STATE OF COLORADO

Colorado Water Conservation Board
Department of Natural Resources
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TO: Colorado Water Conservation Board Members

FROM: Chris Sturm, Stream Restoration Coordinator

SUBJECT: **Agenda Item 11, May 17 - 18, 2011 Board Meeting Watershed and Flood Protection Section, Fish and Wildlife Resources Fund – Sportsman's Paradise Diversion Dam Reconstruction Grant Application**

Background

The Fish and Wildlife Resources statute, § 37-60-122.2, authorized the Fish and Wildlife Resources Fund (FWRF) in 1987. It was amended in 2002 to help mitigate the impacts of existing water facilities. Sportsman's Paradise is a private company & fishing club with a 1963 water right for water storage in a fishing pond adjacent to the South Platte River. The diversion structure delivering water from the river initially functioned as a small rock structure. Subsequent sediment deposition required the community to increase the height and length of the structure. Today the diversion is a full dam across the South Platte. The existing dam is not engineered to pass sediment. The deposition of sediment has reduced fish biomass and age/class diversity in this section of the South Platte River, which includes a heavily used recreation area upstream of the diversion dam. The dam also acts as a barrier to fish migration.

Discussion

Sportsman's Paradise, in cooperation with the Coalition for the Upper South Platte (CUSP) is submitting an application to the FWRF to construct a new diversion dam, repair riparian areas, and improve in-stream habitat upstream and downstream of the dam. The goals of the project include sediment reduction, improving sediment transport, improving habitat for aquatic and terrestrial species, increasing trout production, and improving aquatic species passage through the dam. In-stream work will include removal of the existing dam, diversion reconstruction, channel bank stabilization, and in-channel modifications (j-hooks & cross-vanes). Riparian areas will be improved by grading eroding slopes, rerouting trails, re-locating campsites, and planting riparian vegetation. The existing sediment field upstream of the diversion will be modified to serve as a riparian wetland. The project design is complete, and the plans have been reviewed by NRCS, USFS, CDOW, and Denver Water. The project includes a 5-year monitoring plan. The CWCB supported the design phase with a $7,000 grant from the Colorado Healthy Rivers Fund.

Staff Recommendation

Staff has reviewed Sportsman's Paradise FWRF application and found it in conformance with Board Policy 15. Staff recommends that the Board approve a non-reimbursable expenditure up to $75,000 from the Fish and Wildlife Resource Fund. The applicant and CUSP have secured $200,000 in match funding from the U.S. EPA 319 Program ($85,000), Park County ($50,000), and their own resources ($65,000 cash and in-kind services).

Section 3.2: Project Summary Form

Project Location Information

Nearest Town or City	Lake George, CO
County	Park County
Township/Range/Section	T12s, R71W, S8
Latitude/Longitude	39.01.59/105.21.01
State Senate District	4
State Representative District	60
Stream Name and Watershed	South Platte, South Platte Headwaters
Water Division	1
Water District	23

Land Ownership

On a map of scale≥ 1"=2000', indicate all property affected by this project and evidence of ownership or easements for project work. This information should also be shown on an ownership map in the appendices. If the project area has over three property owners, please attach a separate sheet with names and permission status for each. Attached

Name of Landowner(s) Sportsmen's Paradise

Evidence of ownership or easements for river restoration work:

❑ Enclosed ☒ Will forward if requested ❑ Not yet available (explain timeline)

Grant Request (round figures to the nearest $100)

Total Project Cost	$275,000.00
Grant Request	$ 75,000.00
List Funding Sources	Sportsmen's
	CDPHE-319
	Park County

Brief Description of Project Request (Please limit to no more than 100 words; this will be used to inform reviewers and the public about your proposal):

This project is part of larger cross-boundary project that will do river restoration along ~four miles of the South Platte through USFS lands. Funding through this application (and the budget) is exclusively intended to support the work along the Sportsmen's portion of the river, which includes river restoration and redevelopment of Sportsmen's diversion structure to reduce excessive sediment deposition caused by the existing dam that serves the diversion. This stretch of the river was negatively impacted by increased sedimentation following the Hayman Fire.

Technical Narrative

Project Need/Definition of Problem

The most significant water quality issue from a fish and wildlife standpoint in the upper South Platte watershed is excessive erosion that results in both in-channel and bank deposition of sediment, and ultimately causes over-widening of the stream and loss of depth. The deposition directly impacts fish by smothering riffles, or suitable reproduction areas, and filling the deeper pools that are used for overwintering. This deposition also smothers riparian vegetation and habitat that is critical to birds, insects, and amphibians. The loss of depth also causes water temperatures to increase, which can be deadly for trout during the heat of summer. The overall combination significantly reduces both fishery biomass and age/class diversity in this section, which is heavily used as a recreation area, and has rippling effects on other species. Due to these issues the Colorado Division of Wildlife and the Pike National Forest requested that the segment be added to the 303d list in the late 1990s, and a TMDL was completed in 2002 to address the elevated sediment pollution along this portion of the South Platte River. Sediment sources identified in the TMDL included roads, campgrounds, picnic areas, livestock grazing, and other disturbed areas. Unfortunately this report was completed prior to the 2002 Hayman Fire, which added orders of magnitude of increased sedimentation within this stretch.

The South Park Ranger District of the Pike National Forest controls much of the river through this area, which is known as Happy Meadows. The Sportsmen's Paradise property is a residential inholding, with 157 parcels in the subdivision. The area was subdivided as a private fishing club in the late 1950s, and the community acquired water rights in a 1963 decree for a fishing pond adjacent to the river. These rights are delivered by a diversion structure from the mainstem of the South Platte. The community initially built a small rock structure to increase stage in order to run water to the pond, but due to sediment deposition, they continued increasing the height over the years until they had a full dam across the river. The dam was not engineered, and is perpendicular to the channel, so it has continued to accumulate and deposit ever-larger quantities of sediment behind it, and upstream onto national forest lands. Following the fire two smaller dams on Vermillion Creek blew out due to fire-related debris flows, adding large volumes of excessive sediment below the mainstem dam through the clubs property, and downstream onto the National Forest lands below the property.

In 2008, South Park District personnel requested the Coalition for the Upper South Platte's (CUSP's) assistance in finding funding and implementing a project or a series of projects to address the sediment. At about the same time as the Pike personnel contacted us seeking assistance the Sportsmen's Board of Directors contacted CUSP to inquire if we could assist them. We have built a great cross-boundary project that addresses needs of both the private landowners and the public lands managers. CUSP successfully applied to the CDPHE 319 Nonpoint Source Program and the Park County Land and Water Trust Fund for two large grants to go toward implementation with assistance from CWCB, Park County, and the South Platte Enhancement

Board contributed smaller grants to aid us in the early planning phases. This year we are at the point where we plan to begin implementing the first phase of restoration, which includes redeveloping the diversion and performing the river restoration through the Sportsmen's portion of the area, but are seeking the remaining funds necessary to make the project a reality. Sportsmen's is participating with both cash and inkind match.

NOTE: FULL PLANS AND SPECIFICATIONS AND HEC-RAS MODEL RUN REPORT IS AVAILABLE UPON REQUEST, AND IF DESIRABLE WE CAN SCHEDULE A TOUR OF PROJECT AREA FOR CWCB STAFF WITH THE DESIGN TEAM AND PROPERTY OWNER.

Project Goals and Objectives

Environmental Goals:

1. Reduce sediment entering the river and improve geomorphology so that the river moves and stores sediment in a more appropriate manner.
2. Improve habitat for fish, benthic community, and other species, including birds and mammals and increase trout production within this stretch of river.
3. Provide improved aquatic species passage (impaired by the current layout of the dam).

Programmatic Goals:

1. Develop restoration design concepts and alternatives that meet broad constituent objectives while meeting environmental goal.
2. Coordinate, with partners, all restoration implementation objectives- environmental goals.
3. Measure the effectiveness of restoration in achieving environmental goals.
4. Account for and report on all project functions.

Objective 1 – Instream Work:

Construct riparian benching, river bank/point bars, in-channel habitat and hydraulic control features to reduce width/depth ratio of the channel and to improve sediment transport, as well as improving habitat complexity and quality; and

Remove existing diversion structure that is creating a barrier to aquatic organism passage; and recreate a diversion structure that meets water delivery needs and minimizes environmental impacts.

5,400 linear feet of riparian bank-full benching to reduce W/D ratio and protect river banks;

2,200 linear feet of low elevation log vane/sedge treatments to create new river bank and point bars to reduce W/D ratio;

11 full channel boulder cross-vanes;

6 full channel double log/boulder cross-vanes;

16 log/boulder J-Hook vanes;

6 boulder J-Hook vanes;

8 boulder vanes, groins, or bank spurs;

14 habitat trees;

43 in-channel object cover micro vortex structures; and

Objective 2 — Riparian Habitat Work:

Construct wetland on existing sediment field behind diversion;
Grade eroding slopes to blend with surrounding undisturbed landform;
Spread available topsoil on recontoured areas;
Reroute trails and relocate campsites away from eroding streambanks;
Plant seeds, cuttings, transplants, and/or rooted stock;
Remove or rehabilitate existing social trails; and
Plant seeds, cuttings, transplants, and/or rooted stock.

Objective 3 – Monitoring Effectiveness:

Establish permanent photo-point stations to monitor work over time;
Use basinwide stream survey protocol (Winters, 2007) to verify predicted changes to habitat quality and complexity;
Utilize HEC RAS to predict changes in sediment transport and then collect stream data post project to run in model for verification of work;
Collect fish-shocking data before and after work is completed;
Collect stream data before and after work is completed.

Objective 4 – Reporting

Document progress toward completing tasks and results for the project;
Document expenditures; and
Document final outcomes and lessons learned.

Technical Feasibility

The project design has been completed by Pete Gallagher of Fin-Up Habitat Consultants and Jeff Crane of Crane Associates. Plans have been reviewed by Mike Taylor, NRCS Engineer for the Area; USFS personnel, including Dana Butler, Forest Hydrologist, Denny Bohon, Aquatic Biologist, and Gifford Martinez, Pike Engineer; Jeff Spohn, CDOW Aquatic Biologist; as well as various Denver Water Department planning and engineering staff. The 404 permit has been approved. Garver Brown, the Water Commissioner for the area has reviewed the proposal and does not have any issue (the redeveloped diversion will be within 200 feet of the existing structure).

The entire area still has an adequate flood plain, so the project will have no negative impact on flooding events, and in fact, by redeveloping the diversion and opening the existing dam, we will reduce the possibility of a 100-year flood event taking out the road to Sportsmen's, which has been compromised by ice dams due to the existing diversion dam configuration. In the new configuration the wetland we will create behind a portion of the existing dam will still provide an adequate flood plain for major events. It should be noted that on this stretch of river the peak flow is actually controlled by the maximum discharge rate from 11-Mile Reservoir as opposed to precipitation events, and the designers used that potential flow rate in the HecRas model to evaluate flood impacts (and we saw that flow rate when Denver tested the new valves in 2008 so we have actual data on bankfull at peak flow).

Project Implementation and Timing

As outlined above, planning has been ongoing for sometime. If we can put together the requisite additional funding we expect things to proceed to completion on this phase in orderly fashion. In order to meet CDOW requirements our construction schedule is set to begin work in late July or

early August as water levels go down, and to be completed with all actual implementation work by September 30, 2011. Monitoring will be ongoing. Final report and invoice will to CWCB will be completed by October 31, 2011.

Monitoring Plan

CUSP's primary goal for monitoring is to provide for adaptive management of watershed resources. Monitoring allows us to understand and tweak work for the best and most effective use of our limited resources. Our secondary goal for monitoring is to provide assurance and transparency to funders and partners.

To measure the effectiveness of the proposed treatments for reducing sediment impacts, the monitoring objectives are to answer the following:

- Did the percentage of unstable stream bank decrease after treatments?
- Did the width to depth ratio of the stream decrease after treatments?
- Did percentage of fine sediment decrease after treatments?
- Did pool habitat increase after treatments?
- Did stream stability ratings improve after treatment?
- Did the percentage of stream bank with vegetation cover increase after treatments?
- Did sediment transport capacity change after treatment?
- Did benthic macroinvertbrate abundance and diversity increase after treatments?

Pre-Project Baseline Data:

The USFS began collecting stream data in 2006 and has established 57 permanently marked cross-section transects, a longitudinal profile of the river thalweg, and stream substrate sample sub-reaches (Z-Walk) throughout the project reach. The USFS also measured stream habitat conditions during the basinwide stream habitat survey in 1994. The CDOW has established a permanent electrofishing sample station in the lower segment of Happy Meadows. Data for this site dates back to 1983. HEC RAS modeling has been completed by CUSP's contractors to provide a baseline for predicting sediment transport and deposition through the project reach.

Post Project Monitoring:

Permanent photo-point locations will be established prior to construction of the project, and these will be repeated at least once each year in the 5 years following project completion. Photo points will focus on stream bank condition and riparian health

Stream channel surveys (BWSHI & channel morphology) will be repeated five years following project completion to assess width/depth ratio, pool formation, residual pool depth, and stream bank stability. Channel morphology data will be used to verify the sediment transport prediction of the HEC RAS model.

The CDOW will continue to conduct electrofishing surveys to monitor fish populations at the previously established sampling site and supply data to CUSP. Relative abundance and biomass estimations of fish before and after restoration will be compared.

Qualifications of the Applicant

CUSP, a recognized leader in implementing projects across the watershed with strong management capability, will act as the lead project manager. As a watershed group, CUSP members include both government and non-government members, including Denver Water, Natural Resources Conservation Service, Colorado State Forest Service, Park County, local landowners and businesses, and various recreation groups. CUSP will manage all project elements including managing grants and donations, hiring contractors, project implementation and outreach oversight, and project monitoring and reporting.

Coordination Plan and Public Involvement

CUSP has been working with the USFS to conduct public scoping pursuant to NEPA to determine the range of issues and alternatives to be addressed in the Environmental Assessment (EA). CUSP staff has had at least a dozen meetings with Sportsman's residents and board members. CUSP has taken a wide variety of officials on tours of the proposed project area, including staff from CDPHE, CWCB, CDOW, the CUSP Board, CTU, Park County, and others. CUSP has worked on an environmental education program with students from Woodland Park High School, who helped gather data being used in the EA. These students then presented their findings in a public meeting attended not only by other students and parents, but also Congressional staffers from our Senators' offices and our Representatives' offices, the Mayor, the School Board, and local newspapers.

CUSP is also coordinating with CO Trout Unlimited and other interested groups to aid in volunteer support and to act as project information officers. Additional information dissemination will be provided through articles in the CUSP newsletter, The Watershed Watch, as well as news releases to area newspapers, and on the CUSP website.

Section 3.5: Grant Application Budget Form

Sources of Funds	Date	Grant Request	Cash Match	In-Kind Match	Totals
Sportsmen's		$	$ 15,000.00	$35,000.00	$50,000.00
Park County			$ 50,000.00		$50,000.00
CDPHE 319			$ 85,000.00		$85,000.00
CUSP			$ 8,000.00	$ 7,000.00	$15,000.00
CWCB		$ 75,000.00			$75,000.00
Uses of Funds	**Date**	**Grant Request**	**Cash Match**	**In-Kind Match**	**Totals**
Trees, Rocks		$	$ 10,000.00	$ 15,000.00	$ 25,000.00
CUSP Staff				$ 6,000.00	$ 6,000.00
Design Contractor			$ 65,000.00		$ 65,000.00
Construction Contractor		$ 75,000.00	$ 75,000.00		$150,000.00
Volunteers				$ 21,000.00	$ 21,000.00
Seed, Willows			$ 8,000.00		$ 8,000.00
Totals		$ 75,000.00	$158,000.00	$ 42,000.00	$ 275,000.00

Total Project Cost: $

Signature _____ **Date** _____

FISH AND WILDLIFE RESOURCES FUND GRANT
COLORADO WATER CONSERVATION BOARD

Section 3.1: Applicant Information

Date of Submittal: 3/29/11

Name of Project: Sportsman's Paradise River Restoration

Applicant Information
Name and Address of Applicant Responsible for Project:

Dennis Linn, President Sportsmen's Paradise
Water Rights Owner and Project Partner
Box 383, Lake George, CO 80827

Phone: (719 227-0506 FAX: ( )

Email: dennis.linn@issinc.com

Name and Type of Organization: Property Owner's Association

Applicant Federal Employer ID Number (FEIN): _____

Contact Information, if Different from Sponsor
Name and Address of Applicant Responsible for Project:

Carol Ekarius, Executive Director, Coalition for the Upper South Platte
Box 726, Lake George, CO 80827 watershed group and fiscal host/managing partner for project

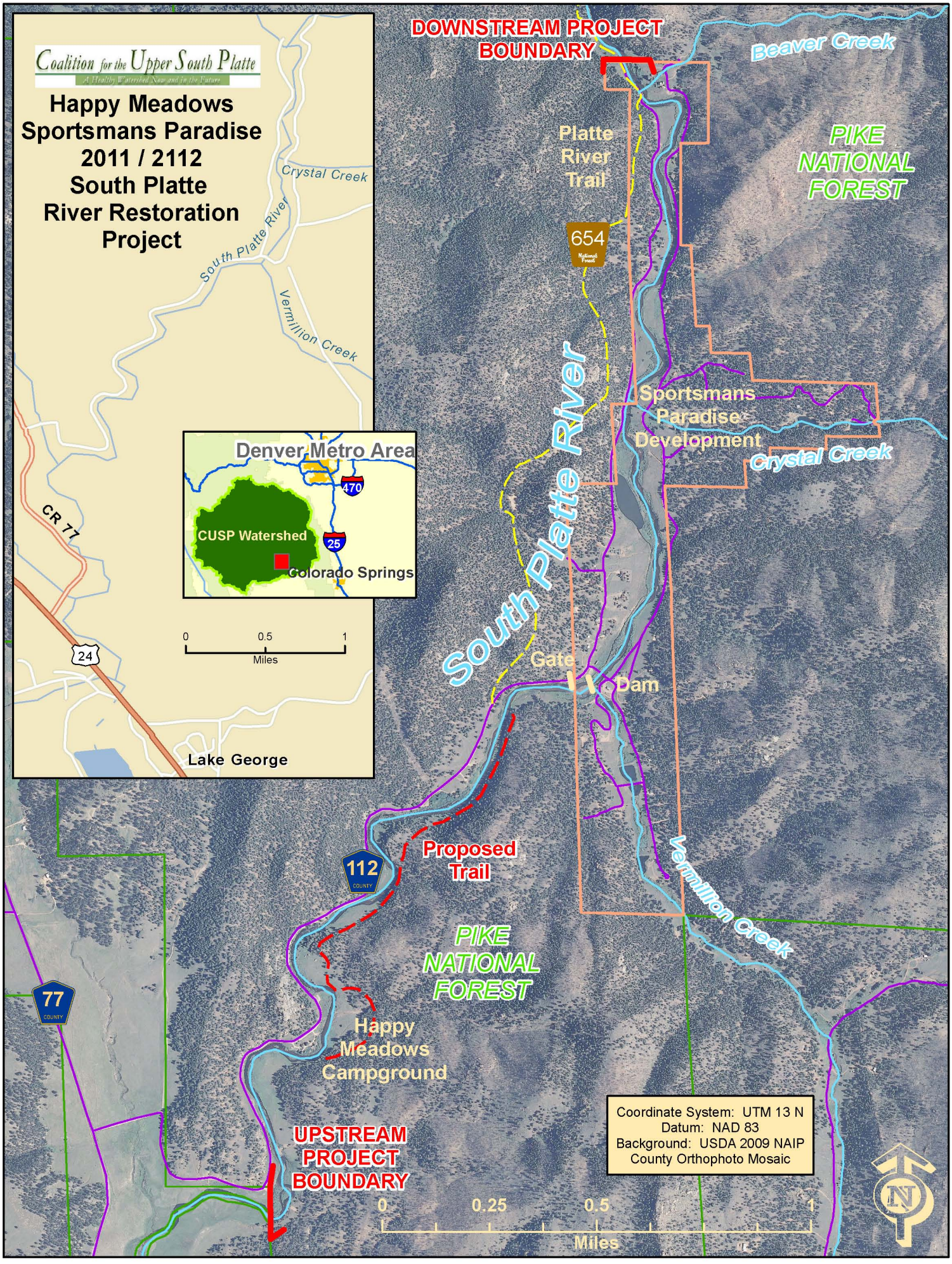
Phone: ( ) 719-748-0033 FAX: ( )

Email: carol@uppersouthplatte.org

Carol Ekarius
3/27/11

Submitted by Name Dennis Linn
Date 3/27/11

Received by Name _____
Date _____


Coalition for the Upper South Platte
A Healthy Watershed Now and in the Future
Happy Meadows
Sportsmans Paradise
2011 / 2112
South Platte
River Restoration
Project
Crystal Creek
South Platte River
Vermillion Creek
CR 77
24
Lake George
Denver Metro Area
470
25
CUSP Watershed
Colorado Springs
0
0.5
1
Miles
DOWNSTREAM PROJECT BOUNDARY
Beaver Creek
Platte River Trail
654
PIKE NATIONAL FOREST
Sportsmans Paradise Development
Crystal Creek
South Platte River
Gate
Dam
Proposed Trail
112
Vermillion Creek
PIKE NATIONAL FOREST
77
Happy Meadows Campground
UPSTREAM PROJECT BOUNDARY
Coordinate System: UTM 13 N
Datum: NAD 83
Background: USDA 2009 NAIP
County Orthophoto Mosaic
0
0.25
0.5
1
Miles
N

POLICY NUMBER: 15

SUBJECT: **CONSIDERATION AND APPROVAL OF FISH AND WILDLIFE RESOURCES FUND APPLICATIONS FOR INSTREAM FLOWS AND RIVER RESTORATION PROJECTS.**

EFFECTIVE DATE: September 12, 2002

POLICY: The Colorado Water Conservation Board (CWCB) will accept applications throughout the year for grants from the Fish and Wildlife Resources Fund for the appropriation or acquisition of instream flow water rights and river restoration construction projects to mitigate the effects of the construction, operation, and maintenance of water diversion, delivery, and storage facilities.

Applications for mitigation grants from the Fish and Wildlife Resources Fund will be accepted for the following types of projects:

1. The appropriation or acquisition of water rights for the purpose of preserving or improving the natural environment to a reasonable degree to mitigate the impact of an existing water facility.
2. River restoration feasibility studies and construction projects that are designed to directly mitigate or significantly improve the environmental impacts of existing water facilities.

The CWCB may, in any year, approve grants to fund any project in the above categories that the Board deems worthy of funding through the Fish and Wildlife Resources Fund. In order to protect the long-term integrity of the Fish and Wildlife Resources Fund, instream flow and river restoration projects mitigating the impacts of existing water supply facilities will be limited to 40% of the Fish and Wildlife Resources Fund balance as of July 1, 2002.

The project applicant must have completed a fully executed funding contract with the CWCB within 2 years of the grant authorization by the CWCB, or the Board will consider de-authorization of the grant.

PURPOSE: To establish an approval process for instream flow and river restoration construction project grants from the Fish and Wildlife Resources Fund.

APPLICABILITY: This policy and procedure applies to applications for instream flow or river restoration construction project grants from the Fish and Wildlife Resources Fund.

PROCEDURE: Prior to a Board meeting, the CWCB staff will prepare for the Board's consideration a summary of the technical, financial, and institutional characteristics of each proposed instream flow water right appropriation or acquisition, river restoration feasibility study or construction project. Each application will be reviewed for conformity with the goals and

objectives of the CWCB Strategic Plan. Grant applications will be considered only in the following two categories:

1. The appropriation or acquisition of water rights for the purpose of preserving or improving the natural environment to a reasonable degree to mitigate the impact of an existing water facility.
2. River restoration feasibility studies and construction projects that are designed to directly mitigate or significantly improve the environmental impacts of existing water facilities.

The Board will consider and CWCB staff will evaluate and recommend to the Board grant applications for appropriation or acquisition of water rights to be held by the Board based on the following project types:

- Instream flow water rights that assist in the administration of compact-entitled waters, or address problems relating to compact-entitled waters,
- Instream flow water rights that facilitate the resolution of federal water rights issues, and
- Instream flow water rights that assist in the recovery of threatened or endangered wildlife species or the conservation of existing wildlife species within riparian ecosystems.

The Board will consider and CWCB staff will evaluate and recommend to the Board grant applications for river restoration feasibility studies and construction projects based on the following:

- Soundness of the project design, work plan or plan of study,
- The need for the proposed project,
- The need for financial assistance.
- Financial, technical, or administrative participation or coordination by all affected local governments.

NOTE: Recognizing that future needs and responses to those needs cannot be predicted with certainty, the Colorado Water Conservation Board reserves the right to recommend for funding any instream flow acquisition, river restoration construction project, or study that it determines would mitigate the effects of an existing water supply facility and furthers the purposes of the Fish and Wildlife Resources Fund.

Approved by the CWCB
September 12, 2002
Agenda Item #16a