



**Colorado's Water
Supply Future**



South Platte Basin Roundtable Nonconsumptive Needs Assessment

February 2009

Overview

- Overview of Nonconsumptive Needs Assessment Process
- Discuss South Platte Environmental and Recreational Attributes
- Next steps

HB05-1177 Water for the 21st Century Act



- Consumptive Needs
- Nonconsumptive Needs
- Water Supply Availability
- Projects and Methods to Meet Needs

HB1177 Direction

“Using data and information from the Statewide Water Supply Initiative and other appropriate sources and in cooperation with the on-going Statewide Water Supply Initiative *develop a basin-wide consumptive and nonconsumptive water supply needs assessment*, conduct an analysis of available unappropriated waters within the basin, and *propose projects or methods, both structural and nonstructural, for meeting those needs* and using those unappropriated waters where appropriate.”

Why are we developing an NCNA?

- Yes, it's required by statute, but more importantly...
- The NCNA will provide an objective, science-based set of tools for BRTs and other stakeholders.
 - Priority Streams
 - Flow Quantification
- To be used to make informed decisions about future water supply management. For example:
 - What are the most important streams and rivers for our environment and recreation?
 - How much water would we need to sustain those values?
 - What tools and strategies can we use?
 - How can we develop new water supplies that avoid impacts or provide multi-purpose benefits to priority streams and wetlands?

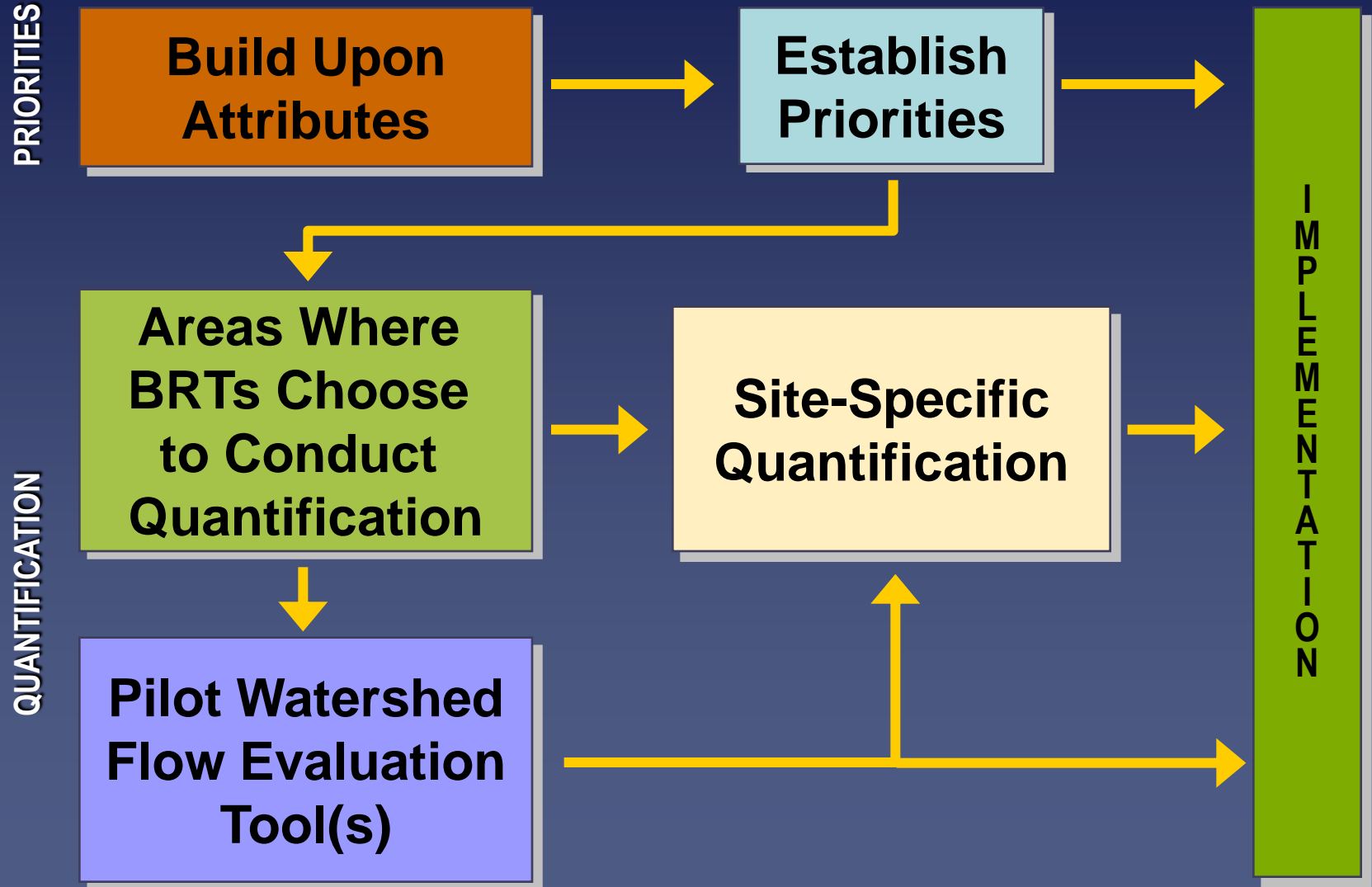
What the NCNA is...

- GIS coverages representing Colorado's important environmental and recreational attributes
- Map of Basin Roundtable prioritized areas and reaches
- Results of flow evaluation tools and site-specific instream flow quantifications
- Identification of flow and non-flow related resource management options

What the NCNA isn't...

- The NCNA will *not* identify all streams as important;
 - It will identify a small subset of streams.
- The NCNA will *not* dictate management actions;
 - The BRTs and other stakeholders will use the NCNA to set goals and determine effective strategies and multi-purpose projects.
- The NCNA will *not* create a water right for the environment.
 - It will provide tools and data to allow BRTs to integrate environmental protection into water supply planning.

Statewide Nonconsumptive Needs Assessment Methodology



Statewide Products

- GIS coverages representing Colorado's important environmental and recreational attributes
- Map of Basin Roundtable prioritized areas and reaches
- Results of flow evaluation tools and site-specific instream flow pilot studies
- Identification of flow and non-flow related resource management options

South Platte Nonconsumptive Needs Methodology and Status

- Identify attributes
- Use GIS mapping technology
- Overlay Attributes by HUC's (USGS Hydrologic Unit Codes)

Glossary/Terminology

- Attribute – data used to describe a feature. In this case environmental or recreational features in a basin.
- Hydrologic Unit – a 4-level hierarchical classification of hydrological drainage basins in the U.S.
- Hydrologic Unit Code (HUC) – a unique 2-8 digit code used to identify each hydrologic unit.
- GIS – a system for capturing, storing, managing, and analyzing spatial information.

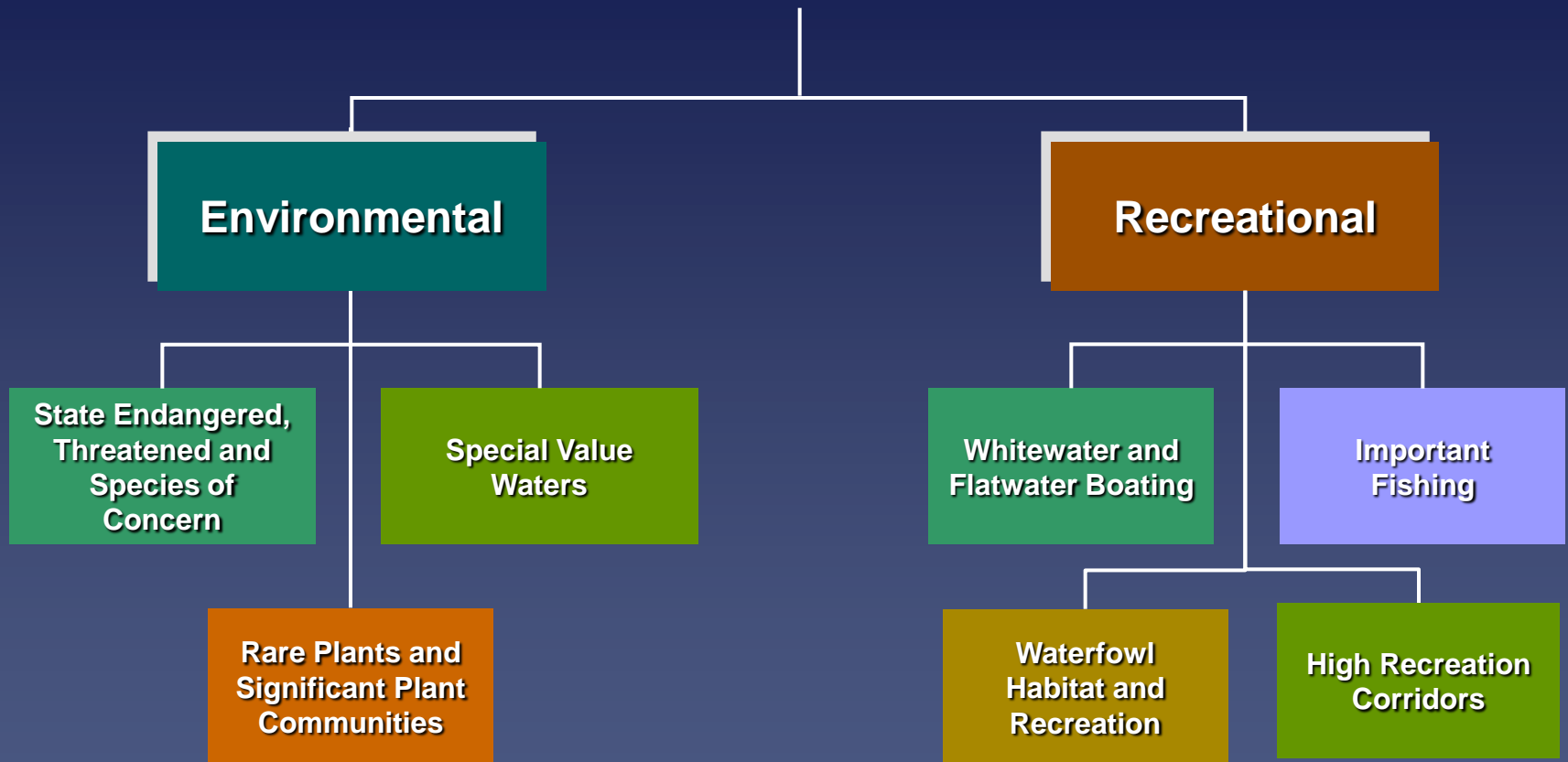
Initial Attributes Considered

- CWCB Instream Flow Rights
- CWCB Natural Lake Levels
- CWCB water rights where water availability had a role in appropriation
- Audubon important bird areas
- CDPHE WQCD 303(d) listed segments
- Rare Riparian Wetland Vascular Plants
- Significant Riparian/Wetland Communities
- Boreal Toad Critical Habitat
- Ducks Unlimited Projects
- Greenback Cutthroat Trout
- Waterfowl Hunting/Habitat Parcels
- Ducks Unlimited Focus Areas
- White Water Parks
- Wild and Scenic Reaches
- Gold Medal Trout Streams
- Gold Medal Trout Lakes
- Recreational In-Channel Diversions
- Rafting and Kayak reaches (flatwater and whitewater)
- High Recreation Corridors
- Nationwide Rivers Inventory
- Additional Wilderness Area Waters
- Plains and Northern Leopard Frog
- Preble's Jumping Mouse
- River Otter
- Yellow Mud Turtle
- Common Garter Snake
- Other Threatened and Endangered Fish Species

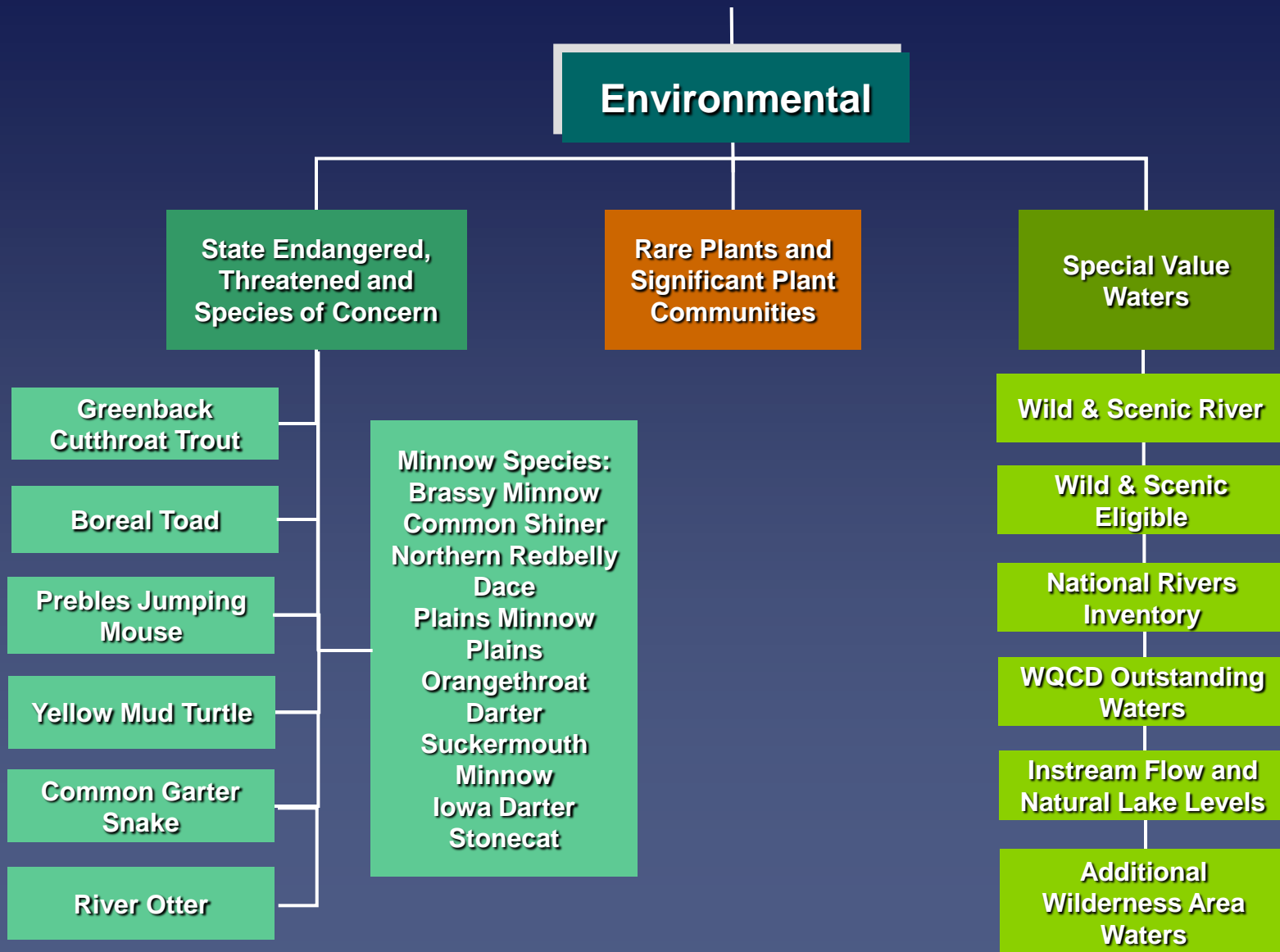
Process

- Develop environmental and recreational attribute maps (7 total for South Platte Basin)
- Map environmental and recreational attributes by HUC (7 total for South Platte Basin)
- Overlay HUCs to show where there is concentration of recreational and environmental attributes

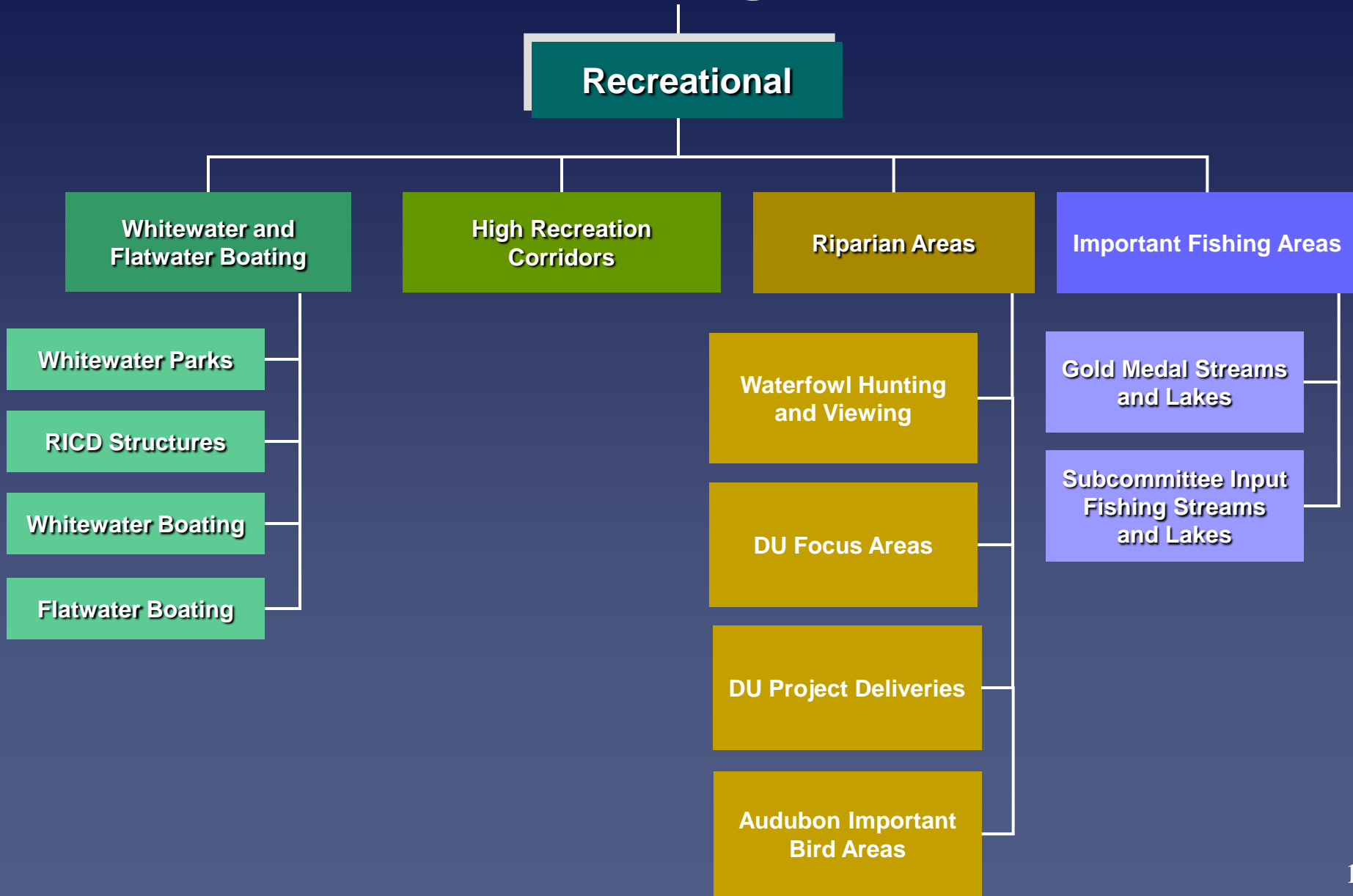
South Platte Basin Attribute Categorization



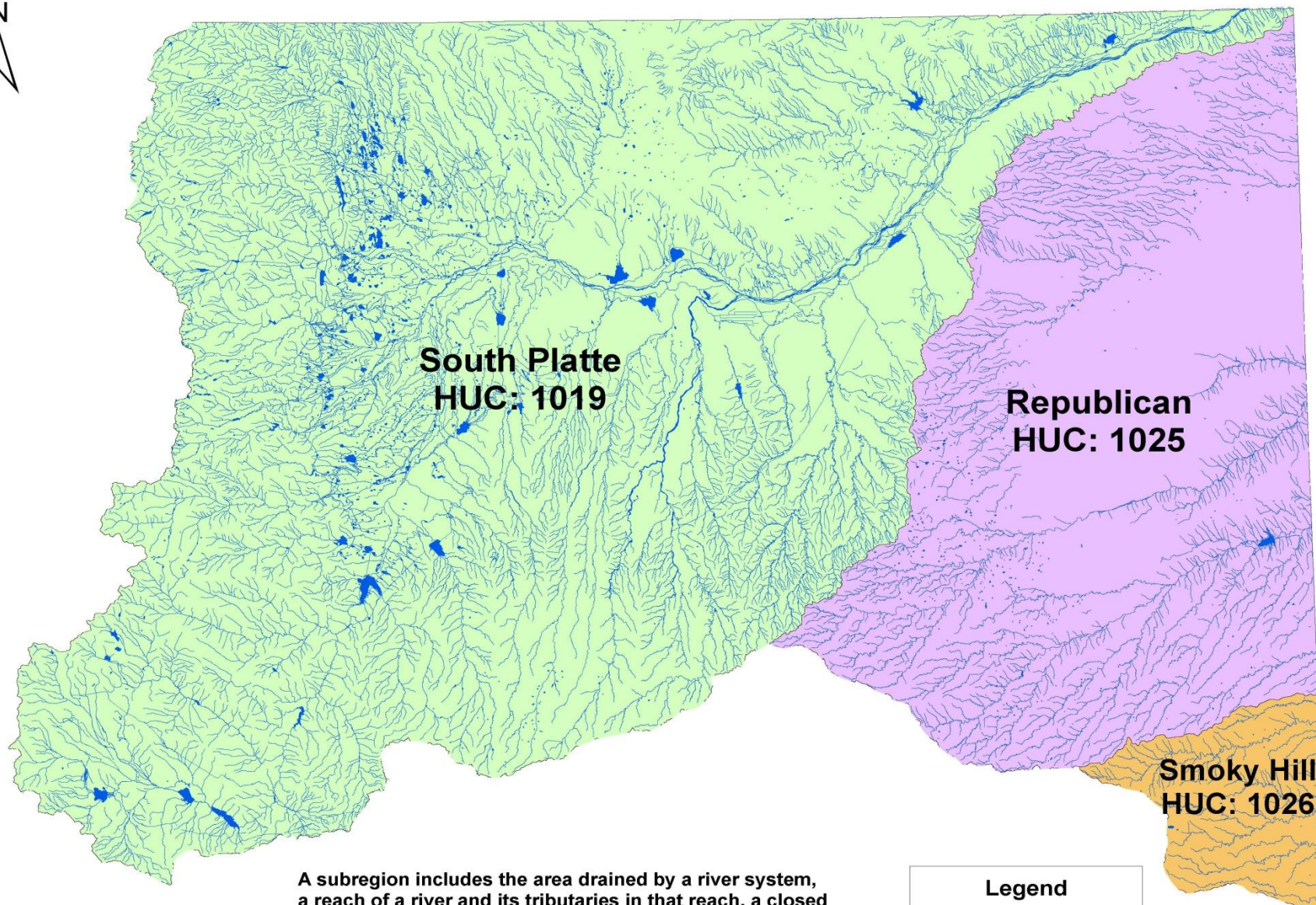
South Platte Basin Attribute Categorization



South Platte Basin Attribute Categorization





South Platte, Republican, and Smoky Hill Hydrologic Subregions of Colorado (4-Digit Hydrologic Unit Code)



Data from the following sources:
USGS, CWC

A subregion includes the area drained by a river system, a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area. There are 221 hydrologic subregions in the United States.

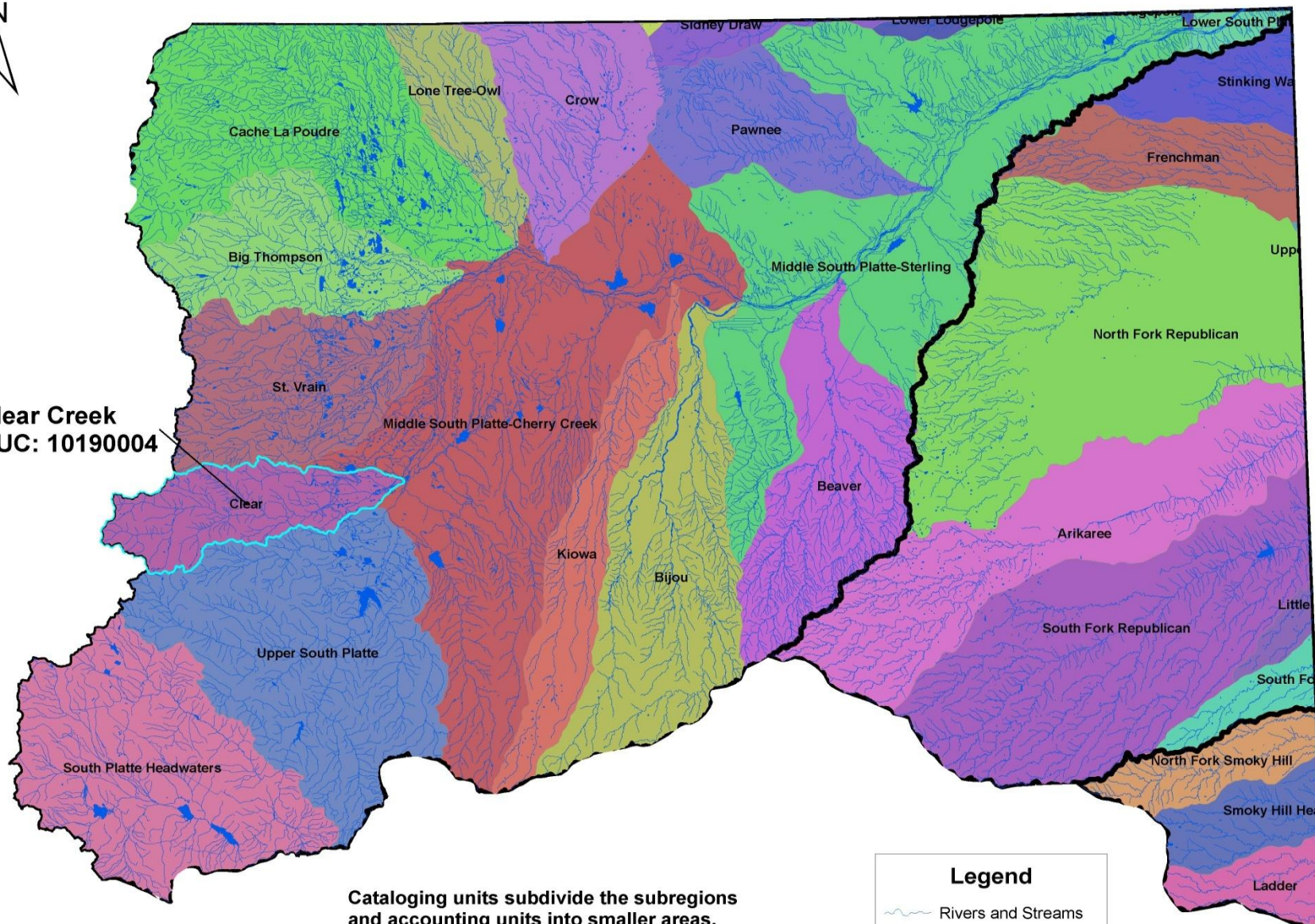
Legend

-  Rivers and Streams
-  Reservoirs and Lakes

Cataloging Units within the South Platte, Republican, and Smoky Hill Hydrologic Subregions of Colorado (8-Digit Hydrologic Unit Code)






Clear Creek
HUC: 10190004



Cataloging units subdivide the subregions and accounting units into smaller areas. There are 2264 Cataloging Units in the United States. Cataloging Units sometimes are called "watersheds."

Data from the following sources:
USGS, CWCB

Legend

-  Rivers and Streams
-  Reservoirs and Lakes
-  Subregion Boundary

Sub-Watersheds of Clear Creek Cataloging Unit (HUC: 10190004) (12-Digit Hydrologic Unit Code)



The first two digits identify the region,
the first four digits identify subregions,
the first six digits identify accounting units,
the first eight digits identify cataloging units,
the first ten digits identify watershed units,
and the full twelve digits identify subwatershed units.




West Fork Clear Creek
HUC: 101900040408



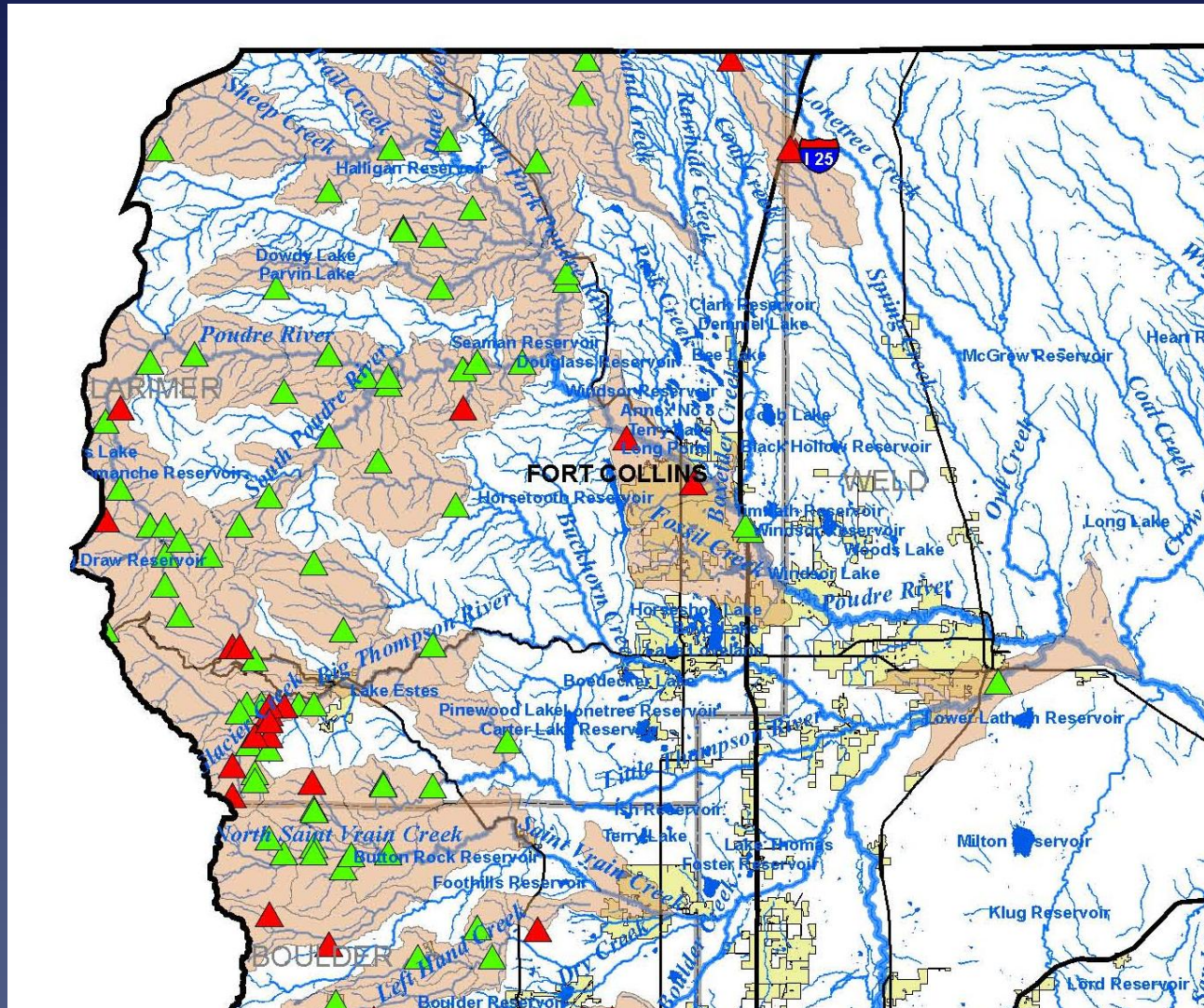
Cataloging Units, or watersheds, can be
further subdivided into sub-watersheds.
The smallest sub-division to date in
Colorado are 12-digit HUCs.

Data from the following sources:
USGS, CWCB

Legend

-  Reservoirs and Lakes
-  Rivers and Streams
-  12-Digit HUC Boundary

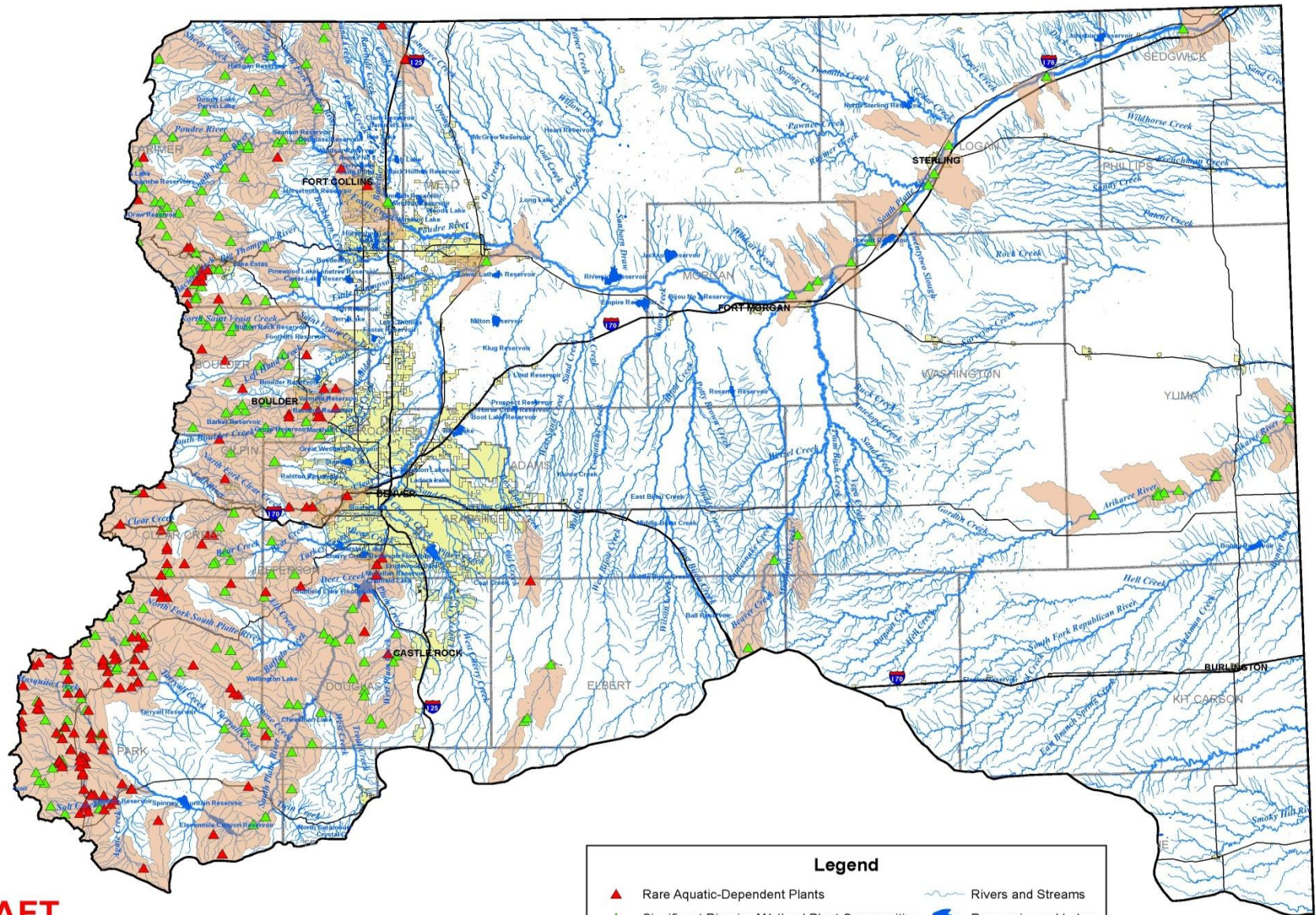
Example of Attribute and HUC Intersection



Environmental Attribute Maps

South Platte/Metro Basin Non-Consumptive Needs Assessment

Rare Aquatic-Dependent Plants and Significant Riparian/Wetland Plant Communities



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Data from the following sources:
CNHP, USGS, CWCB

0 5 10 20 30 40 Miles
Scale: 1:750,000

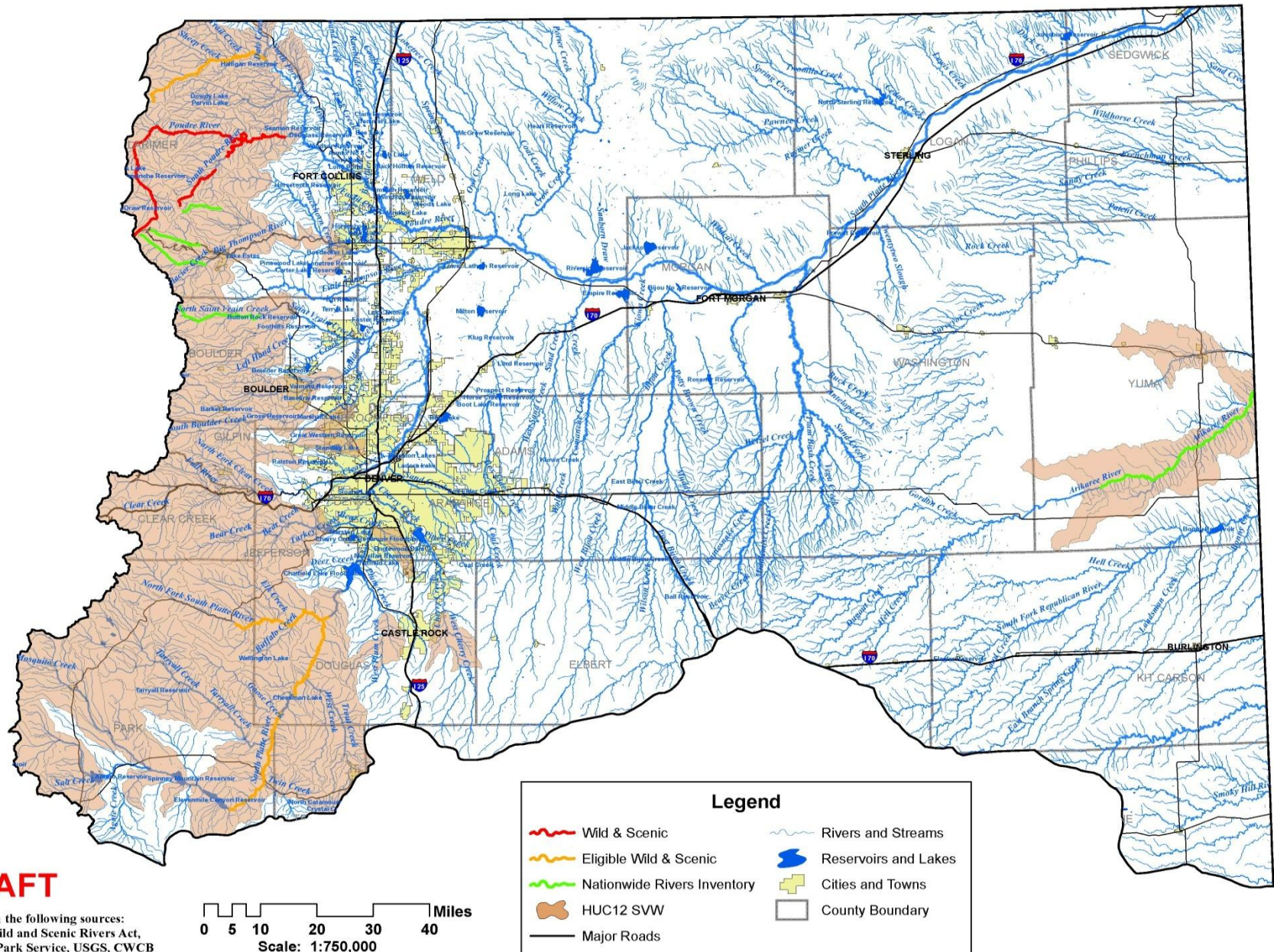
Legend

- ▲ Rare Aquatic-Dependent Plants
- ▲ Significant Riparian/Wetland Plant Communities
- HUC12 Plants
- Major Roads
- Rivers and Streams
- Reservoirs and Lakes
- Cities and Towns
- County Boundary

South Platte/Metro Basin Non-Consumptive Needs Assessment

Special Value Waters (1 of 2)

Wild & Scenic River Reaches, Eligible Wild & Scenic and Nationwide Rivers Inventory

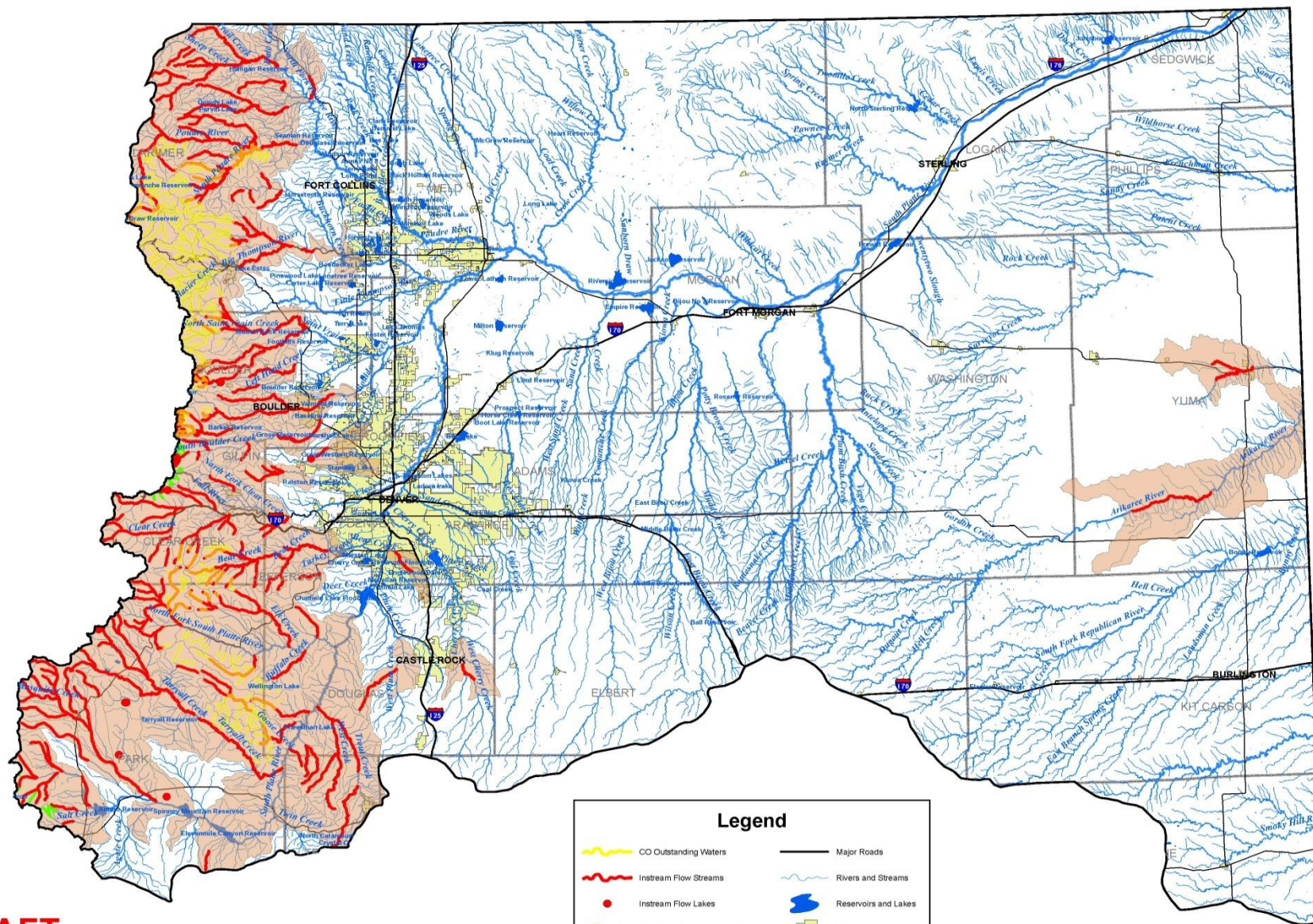


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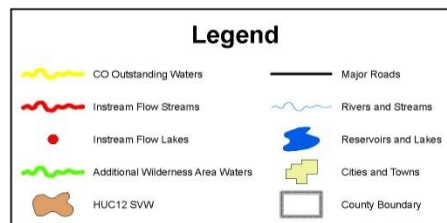
South Platte/Metro Basin Non-Consumptive Needs Assessment

Special Value Waters (2 of 2)

CO Outstanding Waters, Instream Flows and Natural Lake Levels



0 5 10 20 30 40 Miles
Scale: 1:750,000

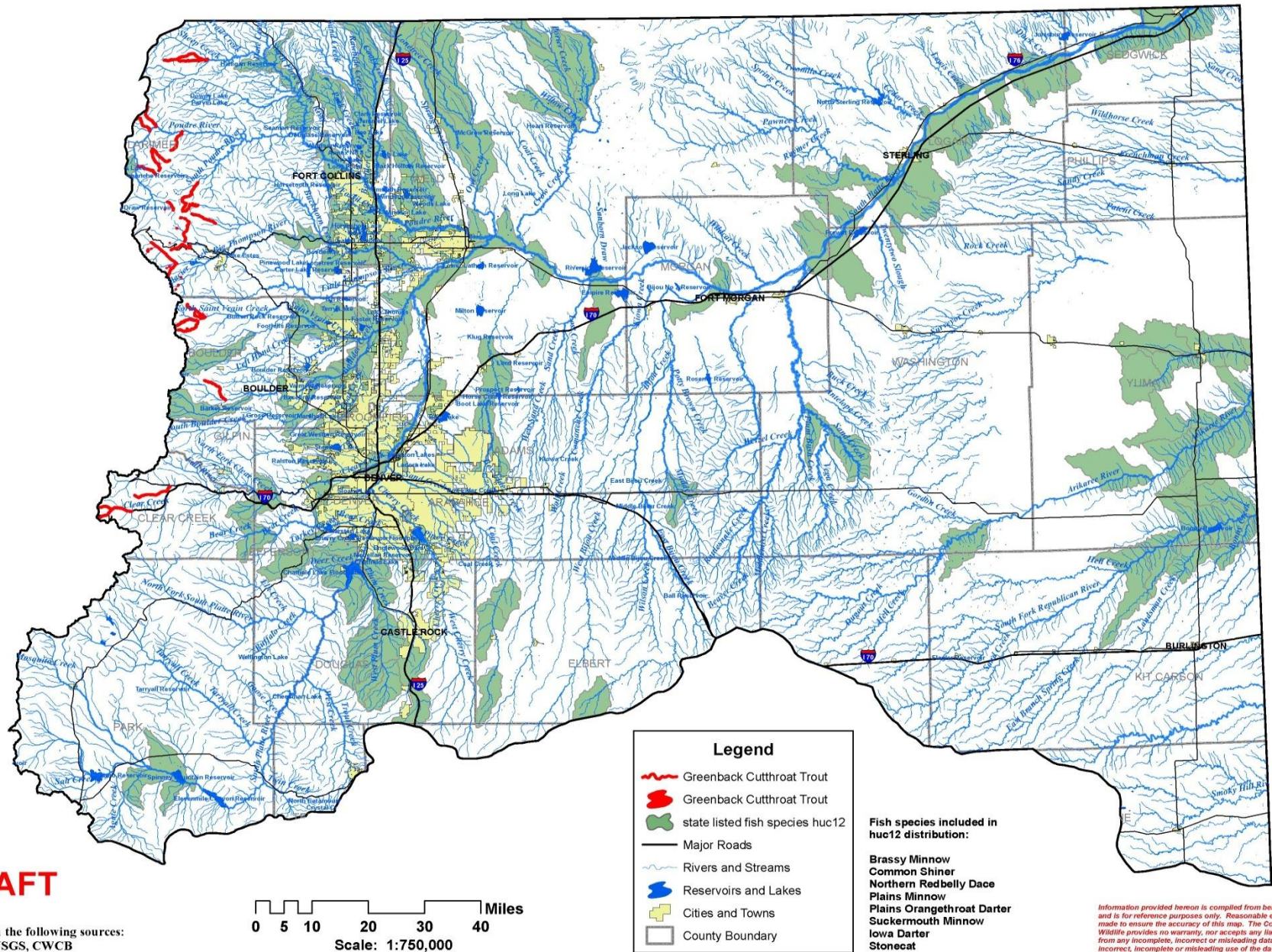


Note: = Both ISF and Outstanding Water

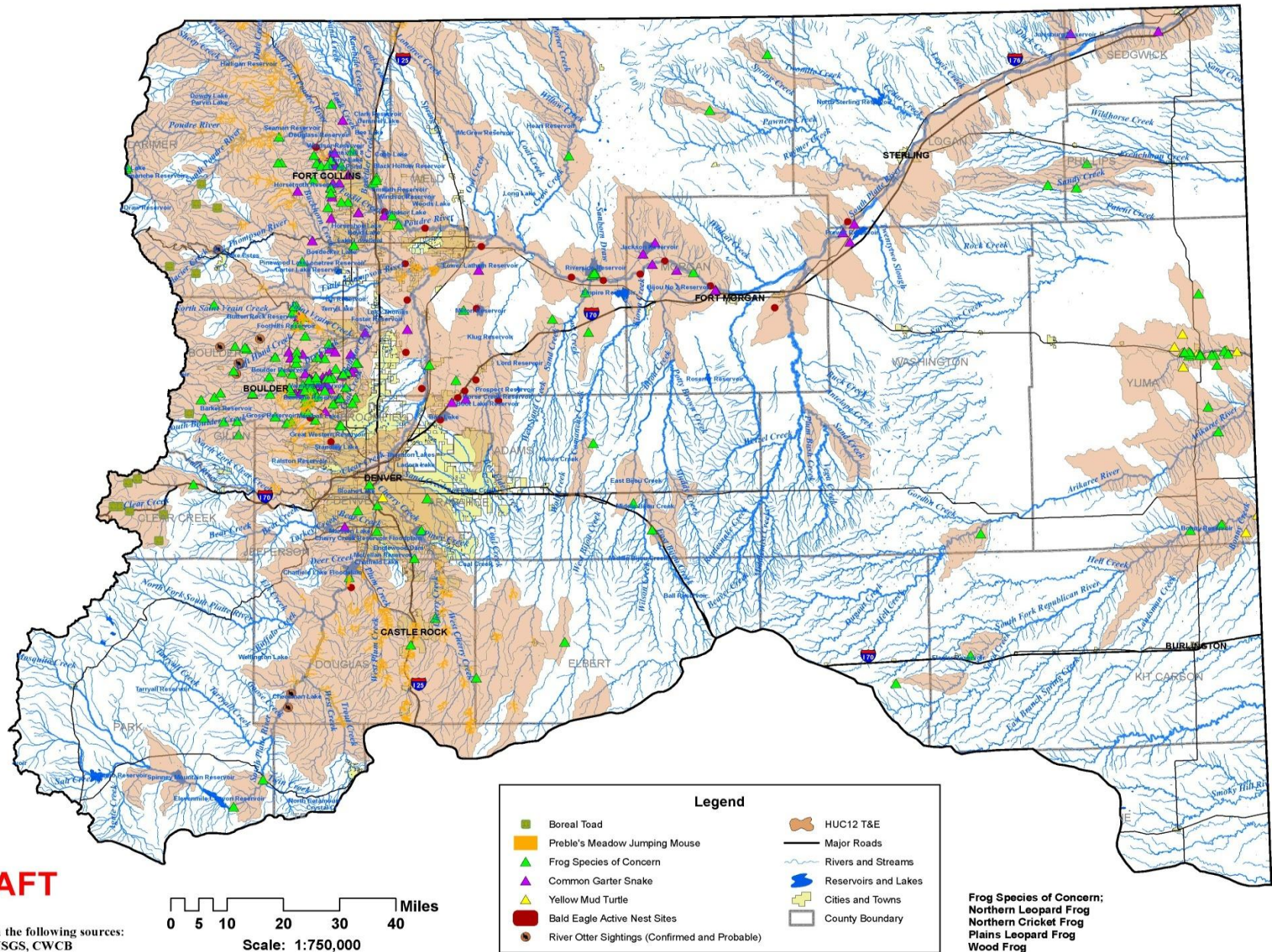
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Data from the following sources:
WQCD, USGS, CWCB

South Platte/Metro Basin Non-Consumptive Needs Assessment State Endangered, Threatened and Species of Concern (1 of 2)



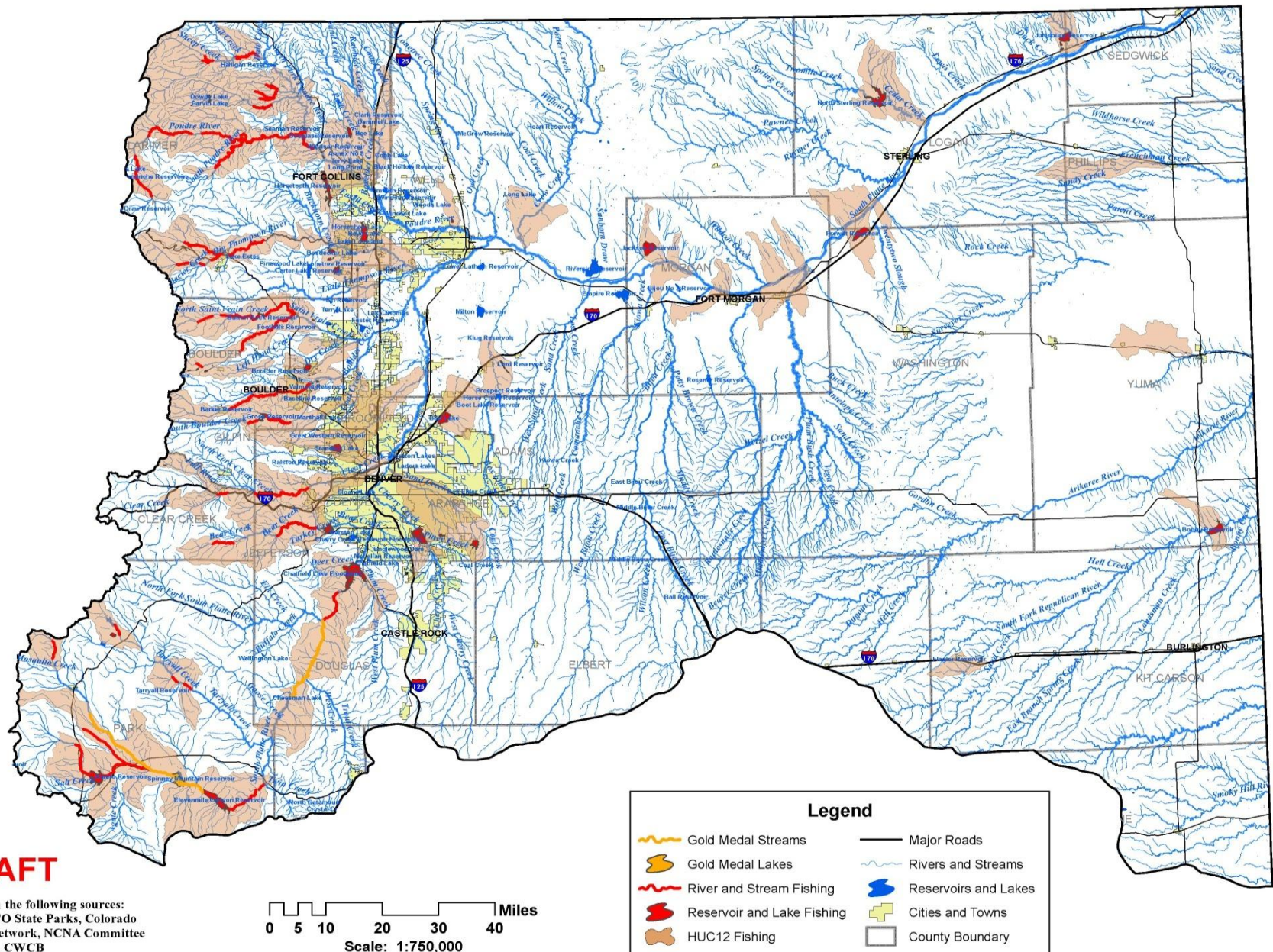
South Platte/Metro Basin Non-Consumptive Needs Assessment State Endangered, Threatened and Species of Concern (2 of 2)



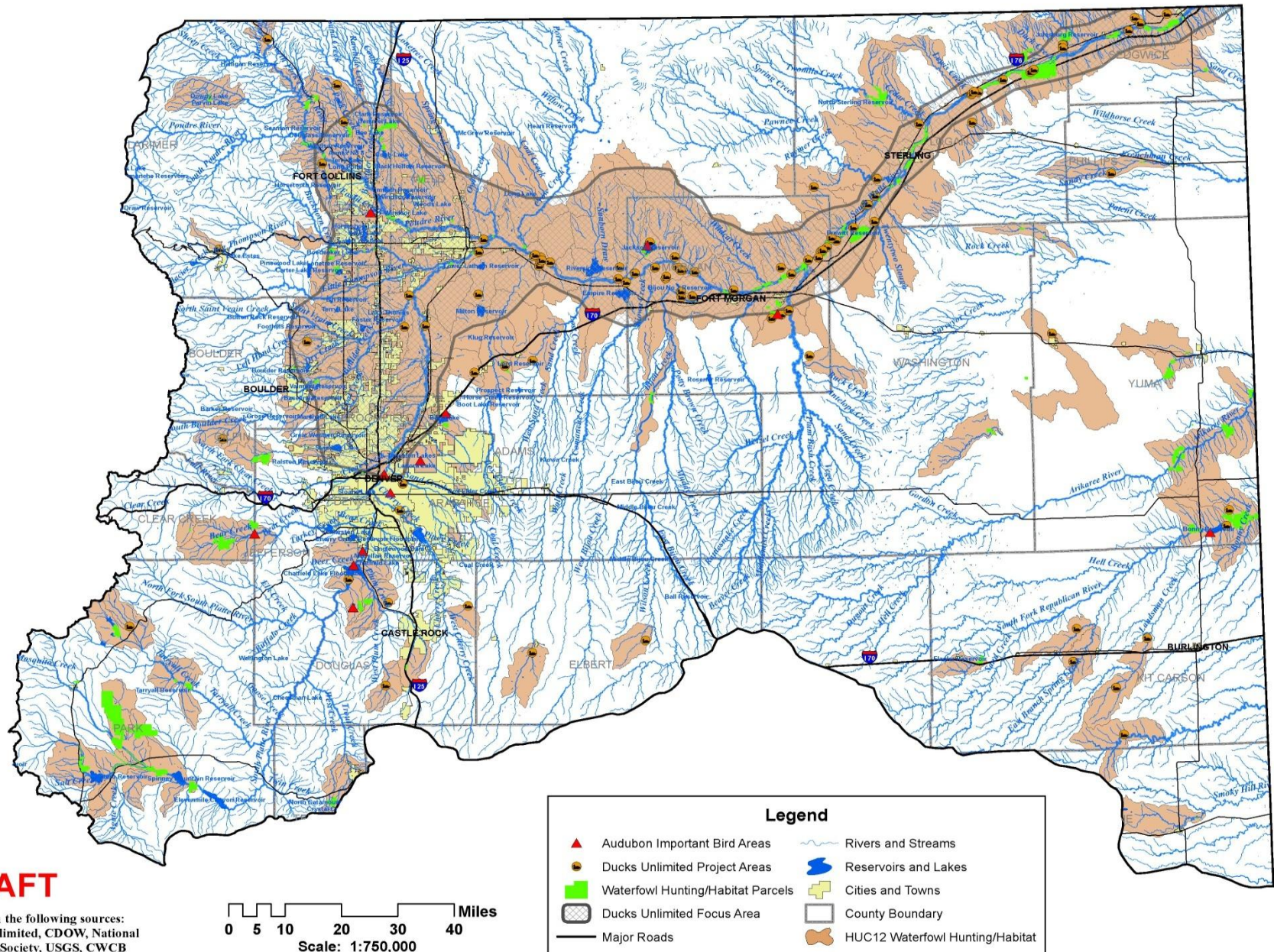
Recreational Attribute Maps

South Platte/Metro Basin Non-Consumptive Needs Assessment

Important Fishing Areas

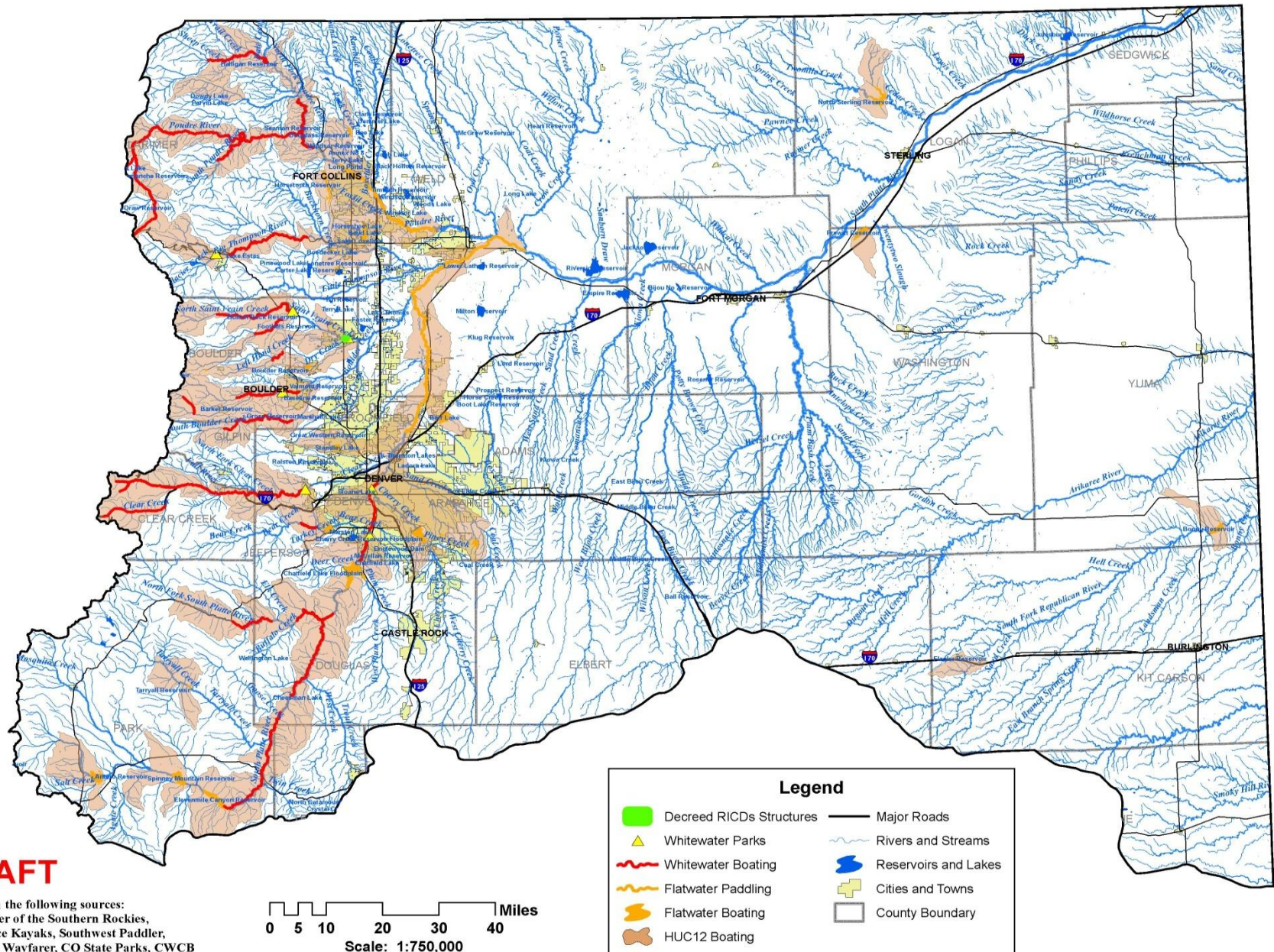


South Platte/Metro Basin Non-Consumptive Needs Assessment Waterfowl Hunting/Viewing and Habitat

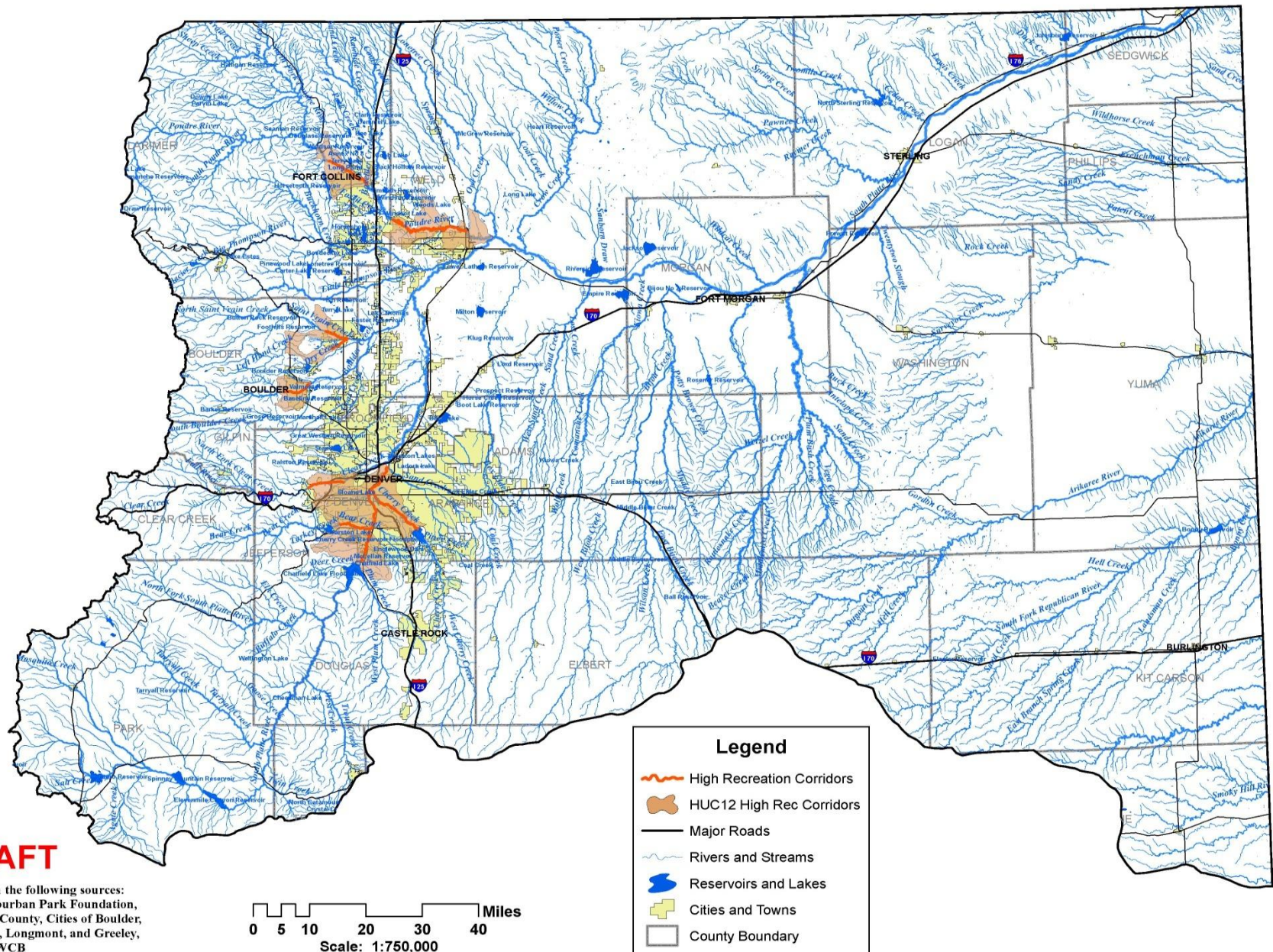


South Platte/Metro Basin Non-Consumptive Needs Assessment

Whitewater and Flatwater Boating



South Platte/Metro Basin Non-Consumptive Needs Assessment High Recreation Corridors



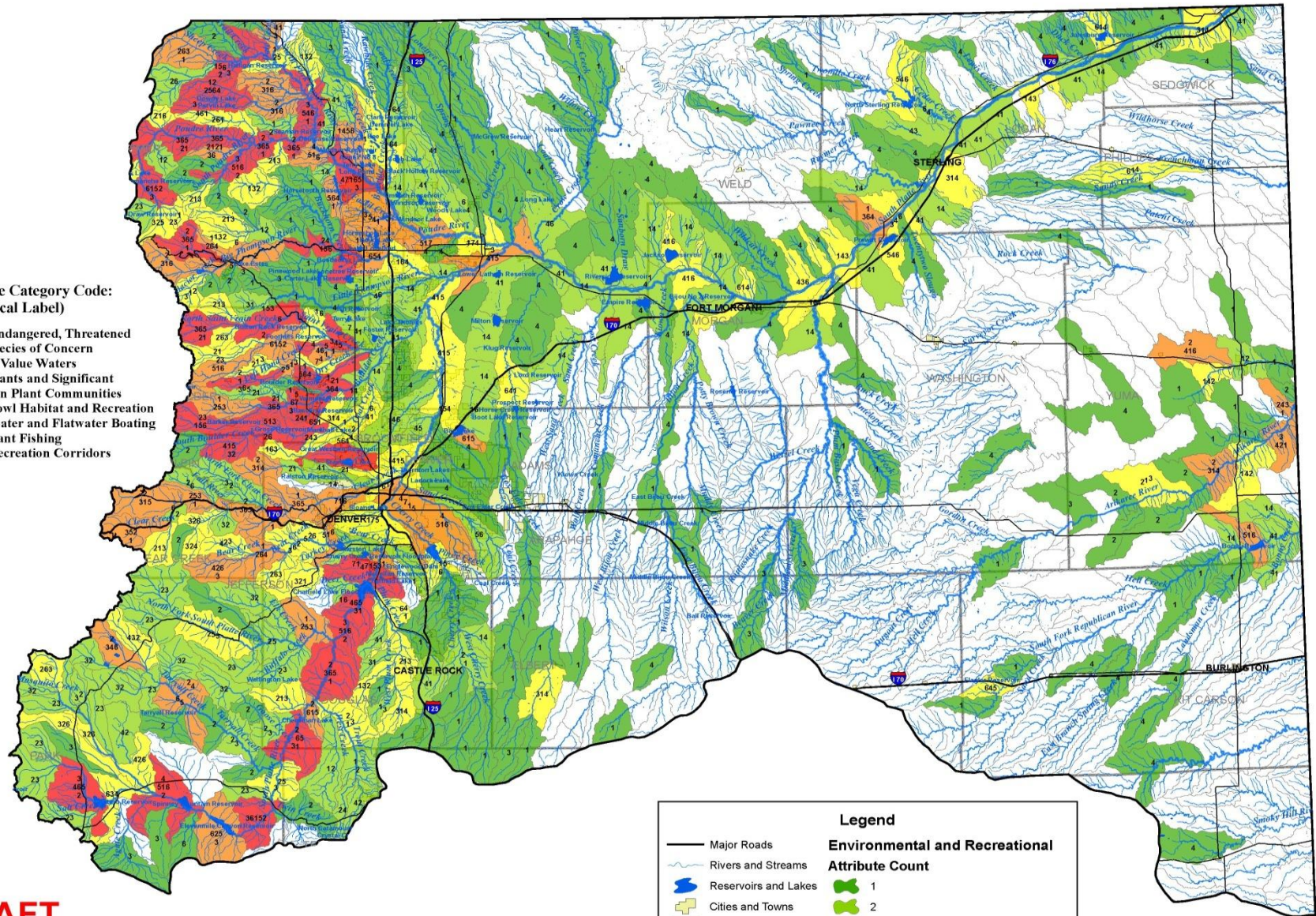
Combined Environmental and Recreational HUC Map

South Platte/Metro Basin Non-Consumptive Needs Assessment Environmental and Recreational Attribute Count per 12-Digit HUC



Attribute Category Code:
(Numerical Label)

- 1 State Endangered, Threatened and Species of Concern
- 2 Special Value Waters
- 3 Rare Plants and Significant Riparian Plant Communities
- 4 Waterfowl Habitat and Recreation
- 5 Whitewater and Flatwater Boating
- 6 Important Fishing
- 7 High Recreation Corridors



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Data from the following sources:
See Individual Attribute Maps,
USGS, CWC

0 5 10 20 30 40 Miles
Scale: 1:750,000

Legend

Environmental and Recreational Attribute Count

- Major Roads
- Rivers and Streams
- Reservoirs and Lakes
- Cities and Towns
- County Boundary

- 1
- 2
- 3
- 4
- 5 - 7

Next Steps

- Changes in attributes may be considered by the Roundtable
- Ensure adequate representation of all attributes
 - Identify areas of concern
 - Prioritize attributes
 - Detail needs on some reaches
- Quantification of water needs
- Implementation of projects to sustain and improve recreational and environmental attributes