Montana Department of Fish, Wildlife & Parks

1420 E. 6th Ave, Helena, MT 59620

Draft Environmental Assessment

Green Hollow Creek Brook Trout Removal Project

PART I. PROPOSED ACTION DESCRIPTION

1. Type of Proposed State Action:

The proposed action is removal of nonnative brook trout from the headwaters of Green Hollow Creek using mechanical methods including electrofishing and trapping. The removal of brook trout would serve to reduce the likelihood of disease transfer from brook trout, which are carriers of several common fish diseases, to an Arctic grayling brood stock located within the drainage. It would also reduce competition between brook trout and Arctic grayling for space and food resources. The project would include about 1.3 miles of stream located entirely on private property.

2. Agency Authority for the Proposed Action

Montana Fish, Wildlife & Parks "...is hereby authorized to perform such acts as may be necessary to the establishment of and conduct of fish restoration and management projects..." under MCA § 87-1-702.

3. Name of Project

Green Hollow Creek Brook Trout Removal Project

4. If Applicable:

Estimated Construction/Commencement Date:

• May 2008

Estimated Completion Date:

 Removal efforts would continue until brook trout are eradicated from the project reach. Similar removal efforts are typically completed in less than 5 years.

Current Status of Project Design (% complete): 100%

5. Location Affected by Proposed Action (county, range and township)

Green Hollow Creek, Madison and Gallatin counties, T4S, R3E, S4

6. Project Size: Estimate the number of acres that would be directly affected that are currently:

- 1. Developed/residential − 0 acres
- 2. Industrial 0 acres
- 3. Open space -0 acres
- 4. Wetland/riparian − 1.3 stream miles
- 5. Floodplain -0 acres
- 6. Irrigated cropland 0 acres
- 7. Dry cropland -0 acres
- 8. Forestry -0 acres
- 9. Rangeland 0 acres
- 10. Other -0 acres
- **7. Map/site plan:** See Figure 1.
- 8. Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction.

None

(a) Permits:

Agency Name Permit Date Filed/#

None Applicable

(b) Funding:

Agency Name Funding Amount

Montana Fish, Wildlife & Parks (FWP)

Removal efforts would largely be the

responsibility of non-agency personnel from Turner Enterprises, Inc., with oversight by FWP biologists. FWP expenses during the project are anticipated to be nominal, and would occur within current operating

budgets.

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

Agency Name Type of Responsibility

Turner Enterprises, Inc., Flying D Ranch Property owner

9. Narrative summary of the proposed action or project including the benefits and purpose of the proposed action:

BACKGROUND

Site information

Green Hollow Creek is a 2nd order stream flowing south 3.7 miles from its origins in the Spanish Breaks to its confluence with Spanish Creek (Gallatin River drainage; Figure 1). The relatively small stream (3 to 6 ft width) flows entirely within private lands of the Flying D Ranch (Turner Enterprises, Inc.). Brook trout are common throughout the stream, and two instream ponds (manmade), located about one mile upstream from the mouth, maintain hybrid rainbow trout, brook trout, and Arctic grayling. Westslope cutthroat trout, which along with Arctic grayling and mountain whitefish are the only native salmonid species in the Gallatin River drainage, are not currently present in Green Hollow Creek, and likely disappeared from the stream through competition with introduced nonnative brook trout.

Arctic grayling brood pond

Arctic grayling are a rare native species in Montana, and are currently being reviewed for listing under the Federal Endangered Species Act. Grayling were introduced to the uppermost Green Hollow Creek pond (Figure 1) to establish a source of eggs for the Montana Arctic Grayling Recovery Program. The brood is comprised of progeny from eggs originally taken from Big Hole River Arctic grayling – the only remaining native fluvial (river dwelling) population in Montana. Annually, thousands of grayling eggs are collected from the Green Hollow brood for restoration efforts in Montana, which include reintroductions to the Beaverhead, Missouri, Ruby and Sun rivers. Because the brood is one of only two egg sources established from the native Big Hole River grayling, its value for conservation efforts is considerable.

Nonnative brook trout and disease concerns

Brook trout are not native to Montana and likely migrated to Green Hollow Creek after their introductions to the Gallatin River drainage in the early to mid 1900's. More than most trout species, brook trout are highly susceptible to several diseases, including some that are readily transferred between fish species. A pathogen of particular concern in the Green Hollow Creek drainage is *Renibacterium salmoninarum* (*Rsal*), the bacterium that causes bacterial kidney disease. *Rsal* is a pathogen that can infect many salmonid species, including grayling and brook trout, which are both particularly susceptible. It can be transmitted both horizontally (between fish), and vertically (from fish to offspring inside the eggs) – potentially threatening hatcheries that receive eggs from infected fish. Accordingly, it is a policy of FWP (the regulating authority) to not allow transfer of fish or eggs from waters where fish have tested positive for *Rsal*. The presence of *Rsal* in the Green Hollow grayling brood would likely prevent its use for restoration efforts, and potentially, if the disease was inadvertently transferred to a state fish hatchery it could have significant impacts on trout production and stocking of certain public waters.

Grayling and trout from the Green Hollow brood pond are annually screened for *Rsal*. Thus far, none have tested positive for the pathogen. Some diseases, including Bacterial Kidney Disease, can emerge in fish populations where they previously have not been detected. Often times fish pathogens may be present in a population at very low levels, with no associated disease outbreak. Routine sampling efforts may fail to detect the pathogen because few individuals in the population are infected, and/ or the level of infection is minimal. When the fish population faces changing habitat conditions (i.e. drought, thermal changes, etc.) resulting in stress the probability of disease outbreaks are greatly increased.

Because nonnative brook trout are particularly susceptible to diseases caused by *Rsal* and other pathogens, it is possible to greatly reduce the transfer of pathogens by removing brook trout from the Green Hollow Creek system. The benefits would be the reduced risk of infection to both the grayling brood and the hatcheries that receive the eggs.

Nonnative brook trout and competition concerns

Brook trout and Arctic grayling are both insectivores, feeding primarily on terrestrial and aquatic macro-invertebrates. Little information is available regarding competitive interactions between these two species, but it is logical to assume that a reduction in the numbers of brook trout in the Green Hollow brood pond would benefit the finite number of Arctic grayling present by reducing demand for both space and food.

PROPOSED ACTION

The proposed action is to remove, and potentially eradicate, nonnative brook trout from the headwaters of Green Hollow Creek and brood pond using mechanical collection methods. Brook trout would be removed from a 1.3-mile stream reach upstream of the Arctic Grayling brood pond (Figure 1). Electrofishing would be the primary method to capture and remove brook trout; however, other removal techniques including trapping and netting may also used in areas where electrofishing is not effective. Electrofishing has been effectively used to eradicate brook trout from several Montana streams similar in size to Green Hollow Creek (Shepard and Nelson 2004). Brook trout residing in the brood pond would be removed with trapping and electrofishing as they enter Green Hollow Creek for spawning. A barrier has been constructed at the pond inlet (Figure 1) to prevent brook trout residing in the pond access to spawning habitat in Green Hollow Creek. Subsequent removal of brook trout in Green Hollow Creek will over-time eliminate recruitment into the brood pond, which should result in the disappearance of the pond population.

Because the Green Hollow Creek system is relatively small, removals efforts are expected to be highly efficient, and brook trout abundance should be significantly reduced (>90%) within 1 or 2 years. Removal efforts would continue until brook trout are completely removed from the project reach (Figure 1), likely within 3 to 5 years. All captured brook trout will be euthanized and disposed of on-site. The relocation of collected brook trout to other areas within the Green Hollow Creek drainage, or other streams, would be harmful to fish populations already persisting in those areas by increasing competition for limited habitat. Transfer of brook trout to other streams would also include the potential of introducing pathogens into those waters. The outlet

structure on the brood pond will prevent reinvasion of the pond and stream by nonnative trout.

The immediate goal of this action is to reduce disease and competition threats to Green Hollow grayling brood posed by the presence of brook trout. Over the long-term, the eradication of brook trout may provide an opportunity to reintroduce native westslope cutthroat trout to the drainage; however, this action is not being considered at this time and would only be proposed through additional MEPA processes.

10. List of agencies consulted during preparation of the EA:

• Montana Fish, Wildlife & Parks, Bozeman, Dillon, Helena, Great Falls and Townsend

PART II. ENVIRONMENTAL REVIEW

1. Evaluation of the impacts of the Proposed Action including secondary and cumulative impacts on the Physical and Human Environment.

PHYSICAL ENVIRONMENT A.

1. LAND RESOURCES		IMP				
Will the proposed action result in:	Unknown *	None	Minor *	Potentially Significant	Can Impact Be Mitigated*	Comment Index
a. **Soil instability or changes in geologic substructure?		Х				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		Х				
c. **Destruction, covering or modification of any unique geologic or physical features?		Х				
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?		Х				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		х				
f. Other:						

2. AIR		IMP	ACT *			
Will the proposed action result in:	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))		×				
b. Creation of objectionable odors?		Х				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		Х				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		Х				
e. ***For P-R/D-J projects, will the project result in any discharge, which will conflict with federal or state air quality regs? (Also see 2a)		Х				
f. Other:						

3. WATER		IMI	PACT *		0	
Will the proposed action result in:	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?		Х				
b. Changes in drainage patterns or the rate and amount of surface runoff?		Х				
c. Alteration of the course or magnitude of floodwater or other flows?		Х				
d. Changes in the amount of surface water in any water body or creation of a new water body?		Х				
e. Exposure of people or property to water related hazards such as flooding?		Х				
f. Changes in the quality of groundwater?		Х				
g. Changes in the quantity of groundwater?		Х				
h. Increase in risk of contamination of surface or groundwater?		Х				
i. Effects on any existing water right or reservation?		Х				
j. Effects on other water users as a result of any alteration in surface or groundwater quality?		Х				
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		Х				
I. ****For P-R/D-J, will the project affect a designated floodplain? (Also see 3c)		Х				
m. ***For P-R/D-J, will the project result in any discharge that will affect federal or state water quality regulations? (Also see 3a)		Х				
n. Other:						

4. VEGETATION		IMP	ACT *			
Will the proposed action result in:	Unknown *	None	Minor *	Potentially Significant	Can Impact	Comment
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		Х			Mitigated *	Index
b. Alteration of a plant community?		Х				
c. Adverse effects on any unique, rare, threatened, or endangered species?		Х				
d. Reduction in acreage or productivity of any agricultural land?		Х				
e. Establishment or spread of noxious weeds?		Х				
f. ****For P-R/D-J, will the project affect wetlands, or prime and unique farmland?		Х				
g. Other:						

** 5. <u>FISH/WILDLIFE</u>		IMP				
Will the proposed action result in:	Unknown *	None	Minor *	Potentially Significant	Can Impact Be Mitigated *	Comment Index
a. Deterioration of critical fish or wildlife habitat?		Χ				
b. Changes in the diversity or abundance of game animals or bird species?			Х		No	5b
c. Changes in the diversity or abundance of nongame species?		Х				
d. Introduction of new species into an area?		Χ				
e. Creation of a barrier to the migration or movement of animals?		Х				
f. Adverse effects on any unique, rare, threatened, or endangered species?		Х				
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		Х				
h. ****For P-R/D-J, 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)		Х				
i. ***For P-R/D-J, will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d)		Х				
j. Other:						

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (Attach additional pages of narrative if needed):

Comment 5b. The proposed action is expected to result in a decrease in nonnative brook trout abundance in the uppermost reaches (1.3 miles) of Green Hollow Creek. This is considered a minor impact because they will continue to be abundant in the lower reach of Green Hollow Creek and other streams in the surrounding area. Due to its isolation on private property, the proposed project reach currently supports no public recreational fishery.

B. HUMAN ENVIRONMENT

6. NOISE/ELECTRICAL EFFECTS		IMI				
Will the proposed action result in:	Unknown *	None	Minor *	Potentially Significant	Can Impact Be Mitigated *	Comment Index
a. Increases in existing noise levels?		Х				
b. Exposure of people to serve or nuisance noise levels?		Х				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		Х				
d. Interference with radio or television reception and operation?		х				
e. Other:						

7. LAND USE		IMI	PACT *			
Will the proposed action result in:	Unknown *	None	Minor *	Potentially Significant	Can Impact Be Mitigated *	Comment Index
Alteration of or interference with the productivity or profitability of the existing land use of an area?		х				
b. Conflicted with a designated natural area or area of unusual scientific or educational importance?		Х				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		Х				
d. Adverse effects on or relocation of residences?		Х				
e. Other:						

8. RISK/HEALTH HAZARDS		IMI				
Will the proposed action result in:	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?		Х				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		Х				
c. Creation of any human health hazard or potential hazard?		Х				
d. ***For P-R/D-J, will any chemical toxicants be used? (Also see 8a)		Х				
e. Other:						

9. COMMUNITY IMPACT		IMI				
Will the proposed action result in:	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?		Х				
b. Alteration of the social structure of a community?		Х				
c. Alteration of the level or distribution of employment or community or personal income?		Х				
d. Changes in industrial or commercial activity?		Х				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		Х				
f. Other:						

10. PUBLIC SERVICES/TAXES/UTILITIES		IMI	PACT *				
Will the proposed action result in:	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?		Х					
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?		Х					
d. Will the proposed action result in increased used of any energy source?		Х					
e. **Define projected revenue sources			X			10e	
f. **Define projected maintenance costs.			Х			10e	
g. Other:							

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Land Resources (Attach additional pages of narrative if needed):

Comment 10e. Removal efforts would largely be the responsibility of non-agency personnel from Turner Enterprises, Inc., with oversight by FWP biologists. FWP expenses during the project are anticipated to be nominal, and would occur within current operating budgets.

** 11. AESTHETICS/RECREATION		IMI	PACT *			
Will the proposed action result in:	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?		Х				
b. Alteration of the aesthetic character of a community or neighborhood?		Х				
c. **Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)		Х				
d. ***For P-R/D-J, will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c)		Х				
e. Other:						

12. CULTURAL/HISTORICAL		IMP	ACT *			
RESOURCES Will the proposed action result in:	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?		Х				
b. Physical change that would affect unique cultural values?		Х				
c. Effects on existing religious or sacred uses of a site or area?		Х				
d. **** <u>For P-R/D-J</u> , will the project affect historic or cultural resources? Attach SHPO letter of clearance. (Also see 12.a)		Х				
e. Other:						

SIGNIFICANCE CRITERIA

13. SUMMARY EVALUATION OF SIGNIFICANCE		IMPACT *				
Will the proposed action, considered as a whole:	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 that create a significant effect when considered together or in total.)		Х				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		Х				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		Х				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		Х				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		Х				
f. ***For P-R/D-J, is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)		Х				
g. **** <u>For P-R/D-J</u> , list any federal or state permits required.						Х

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Water Resources (Attach additional pages of narrative if needed):

13g. Montana fish Wildlife and Parks Scientific Collectors Permit 87-2-806. Taking fish or game for scientific purposes is required for Turner Enterprises Inc. to remove brook trout.

PART II. ENVIRONMENTAL REVIEW, CONTINUED

2. Description and analysis of reasonable alternatives (including the no action alternative) to the proposed action whenever alternatives are reasonably available and prudent to consider and a discussion of how the alternatives would be implemented:

Two alternatives were considered during the preparation of this EA

1) No Action

The predicted consequences of the "No Action" alternative are:

- The risk of disease and competition in the Arctic grayling brood would remain relatively higher with the presence of brook trout.
- No costs associated with brook trout removal efforts.

2) <u>Preferred Alternative: Removal of nonnative brook trout using mechanical</u> methods from 1.3 miles of Green Hollow Creek

The predicted consequences of the Preferred Alternative were detailed and discussed in Part I and Part II.

3). Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency:

None

PART III. NARRATIVE EVALUATION AND COMMENT

Addressed in Part I and Part II

PART IV. EA CONCLUSION SECTION

- 1. Based on the significance criteria evaluated in this EA, is an EIS required (YES/NO)? If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action.
 - No. An EIS is not required under the Montana Environmental Policy Act (MEPA) because the project lacks significant impacts to the physical or human environment. Therefore, the impacts are appropriately addressed through an Environmental Assessment. The primary impact associated with the project is reduced abundance and distribution of nonnative trout in the headwaters of Green Hollow Creek, which is the intended consequence of the action.
 - 2. Describe the level of public involvement for this project if any and, given the complexity and the seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?
 - The public will be notified through local newspapers and through contact with local sports groups and others who have previously indicated interest in similar projects. This EA will also be published on the Montana Fish, Wildlife & Parks web page (http://fwp.mt.gov/default.html). Public comments can be given at the FWP web page, or in writing to: Jim Magee, Montana Fish, Wildlife & Parks, 730 N. Montana Street, Dillon, MT 59725, or email: mageejames@mt.gov. Comments on the EA will be accepted until 5:00 pm, xxx, 2008. This level of public involvement is believed adequate for the proposed project, as similar and recent efforts in the Elkhorn Mountains near Helena, MT, have produced no significant issues or controversy. If significant concerns are raised concerning this EA, a public open house to discuss the issues will be scheduled.
- 3. Duration of comment period, if any. 30-Days

4. Name, title, address and phone number of the person(s) responsible for preparing the EA: Jim Magee, MFWP Fisheries Biologist, 730 N. Montana Street, Dillon, MT 59725. (406) 683-2675

References

Shepard, B.B and L. Nelson. 2004. Conservation of Westslope Cutthroat Trout by Removal of Brook Trout Using Electrofishing. Report to Montana Fish, Wildlife and Parks Future Fisheries Improvement Program, Helena, Montana.

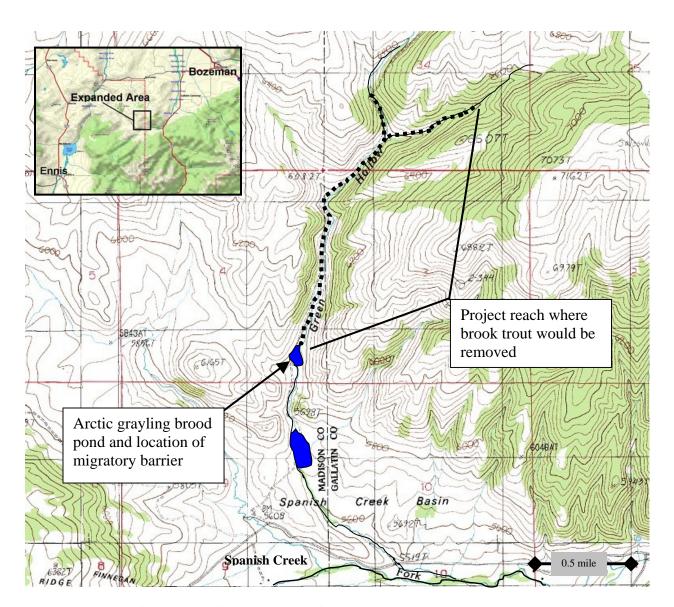


Figure 1. Map of proposed Green Hollow Creek project area