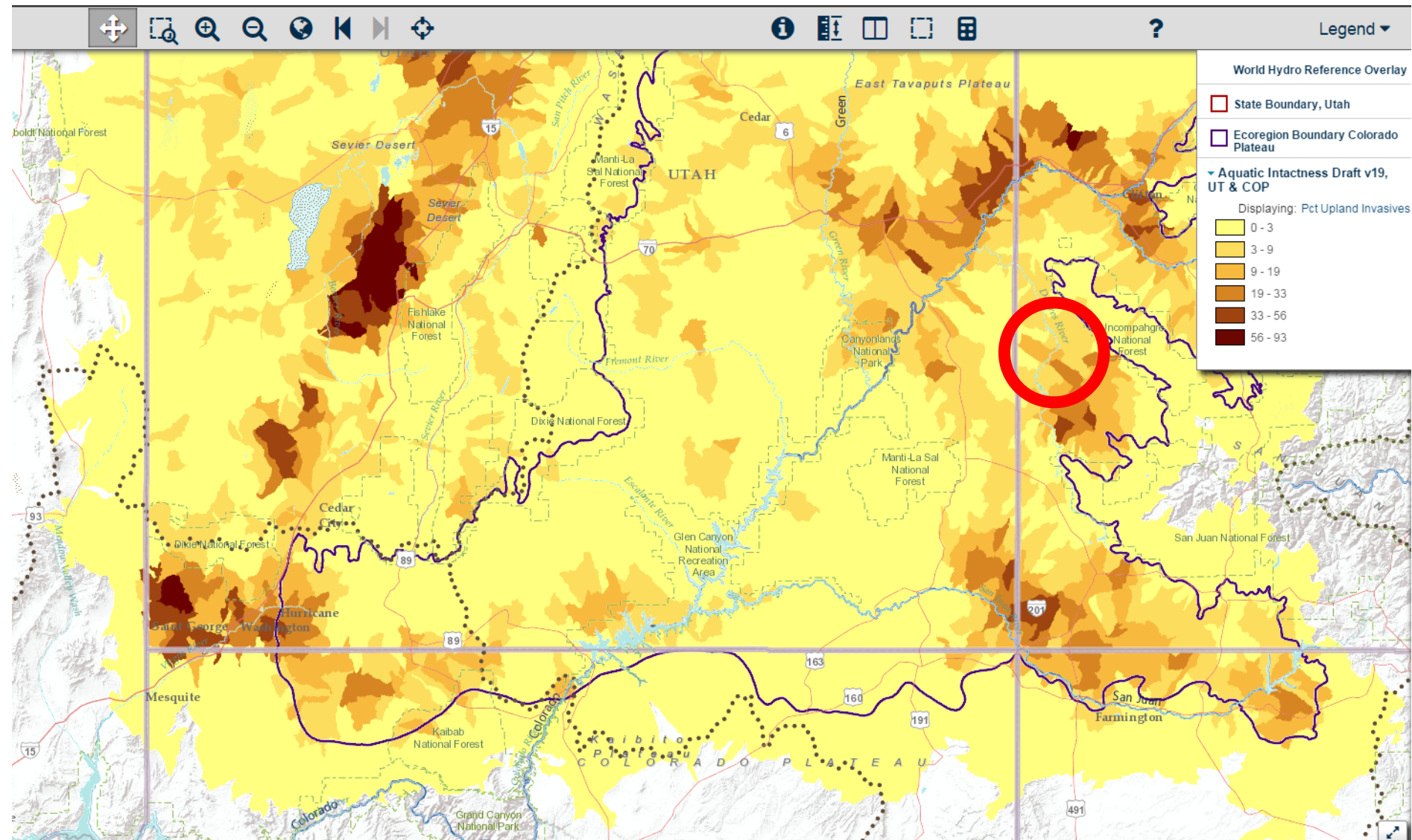
Map & interactive model EEMS Explorer can help identify impacts.



Model continues
(Not shown)

Model continues
(Not shown)

Upland invasives are a problem here!



Use this to target management activities & do appropriate field work.

Future Goals

1. New geographies and process refinement
2. Update existing models with new & more-detailed datasets
3. Expand functionality of the logic modeling software
4. Improve interface of current EEMS Explorer in Data Basin
5. Develop an online logic modeling system where users can experiment with different data combinations on the fly



Interested in exploring the results?

1. Visit **DataBasin.org** – The Conservation Biology Institute's web-based, scientific mapping & analysis platform
 - Search for UT COP Aquatic Intactness
2. BLM Employee Internal Link – Contact jjimenez@blm.gov



Follow-Up Questions:



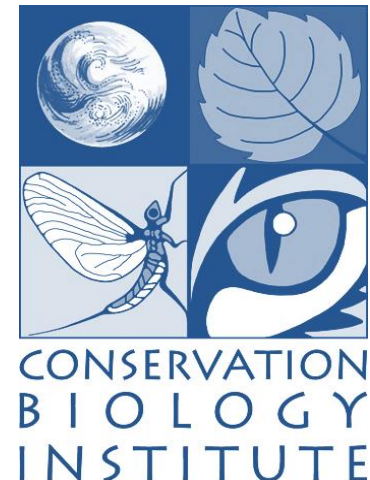
Have inquiries about data products, species management applications, spatial analysis processing, or EEMS logic modeling?

Email: rebecca.degagne@consbio.org



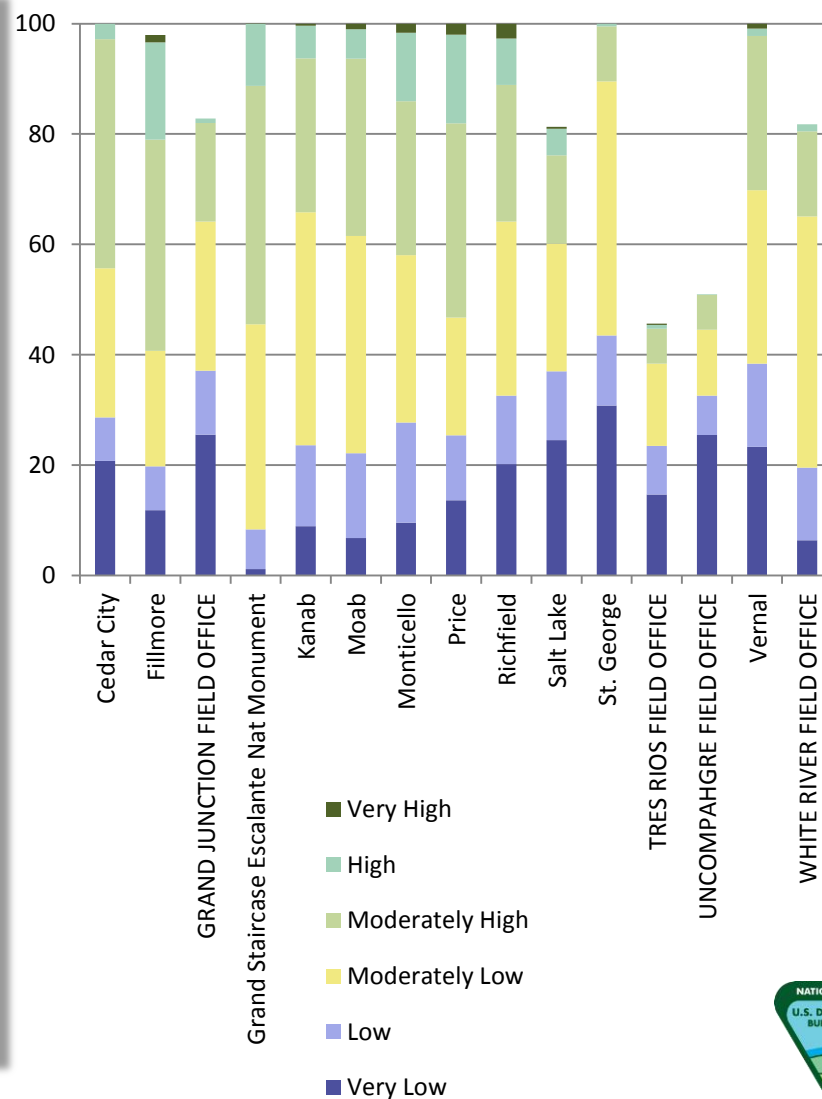
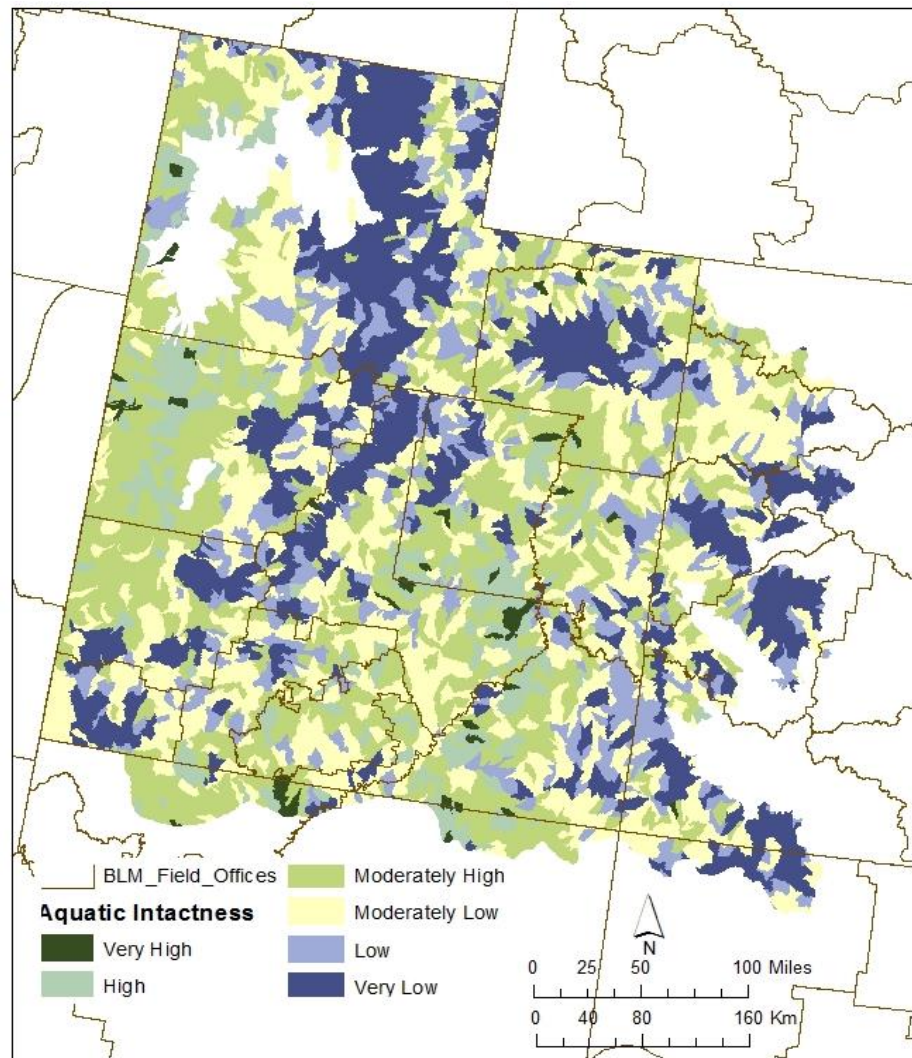
Interested in future collaboration on web services, participatory processes, and aquatic or terrestrial intactness for your needs?

Email: katie.oconnor@consbio.org

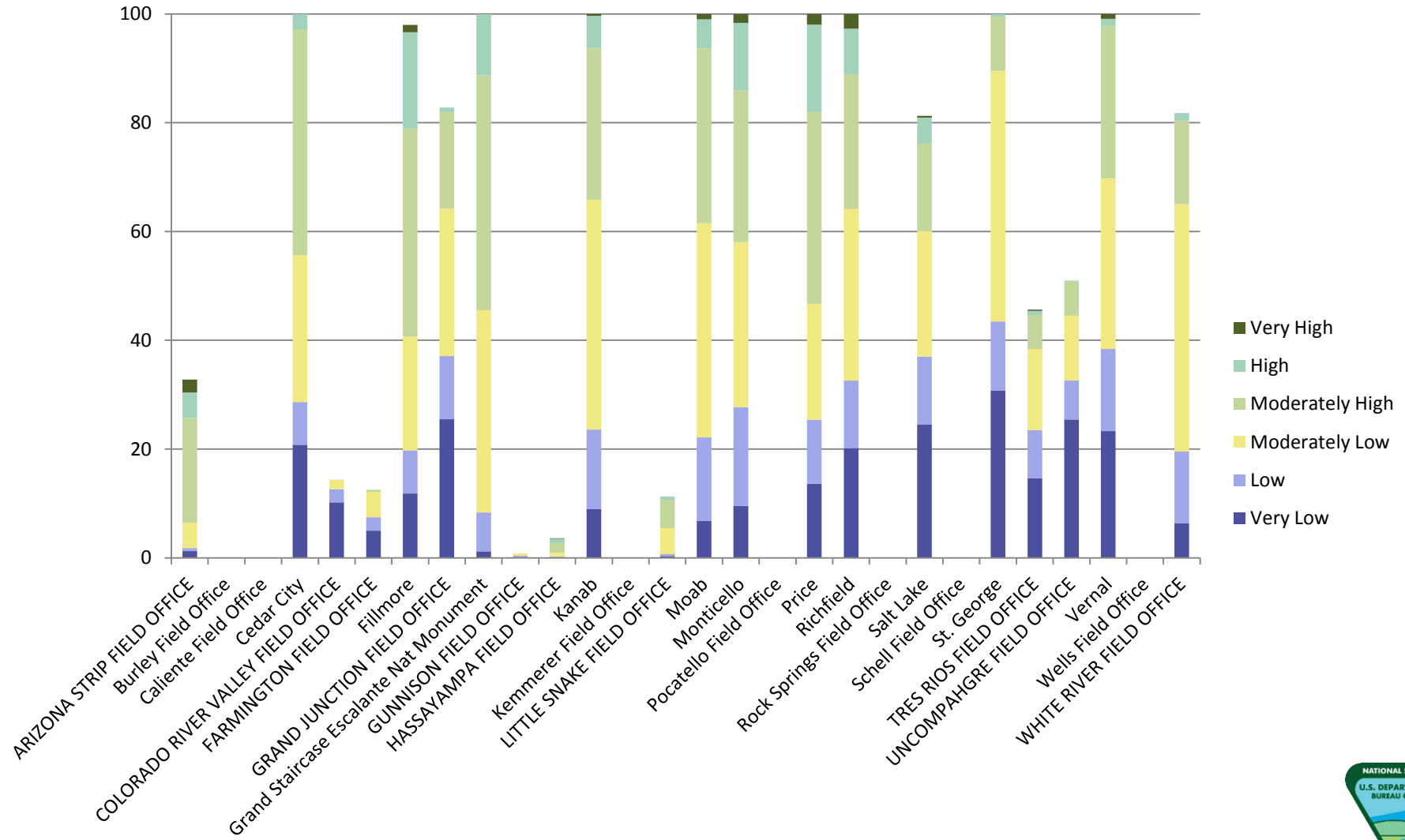


Context Tool: Aquatic Intactness

by Field Office, % (where assessment covers > 40% FO)



Aquatic Intactness by field office



Dillon (MT) FO

Centennial watershed assessment

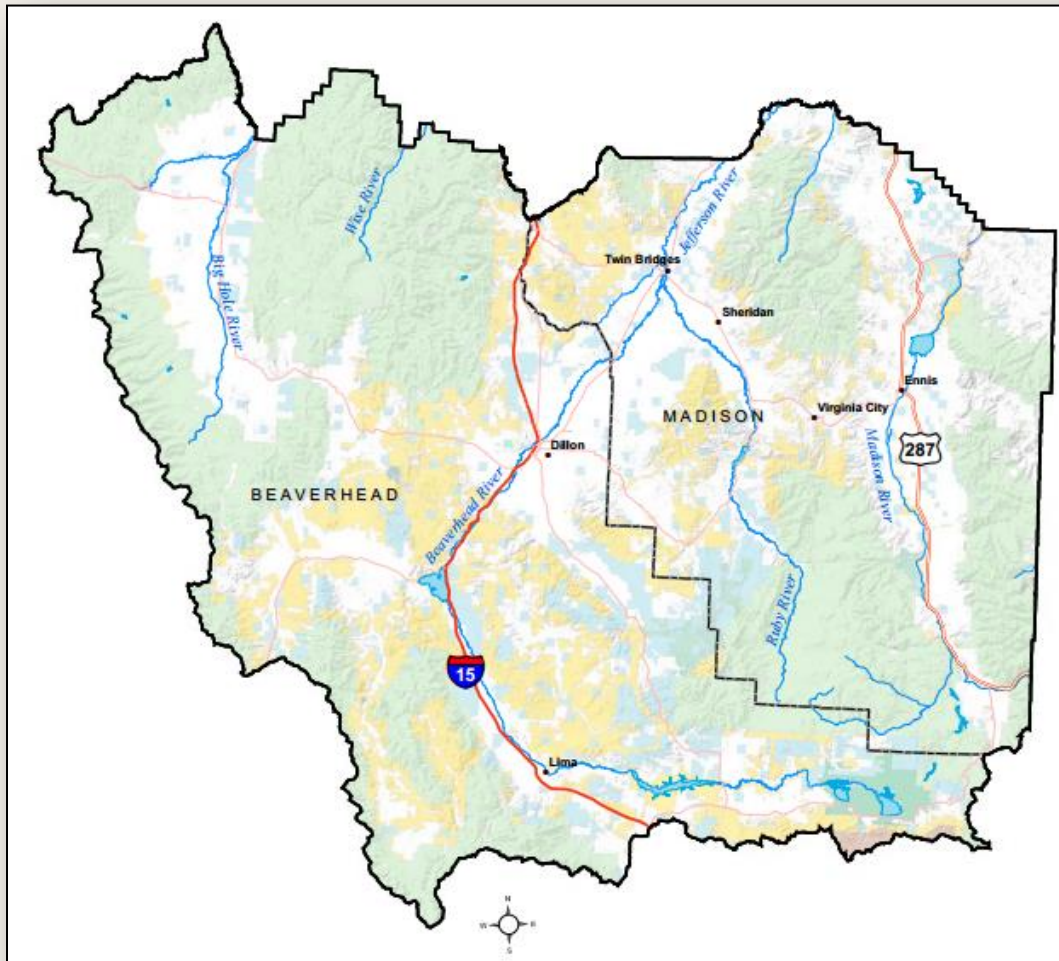
- “In addition*, the Dillon Field Office is using data from the Middle Rockies Rapid Ecoregional Assessment (REA) to look at resource concerns and issues at multiple scales. The goal is to better understand these issues in a cumulative sense in order to prioritize projects for implementation within the Centennial Watershed that will incrementally mitigate resource issues and concerns within the Middle Rockies ecoregion.”
 - Centennial Watershed Assessment Report, Jan 22, 2015. p. 6

*In addition to standard assessments conducted following BLM Manual H-4180-1 (“Rangeland Health Standards Handbook and Guidance for Conducting Watershed-Based Land Health Assessments”)

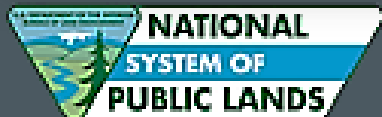
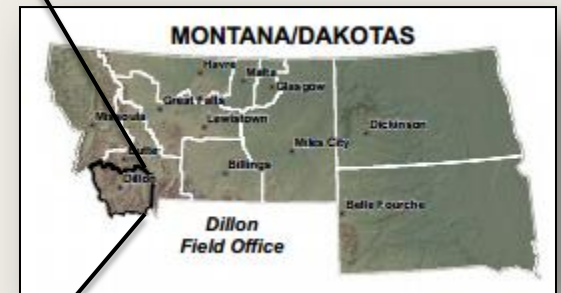


Taking a Regional Perspective

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Dillon Field Office in SW Montana

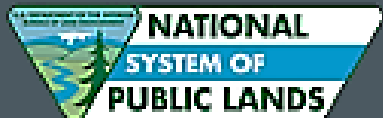


Landscape Approach Implementation

Watershed Assessments

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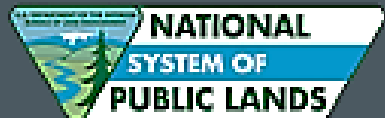
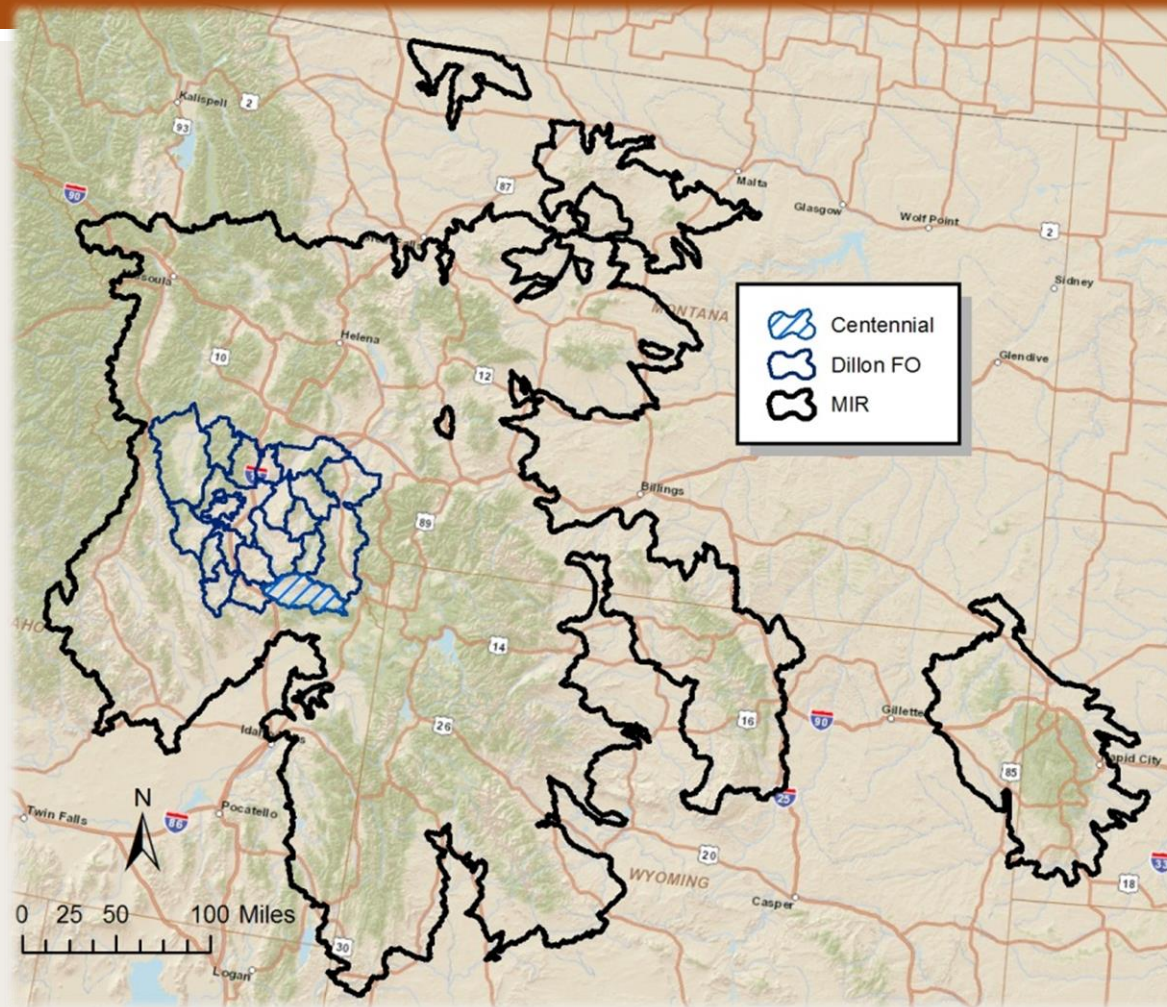
- An opportunity to investigate select regional trends within the ecoregion
 - ▣ Forest Health
 - ▣ Conifer Expansion
 - ▣ Terrestrial & Aquatic Wildlife
 - ▣ Riparian Areas
- Middle Rockies (MR) Rapid Ecoregional Assessment (REA) released in 2014



Landscape Approach Implementation

The Middle Rockies REA, Dillon and Centennial in Context

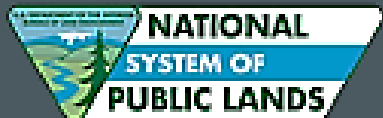
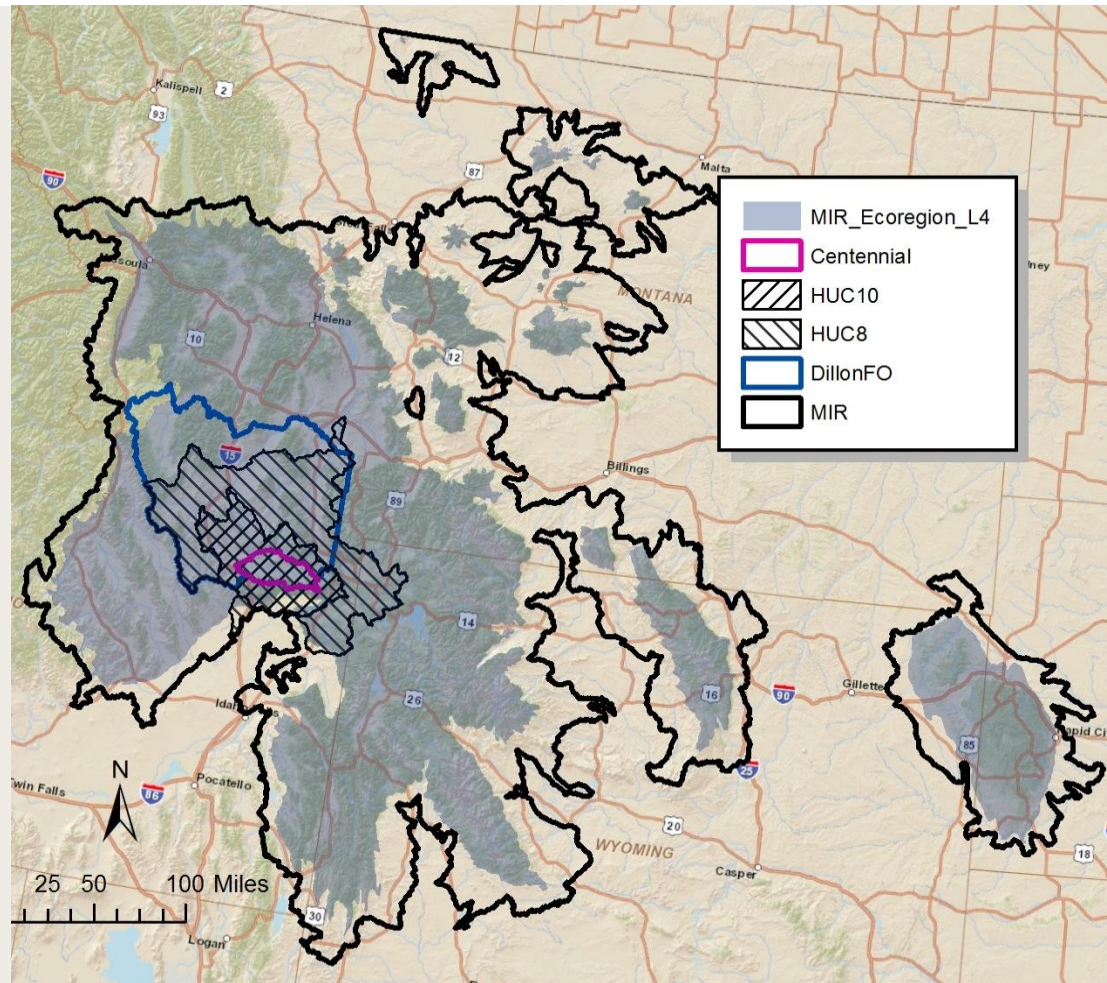
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Landscape Approach Implementation

Centennial within the Dillon FO and Middle Rockies REA --with intersecting HUC boundaries

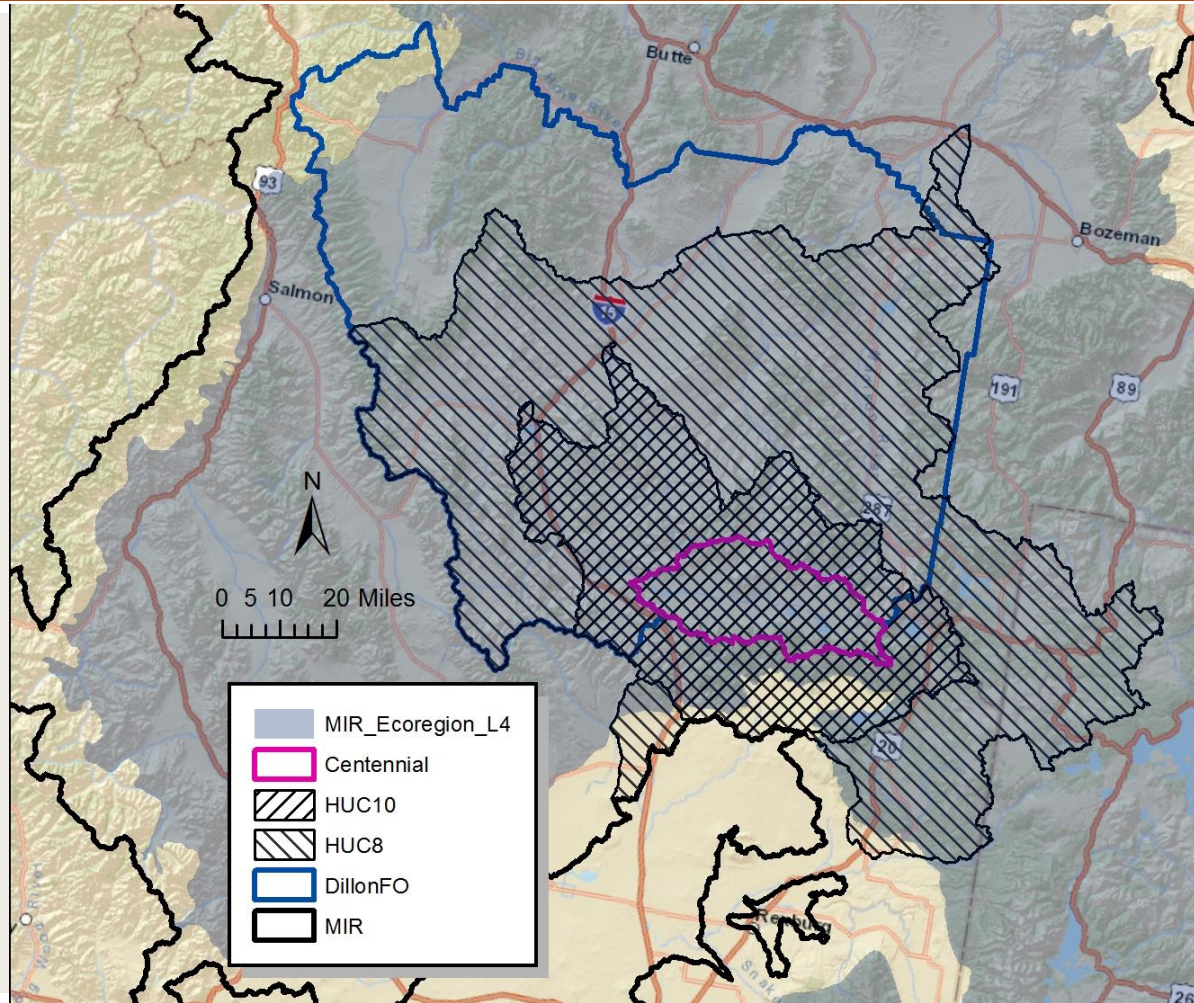
33



Landscape Approach Implementation

Centennial with intersecting HUC boundaries

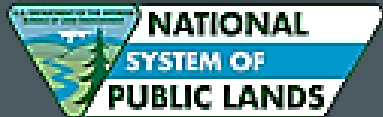
34



Terrestrial and Aquatic Wildlife

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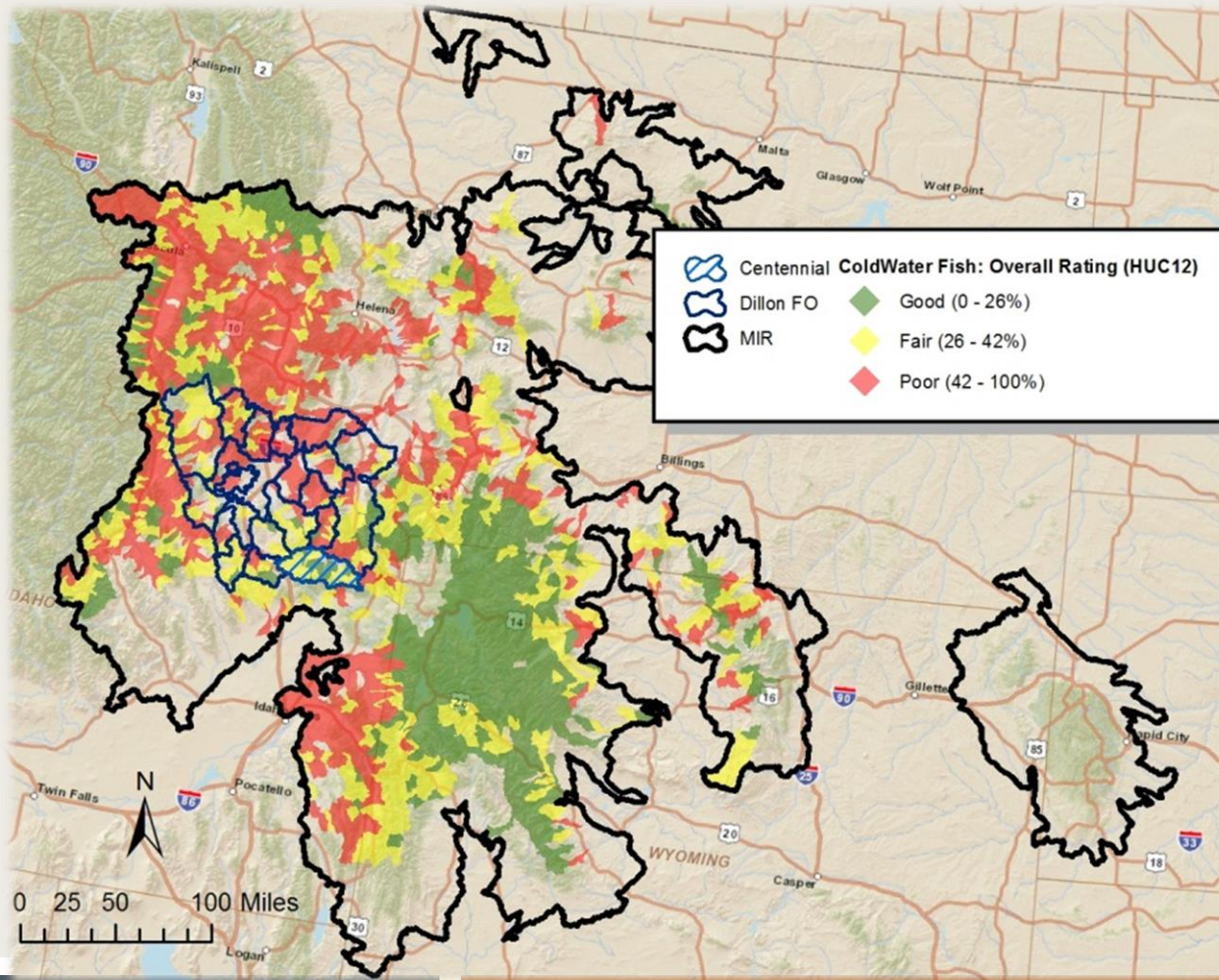
- ☐ Golden Eagle
- ☐ Greater Sage-Grouse
- ☐ Grizzly Bear
- ☐ Arctic Grayling



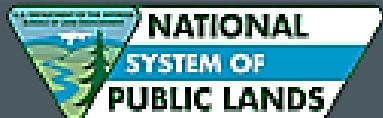
Landscape Approach Implementation

Coldwater Fish Assemblage Overall Rating

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--based on the sum of indicator scores of HUCs within the ecoregion



Landscape Approach Implementation

Arctic Grayling Distribution

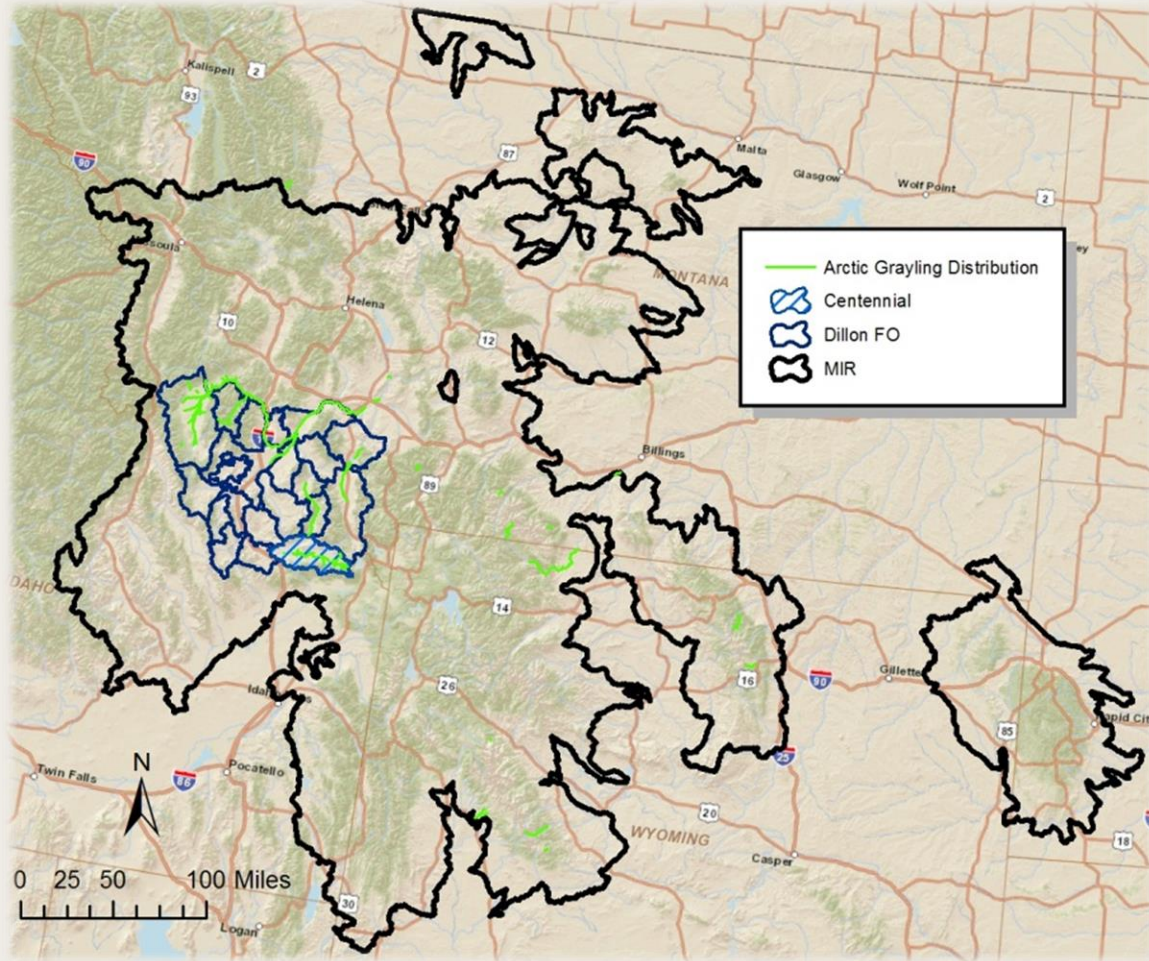
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Arctic Grayling Streams length (%
in area):

MIR: 1,057 km

Dillon FO: 651km (62%)

Centennial: 131km (12%)



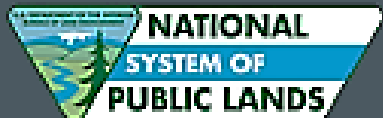
Westslope Cutthroat Trout (WCT) and Yellowstone Cutthroat Trout (YST)

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These slides show two kinds of mapped data that were sourced from the Middle Rockies REA:

- Distributions = streams where WCT or YST have been observed or measured
 - Fish data sources: StreamNet, Mfish, and Yellowstone Trout for WY
 - Density analysis: length of streams with trout (m)/ area (km²)
- Current habitat ratings by HUC12 are aggregated values from rated indicators – see the key ecological attributes (KEA) tables on next slides
 - Analysis: percent of rated area in each rating (Good, Fair, Poor)

http://www.blm.gov/wo/st/en/prog/more/Landscape_Approach/reas/midrockies.html

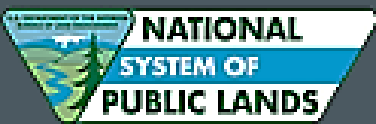
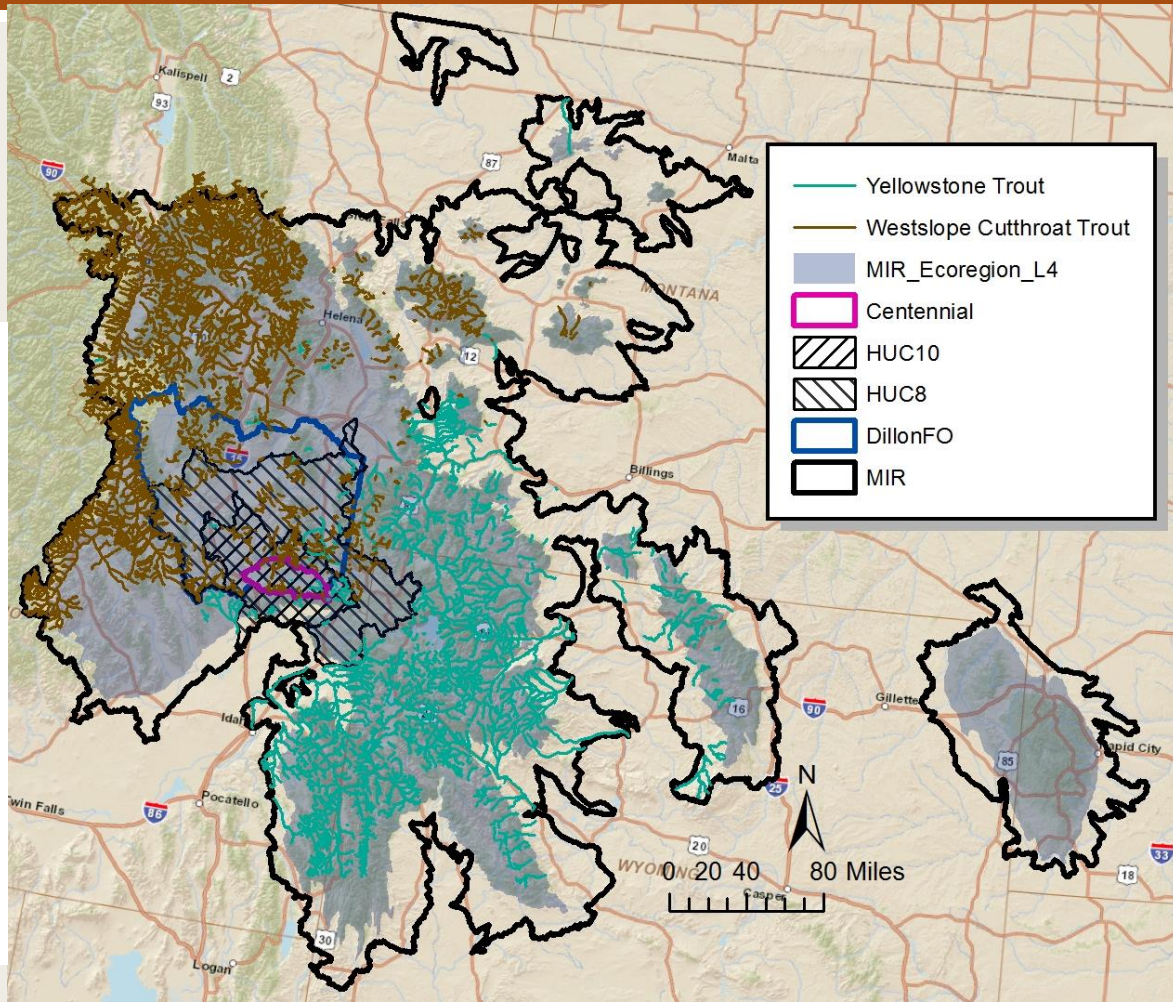
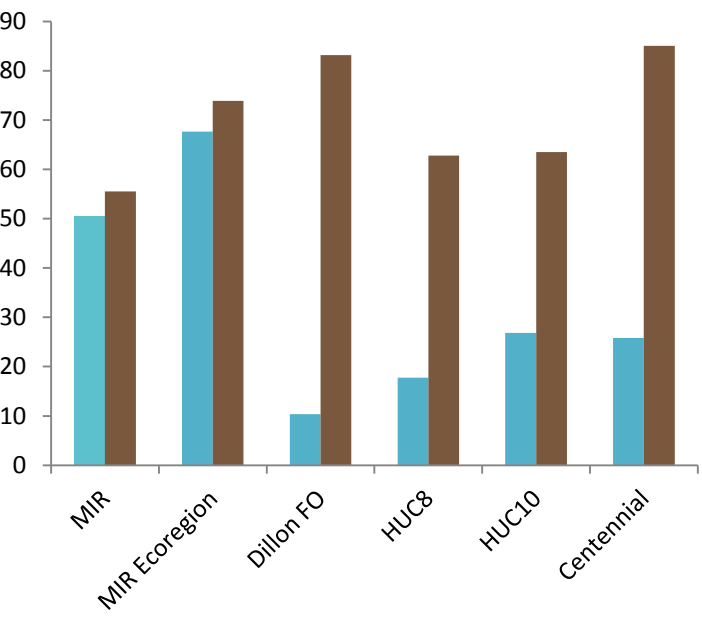


Landscape Approach Implementation

Westslope Cutthroat and Yellowstone Cutthroat Trout Distributions

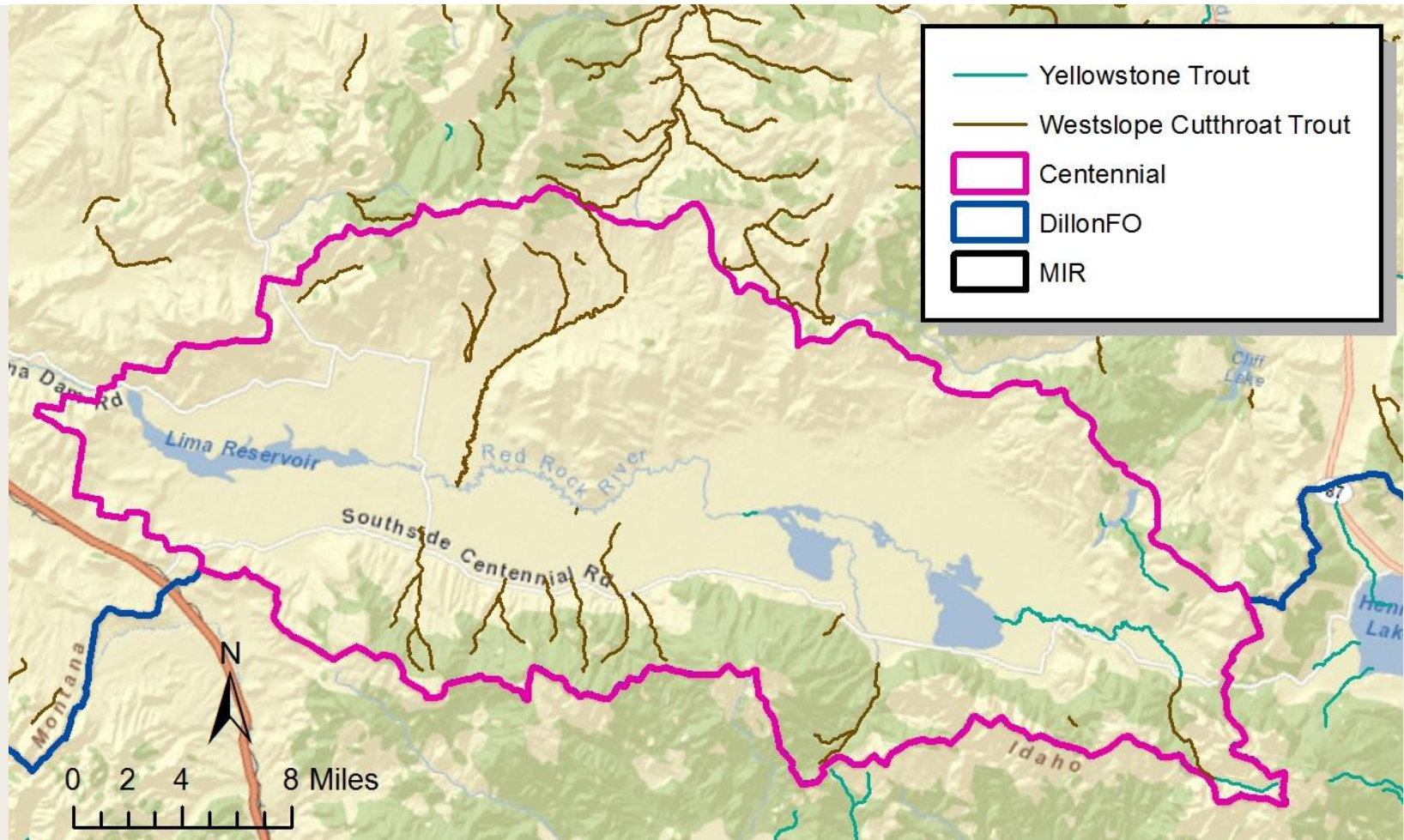
Middle Rockies REA and Ecoregion

Trout stream distribution density
(length (m)/area (km²))



Westslope Cutthroat and Yellowstone Cutthroat Trout Distributions Centennial Watershed Assessment Area

40

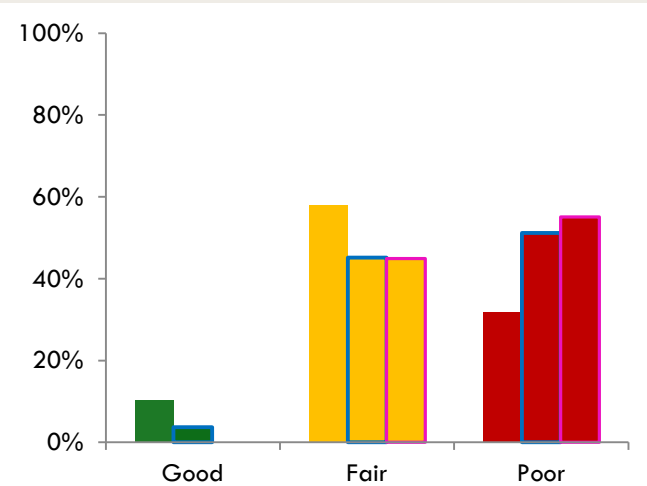


Current Rating by HUC 12

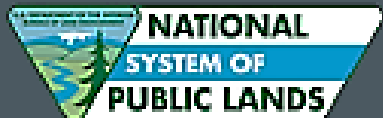
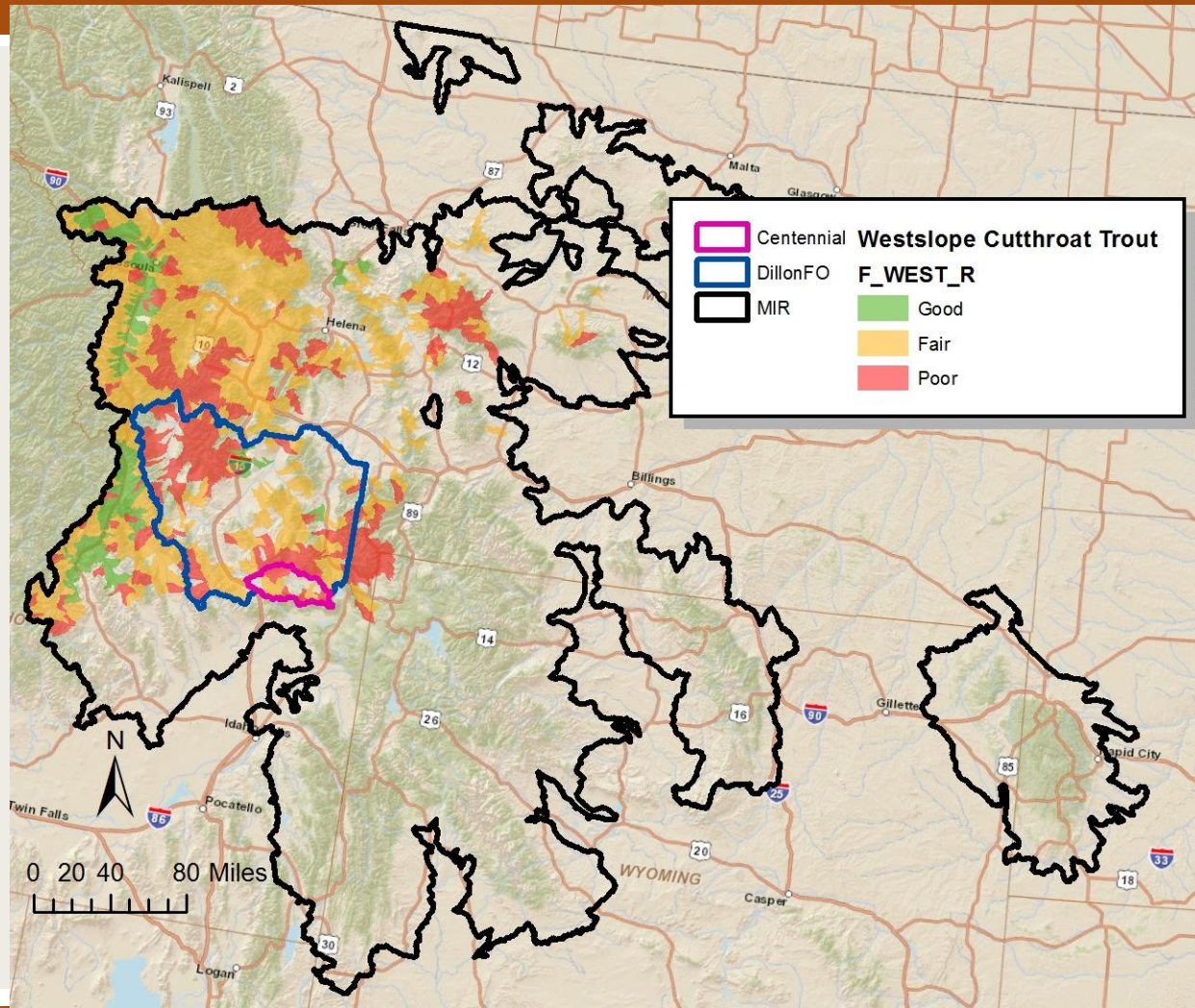
Westslope Cutthroat Trout

41

Percent of rated area



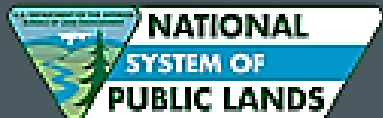
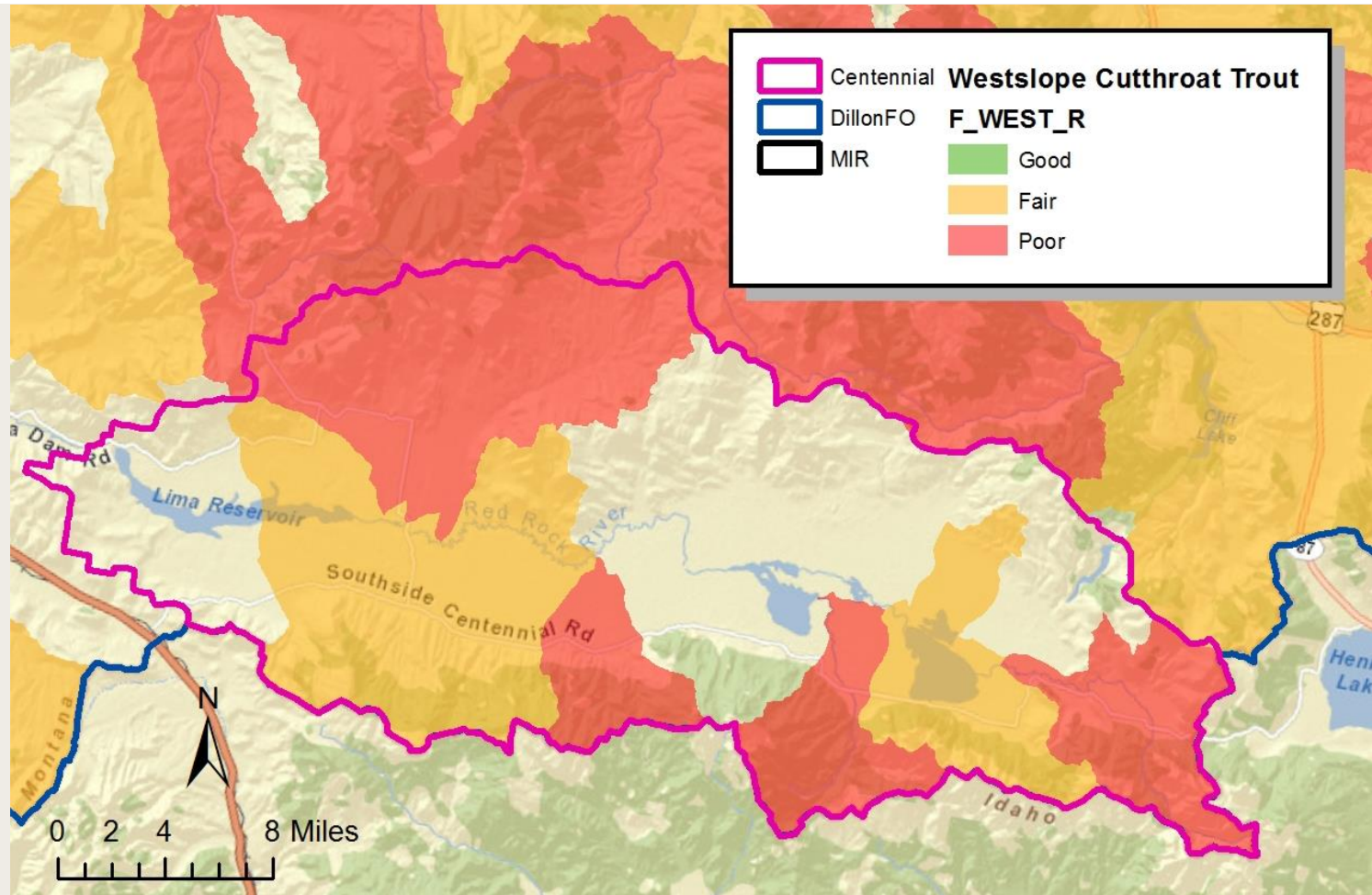
- MIR REA
- MIR Ecoregion
- Dillon FO
- HUC 8
- HUC 10
- Centennial



Landscape Approach Implementation

Current Rating – Westslope Cutthroat Trout Centennial Watershed Assessment Area

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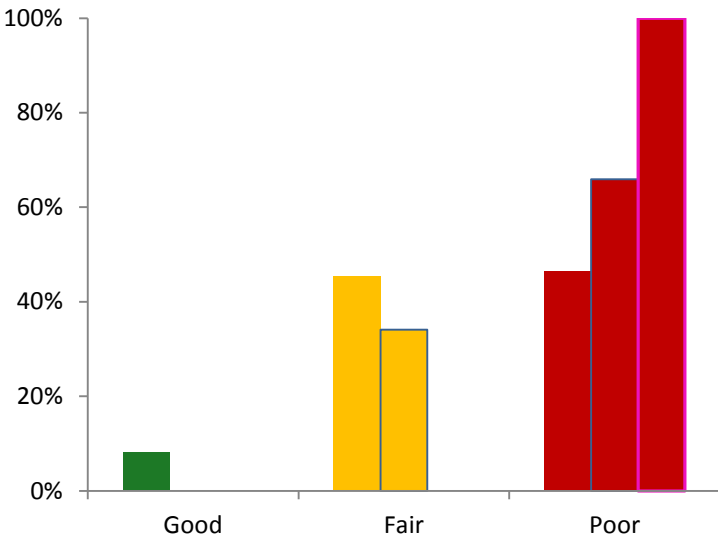


Landscape Approach Implementation

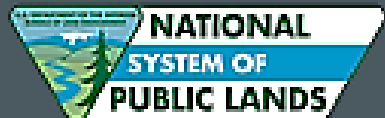
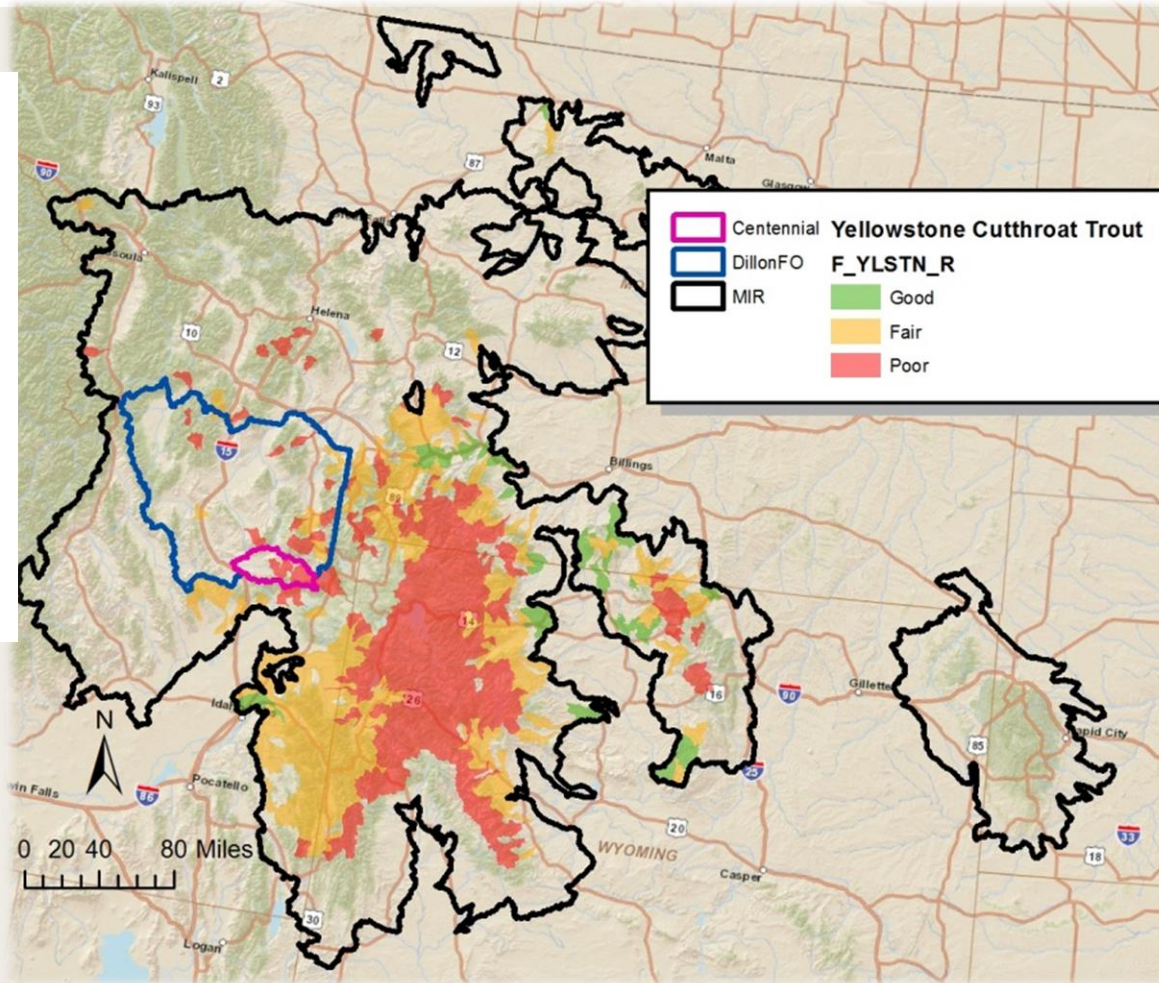
Current Rating by HUC 12 Yellowstone Cutthroat Trout

43

Percent of rated area



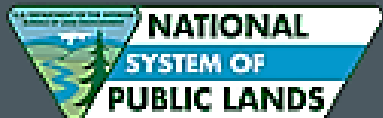
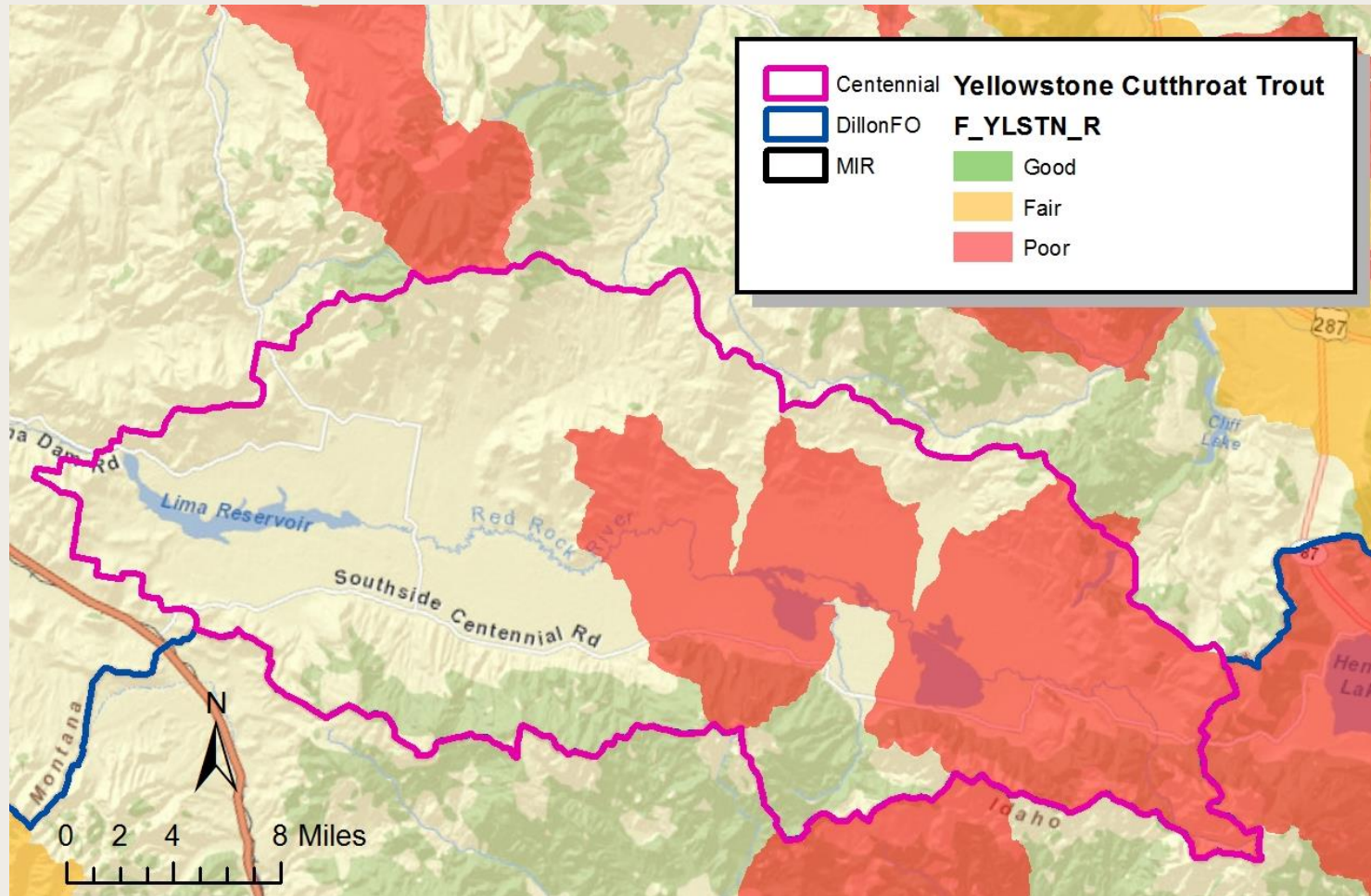
- MIR REA
- MIR Ecoregion
- Dillon FO
- HUC 8
- HUC 10
- Centennial



Landscape Approach Implementation

Current Rating – Yellowstone Cutthroat Trout Centennial Watershed Assessment Area

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Landscape Approach Implementation

San Luis Valley/Taos Plateau

Solar - Internet Explorer
http://www.blm.gov/co/st/en/fo/slvfo/solar.html

File Edit View Favorites Tools Help

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Updated 07/08/2015

**San Luis Valley/Taos Plateau Study:
Landscape Assessment and Solar Regional Mitigation Strategy**



PROJECT ANNOUNCEMENTS

***ATTENTION** - Public Webinar PowerPoint Posted (July 7, 2015)

The San Luis Valley/Taos Plateau Study is intended to help BLM ensure environmentally responsible solar energy development on public lands through long-

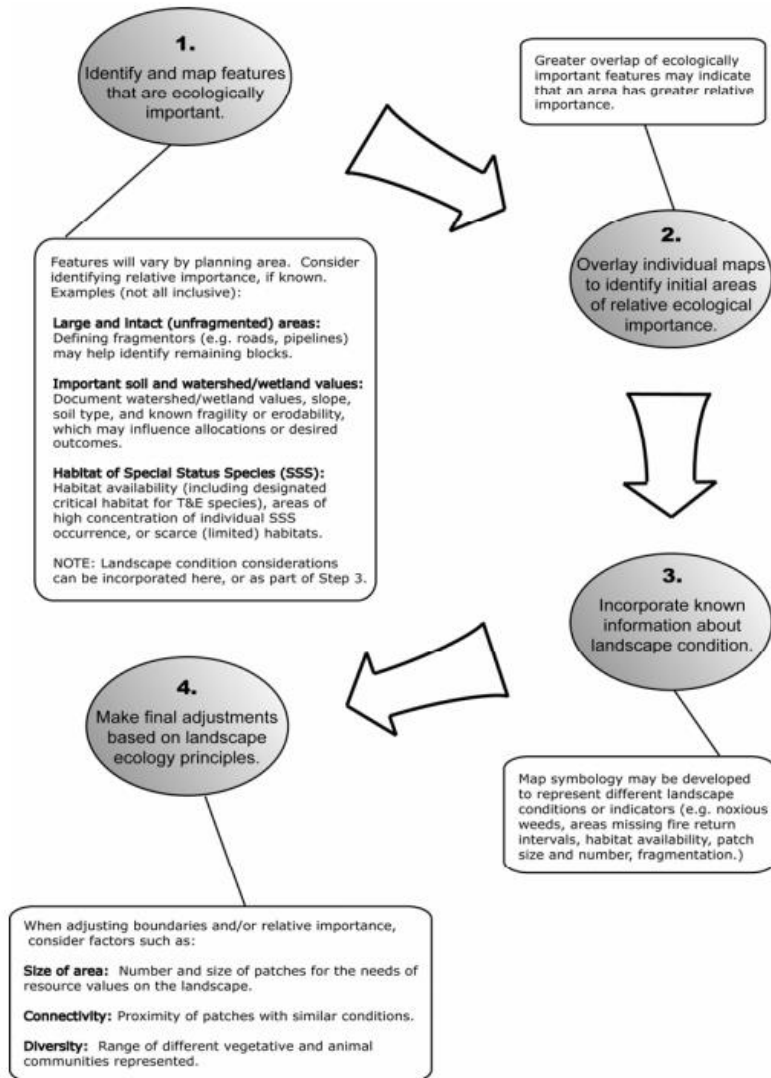
Links of Interest

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Grand Staircase Escalante National Monument

Grazing EIS Scoping

BLM Land Use Planning Handbook, Appendix F, p13



- Examine REA Terrestrial Intactness in context of the Grazing EIS
- Look at GSCENM context?
 - What % of Ecoregion?
 - What % of at risk (various CA's) within Ecoregion?
 - What % of good quality Ecoregion as measured by TI?
 - Use REA data to identify areas of relative ecological importance

Contacts

- General/application questions
 - Kevin Miller khmiller@blm.gov (303) 236-6606
- Data/portal questions
 - Megan Walz mwalz@blm.gov (303) 236-5427
- Science integration
 - Travis Haby thaby@blm.gov (303) 236-0537
- Utah-specific questions
 - Justin Jimenez jjimenez@blm.gov (801) 539-4073
 - Jeremy Jarnecke jjarnecke@blm.gov (801) 539-4098

