

Windy Gap Firming Project Fish and Wildlife Enhancement Plan

Prepared for:
The Colorado Wildlife Commission
In accordance with **CRS 37-60-122.2**

Prepared by:
**Municipal Subdistrict,
Northern Colorado Water Conservancy District**

In Partnership With:
Denver Water

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WINDY GAP FIRING PROJECT FISH AND WILDLIFE ENHANCEMENT PLAN

1.0 INTRODUCTION

1.1. Enhancement Project Overview

The Windy Gap Firing Project (WGFP) is a proposed water supply project that would provide more reliable water deliveries to Front Range and West Slope communities and industries. The Municipal Subdistrict, Northern Colorado Water Conservancy District, acting by and through the WGFP Water Activity Enterprise (Subdistrict) is seeking to construct the project on behalf of the 13 WGFP Participants. Project Participants include the City and County of Broomfield; the towns of Erie and Superior; the cities of Evans, Fort Lupton, Greeley, Lafayette, Longmont, Louisville, and Loveland; the Little Thompson Water District; the Central Weld County Water District; and the Platte River Power Authority. The proposed action is to add water storage and related facilities to the existing Windy Gap operations that would be capable of delivering a firm annual yield of about 30,000 AF to Project Participants.

Pursuant to CRS 37-60-122.2(1), Denver Water and the Municipal Subdistrict, Northern Colorado Water Conservancy District, acting by and through the Windy Gap Firing Project (WGFP) Water Activity Enterprise (Subdistrict) have agreed to participate with the Colorado Department of Natural Resources (DNR) and Colorado Division of Wildlife (CDOW) in concurrent development of the Fish and Wildlife Mitigation Plan (FWMP) for the Subdistrict's WGFP and Denver Water's Moffat Project. In addition to the concurrent FWMP's, Denver Water and the Subdistrict have elected to submit to the CDOW enhancement plans to improve existing fish and wildlife resources to the CDOW. These enhancement plans are submitted pursuant to regulations implementing CRS 37-60-122.2(2) and are intended to enhance fish and wildlife resources over and above the levels existing without the Moffat Project and WGFP. Denver Water and the Subdistrict are submitting their Enhancement Plans simultaneously with their FWMP's.

1.2. Fish and Wildlife Enhancement Plan Stakeholders

The Subdistrict has been consulting with a broad range of federal and state agencies, as well as local governments and environmental groups, to solicit input on desired enhancements to existing fish and wildlife resources. These entities include:

- Governmental organizations: CDOW, Denver Water, Grand County, and Town of Hot Sulphur Springs
- Non-governmental organizations: Trout Unlimited, and landowners along the upper Colorado River

Although the CRS 37-60-122.2 procedures do not specify public involvement requirements, Denver Water and the Subdistrict acknowledge the Colorado Wildlife Commission's desire to provide ample opportunity for public participation. To date, the Wildlife Commission has provided the following opportunities for the public to provide mitigation and enhancement suggestions:

- Stakeholder Workshops, January 24-25, 2011, Winter Park – CDOW solicited input on options for fixing the upper Colorado River between Windy Gap and the Kemp-Breeze State Wildlife Area to ensure a functioning river that supports fish and wildlife resources given anticipated future flows.
- Public Comment Period on Draft Enhancement and Mitigation Plans, Feb. 10-24, 2011 – CDOW invited public review and comment on the February 9th draft plans. The input was reviewed by CDOW, Denver Water and the Subdistrict while preparing the April 7th plans.
- Wildlife Commission Meeting, March 10, 2011 – Member of the public provided comments on the February 9th draft plans and review process.
- Wildlife Commission Meeting, May 6, 2011 – Members of the public provided comments on the April 7th plans submitted to the Wildlife Commission on April 7, 2011. Time was also allowed for presentations from several groups on issues regarding the plans.

1.3 Other Concurrent and Related Activities

Moffat Collection System Project

The Moffat Collection System Project is currently proposed by Denver Water (Denver) to develop 18,000 AF/year of new annual yield to the Moffat Treatment Plant to meet future raw water demands on the East Slope. This project is anticipated to result in additional diversions, primarily from the upper Fraser River and Williams Fork River basins. Denver's proposed additional Fraser River diversions would be located upstream of the Windy Gap Project diversion site on the Colorado River and would directly affect the availability of water for the WGFP. The Moffat Collection System Project Draft EIS prepared by the Corps was released for public review in 2009.

Diversions for the WGFP and Moffat Project would result in changes to flows in the Colorado River below the Windy Gap dam. Denver Water and the Subdistrict have agreed to cooperate with each other and with the DNR and CDOW in concurrent development of the mitigation plans required under CRS 37-60-122.2 for the two projects. They have jointly developed stream temperature monitoring stations as mitigation (refer to Section 5.3.3 of this FWMP). Additionally, Denver Water and the Subdistrict have proposed enhancement with significant resources and funding to improve current conditions in the river.

2.0 ENHANCEMENTS

2.1 Upper Colorado River Habitat Project

The Upper Colorado River Habitat Project (Habitat Project) was designed in coordination with the Subdistrict to address concerns raised by CDOW and other stakeholders regarding the current conditions of the aquatic ecosystem in the Colorado River downstream of Windy Gap. CDOW studies have identified a decline in populations of *Pteronarcys californica* (giant stonefly), which, historically, has been a major source of food for trout in the Colorado River as well as other species of stoneflies and mayflies. Populations of the mottled sculpin (*Cottus bairdi*), a native fish that is also an important food source for trout and shares habitat with the *Pteronarcys*, have also declined. CDOW believes that riffle areas below the Windy Gap Reservoir have been altered by changes in flow regime, water depletions, sedimentation, and armoring of the channel bed. Trout populations between Windy Gap and Kremmling have declined. CDOW has expressed a desire to return the river to a more functional system considering current and future hydrology.

The goal of the Habitat Project is to design and implement a stream restoration program to improve the existing aquatic environment from the Windy Gap Diversion to the lower terminus of the Kemp-Breeze State Wildlife Area (Segment). Refer to Figure 1. The intent is for Denver Water and the Subdistrict to join with the CDOW, along with other stakeholders, in a cooperative effort to identify and address desired improvements to the stream environment.

Resources for the Project

- A. Funds Provided by Denver Water. To implement the Habitat Project, Denver Water will provide \$1.5 million.
- B. Funds Provided by Subdistrict. To implement the Habitat Project, the Subdistrict will provide \$3.0 million.
- C. Possible Funds from CDOW. In addition to designing the Habitat Project, CDOW may contribute \$500,000 to implement the Habitat Project.
- D. Possible Funds Provided by Learning by Doing. Denver Water and the Subdistrict will participate in the LBD Cooperative Effort, which is described in Section 2.2. In the LBD Cooperative Effort, Denver Water has committed money for habitat improvements, water for environmental flows, and considerable system flexibility to provide flushing flows, all directed towards enhancing the aquatic environment in Grand County (refer to Appendix A for details). Denver Water and the Subdistrict, as two members of the six-member Management Committee, will work with the other members of the committee to dedicate an additional \$1 million (from the funds committed to LBD by Denver Water) to the Habitat

Project, in addition to the amounts committed by Denver Water and the Subdistrict in paragraphs A and B above.

- E. Possible Matching Funds. Denver Water and Subdistrict have committed \$4.5 million for the Habitat Project described in A and B above and, as described below (Use of Funds), preference will be given to land that has public access. However, \$1.0 million of this amount is available as matching funds for private landowners to perform additional work in the Colorado River in areas of private land.
- F. Other Funding and Resources. If the Habitat Project participants desire additional resources beyond the \$6.0 million described above, the project participants will work with other stakeholders and granting agencies to seek other sources of funding (a possible source of funding is matching funds as described in C above). In addition, Denver Water and the Subdistrict will contribute in-kind resources such as labor, equipment, and materials if and when available as determined by Denver Water and the Subdistrict, to help maximize the value of funds described above. Both Denver Water and Northern Water maintain significant workforces and equipment in Grand County as well as a quarry owned by Northern Water. In addition, CDOW has indicated a willingness to provide in-house expertise and resources for stream restoration design.
- G. Future Funding. The Subdistrict and Denver Water will contribute \$1.0 million and \$500,000, respectively, for a total of \$1.5 million to a fund to be used for adaptive management and/or maintenance in the Habitat Project segment. Adaptive Management in this case means that the \$1.5 million will be available to adjust elements of the stream restoration efforts that are not functioning as designed.

The funding for the Habitat Project is summarized in Table 1.

Table 1. Upper Colorado River Habitat Project Funding

<u>Source of Funding (Habitat Project)</u>	<u>Amount (millions of \$)</u>	
<u>Denver Water</u>	<u>\$1.5</u>	
<u>Subdistrict</u>	<u>\$3.0</u>	
<u>CDOW</u>	<u>\$0.5</u>	<u>Contingent upon CDOW approval</u>
<u>LBD</u>	<u>\$1.0</u>	<u>Contingent upon LBD approval</u>
<u>Subtotal</u>	<u>\$6.0</u>	

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<u>Source of Funding (Future Funding)</u>		
<u>Denver Water</u>	<u>\$0.5</u>	
<u>Subdistrict</u>	<u>\$1.0</u>	
<u>Subtotal</u>	<u>\$1.5</u>	
<u>Total</u>	<u>\$7.5</u>	

Use of Funds. The public funds described above will be used for the Habitat Project to restore the Segment on public land. However, the public stream reaches are interrupted by reaches of private land. The effectiveness of habitat restoration work and overall stream health will be compromised if there is not some degree of stream enhancement continuity for the entire Segment. While, preference will be given to work on public lands, public funds may be used for stream restoration on private land to provide continuity and prevent harm to the Habitat Project as a whole if CDOW determines that such work on private lands will provide benefits to the entire Grand County stream reach, and/or through a program of matching private funds with public funds. Proposed work on private land within the Segment will be developed in cooperation with the project participants and the land owner to ensure maximum benefit to the health of the river.

Any funds remaining after implementation of the Habitat Project will be used for additional projects to improve the aquatic environment on the Colorado River. Additional projects could include maintenance activities, a bypass around Windy Gap Reservoir or continuing stream improvements downstream to the confluence with Troublesome Creek (the lower terminus of the Gold Medal fishery designation). Other projects would be identified and agreed upon by the project participants.

Effective Date. The Habitat Project will commence when the Subdistrict and Denver Water have received acceptable Records of Decision and permits for their respective projects and have begun final design and construction activities. If a permit is appealed, the Habitat Project will commence after final resolution of the appeal and acceptance of the resolution by the Subdistrict and Denver Water.

Project Implementation. The Habitat Project will be implemented in collaboration with the LBD Cooperative Effort to ensure consistency and coordination with the overall stream enhancement efforts in Grand County. Section 2.2 describes the implementation of the Habitat Project and the goals and management structure of LBD.

2.2 Implementing the Habitat Project with the Learning by Doing Cooperative Effort

The Habitat Project will be implemented through an IGA among Denver Water, the Subdistrict, and CDOW. Denver Water and the Subdistrict will convey the committed dollars to CDOW and CDOW will design and implement the project. CDOW will also enter into any agreements, as needed, with private land owners or other funding sources. Additionally, the Habitat Project will be managed by CDOW in collaboration with the Habitat Project Stream Team.

Stream Team: The contributing members of the Habitat Project Steam Team include:

- Denver Water
- Subdistrict
- CDOW
- Grand County
- Other Parties that contribute financial resources to the Habitat Project, including but not limited to landowners

Advisory Team: Interested parties not contributing resources, including Trout Unlimited and landowners.

Implementation of Habitat Project: The Habitat Project will be managed by the Habitat Project Stream Team with advice from the Advisory Team. The Stream Team will make good faith efforts to resolve any conflicts. If the good faith effort does not result in consensus, the Habitat Project Stream Team will refer the issue to the Director of the DNR for resolution. Prior to referral, the unresolved issue will be summarized in writing with an explanation of any “competing views” and efforts to date to resolve the matter.

The Habitat Project will likely consist of several phases:

- *Project Goals* – The Stream Team will begin by setting specific goals for the Habitat Project to promote functionality of the river system. Goals may include specific biological goals related to health of the aquatic ecosystem, including fish and macroinvertebrates (e.g. trout, *Pteronarcys* and sculpin). The Habitat Project goals will be consistent with the LBD Effort and the SMP.
- *Project Design* – The Team will evaluate the most effective and sustainable restoration opportunities for the Segment. Different designs or solutions may be appropriate and implemented for different parts of the Segment. The Team will evaluate restoration opportunities based on site-

specific field evaluations, data from the SMP, and the specific objectives for a given reach.

- *Implementation* – The Team will prioritize proposed habitat improvements, as well as allocation of funding for public and privately-owned stream segments. The Habitat Project will be implemented over time as stream reaches are prioritized and designs are completed. The CDOW will be responsible for the final design, permitting and implementation of the stream restoration activities.
- *Monitoring* – The Team will determine the appropriate monitoring activities to measure outcomes from implementing the Habitat Project taking into consideration monitoring already in place or proposed as part of the LBD Effort. The CDOW will be responsible for the long-term monitoring and maintenance of the stream restoration activities.

Learning by Doing Cooperative Effort

The Habitat Project will be coordinated with the Learning by Doing Cooperative Effort to ensure consistency and coordination with the overall stream enhancement efforts in Grand County.

Denver Water and Grand County have spent over three years working cooperatively to resolve issues related to Denver Water's existing operations in Grand County. Denver Water and Grand County reached a proposed agreement on September 24, 2010 regarding Denver Water's commitments to enhance existing conditions in Grand County. Denver Water and Grand County are currently working with the State to assure that the benefits of Denver Water's commitments can be delivered and protected under Colorado's water rights system. Grand County Commissioners will also conduct a public process to gather input from county residents and other interested parties on the proposed agreement prior to a formal vote by the Commissioners on the agreement. A major component of the proposed agreement is the LBD Cooperative Effort. This is a cooperative, iterative and ongoing process to maintain, and when reasonably possible, restore or enhance the stream environment in the Fraser and Williams Fork river basins, and in the mainstem of the Colorado River from the outflow of Granby Reservoir to its confluence with the Blue River.

The Subdistrict has also been working cooperatively with Grand County and other West Slope stakeholders to develop an IGA regarding additional enhancements to existing conditions in Grand County. The IGA has not been completed, but the Subdistrict has committed to participate in the proposed LBD Cooperative Effort.

The Grand County Stream Management Plan (SMP) is the framework for the overall LBD Cooperative Effort. The SMP will be used as a "living" document that will be revised as additional monitoring data are gathered and as management goals for

each stream reach are agreed upon. Types of restoration opportunities include channel bank revegetation, enhancing fish passage, applying enhancement flows to existing low and/or high flow conditions, and in-stream habitat restoration.

The LBD Effort will be implemented with the following management structure, as shown in Figure 2.

Management Committee – The LBD Cooperative Effort will be managed by representatives of the public entities contributing resources to the various activities and projects undertaken by the group. Resources are defined as funding, water, project design, and/or equipment and manpower to implement a project. The Management Committee will operate by consensus (unanimous vote) under the LBD Cooperative Effort IGA. A copy of the proposed IGA is included in Appendix A of this Enhancement Plan. The Management Committee will include one representative from:

- Denver Water
- Northern Colorado Water Conservancy District, Subdistrict
- Grand County
- Colorado River Water Conservation District
- Middle Park Water Conservancy District
- Trout Unlimited

The Management Committee may elect to invite others to participate as members of the Management Committee based on commitments to long-term contributions of funding or other tangible resources that will further the goals of the LBD Cooperative Effort. It is anticipated that CDOW will be invited to join the Management Committee if the LBD Cooperative Effort is signed by all the parties.

Advisory Committee – The Management Committee may request participation by other parties, such as representatives from environmental, recreational, governmental and agricultural interests, to provide expertise and technical advice. It is anticipated that the U.S. Forest Service and others, would be invited to be advisors.

Responsibilities – The responsibilities of the Management Committee, with input and assistance from the Advisory Committee, include:

- ***Monitoring Plan*** – A long-term monitoring plan will be developed and implemented to identify critical stream reaches and assign priorities for actions; identify changes in the aquatic environment; evaluate effectiveness of actions taken, and modify and refine strategies for achieving the goals of the LBD Cooperative Effort.
- ***Operations Plan*** – As stream reaches are prioritized and projects identified, the Management Committee will develop an annual Operations Plan to maximize the stream environmental benefits with the available resources

such as water commitments, system flexibility and funding. The Management Committee will meet as frequently as necessary to explore opportunities to coordinate operations of all diversion structures and reservoir releases among all water users in Grand County.

- **Enhancements** – Denver Water committed in the proposed mediation agreement to provide substantial resources of money, water and system flexibility for the purpose of maintaining, restoring or enhancing the Upper Colorado, Fraser and Upper Williams Fork watersheds. Additional resources can be contributed by other parties to implement the LBD Cooperative Effort.
- **Annual Review** – The entire LBD Cooperative Effort, inclusive of coordinated operations, stream reach prioritization, stream improvement projects and monitoring programs, will be reviewed annually by the Management Committee in refining and updating the plans and projects.

STREAM PROJECTS

The Management Committee, with input from the Advisory Committee, will prioritize stream reaches for implementing stream improvement projects.

Stream Team – A specific stream project, as prioritized by the Management Committee, will be managed by a “Stream Team” comprised of organizations or individuals that have committed resources to that specific project. Resources are defined as funding, water, project design, and/or equipment and manpower to implement a specific project. Each Stream Team will consist of representatives of the Management Committee, who will be contributing resources, to ensure consistency and continuity with the LBD Cooperative Effort, plus any other contributing members. Each Stream Team will only develop and implement enhancement projects that support the goals and priorities of the LBD Effort. Private landowners who contribute resources would be invited to participate on the Stream Team for their respective segment of the river. These landowners would approve any projects proposed by the Stream Team on property they own.

Advisory Team – The Stream Team will invite other interested parties such as representatives from environmental, recreational, governmental and agricultural interests, to serve as technical advisors on a particular project.

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2.3 Funding and Support for Windy Gap Bypass Studies

This measure addresses concerns raised by CDOW and other stakeholders regarding the current condition of the aquatic ecosystem in the Colorado River downstream of Windy Gap Reservoir. West Slope stakeholders and CDOW have expressed concerns that the reservoir has caused changes in water quality and sediment transport below the dam, which may be related to changes in populations of macroinvertebrates (Pteronarcys and other species) and sculpin below the

reservoir. In addition, stakeholders have expressed a desire for structural modifications that would allow free migration of fish around the Windy Gap dam.

The Subdistrict will provide up to \$250,000 to fund detailed studies of methods for bypass of flows, sediment, and/or fish around Windy Gap Reservoir. CDOW would direct these studies to identify potential modifications that would provide tangible benefits to aquatic resources below Windy Gap Reservoir. Issues to be studied include sediment transport, water quality (effects on temperature and/or nutrients) and fish passage. If studies identify significant, measurable benefits and there is stakeholder consensus to pursue the project, the Subdistrict will provide site access, in-kind service for design and construction of any facilities, and long-term operation and maintenance of the facility. All stakeholders will be responsible for investigation of potential sources of funding and procurement of funding for any identified improvements.

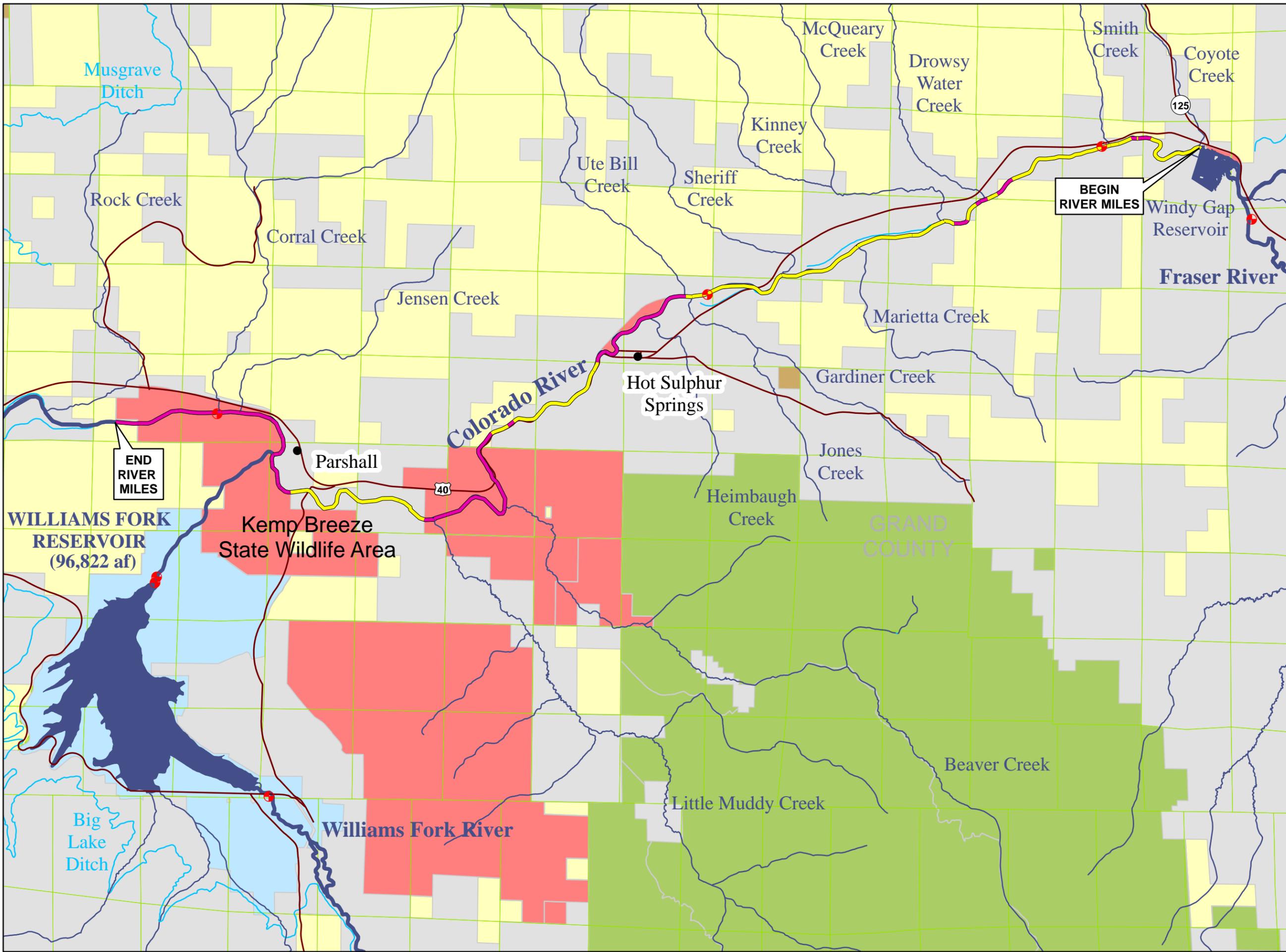
3.0 RELATIONSHIP TO PROJECT MITIGATION

Both Denver Water and the Subdistrict will comply with all mitigation measures required in the permits for their respective projects, Moffat Project and WGFP. Compliance with the mitigation measures in permits will be the sole responsibility of the permittee (i.e., Denver Water and the Subdistrict). However, Denver Water and the Subdistrict are members of the Management Committee, and will collaborate, to the extent practicable, to implement the mitigation measures in a manner consistent with the objectives of the Habitat Project, LBD Cooperative Effort and specific Stream Team efforts.

The stream enhancement cooperative efforts, such as the Upper Colorado River Habitat Project and the LBD, are efforts to enhance the existing environment and are not intended to substitute for any mitigation required by the federal agencies for the projects. The goal is to coordinate the application of any required mitigation efforts with the voluntary and collaborative efforts of the stream enhancement projects to assure the maximum benefit for the stream environment.

Denver Water and the Subdistrict will enter into a binding agreement with CDOW for the Habitat Project, as described above. If the Corps or Reclamation requires aquatic mitigation in the Segment, some or all of the committed resources listed above will be enforceable through conditions in the permits. In that case, an IGA would not be needed for those portions of the Habitat Project required by the Corps or Reclamation as aquatic mitigation and included in the permit conditions for the Moffat Project and the WGFP. The Habitat Project will be implemented in a manner that complements any mitigation measures required by the Corps for the Moffat Project or by Reclamation for the WGFP.

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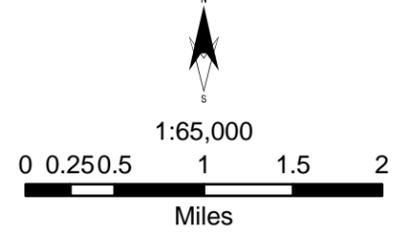
Upper Colorado River Vicinity
 Windy Gap to Williams Fork River
 FIGURE 1

Legend

- Town
- ⊕ Gaging Station
- Major Stream or River
- Major Canal, Aqueduct or Pipeline
- River access is Private
- River access is Public
- Roads
- Public Land Survey - Section Line
- BLM
- Colorado DOW
- Denver Water
- PRIVATE
- State Land Board
- USFS - Arapahoe Natl. Forest

Total river miles from Windy Gap Reservoir to the West end of Kemp Breeze SWA is 16.70.

Additional adjacent land-use totals:
 Private = 9.40
 Public = 7.30



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Land Ownership compiled by the Natural Resources Ecology Lab (NREL) at Colorado State University, Fort Collins, CO as COMaP v.7.
 Theobald, D.M., G. Wilcox, S.E. Linn, N. Peterson, and M. Lineal. 2008. Colorado Ownership, Management, and Protection v7 database. Human Dimensions of Natural Resources and Natural Resources Ecology Lab, Colorado State University, Fort Collins, CO. 15 September. www.nrel.colostate.edu/projects/comap

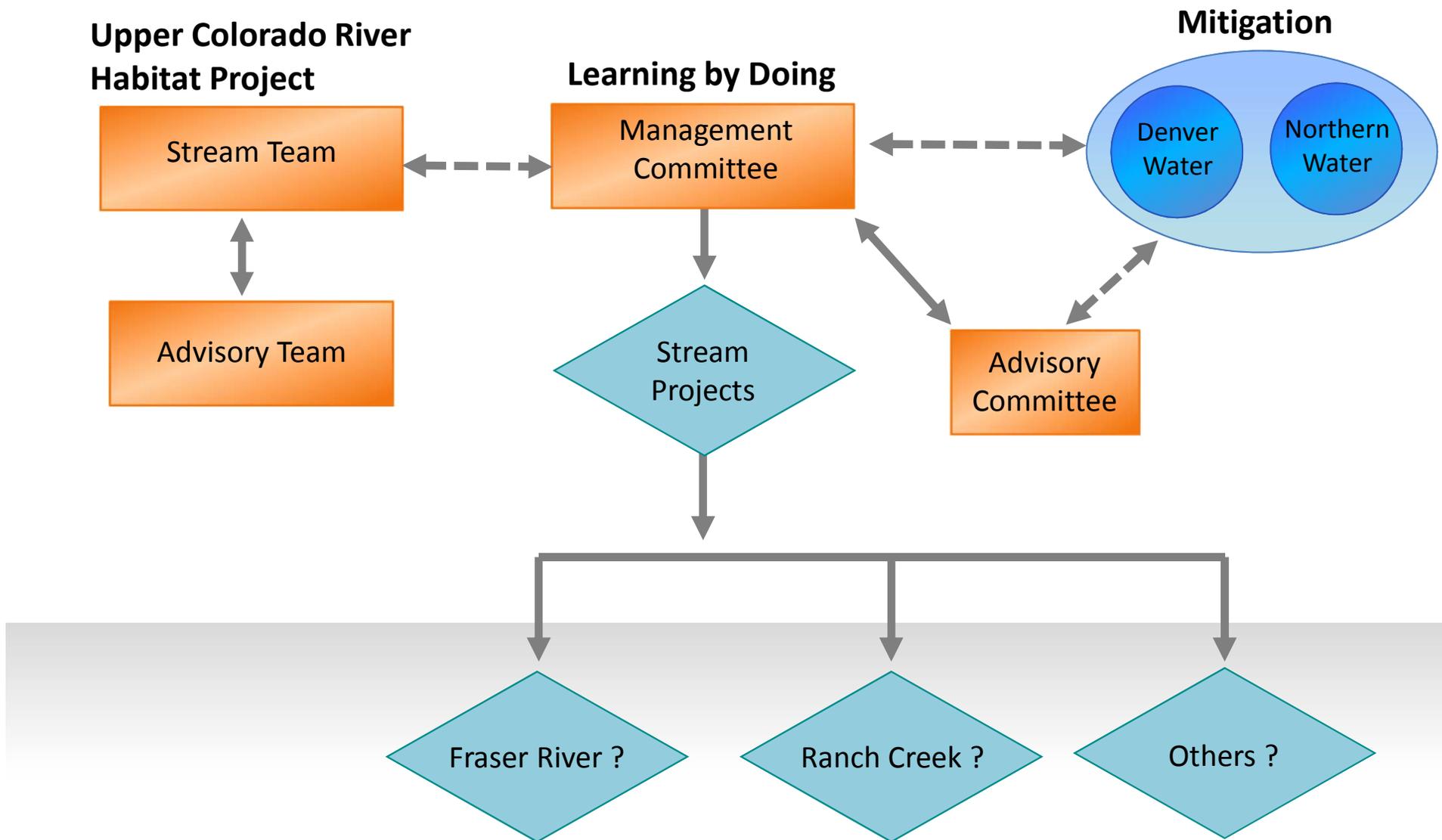


Figure 2. Implementing the Habitat Project with Learning by Doing