



**Montana Fish,
Wildlife & Parks**

2300 Lake Elmo Drive
Billings, MT 59105
July 15, 2005

TO: Environmental Quality Council
Director's Office, Dept. of Environmental Quality
Montana Fish, Wildlife & Parks

Director's Office	Wildlife Division
Resource Assessment	Design & Construction
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Yellowstone River Parks Association
Magic City Fly Fishers
Federation of Fly Fishers
Walleyes Unlimited, Billings Chapter
Montana Pike Masters, Billings Chapter
Adjacent Landowners

Ladies and Gentlemen:

The enclosed draft Environmental Assessment (EA) has been prepared for the introduction of Yellowstone cutthroat trout (YCT) into Sheep and Miller Creeks, and is submitted for your consideration. This project will attempt to expand the range of YCT in the Soda Butte Creek Drainage and halt the decline of this native fish. Questions and comments will be accepted until August 15, 2005.

If you have questions or need additional copies of the draft EA, please contact Montana Fish, Wildlife & Parks at 247-2940. Please send any written comments by mail to: Jim Darling, Regional Fisheries Manager, Montana Fish, Wildlife & Parks, 2300 Lake Elmo Drive, Billings MT 59105; or e-mail to jdarling@mt.gov.

Thank you for your interest,

Harvey E. Nyberg
Regional Supervisor

Enclosure

ENVIRONMENTAL ASSESSMENT CHECKLIST

PART 1. PROPOSED ACTION DESCRIPTION

Project Title: Yellowstone Cutthroat Trout Introduction into Sheep and Miller Creeks

Date: July 15, 2005

Name, Address and Phone Number:

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Project Location: Sheep Creek and Miller Creek are tributaries to Soda Butte Creek that enter from the north near Cooke City, Montana. Miller Creek (T9S R14E Sec 23, 24, 25) enters Soda Butte Creek immediately upstream (east) of Cooke City. Sheep Creek (T9S R14E Sec 22, 26) enters Soda Butte approximately 1 mile downstream (west) of Cooke City.

Description of Project:

The distribution and abundance of Yellowstone cutthroat trout (*Oncorhynchus clarki bowvieri*; YCT) have declined from historical levels over part or all of their range. In Montana, Idaho and Wyoming, YCT currently occupy less than 60% of their historically occupied 17,397 miles of habitat, and of these only 7-25% are genetically pure populations (May et al. 2003). YCT are a species of special concern in the State of Montana and are on the Sensitive Species List for R1 of the US Forest Service. Many populations have been in decline or have disappeared because of habitat degradation, introduction of non-native species, disease, and over-harvest.

Soda Butte Creek is one of the major tributaries to the Lamar River (a tributary to the Yellowstone River) in Yellowstone National Park (YNP). Non-native fishes threaten to displace the native YCT in Soda Butte Creek. Downstream of Ice Box Canyon in YNP, rainbow trout, which can hybridize with YCT, are present in the stream. Upstream of Ice Box Canyon and beyond YNP into Montana, brook trout are present in the stream. Brook trout in other systems have been shown to out-compete and displace native populations of cutthroat trout. Management actions are currently underway to remove brook trout upstream of Ice Box Canyon. In an attempt to expand the range of YCT in the Soda Butte Creek Drainage, Montana Fish, Wildlife and Parks (FWP) is proposing to introduce YCT into fishless reaches of Sheep and Miller creeks.

Miller Creek is fishless except for the area near its confluence with Soda Butte Creek. YCT and brook trout are present in Soda Butte Creek upstream of Cooke City, with brook trout numbers (20) being approximately double those of YCT (8) (Olsen 2004). Surveys performed in Miller Creek indicate that there are no fish upstream of the Highway 212 crossing. The habitat from Highway 212 upstream approximately 0.5 miles is predominantly high gradient riffles and cascades. Farther upstream, the gradient of the stream is lower and the habitat is more suitable for YCT introduction. Approximately 1.2 miles of stream habitat, most of which is within the Gallatin National Forest (GNF), could support a self-sustaining population of YCT. Two small portions of the creek are within private holdings. The Miller Creek drainage has been impacted by past mining practices, but the water quality appears adequate to support cutthroat trout (Shuler 1995). A large project aimed at cleaning up mine-related pollution involves part of the Miller Creek basin.

Sheep Creek is fishless upstream of Sheep Falls, approximately 0.75 miles upstream of its confluence with Soda Butte Creek. From the falls down to the confluence, only YCT have been found in the creek (Shuler 1995, Olsen 2004). Cascades, high gradient riffles, and large boulder substrate dominate the habitat from Sheep Falls downstream to Highway 212. Only a few adult fish were present in this reach, and no juvenile fish were found, suggesting that it has limited spawning potential. The high gradient of the stream and the long culvert under Highway 212 may restrict fish passage from Soda Butte Creek, thus limiting the use of this section by cutthroat trout. Upstream of Sheep Falls, the habitat conditions are more suitable for YCT. The stream has a lower gradient and smaller substrate suitable for spawning; rearing habitat is more prevalent than downstream of the falls. The Sheep Creek drainage has been impacted much less than Miller Creek and Soda Butte Creek by past mining activities. Approximately 1.2 miles of suitable habitat exist in Sheep Creek upstream of the falls, all of which is within the GNF.

FWP is proposing two options for introducing YCT into the upper, fishless portion of Miller and Sheep creeks. Option one consists of capturing live fish using electrofishing and transporting them from Soda Butte Creek to each of these sections of stream. By transporting fish 10 inches and smaller, at least 3 age classes can be transplanted at one time, reducing the number of spawning age fish removed from the Soda Butte Creek population. Approximately 100 YCT would be stocked into each stream. Fish would be collected over approximately a 1-mile section to avoid depleting a specific reach. A single stocking effort should be sufficient to establish a population in these streams because of increased survival of wild fish versus hatchery fish and the presence of multiple age classes. One potential drawback is that fish have been known to attempt to migrate back to the location they were transported from. By transporting 100 fish, it is believed that sufficient numbers will remain in each stream to found self-sustaining populations. Future transplants may be warranted to increase genetic diversity if substantial emigration occurs. To reduce trauma on the fish, a helicopter will likely be used to transport the fish from the capture location to Sheep and Miller creeks. The intent of both options is to create wild, self-sustaining populations of YCT in both creeks.

In order to create a conservation population of YCT, the transported fish must first be verified as genetically pure (i.e., not hybridized with rainbow, westslope cutthroat, or golden trout) and disease free. Fish were collected from Soda Butte Creek in 2004 and analyzed for genetic purity

and disease. Genetic testing revealed that the YCT were partially hybridized with westslope cutthroat and rainbow trout. The genetic makeup of the 51 fish tested was 98.7 % YCT, 0.6% westslope cutthroat, and 0.7% rainbow trout. Disease samples collected from 60 brook trout were free of pathogens, except they were suspect for *R. salmoninarum* (bacterial kidney disease), which is typical for most wild populations of fish (Staigmiller 2005). A second round of disease testing is warranted to refute the previous results before live fish could be transported.

Option two would involve using YCT from the Yellowstone River Trout Hatchery located in Big Timber. Under this option, approximately 500 YCT would be stocked annually over a period of 3 years into Miller and Sheep creeks via truck and/or helicopter. The density of fish to be stocked into Sheep and Miller creeks would be similar to densities of fish present in Soda Butte Creek. Estimates from 2004 indicate that there are between 800 and 1,200 fish per mile in Soda Butte Creek from its headwaters to the YNP boundary. Young-of-the-year would be stocked into each stream in late August or September beginning in 2005.

It is likely that some of the 100% pure YCT introduced into Miller and Sheep creeks, and/or their progeny, will emigrate to Soda Butte Creek. Emigration of these fish could potentially benefit the Soda Butte Creek fishery by increasing genetic diversity and the percentage of YCT genes in the population. YCT from a hatchery can be less adapted to the environment and can cause reduced fitness of all YCT in a creek. The genetic sources for YCT in the Yellowstone River Trout Hatchery are McBride Lake and Goose Lake. McBride Lake is in the Lamar River Drainage (approximately 20 miles west of Cooke City); there is likely little genetic difference between McBride Lake and Soda Butte Creek fish. Further, wild gametes were collected recently from McBride Lake and infused into the hatchery stock, thus reducing domestication. Goose Lake is located approximately 6 miles north of Cooke City. Although the original source of fish in this lake is unknown, it has contained a self-sustaining population of YCT for more than 60 years. Gametes were collected at the lake beginning in 2004. Because this new brood of fish is of wild origin, and gametes were collected from over 300 individuals, there should be no threat of domestication from Goose Lake fish. Because of the proximity of Goose Lake and Soda Butte Creek, it is likely that these fish have experienced similar selective pressures and have developed similar traits to survive the local environment.

An important component of long-term management of YCT populations is to ensure that they are interconnected. Stochastic events, such as fire or floods, can often eliminate small, isolated populations of fish. The goal of introducing YCT into Sheep and Miller creeks is to expand the range of YCT and to reduce the probability that a single natural event could eliminate the population of fish in Soda Butte Creek. There would be no immigration of fish from Soda Butte into the upper reaches of Sheep Creek (because of Sheep Falls), and potentially limited immigration into upper Miller Creek (because of the high gradient near the mouth). Out-migration of fish from these creeks to Soda Butte Creek, however, could provide colonists to reestablish or augment the population in the main creek. This out-migration would be particularly important Soda Butte Creek upstream of Cooke City, where the population of YCT is small.

Other groups or agencies contacted or which may have overlapping jurisdiction:

The reaches of streams where fish would be reintroduced are mainly within GNF boundaries. Two small sections of Miller Creek intersect private property. Although the FWP has primary jurisdiction over fish population management in Montana, these types of projects are coordinated with appropriate land management agencies, and private landowners are notified and encouraged to comment on the proposals. This proposed project is consistent with fish population and habitat management goals and objectives for streams within the GNF. This project would be a cooperative partnership with the GNF, which is contributing labor and other technical and logistical support. The goals of this project are consistent with USFS sensitive species management goals, and specific goals and objectives outlined in the Cooperative Conservation Agreement for Yellowstone Cutthroat Trout within Montana (CCA 2000).

PART 2. ENVIRONMENTAL REVIEW

1. POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

WILL THE PROJECT RESULT IN POTENTIAL IMPACTS TO:	UNKNOWN	POTENTIALLY SIGNIFICANT	MINOR	NONE	CAN BE MITIGATED	COMMENTS PROVIDED
1. Unique, endangered, fragile or limited environmental resources			X			1.1
2. Terrestrial or aquatic life and/or habitat			X			1.2
3. Introduction of a new species into an area			X			1.3
4. Vegetation cover, quantity and quality				X		
5. Water quality, quantity and distribution (surface or groundwater)				X		
6. Existing water right or reservation				X		
7. Geology and soil quality, stability and moisture				X		
8. Air quality or objectionable odors				X		
9. Historical and archaeological sites				X		
10. Demands on environmental resources of land, water, air & energy				X		
11. Aesthetics				X		

Comments

1.1. Unique, endangered, fragile, or limited environmental resources

The YCT is listed as a "Species of Special Concern" in Montana and is classified as a Sensitive Species by the GNF. The intent of this project is to establish a wild, self-sustaining population of YCT, a highly valued native fish species and the only indigenous trout species in the Yellowstone Drainage, and to enhance the existing population of YCT in the Soda Butte Creek drainage. If the introductions were successful, the populations would exist free from non-native brook trout competition and predation. Additionally, the range of this species would be expanded, reducing the possibility of their extinction.

1.2. Terrestrial or aquatic life and/or habitat

Introducing a predatory fish, such as YCT, will have direct impacts on invertebrate organisms residing in the stream. Trout introductions into fishless streams have been shown to alter invertebrate community composition and size. The potential impacts to invertebrates should be minimal because YCT are native to the drainage, and many potential prey items have coevolved in the presence of trout. Potential impacts to vertebrates such as the spotted frog, which is present in these drainages, should be minimal because frog densities tend to be low in higher gradient streams, such as Miller and Sheep creeks. Amphibians may use stream environments as corridors for movement and for over-wintering, but no amphibians in the Absaroka-Beartooth Mountains are stream obligates. Spotted frogs, when found in and around streams, are generally found in low gradient areas with adjacent springs, backwaters, and wetlands.

1.3. Introduction of a new species into an area

Although currently fishless, Miller and Sheep creeks are within the native range of YCT. Establishment of YCT in the upper reaches of these streams will aid in the long-term preservation of the species, because the population will be free from the negative effects of competition with the non-native brook trout and from the threat of introgressing with rainbow trout.

2. POTENTIAL IMPACTS ON HUMAN ENVIRONMENT

WILL THE PROJECT RESULT IN POTENTIAL IMPACTS TO:	UNKNOWN	POTENTIALLY SIGNIFICANT	MINOR	NONE	CAN BE MITIGATED	COMMENTS PROVIDED
1. Social structures and cultural diversity				X		
2. Changes in existing public benefits provided by wildlife populations and/or habitat			X			2.2
3. Local and state tax base and tax revenue				X		
4. Agricultural production				X		
5. Human health				X		
6. Quantity and distribution of community income				X		
7. Access to and quality of recreational activities			X			2.7
8. Locally adopted environmental plans & goals				X		
9. Distribution and density of population and housing				X		
10. Demands for government services				X		
11. Industry and/or commercial activity				X		

Comments

2.2. Changes in the existing public benefits provided by wildlife populations and/or habitat

Expanding the range of YCT into the upper reaches Miller and Sheep creeks would increase the recreational opportunities to catch wild cutthroat trout. The relatively remote location of these populations and the small size of the streams, however, will likely limit the number of anglers visiting the area.

2.7. Access to and quality of recreational activities

The primary purpose for reintroducing YCT into Miller and Sheep Creeks is to expand the existing range of the species and enhance the Soda Butte Creek fish population. By establishing populations in the upper reaches of Miller and Sheep creeks, opportunities to fish for native cutthroat trout will be expanded. It is unlikely that fishing pressure will increase significantly, however, because these streams are small and remote.

Does the proposed action involve potential risks of adverse effects that are uncertain but extremely harmful if they were to occur?

No

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?

No

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

1. The "No Action" Alternative

If no action is taken the following consequences are likely to result:

The upper reaches of Sheep and Miller creeks would remain fishless, and the population of fish in Soda Butte Creek would remain in its current state. The long-term risk of extinction due to stochastic events such as fire and flood would remain relatively high because of the lack of interconnected fish populations. Currently, upstream of Yellowstone National Park in Montana and Wyoming, no tributaries of Soda Butte Creek contain populations of YCT except near their confluences with the main creek.

2. Use wild or hatchery YCT to stock the streams

Of the two options for introducing fish into Miller and Sheep Creeks, the second option of using fish from the Yellowstone River Trout Hatchery is the preferred alternative. Because genetic testing of YCT from Soda Butte Creek indicated that there is a mild degree of introgression from rainbow and westslope cutthroat trout, and because the objective of these introductions is to expand the range of pure YCT, it was determined that hatchery fish would be preferable to wild fish from the creek.

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

None

Individuals or groups contributing to, or commenting on this EA:

Scot Shuler, Gallatin National Forest

EA prepared by: Jim Olsen, Regional Fisheries Biologist, Montana Fish Wildlife and Parks

Date Completed: July 15, 2005

Mail comments to:

Jim Darling
Regional Fisheries Manager
Montana Fish, Wildlife and Parks
2300 Lake Elmo Dr.
Billings, MT 59105

Comments due by: August 15, 2005

References

CCA. 2000. Cooperative conservation agreement for Yellowstone cutthroat trout within Montana between Crow Tribe, Montana Department of Fish, Wildlife and Parks, Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, USDA Forest Service Gallatin and Custer National Forests, USDI Bureau of Land Management, USDI Fish and Wildlife Service, USDI Bureau of Indian Affairs, and Yellowstone National Park. Montana Department of Fish, Wildlife and Parks, Helena, Montana.

May, B. E., Urie, W., Shepard, B. B., and Montana Cooperative Fishery Research Unit. 2003. Range-wide status of Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*): 2001. Bozeman, MT.

Olsen, J. R. 2004. Report on the removal of brook trout from Soda Butte Creek and subsequent monitoring, 2004. Report Submitted by Montana Fish, Wildlife and Parks to Montana Department of Environmental Quality, Billings, MT.

Shuler, S. 1995. Soda Butte Drainage reconnaissance fish survey, 1994. Gardner Ranger District, Gallatin National Forest, Livingston, MT.

Staigmiller, K. 2005. Fish health inspection report, Unnamed tributary to Soda Butte Creek near Cooke City, MT. Montana Fish, Wildlife and Parks Fish Health Section, Great Falls, MT.

APPENDIX A

PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST

The 54th Legislature enacted the Private Property Assessment Act, Chapter 462, Laws of Montana (1995). The intent of the legislation is to establish an orderly and consistent process by which state agencies evaluate their proposed actions under the "Takings Clauses" of the United States and Montana Constitutions. The Takings Clause of the Fifth Amendment of the United States Constitution provides: "nor shall private property be taken for public use, without just compensation." Similarly, Article II, Section 29 of the Montana Constitution provides: "Private property shall not be taken or damaged for public use without just compensation..."

The Private Property Assessment Act applies to proposed agency actions pertaining to land or water management or to some other environmental matter that, if adopted and enforced without compensation, would constitute a deprivation of private property in violation of the United States or Montana Constitutions.

The Montana State Attorney General's Office has developed guidelines for use by state agency to assess the impact of a proposed agency action on private property. The assessment process includes a careful review of all issues identified in the Attorney General's guidance document (Montana Department of Justice 1997). If the use of the guidelines and checklist indicates that a proposed agency action has taking or damaging implications, the agency must prepare an impact assessment in accordance with Section 5 of the Private Property Assessment Act. For the purposes of this EA, the questions on the following checklist refer to the following required stipulation(s):

(LIST ANY MITIGATION OR STIPALTIONS REQUIRED, OR NOTE "NONE")

None.

DOES THE PROPOSED AGENCY ACTION HAVE TAKINGS IMPLICATIONS UNDER THE PRIVATE PROPERTY ASSESSMENT ACT?

YES

NO

- | | | |
|---------------|--------------|---|
| <u> </u> | <u> X </u> | 1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights? |
| <u> </u> | <u> X </u> | 2. Does the action result in either a permanent or indefinite physical occupation of private property? |
| <u> </u> | <u> X </u> | 3. Does the action deprive the owner of all economically viable uses of the property? |

- _____ X 4. Does the action deny a fundamental attribute of ownership?
- _____ X 5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If the answer is **NO**, skip questions 5a and 5b and continue with question 6.]
- _____ _____ 5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
- _____ _____ 5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
- _____ X 6. Does the action have a severe impact on the value of the property?
- _____ X 7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally? [If the answer is **NO**, do not answer questions 7a-7c.]
- _____ _____ 7a. Is the impact of government action direct, peculiar, and significant?
- _____ _____ 7b. Has government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?
- _____ _____ 7c. Has government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?

Taking or damaging implications exist if **YES** is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if **NO** is checked in response to questions 5a or 5b.

If taking or damaging implications exist, the agency must comply with Section 5 of the Private Property Assessment Act, to include the preparation of a taking or damaging impact assessment. Normally, the preparation of an impact assessment will require consultation with agency legal staff.