ENVIRONMENTAL ASSESSMENT

Transfer of Westslope Cutthroat Trout from S. Fk. Willow and Cottonwood Creeks to Jumping Creek (Smith River Drainage)

Description of proposed action

A. Description of water body and action.

Receiving Waters:
Name: Jumping Creek
Location: T12N, R8E, Sec 5, 8, 18
County: Meagher County

Donating Waters:
Name: Cottonwood Creek
Location: T8N, R7E, Sec 23
County: Meagher County

Name: South Fork Willow Creek
Location: T8N, R7E, Sec 1
County: Meagher County

Montana Fish, Wildlife & Parks propose transferring non-hybridized westslope cutthroat trout (WCT, *Oncorhynchus clarkii lewisi)* from South Fork Willow and Cottonwood creeks to Jumping Creek. South Fork Willow and Cottonwood creeks support two of the last six remaining non-hybridized populations of WCT in the Smith River Basin. Non-native brook trout were removed with piscicides from 3.5 miles of Jumping Creek upstream of a constructed fish barrier in 2008 and 2009 (environmental assessment 2008). For the proposed transfer, eggs would be collected from spawning WCT during spring, fertilized, and incubated to the eye-up stage prior to being outplanted in Jumping Creek. All three streams are within the Smith River Basin and located on Lewis and Clark National Forest. Transfers would continue until a genetically viable population is established, from 2 to 5 years.

B. Need for Action:

The westslope cutthroat trout is ranked as imperiled because of rarity and vulnerability to extinction throughout its range by the Natural Heritage Network and the State of Montana. Genetically pure WCT occupy about 8% of their historical range in the western United States (Shepard et al. 2003) and less than 4% of their historical range in northcentral Montana within the Missouri River Drainage (Moser et al. 2008). The Smith River Drainage in Montana currently supports six populations of non-hybridized WCT in a total of 16 miles of stream (less than 3% of historical habitat). Major threats to WCT include: competition and hybridization with non-native rainbow trout (Leary et al. 1995; Hitt et al. 2003), competition with brook trout (Dunham et al. 2002; Peterson et al. 2004), and isolation of remaining non-hybridized populations above barriers in short headwater sections of stream. Small isolated populations are safer from hybridization and competition with non-native fishes but at increased risk of extinction from catastrophic events (e.g. fire, drought) and may eventually suffer negative consequences of inbreeding (Wang et al. 2002). Translocations and transfers have been commonly used to augment established populations, re-establish historic populations, and create refuge populations (Stockwell and Leberg 2002). Moreover, numerous past live fish transfers and eyed egg transfers have successfully established WCT cutthroat populations in northcentral Montana. In the event of a catastrophic loss (e.g. fire, disease) of WCT populations in the donating streams the restored Jumping Creek population could be used as a re-founding donor.

Impacts of the proposed action

Please review the attached checklist on pages 7 to 11. The impacts of this action are included in the Environmental Assessment checklist. The following text addresses the impacts.

Impacts to the Physical Environment

Fish and Wildlife – *Section 5b and 5d of Checklist*

The proposed project would involve transfer of non-hybridized WCT in the form of eyed stage eggs from South Fork Willow and Cottonwood creeks to Jumping Creek (all in Smith River Drainage). Naturally reproducing fish would likely fully colonize Jumping Creek within 5 to 7 years of the initial transfers. Jumping Creek held a few native WCT in its upper reaches prior to piscicide treatment in 2008. Total numbers of WCT in Jumping Creek had declined to fewer than 90 individuals because of competition with brook trout. These remaining fish were transferred to fishless habitat in Tyrell Creek (Smith Creek Drainage) prior to piscicide treatments. Jumping Creek fish in Tyrell Creek were eliminated from consideration for transfer back to Jumping Creek because of potential disease concerns in Tyrell Creek and the amount of time it would take for the population in Tyrell Creek to expand enough to support a transfer. Population impacts to donor populations in Cottonwood and South Fork Willow creeks should be minimized through limitations on the number of females used for the transfer. We expect to collect eggs from less than 5% of spawning females in Cottonwood Creek and South Fork Willow Creek. Mixing a few individuals from two sources would reduce the potential of genetic founder effects from a small initial population size.

Disease testing: This EA and a Wild Fish Transfer request would be submitted to the Montana Fish, Wildlife & Parks (FWP) Fish Health Committee in the spring of 2010. The FWP wild fish

transfer policy would be followed and WCT would not be transferred until disease testing requirements of the FWP Fish Health Committee were met and after committee/department approval. Forty whole WCT were collected for disease testing from Cottonwood Creek on September 19, 2000. These fish tested ELISA and PCR (3 individuals) positive for *Renibacterium salmoninarum*. Thirty WCT were collected from the same area of Cottonwood Creek on September 15, 2009. These fish tested negative for all pathogens including *Renibacterium salmoninarum* (DFAT protocol). Many populations of WCT in north-central Montana have tested ELISA positive for *Renibacterium salmoninarum* but have shown no active signs of disease. Moreover, a transfer of eggs rather than live fish would greatly reduce disease risks. Sixty brook trout were collected from South Fork Willow Creek on September 29, 2009. These brook trout tested negative for all fish pathogens.

During transfers, precautions will be taken to minimize disease risks. Eggs will be eyed at a FWP approved disease free facility and remote site incubators will be disinfected prior to use.

Genetic Analyses: Whole fish were collected from Cottonwood Creek for gel allozyme analysis in 1992 and 2000 (N=11 and 40 respectively). In addition, fifty WCT fin clips were collected in 2009 and analyzed using the INDEL technique. All genetic testing in Cottonwood Creek indicates these are non-hybridized WCT. Fin clips were collected from WCT in South Fork Willow Creek in 2007 and 2009 and analyzed using the INDEL technique (N=25 and 50 respectively). All genetic testing in South Fork Willow Creek has indicated these are non-hybridized WCT. Samples in Cottonwood Creek were collected upstream of a dry channel barrier. Samples in South Fork Willow Creek were collected upstream of a falls barrier and immediately downstream of the barrier. All fish collected for transfer would come from the protected segments of these populations.

Aquatic Invertebrates and Amphibians: Invertebrate and amphibian communities in Jumping Creek developed in the presence of fish. Impacts on invertebrate and amphibian species from introduced non-hybidized WCT would be similar to those recently experienced (prior to piscicide treatment) in this watershed.

Impacts to the Human Environment

Land Use – *Section 7a and 7c of Checklist*

The proposed project would have no impact on productivity or profitability of the Jumping Creek watershed. Jumping Creek is within a United States Forest Service managed grazing allotment. Riparian and stream health will be adequate provided there is enforcement of bank alteration standards in the Jumping Creek watershed. The proposed action will not affect USFS silviculture management of the timber stands in the Jumping Creek drainage. Restoration to a catch and release WCT fishery would preclude harvest for consumption. Areas downstream of the fish barrier on Jumping Creek would continue to hold robust populations of brook trout available for legal harvest.

Aesthetics/Recreation – *Section 11c of Checklist*

Jumping Creek is currently fishless. Re-establishment of a robust population of WCT in Jumping Creek is the next phase of ongoing restoration of this drainage to a native fishery. Re-

establishment of WCT would provide an opportunity to fish for genetically pure WCT, Montana's State Fish.

Discussion of Reasonable Alternatives

1) No Action

This alternative (no stocking) would not meet the objectives of restoring native WCT to Jumping Creek nor would it decrease the risk of extinction of the two donor WCT populations in the Smith River Drainage. Therefore, it was eliminated from further development.

2) Proposed Action:

This alternative would fulfill objectives of this ongoing restoration project. Westslope cutthroat trout would be transferred from South Fork Willow and Cottonwood creeks to Jumping Creek. The total miles of stream inhabited by genetically unaltered WCT in the Smith River Drainage would increase by 3.5 miles (a 22% increase in the current miles). Under this alternative, the unique genetic legacy of the donor WCT populations would be substantially more secure than at the present time. FWP has agreed to take actions to benefit WCT and this project would provide a substantial contribution to WCT conservation in Montana (Conservation Agreement, MFWP 2007).

3) Re-establish a Non-native Fishery

Jumping Creek could be stocked with non-native fishes (i.e. rainbow trout) with an allowable harvest. Under this alternative, the work completed to date aimed at restoring a native WCT population would have failed. The work to create a native WCT fishery has included construction of a fish barrier and two piscicide treatments. This alternative would not meet the objectives of restoring native WCT to Jumping Creek. Therefore it was eliminated from further development.

IV. Environmental Assessment Conclusion Section

1) Is an EIS required? This environmental review demonstrates that the impacts of this proposed project are not significant. The proposed action would provide substantial benefits to WCT and reduce the potential loss of genetic material from Cottonwood and South Fork Willow creeks with minimal impact on the physical, biological, or the human environment, and thus would not require the detailed environmental review of an Environmental Impact Statement.

References

Dunham, J.B., S.B. Adams, R.E. Schroeter, and D.C. Novinger. 2002. Alien invasions in aquatic ecosystems: toward an understanding of brook trout invasions and potential impacts on inland cutthroat trout in western North America. Reviews in Fish Biology and Fisheries. 12: 373-391.

Hitt, N.P., C.A. Frissell, C.C. Muhlfeld, and F.W. Allendorf. 2003. Spread of hybridization between native westslope cutthroat trout, *Oncorhynchus clarki lewisi*, and nonnative rainbow trout, *Oncorhynchus mykiss*. Canadian Journal of Fisheries and Aquatic Sciences. 60:1440-1451.

Leary, R. F., F. W. Allendorf and G. K. Sage. 1995. Hybridization and introgression between introduced and native fish. American Fisheries Society Symposium, American Fisheries Society, 15: 91-103.

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Moser, D., A. Tews, and M. Enk. 2008. Northcentral Montana cooperative cutthroat restoration project; 2008 Annual Report. Montana Fish, Wildlife & Parks, Great Falls, MT.

Peterson, D.P., K.D. Fausch, G.C. White. 2004. Population ecology of an invasion: effects of brook trout on native cutthroat trout. Ecological Applications. 14(3):754-772.

Shepard, B.B., B.E. May and W. Urie. 2003. Status of westslope cutthroat trout *(Oncorhynchus clarki lewisi)* in the United States: 2003. Westslope Cutthroat Interagency Conservation Team. 94 pp.

Stockwell, C.A. and P.L. Leberg. 2002. Ecological genetics and the translocation of native fishes: emerging experimental approaches. Western North American Naturalist. 62(1):32-38.

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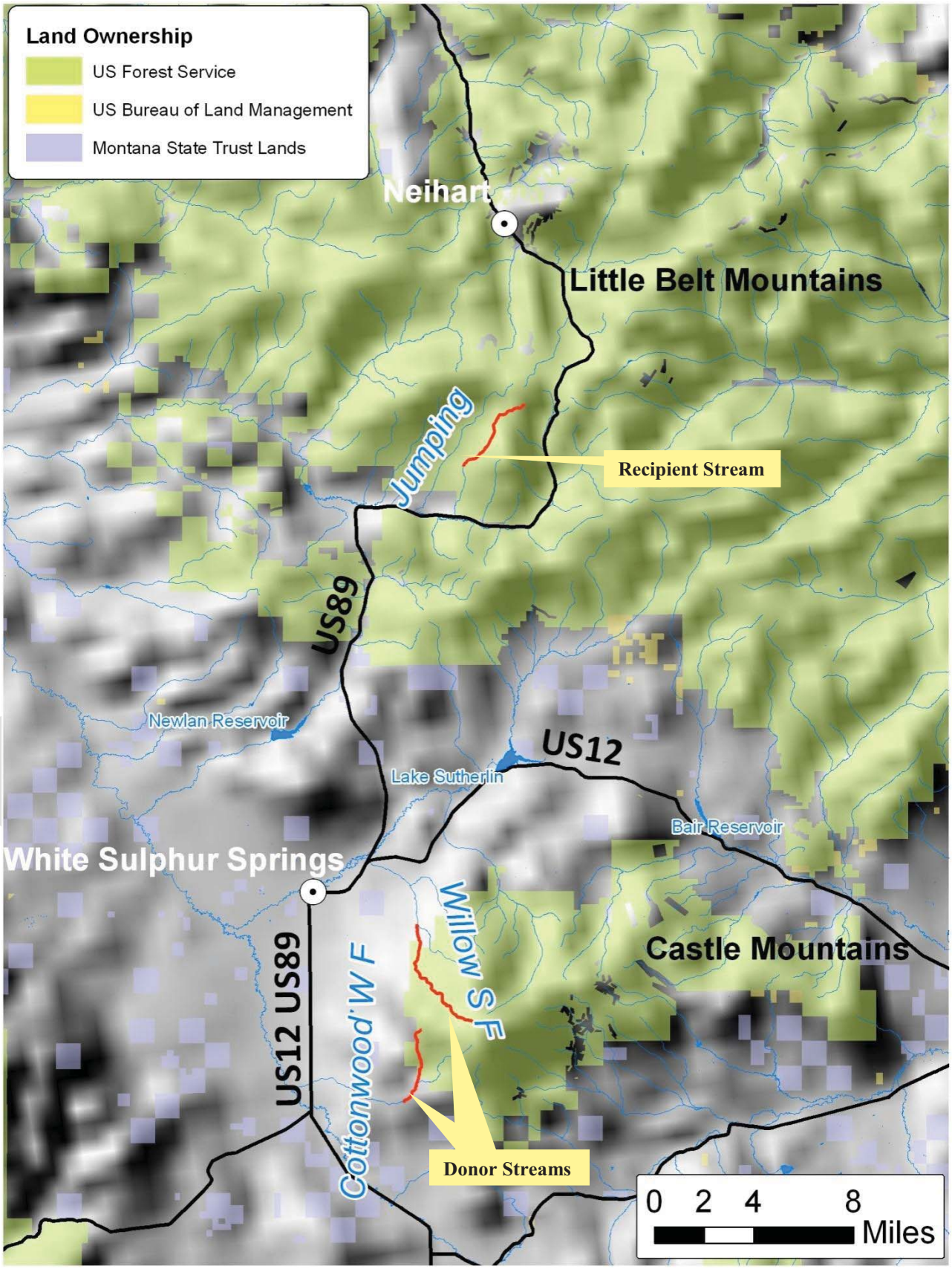

Figure 1. Area map showing donor streams, recipient stream, and vicinity.

Montana Department of Fish, Wildlife and Parks
4600 Giant Springs Road, Great Falls, MT 59405

Environmental Assessment Checklist

Project: Transfer of eyed eggs from South Fork Willow and Cottonwood creeks to Jumping Creek (all in the Smith River Drainage) **Division:** Fish and Wildlife Division, Fisheries Section
Description of Project: Montana Fish, Wildlife & Parks propose transferring non-hybridized westslope cutthroat trout eyed eggs (WCT: *Oncorhynchus clarkii lewisi)* from South Fork Willow and Cottonwood creeks to Jumping Creek in the Upper Smith River Drainage. Eyed eggs will be hatched in remote site incubators. South Fork Willow and Cottonwood creeks (donor) are located on national forest lands in the Castle Mountains area east of White Sulphur Springs. WCT will be introduced into Jumping Creek, a tributary of Sheep Creek in the Little Belt Mountains on national forest lands.

A. PHYSICAL ENVIRONMENT

1. LAND RESOURCES **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		X				
c. Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				
2. WATER **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?		X				
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of floodwater or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?		X				

i. Effects on any existing water right or reservation?		X				
j. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
l. Will the project affect a designated floodplain?		X				
m. Will the project result in any discharge that will affect federal or state water quality regulations? (Also see 2a)		X				
3. AIR **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Emission of air pollutants or deterioration of ambient air quality? (also see 13 (c))		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. Will the project result in any discharge, which will conflict with federal or state air quality regulations?		X				
4. VEGETATION **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		X				
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. Will the project affect wetlands, or prime and unique farmland?		X				
5. FISH/WILDLIFE **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?			X			p. 3
c. Changes in the diversity or abundance of non-game species?		X				
d. Introduction of new species into an area?				X Beneficial		p. 3 and Need for Action Section
e. Creation of a barrier to the migration or movement of animals?		X				
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				

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g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				
h. Will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat? (Also see 5f)		X				
i. Will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d)		X				

HUMAN ENVIRONMENT

6. NOISE/ELECTRICAL EFFECTS **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Increases in existing noise levels?		X				
b. Exposure of people to severe or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
7. LAND USE **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				p.3
b. Conflict with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?			X			p.3
d. Adverse effects on or relocation of residences?		X				
8. RISK/HEALTH HAZARDS **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?		X				
d. Will any chemical toxicants be used?		X				
9. COMMUNITY IMPACT **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				

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b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
10. PUBLIC SERVICES/TAXES/UTILITIES **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify: _____		X				
b. Will the proposed action have an effect upon the local or state tax base and revenues?		X				
c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Will the proposed action result in increased used of any energy source?		X				
e. Define projected revenue sources		X				
f. Define projected maintenance costs		X				
11. AESTHETICS/RECREATION **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?		X				
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)				X Beneficial		p. 3
d. Will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c)		X				
12. CULTURAL/HISTORICAL RESOURCES **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Destruction or alteration of any site, structure or object of prehistoric historic or paleontological importance?		X				
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				
d. Will the project affect historic or cultural resources?		X				

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13. SUMMARY EVALUATION OF SIGNIFICANCE Will the proposed action, considered as a whole:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources, which create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. Is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)		X				
g. List any federal or state permits required.						

Other groups or agencies contacted or which may have overlapping jurisdiction: None

List of Individuals or groups contributing to this EA: Ken Staigmiller, Fish Health Coordinator, FWP, Great Falls, MT; Grant Grisak, Fish Biologist, FWP, Helena, MT.

List of all agencies and individuals who have been notified of this proposed transfer: Public notification via the FWP Web Site (http://www.fwp.mt.gov/news/publicnotices/).

Recommendation concerning preparation of EIS: No EIS Required. Impacts of action expected to be minor. Benefits to westslope cutthroat trout are expected to be significant.

EA prepared by: David Moser, Fisheries Biologist, FWP, Great Falls, MT. **Date:** Jan 15, 2010.

Comments will be accepted until: April 1, 2010

Comments should be sent to: David Moser, FWP, c/o USFS, P.O. Box 869, Great Falls, MT 59403; dmoser@mt.gov

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