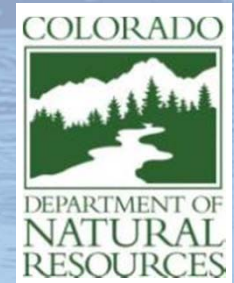


Colorado's Water Supply Future Nonconsumptive Needs Phase II

October 6, 2010

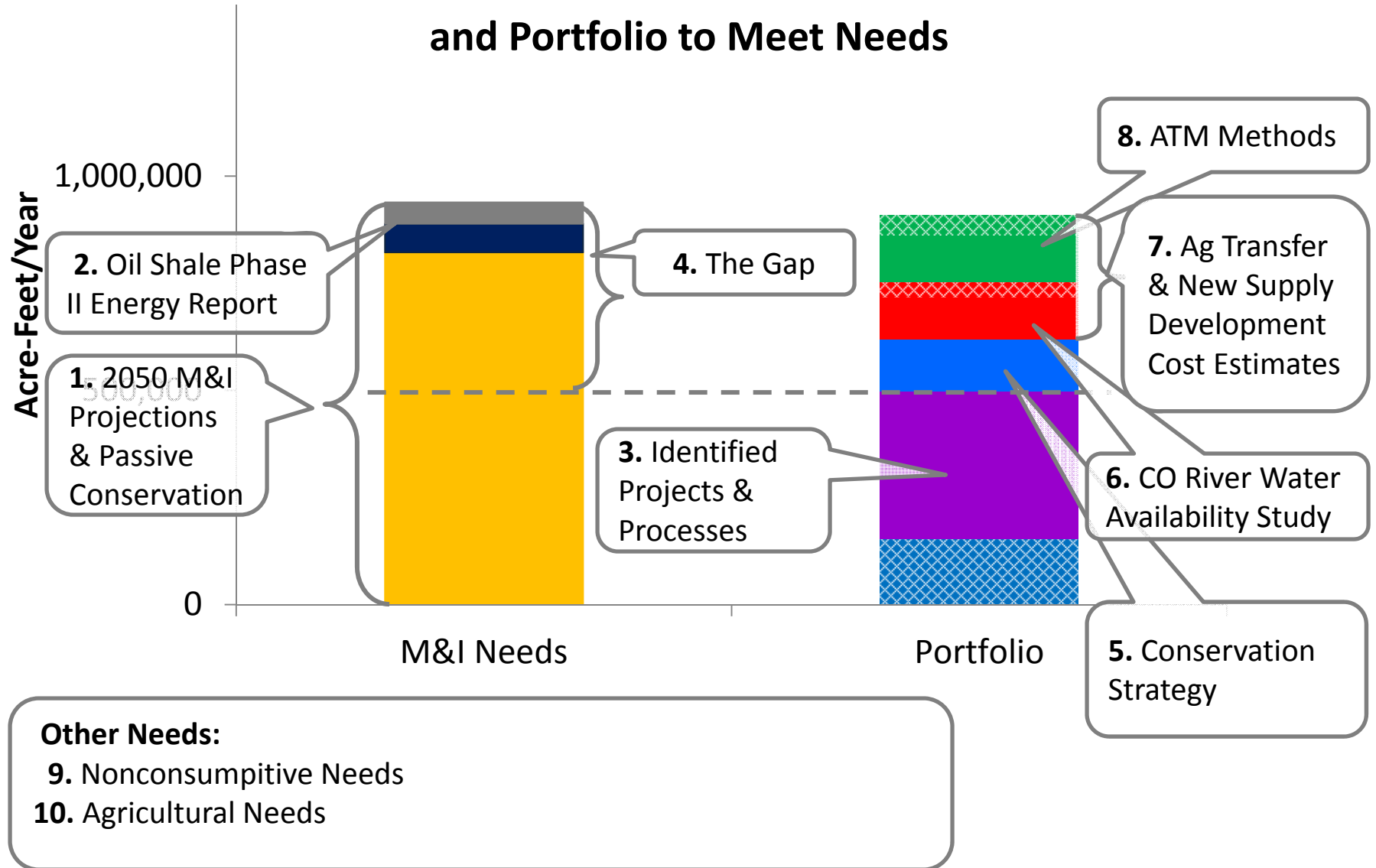
Why are we here (1)?

37-75-104 (2)(c). 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 utilizing those unappropriated waters where appropriate. Basin Roundtables shall actively seek the input and advice of affected local governments, water providers, and other interested stakeholders and persons in establishing its needs assessment, and shall propose projects or methods for meeting those needs. Recommendations from this assessment shall be forwarded to the Interbasin Compact Committee and other basin roundtables for analysis and consideration after the General Assembly has approved the Interbasin Compact Charter.

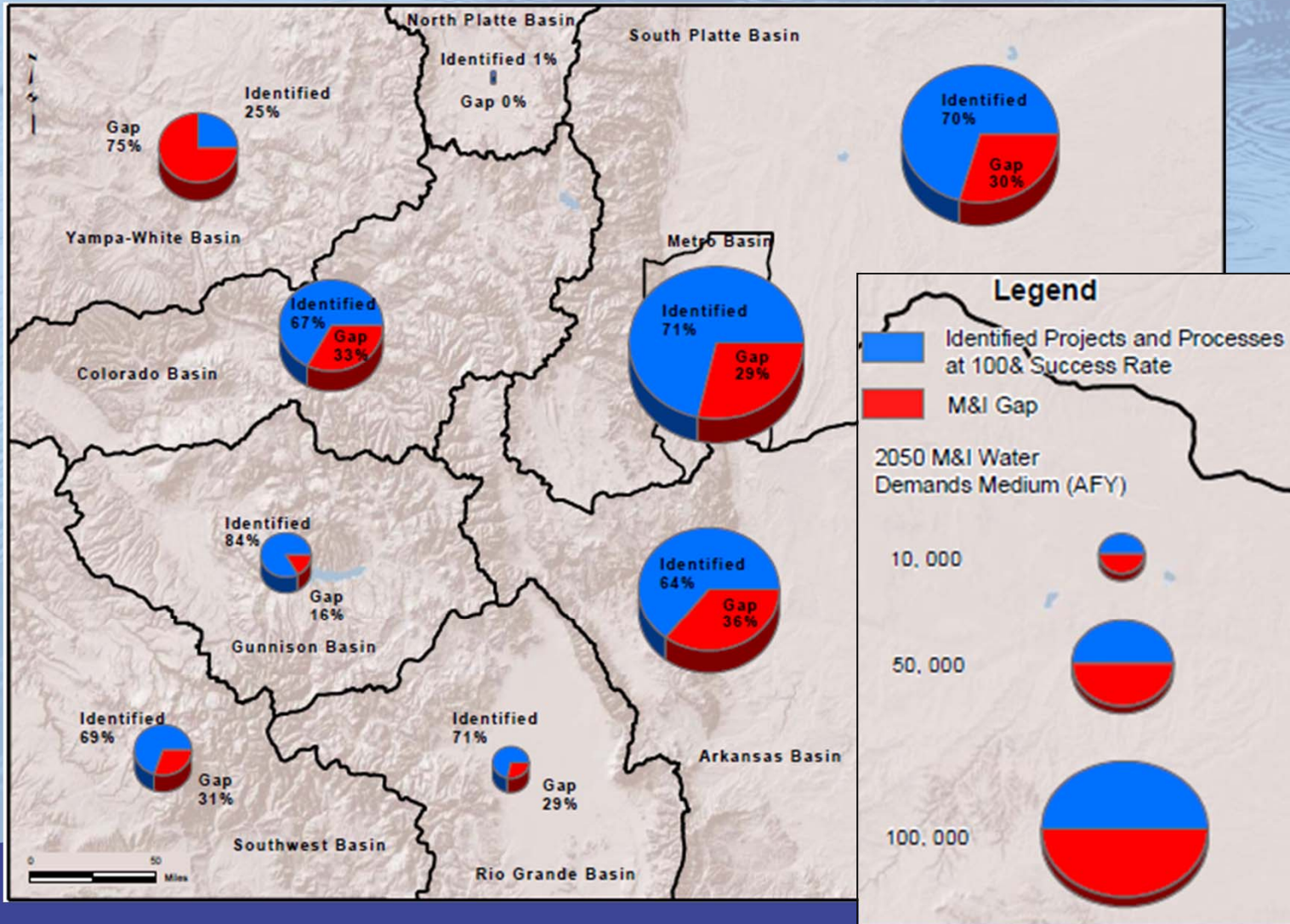


Reports in the M&I Context

State of Colorado 2050 M&I Needs and Portfolio to Meet Needs



2050 M&I/SSI Gap Analysis – Medium Demand Scenario



Colorado's Water Supply Future



Colorado Water Conservation Board
Nonconsumptive Needs Assessment Focus Mapping

July 2010

Prepared By:

Camp Dresser & McKee Inc.
Amy Ackerman, Water Resources Specialist

CDM

Colorado's Water Supply Future



Colorado Water Conservation Board
Watershed Flow Evaluation Tool Pilot Study for Roaring Fork and Fountain Creek Watersheds and Site-Specific Quantification Pilot Study for Roaring Fork Watershed

July 2010

Prepared By:

Camp Dresser & McKee Inc.
Brian Bledsoe, Ph.D., P.E., Colorado State University
Bill Miller, Ph.D., Miller Ecological Consultants, Inc.
LeRoy Poff, Ph.D., Colorado State University
John Sanderson, Ph.D., The Nature Conservancy
Thomas Wilding, Ph.D., Colorado State University

CDM



NONCONSUMPTIVE NEEDS ASSESSMENTS PHASE II

CDM

A Strategic Edge?

Have you ever wondered what's going on in a neighboring watershed or if there's even a group looking after it?

Have you worried about whether as a state we were collectively addressing our important environmental and recreational stream reaches in a systematic way?

The People Behind the Work

CWCB NCNA Needs Team:

- **Jacob Bornstein** (*Project Manager, Water Supply Planning Section*)
- **Eric Hecox** (*Water Supply Planning Section Chief*)
- **Linda Bassi** (*ISF Section Chief*)
- **Ray Alvarado** (*Data Section Chief*)
- **Chris Sturm** (*Stream Restoration Coordinator*)
- **Jeffrey Baessler** (*ISF Section*)
- **Taryn Hutchins-Cabibi** (*OWCDP Section*)
- **Ted Kowalski** (*Water Supply Protection Section*)

IBCC Governor Appointees:

- **Taylor Hawes** (*The Nature Conservancy*)
- **Melinda Kassen** (*Trout Unlimited*)

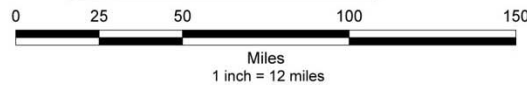
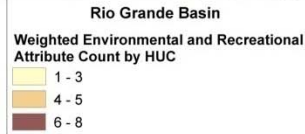
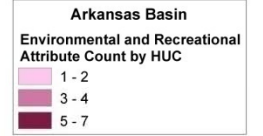
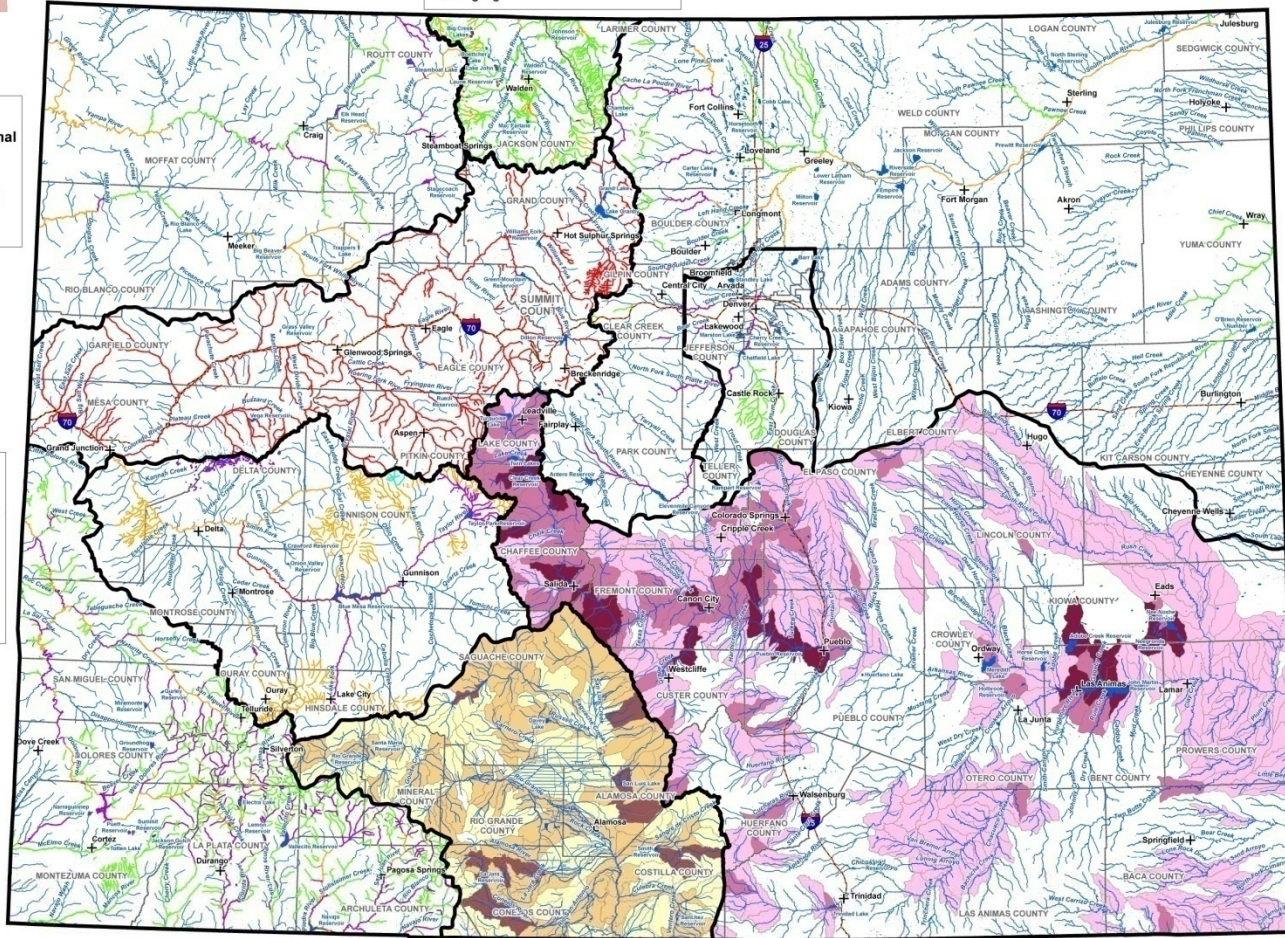
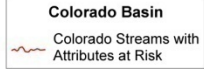
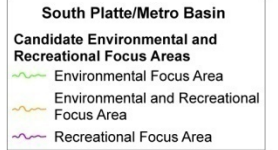
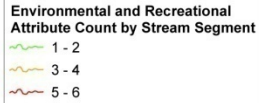
Technical Consulting Team:

- **Nicole Rowan** (*Camp, Dresser, McKee*)
- **John Sanderson** (*The Nature Conservancy*)
- **Amy Beatie** (*Colorado Water Trust*)
- **Adam Bergeron** (*The Nature Conservancy*)
- **Zack Smith** (*Colorado Water Trust*)

Phase I: Example Attributes, mapped & considered by the roundtables

- 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
- Arkansas Darter
- Greenback Cutthroat Trout
- Colorado Pikeminnow
- Bonytail Chub
- Flannelmouth Sucker
- Colorado River Cutthroat Trout
- Razorback Sucker
- Humpback Chub
- Greenback Cutthroat Trout
- Bluehead Sucker
- Rio Grande Cutthroat Trout
- Rio Grande Sucker
- Roundtail Chub
- Gold Medal Trout Streams
- Gold Medal Trout Lakes
- Recreational In-Channel Diversions
- Rafting and Kayak reaches
- Eligible/Suitable Wild & Scenic Reaches

Statewide Nonconsumptive Needs Assessment Focus Areas Maps

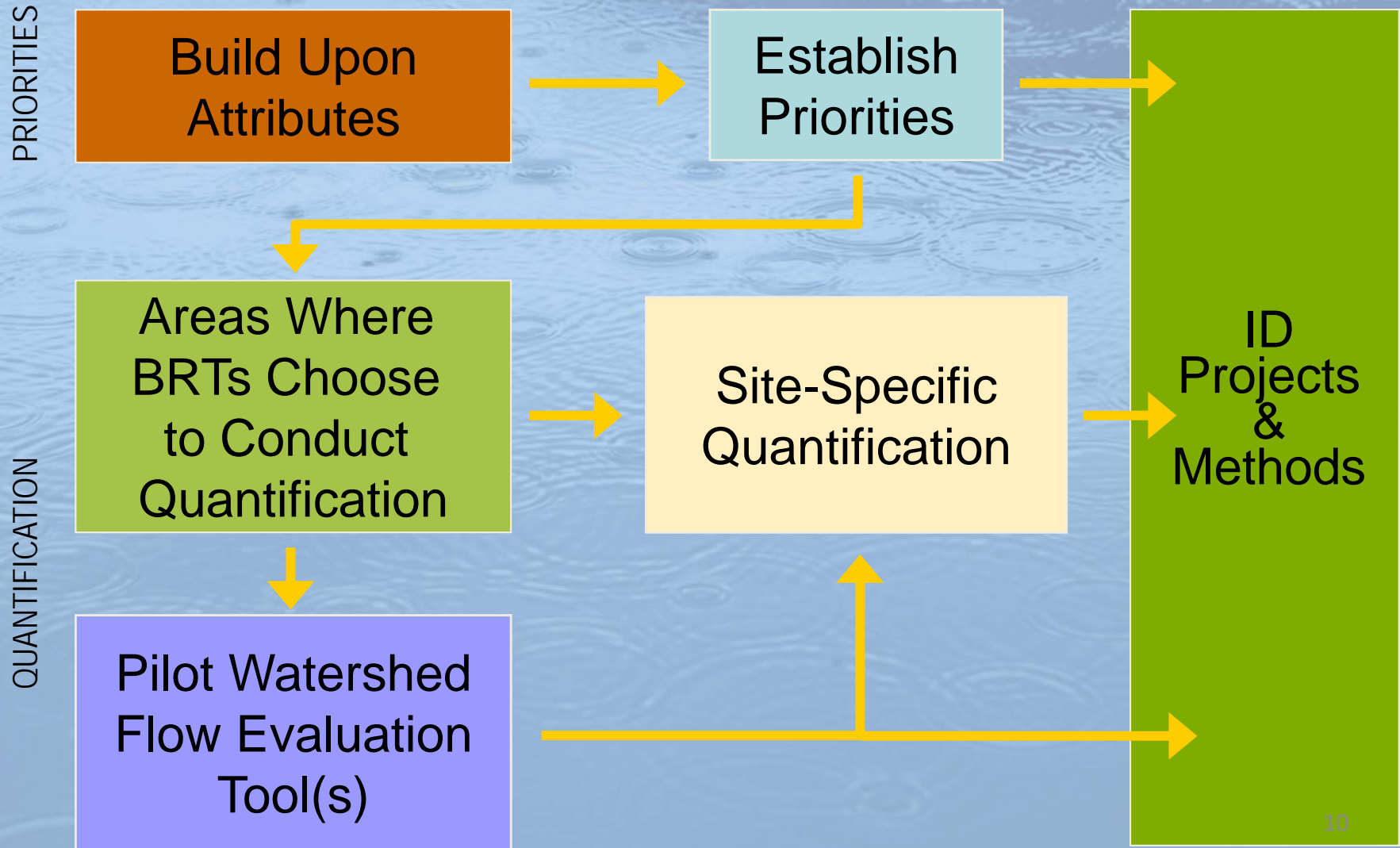


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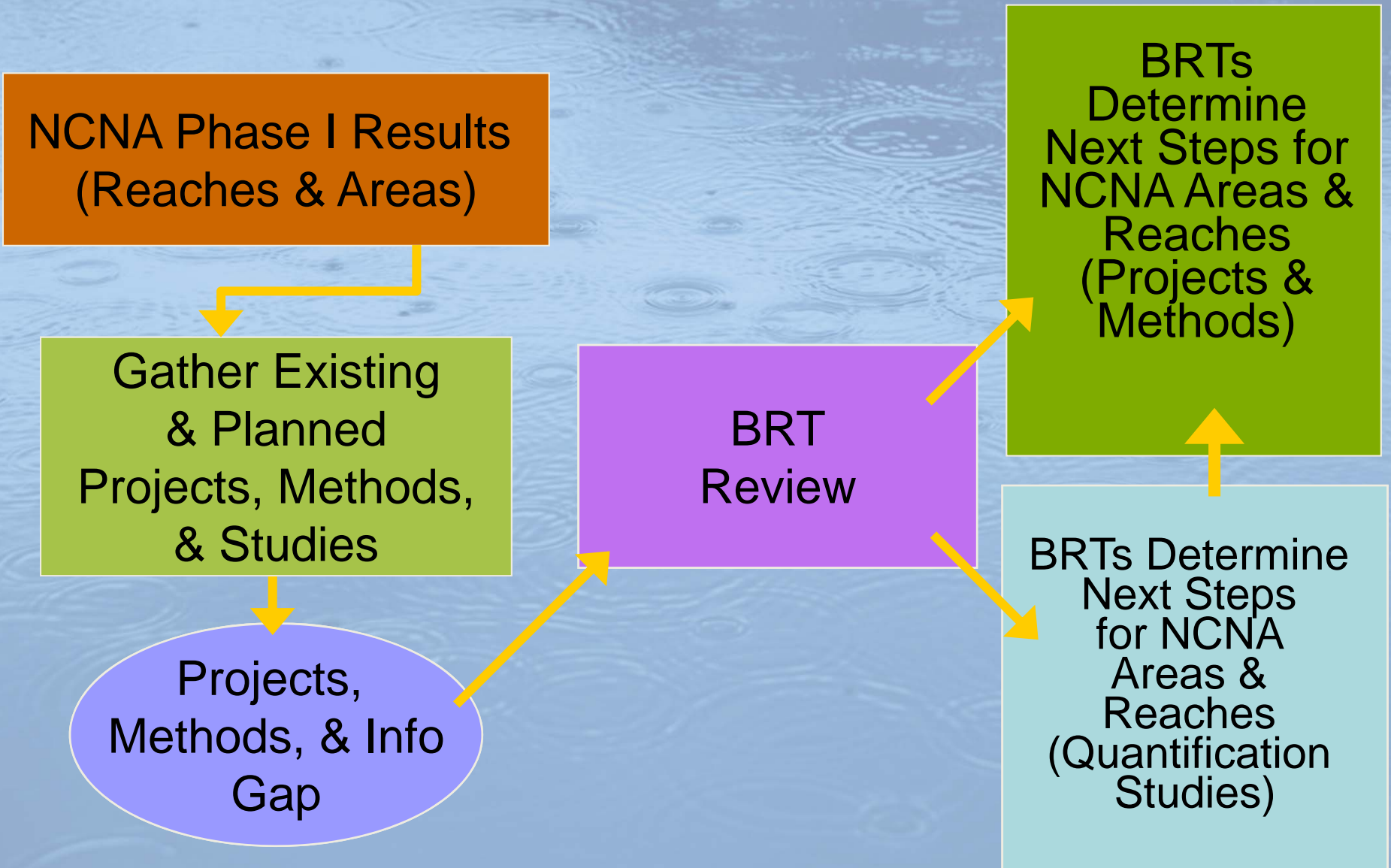
** Note: See individual basin maps for detailed Needs Assessment information. **



Nonconsumptive Needs Assessment Methodology



Phase II NCNA Methodology Detail



SIX THINGS YOU CAN TELL US:

1. Existing projects or methods
by stream reach, for which attributes, & what sources of info
2. Existing studies, especially quantification
by stream reach, for which attributes, & what sources of info
3. Planned projects or methods
by stream reach, for which attributes, & what sources of info
4. Planned studies
by stream reach, for which attributes, & what sources of info
5. Potential next steps for the roundtables to consider.
6. Who are we missing (and contact info)

Why are we here?

1. To collectively understand what is going on for environmental and recreational needs in the state...
2. So that we can understand what work still needs to be done (defining the nonconsumptive “gap.”)
3. Because nonconsumptive needs will continue to be important as we have increased competition for water resources in the future (e.g. population growth, climate change, & drought)



So that we can...

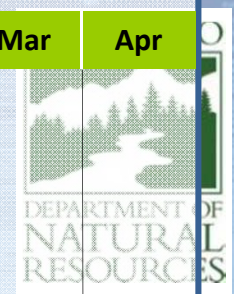
PLAN Upfront

- Provide valuable information to the roundtables so that they can determine sufficiency of protection and next steps
- Determine where CWCB should look at funding and supporting nonconsumptive projects
- Avoid long National Environmental Policy Act (NEPA) and litigation processes (be a useful guide for water supply planning up front),
- Avoiding Endangered Species Act “train wrecks” (help plan to prevent species of special concern from becoming federally listed),
- Inform Wild & Scenic Process
- Point to win/win opportunities for future multi-objective projects, and
- Help identify where future conflicts may occur

NCNA Phase II Schedule



MILESTONE	2010						2011			
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Develop List of Projects and Methods	FINAL									
Deliver Projects and Methods to BRTs										
Develop Geodatabase of Projects and Methods										
Mapping Analysis										
Outreach to BRTs <ul style="list-style-type: none"> • Review Initial "Gap Areas" • Areas for BRT Focus • Support for Planned or Recommended Projects 										
Incorporate Results into Statewide Needs Assessment Report										
Roundtables Finalize Methods to Address Nonconsumptive Needs										



Statewide Summary of Nonconsumptive Projects and Methods Status

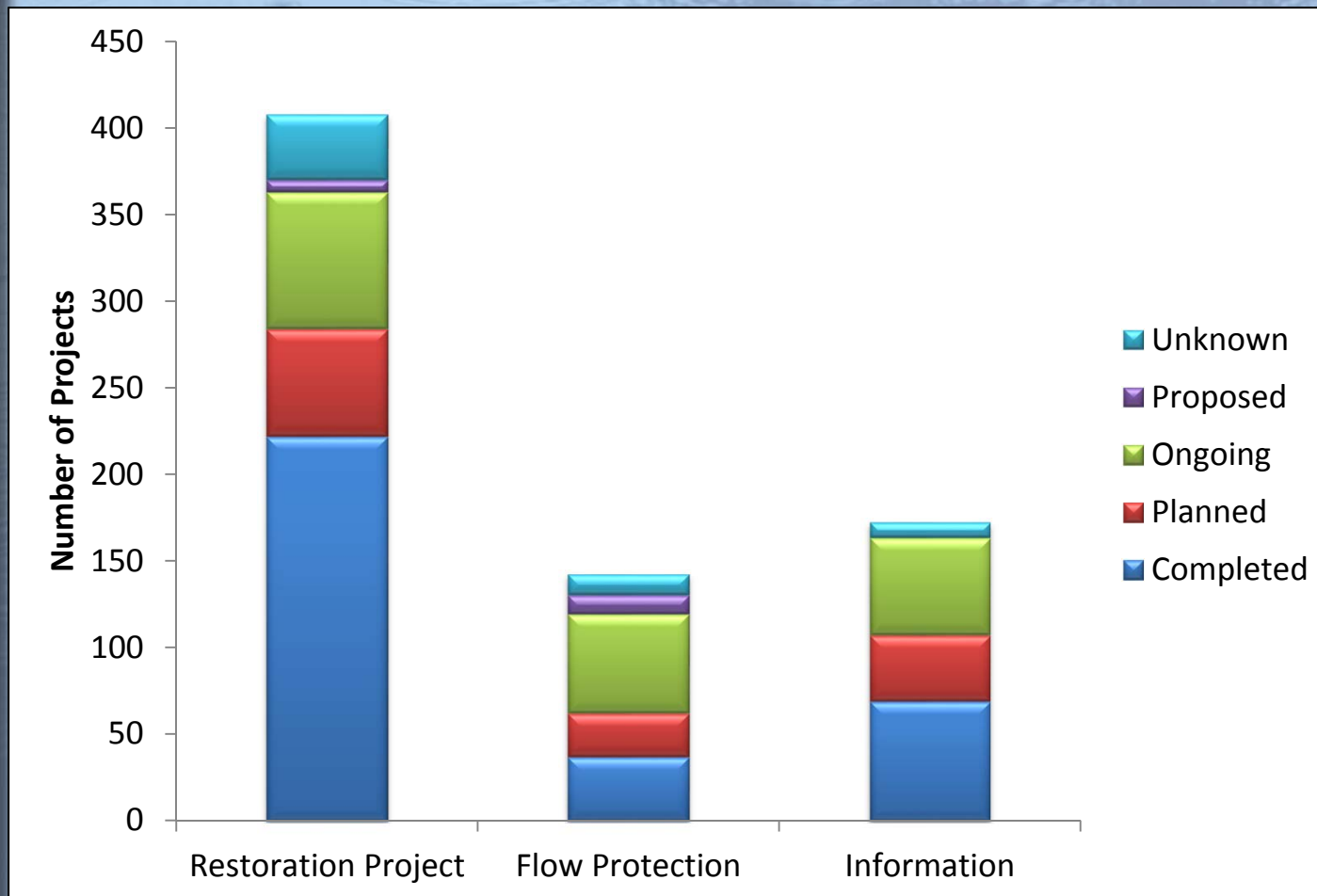


Project and Methods Status	# of Projects and Methods
Completed	343
On-going	195
Planned	127
Proposed/Recommended	18
Unknown	17
TOTAL	700

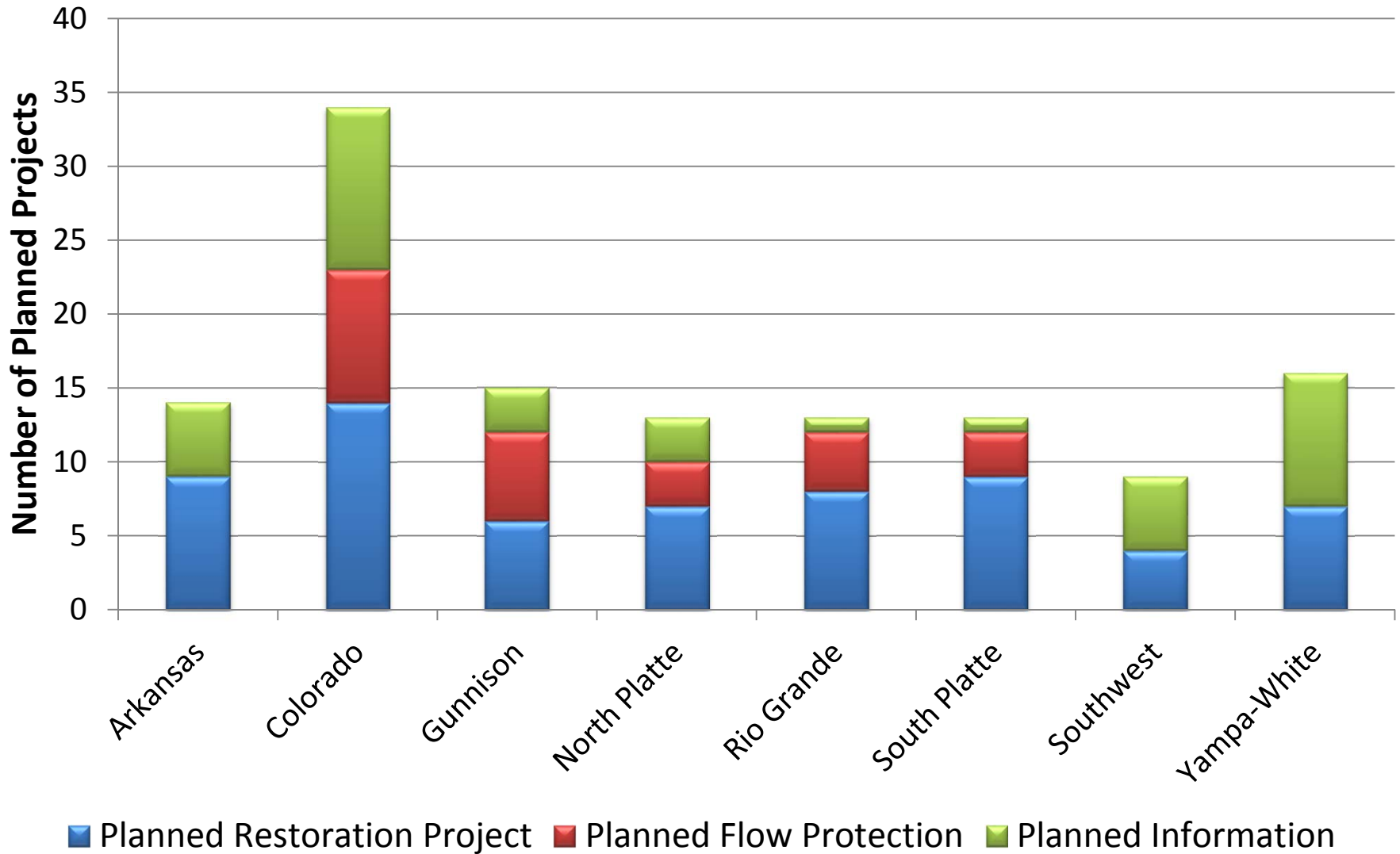
Project and Methods Status	# of Projects and Methods
Restoration Project	392
Flow Protection	142
Information	172
Unknown	5
TOTAL	727

* Some overlap occurs between project and methods types

Statewide Summary of Nonconsumptive Projects and Methods Status



Planned Projects and Methods by Basin



NCNA Phase 2 Products

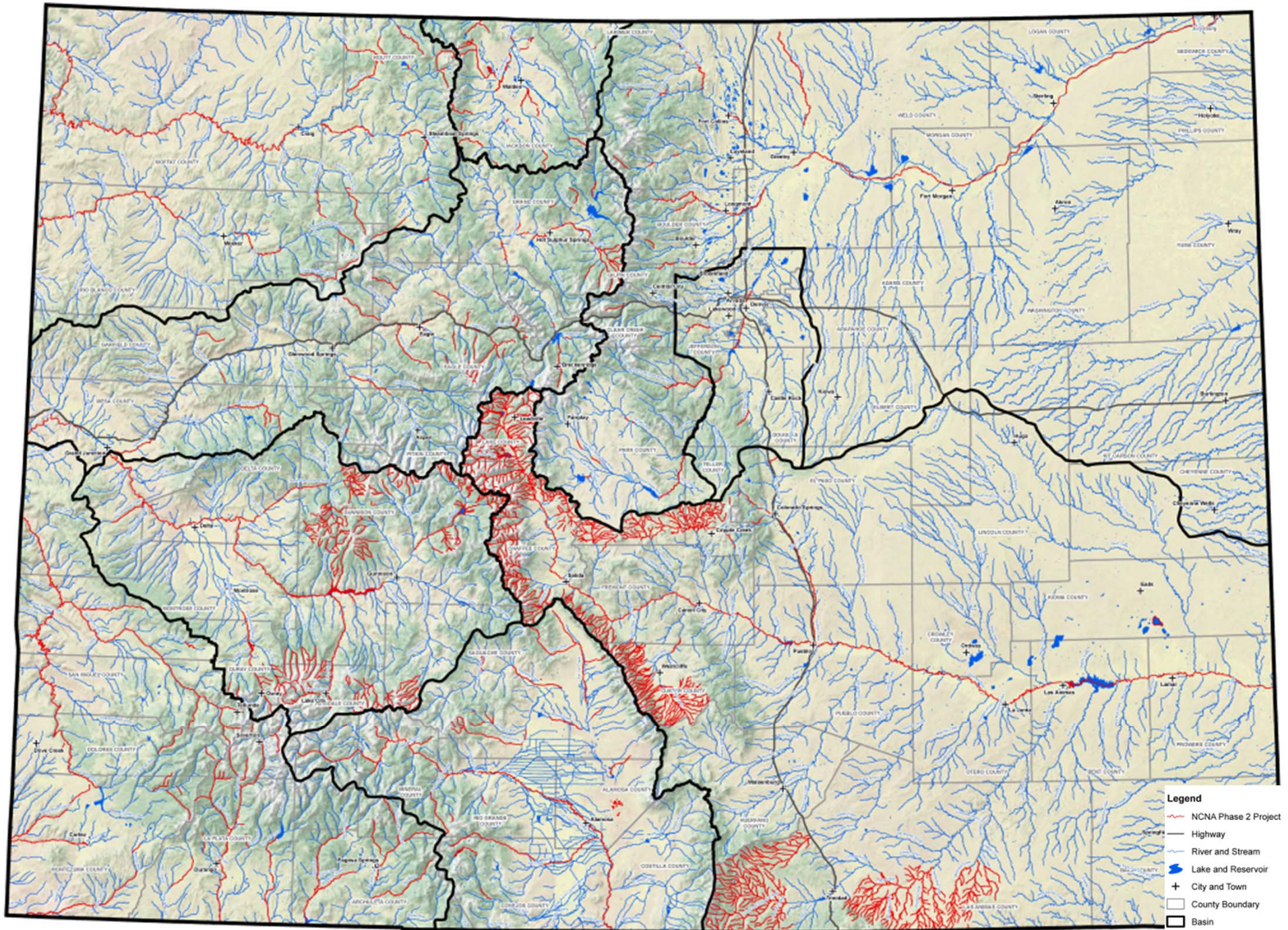


- Database of Nonconsumptive IPPs and Studies
- Nonconsumptive “Gap” Map based on Phase 1 focus areas and Identified Projects and Processes (IPPs)
- Identify planned and on-going projects for roundtable consideration
- For focus areas, identify percentage of a given attribute is provided “protection” from IPPs (i.e. what percentage of trout is protected...)

Identified Projects and Processes

- Survey/Interviews and CWCB Data
 - Statewide survey of basin stakeholders and CWCB outreach
 - CWCB Watershed Grant Projects
 - Water Supply Reserve Account Projects
- Instream Flows
- Land ownership protection for streams





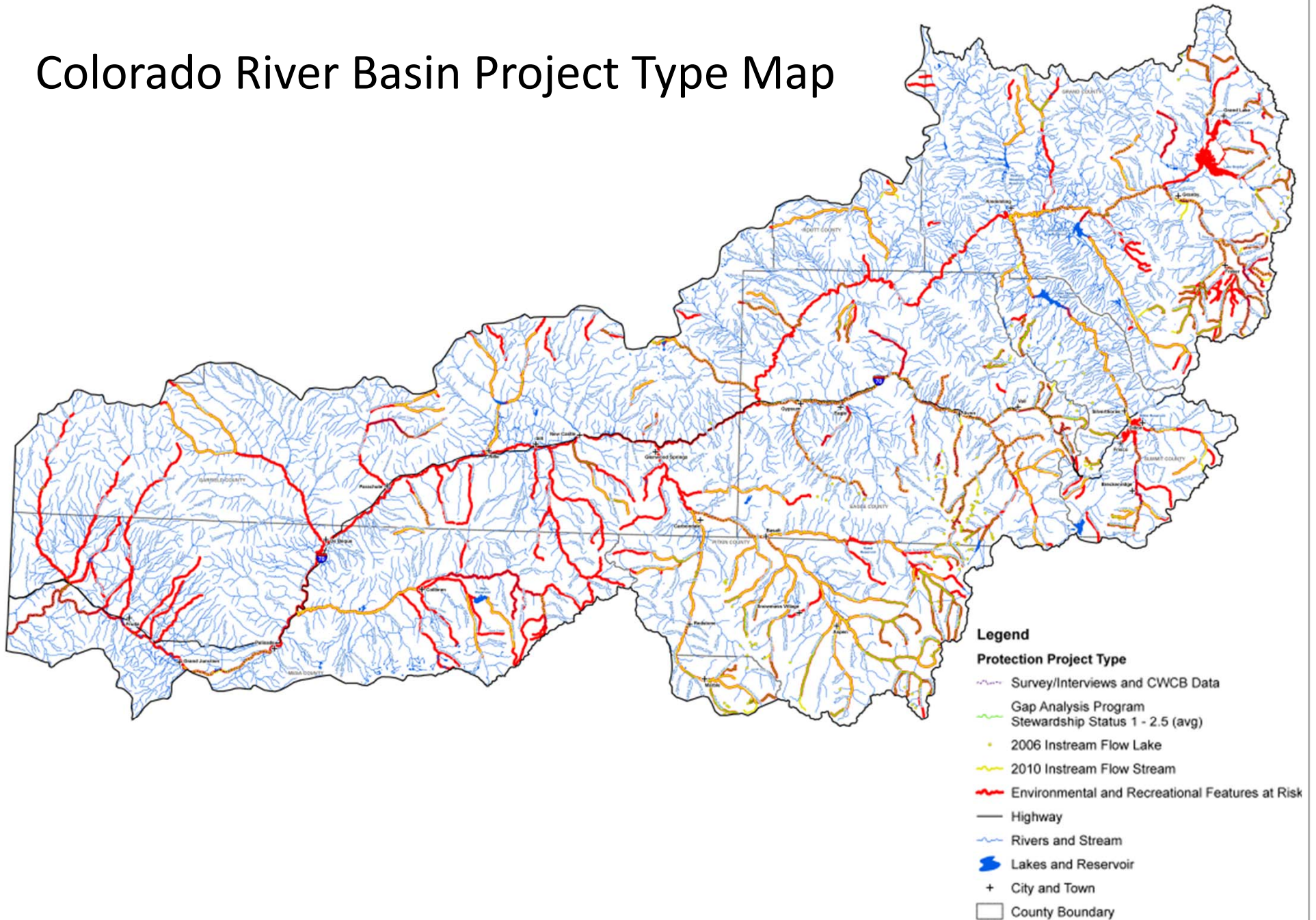
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NCNA “Gap” Map Methodology

- Identify IPPs that provide protection (i.e. completed project, instream flow, etc.)
- Using GIS, intersect IPPs and focus areas
- Map “gap” areas
 - Distinguish between planned and completed projects
 - Indicate if studies are planned for gap areas

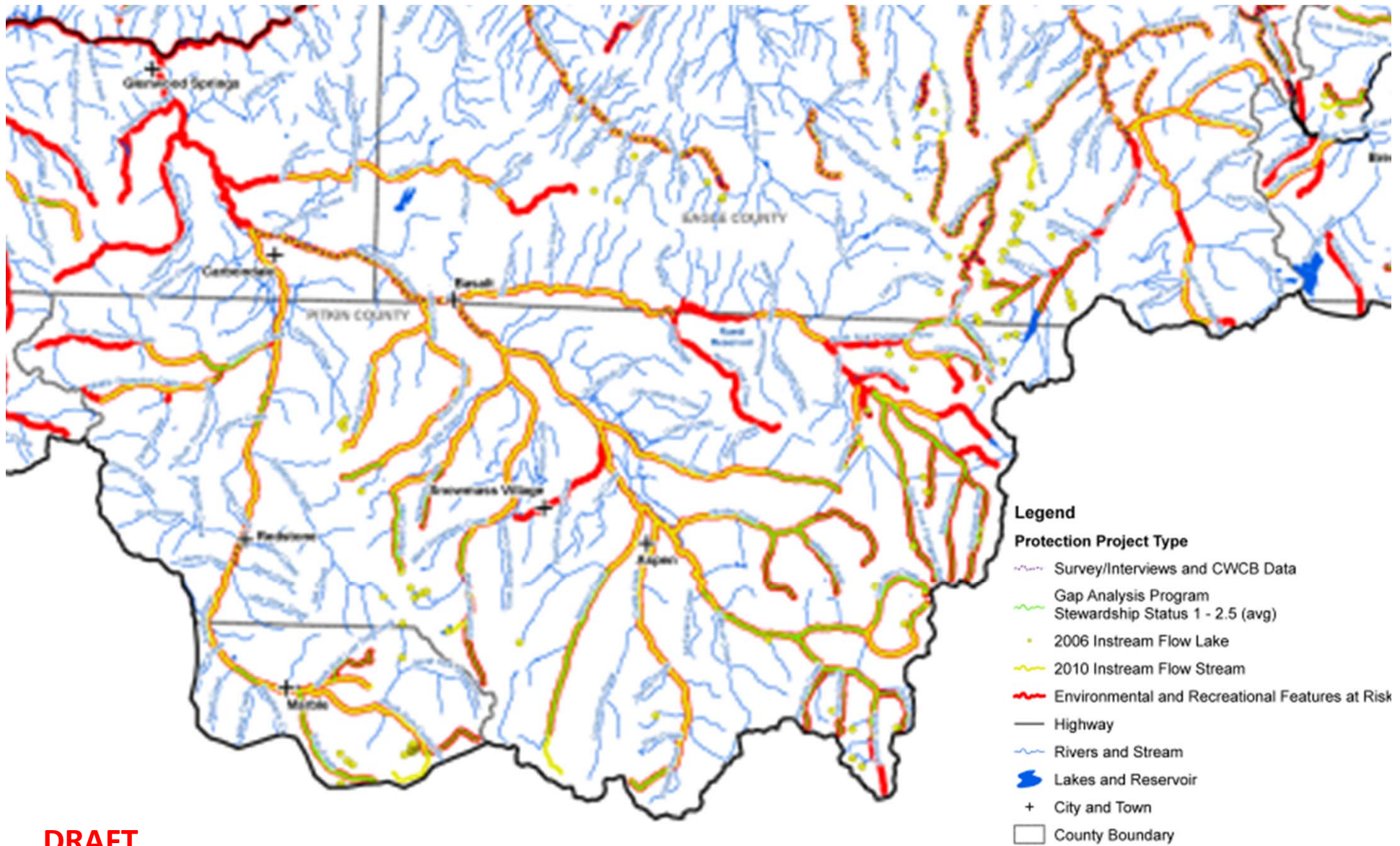


Colorado River Basin Project Type Map



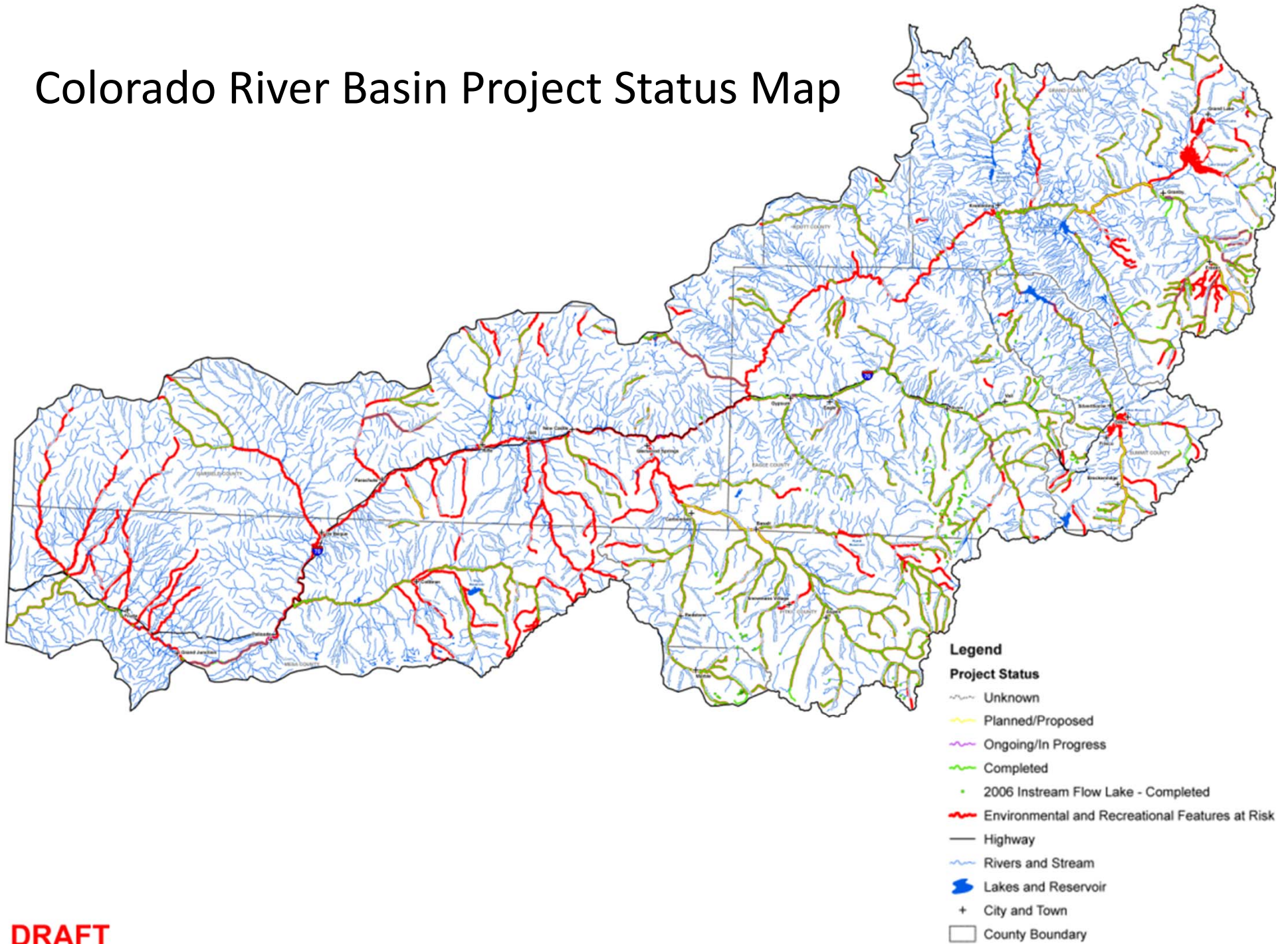
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Colorado River Basin Project Type Map Detail



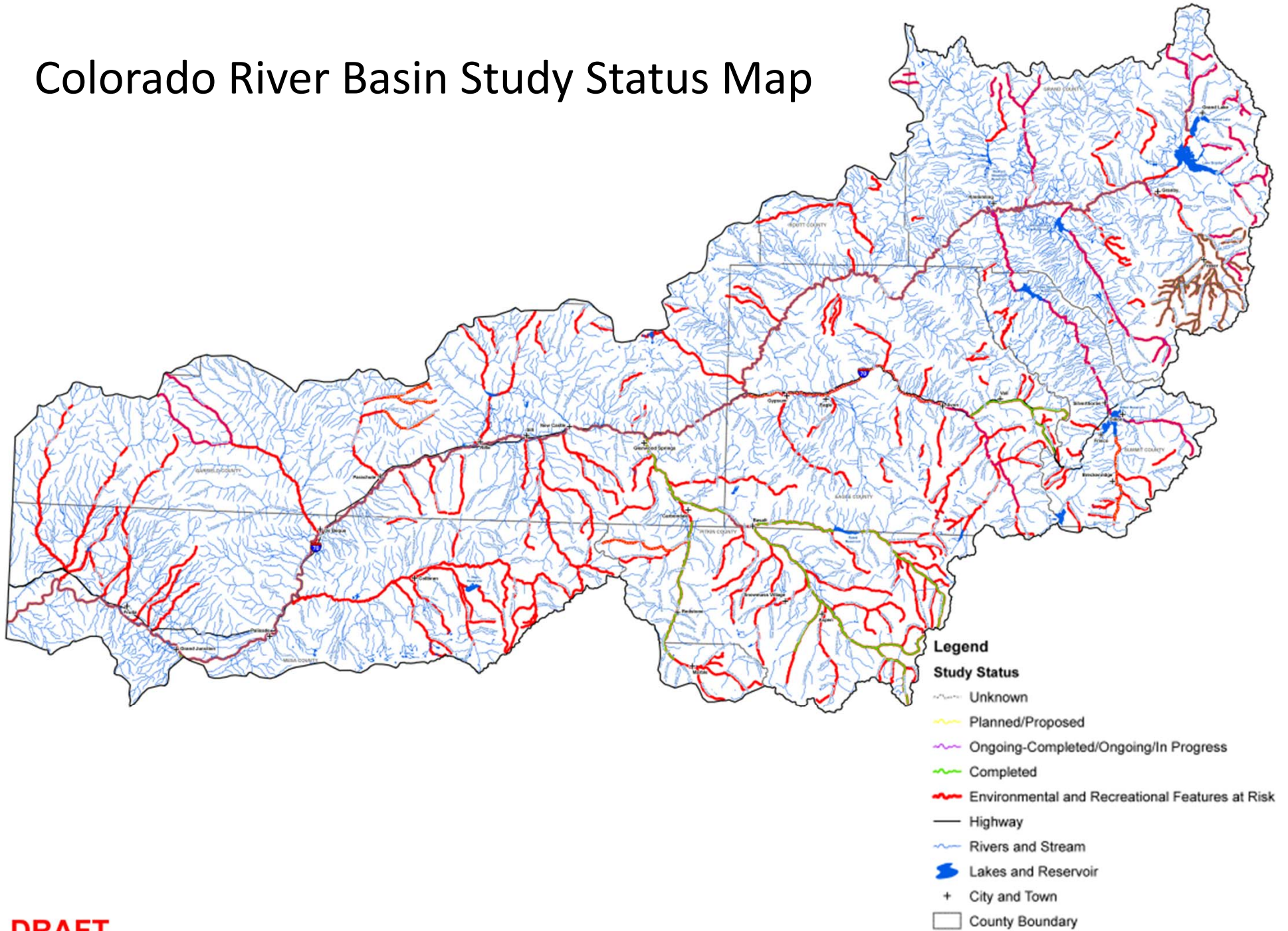
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Colorado River Basin Project Status Map



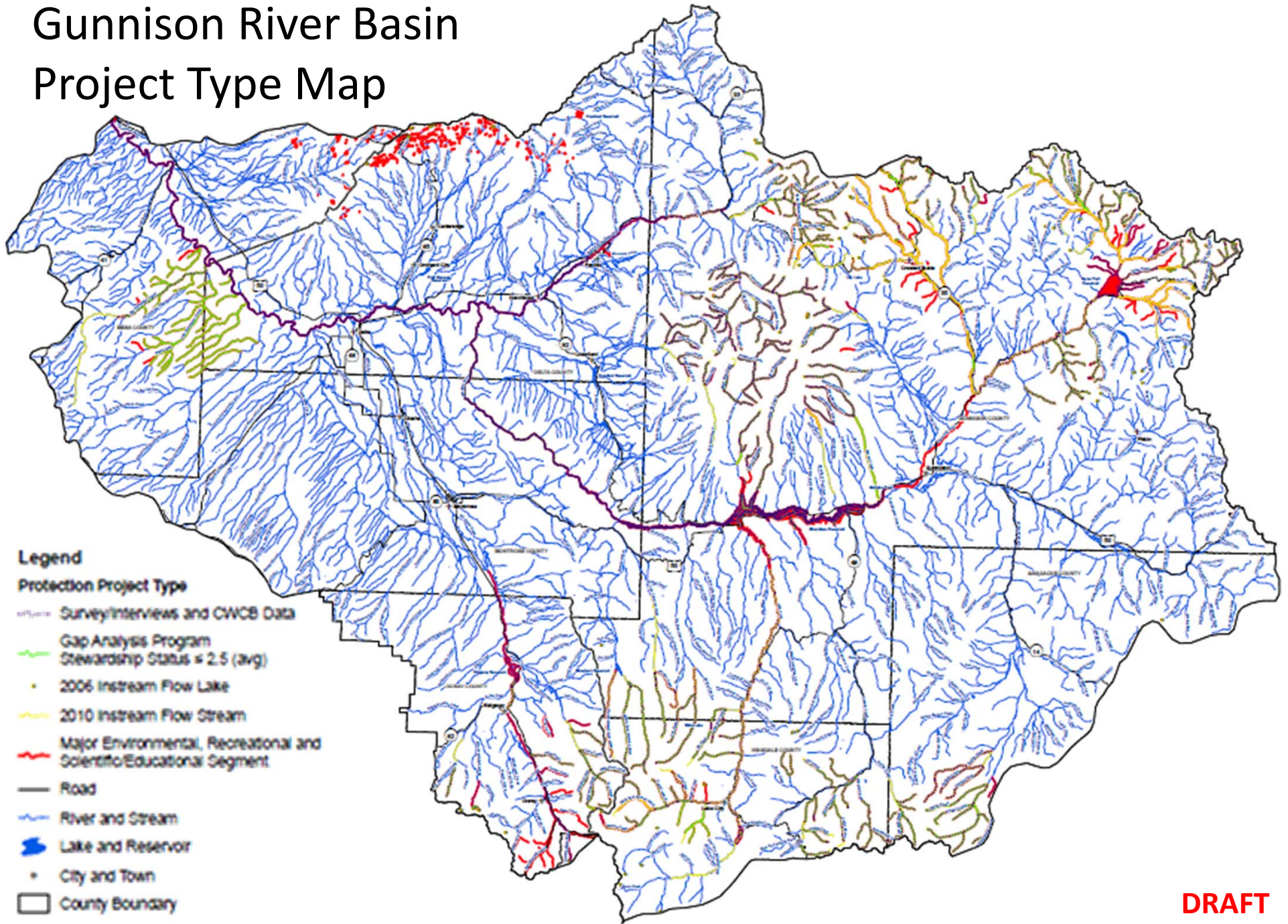
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Colorado River Basin Study Status Map



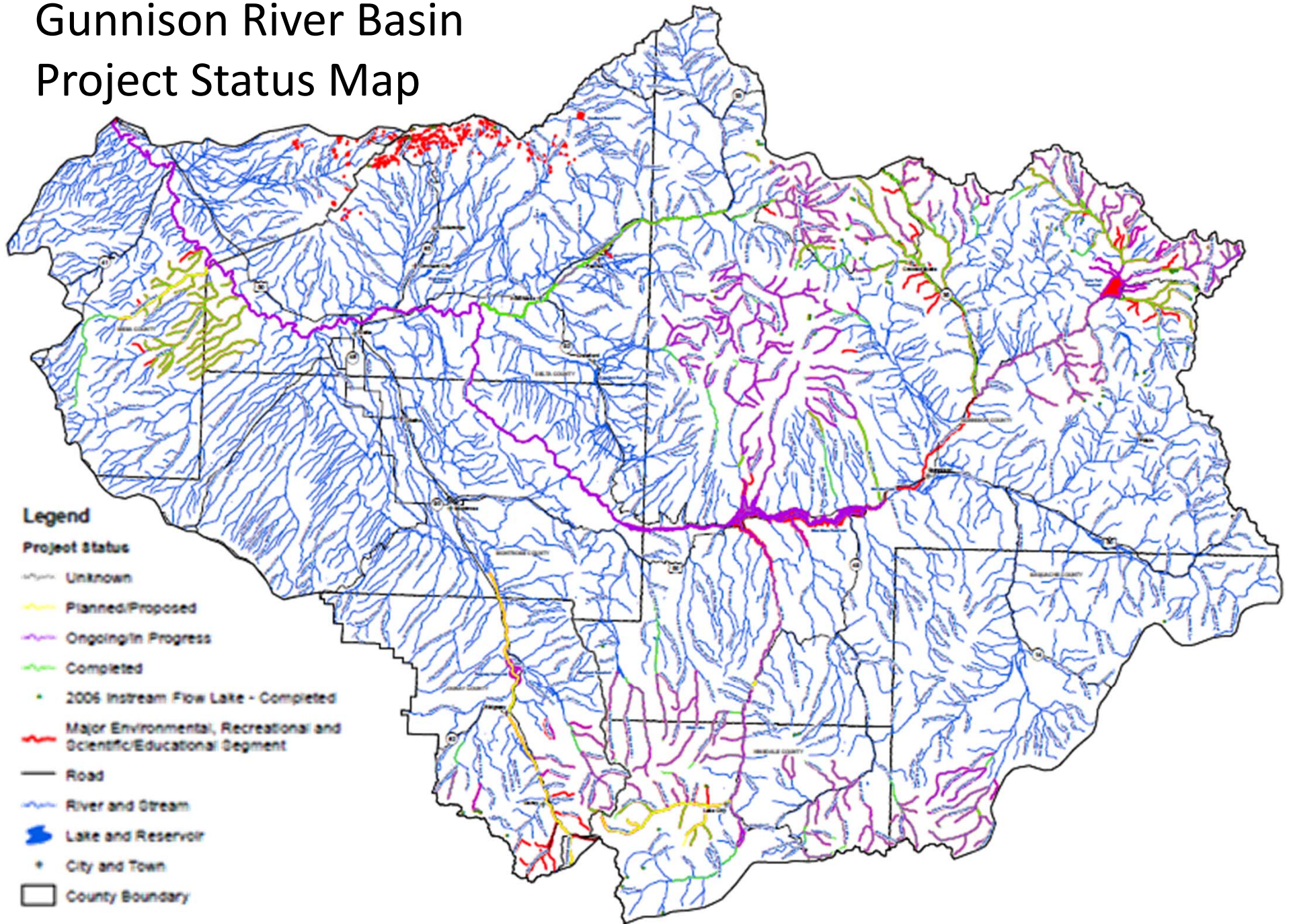
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Gunnison River Basin Project Type Map

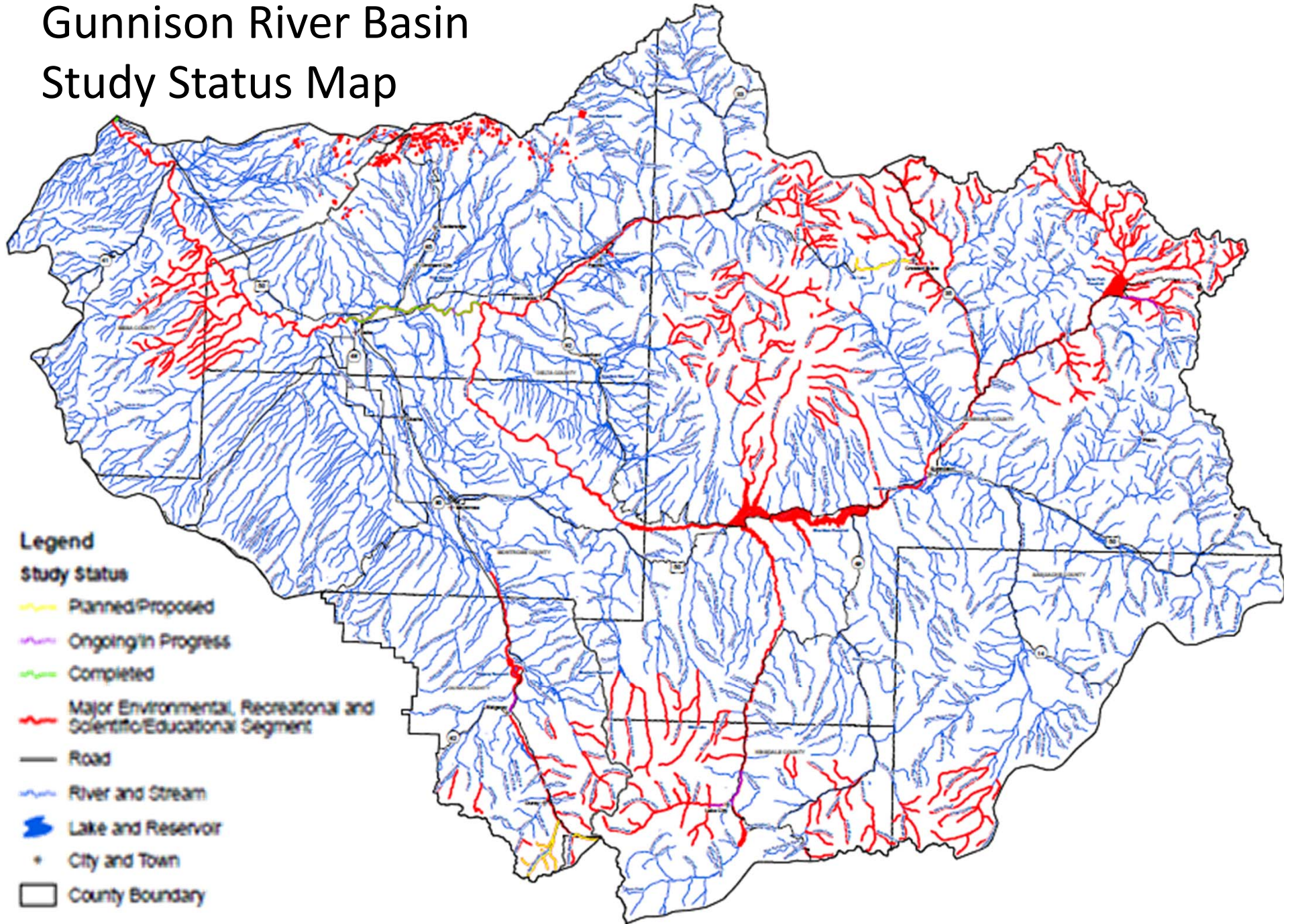


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Gunnison River Basin Project Status Map



Gunnison River Basin Study Status Map



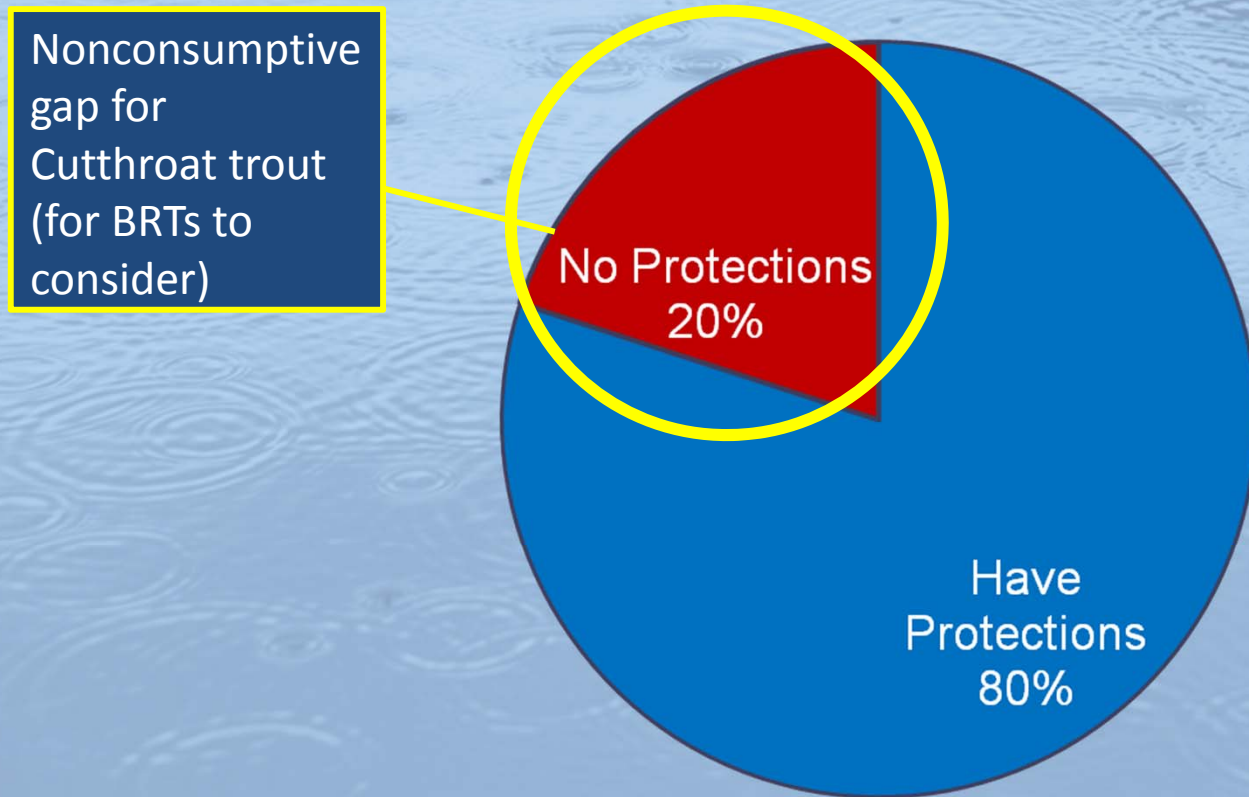
Attribute Protection Methodology

- Identify IPPs that provide direct and indirect protection for given attribute
- Using GIS, intersect IPPs and focus areas attributes
- Query GIS database to identify extent of protections for individual NC attributes



Hypothetical Example Results

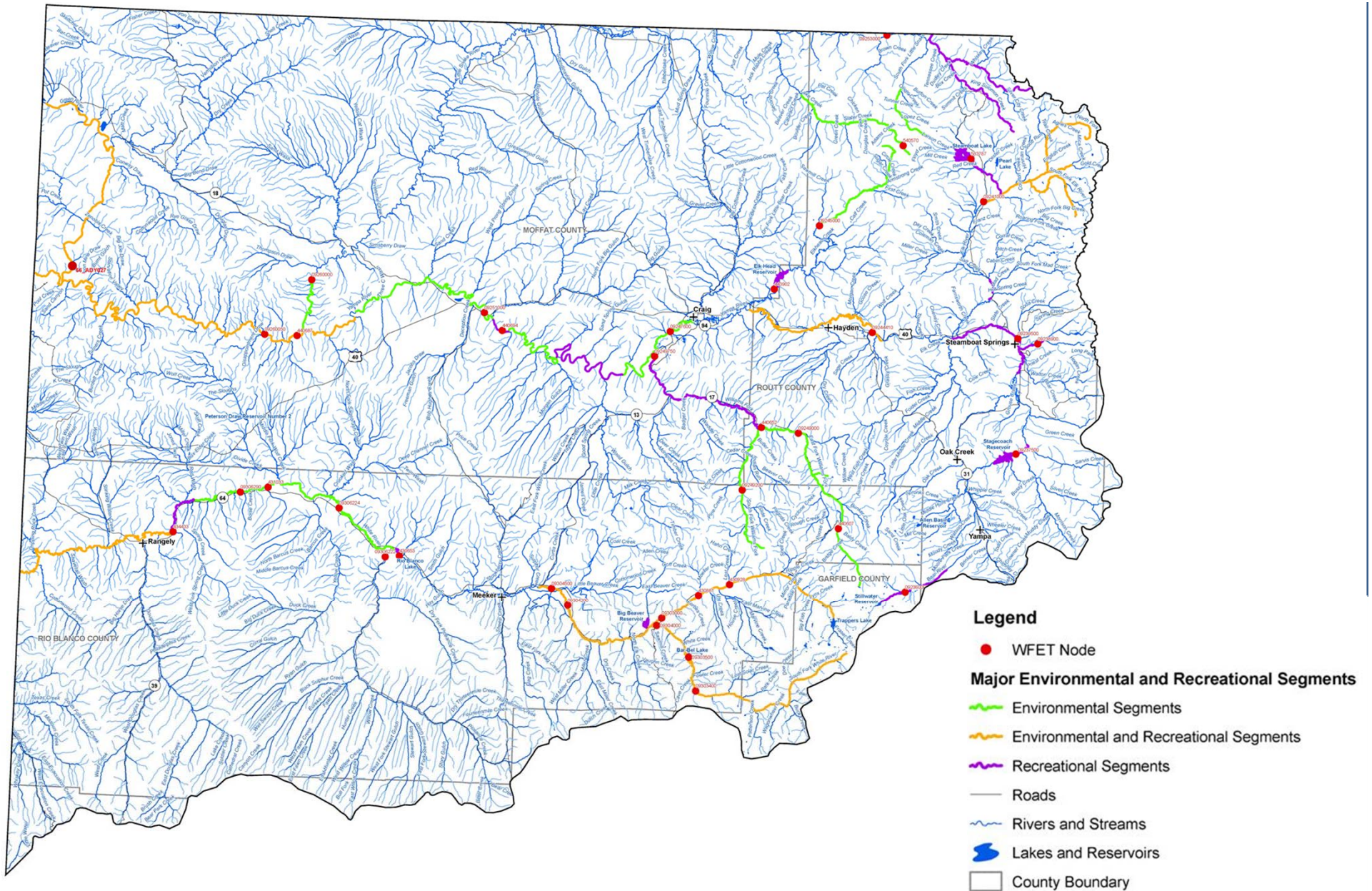
X Basin Cutthroat Trout Streams with Protections



Additional work by Roundtables through WSRA Grants

- Watershed Flow Evaluation Tool (Colorado & Yampa / White)
- Site Specific Studies (Colorado & Arkansas)
- GIS overlay with consumptive projects

Yampa-White example WSRA work



Nonconsumptive Needs Assessment Phase 2 Consensus Win/Win Principles

- Prevent federal listing of species or further federal action on listed species
- Protecting/enhancing economic values to local and statewide economies
- Win/win projects that benefit both water users and native species (esp. those listed as species of concern or with imperiled state or global concern by CNHP and/or CDOW)

Potential Nonconsumptive Recommendations / Next Steps

- Identify “gap” areas (underway)
- Target funding towards the gap areas
- Continue to provide technical support to determine
 - Areas w/ important attributes,
 - projects and methods,
 - opportunities to address gap areas, and
 - What types of projects could work in those situations.
- Consider adding the protection/ mitigation/ enhancement of these principles to any guidelines for future projects
- Develop GIS overlay of nonconsumptive and consumptive uses
- Determine sufficient habitat availability and connectivity

A Strategic Edge?

Help us understand what's going on across the state to collectively understand where we are at.

We can work together as a state to collectively address our important environmental and recreational stream reaches in a systematic way.

Questions, comments?

Jacob Bornstein

(303) 866-3441 x3248

jacob.bornstein@state.co.us

Download the report at:

<http://cwcb.state.co.us>

