

**Montana Department of Fish, Wildlife and Parks**  
1420 E. 6<sup>th</sup> Ave P.O. Box 200701, Helena, MT 59620 -0701

**ENVIRONMENTAL ASSESSMENT  
WESTSLOPE CUTTHROAT TROUT RECOVERY  
EXPANSION OF WESTSLOPE CUTTHROAT TROUT  
TRANSFER OF LIVE FISH FROM  
NORTH FORK RUNNING WOLF CREEK AND EAST FORK BIG SPRING CREEK  
TO NORTH FORK FORD CREEK**

**I. Description of proposed action**

**A. Description of water body and action.**

**Receiving Water:**

Name:	North Fork Ford Cr.	Location:	T19N R9W Sec 11, 2-3
Water Code:	20-4320	Elevation:	5500 – 5800 feet
County:	Lewis & Clark		

**Donating Waters:**

Name:	North Fork Running Wolf Cr.	Location:	T14N R10E Sec 16
Water Code:	16-2402	Elevation:	6000 – 6600 feet
County:	Judith Basin		

Name:	East Fork Big Spring Cr.	Location:	T12N R19E Sec 4,
Water Code:	16-1445	Elevation:	5600 – 5800 feet
County:	Fergus		

Westslope cutthroat trout (WCT) *Oncorhynchus clarki lewisi* will be introduced into a fishless area above a waterfall barrier on the North Fork Ford Creek, a tributary to Ford Creek in the Sun Drainage. Genetically pure native WCT from North Fork Running Wolf Creek (Judith Drainage) and East Fork Spring Creek (Judith Drainage) are proposed as the donor sources for introduction above the waterfall.

North Fork Ford is fishless above a series of barrier waterfalls located about ¼ mile upstream of its confluence with Ford Creek. Sampling in 2002 found brown trout (*Salmo trutta*), brook trout (*Salvelinus fontinalis*), and *Oncorhynchus sp.* in mainstem Ford Creek (Moser et al. in preparation). Genetics samples collected by the United States Forest Service (USFS) in 1993 in the ¼ mile below the barrier were 94% pure WCT and were hybridized with Yellowstone cutthroat trout *Oncorhynchus clarki bouvieri* and rainbow trout (*Oncorhynchus mykiss*) (Leary 1993).

Surveys in the 1990's conducted by the Lewis and Clark Forest found fishless habitat above the waterfalls. A July 2003 survey by Michael Enk (USFS) found about 2.5 miles of fishless habitat. This habitat is fragmented into an upper 1 mile reach and a lower 1.6 mile reach by a 7 foot high waterfall about 2.5 miles upstream of the mouth of North Fork Ford Creek (Figure 1). On July 10, 2003 with flows approaching base, pools were about 1 – 2.5 feet deep with one over 4 feet deep. North Fork Ford Creek has a TDS of 180 ppm and has high quality fish habitat (Enk 2003). If both stream

reaches were stocked it is possible, combined, they could support the 2500 minimum WCT population recommended by Hilderbrand and Kershner (2000). The area above the lowest falls drains about 5.6 square miles, the area recommended as a coarse filter for translocations by Harig and Fausch (2002). The habitat in North Fork Ford is better than found in many WCT streams in northcentral Montana that have held WCT populations for decades (Tews et al. 2000) and should support a self-sustaining WCT population for several decades or longer.

There will be 50 to 200 WCT transferred annually from North Fork Running Wolf Creek and/or East Fork Spring Creek to North Fork Ford for 2 - 3 years. These numbers should be sufficient to prevent a genetic founder effect, which requires a minimum transfer of 25 males and 25 females (Leary et al. 1998). Sex ratios and mortality of the transferred WCT cannot feasibly be determined on-site so a total of 100 – 300 WCT will be transplanted. Population surveys will be completed at the donor site immediately prior to transfers to determine the number of fish to be moved. No more than 10% of the estimated population  $\geq$  6 inches and no more than 20% of the population  $<$ 6 inches will be moved. Up to 50% of young of the year fry will be moved.

In 2002, population estimates were completed on two sections of North Fork Running Wolf Creek. One estimate was from the best habitat found in the stream and the other estimate was done in marginal habitat in the uppermost stream reach. The estimates indicate 1.5 mile North Fork Running Wolf Creek has about 600 – 700 WCT  $\geq$  4 inches and less than 100 fish exceeded 6 inches in 2002. The largest WCT captured was less than 7 inches long. In 1995 and 1999 several 8 – 9 inch WCT were sampled in North Fork Running Wolf (USFS files, Lewis and Clark Forest). The small population in North Fork Running Wolf will make it impractical to transfer an adequate number of fish to prevent founder effects so it is proposed to also stock East Fork Spring Creek fish in this stream. Both drainages are located in the Judith drainage. The proposal is to stock North Fork Running Wolf fish starting in 2003. WCT from East Fork Spring Creek would be stocked after disease testing is completed. Young of the year fry will be transferred as well as a few adults to reduce impacts to the donor WCT populations.

## **B. Need for Action**

The decline of the WCT is well documented. It is the Montana State Fish and is a Species of Special Concern in Montana. Genetically pure WCT are thought to occupy about 5 – 13 % of their aboriginal range in the Missouri River system and most populations occupy less than 6 miles of habitat (Shepard et al. 1997). In northcentral Montana, in 2000, only about 5 pure populations occupied more than 5 miles of habitat (Tews et al. 2000). One of those populations has recently shown hybridization. A study that modeled 144 Montana WCT populations east of the continental divide found 71% had a very high risk of extinction. In the model, a very high extinction risk meant the probability of a population lasting 100 years was less than 50% (Shepard et al. 1997). To expedite WCT conservation, the State of Montana has developed a Memorandum of Understanding and Conservation Agreement for WCT with several other groups and agencies to provide direction in conserving WCT (MFWP 1999).

The North Fork Running Wolf and East Fork Spring Creek populations are likely the only pure WCT populations remaining in the entire Judith Drainage. Tews et al. (2000) report 11 pure WCT populations remaining in the Judith drainage. However, recent survey results and location of non-

native fish indicate only these two pure populations likely survive. The two known pure populations occupy less than 5 total miles of stream habitat. Historically the Judith River drainage likely had about 480 miles of WCT habitat (Tews et. al 2000). The objective of the “Memorandum of Understanding and Conservation Agreement for WCT in Montana” is to protect all existing genetically pure populations (MFWP 1999).

In addition to expanding WCT distribution in the Sun drainage, this project would also create a genetic reserve for “at risk” populations. This project would use two pure WCT populations as donor sources. Disadvantages of using multiple donor sources are that single populations are not directly “replicated”, and that some unique genetic attributes may be lost when populations are mixed. However, a benefit is that the introduced population would have a higher amount of genetic variation than would be represented by one population, thereby providing it a greater ability to adapt to habitat conditions in North Fork Ford Creek (Krueger et al. 1981). In addition, by using multiple donor sources fewer fish would be transferred from each donor population. This should reduce the possibility that the transfers will have a negative impact on the donor populations as compared to use of a single donor population.

## II. Impacts of the proposed action

Please review the attached checklist on page 9. The impacts of this action are included in the Environmental Assessment checklist. The following text addresses the impacts.

### A. Impacts to the Physical Environment

#### 1) Terrestrial and Aquatic Habitat

The proposed project will transfer WCT from North Fork Running Wolf Creek and East Fork Big Spring Creek to North Fork Ford Creek. Both donor streams are in the Judith drainage. The receiving stream is in the Sun drainage. Live fish transfers have successfully established cutthroat trout populations in the past (Tews et al. 2000). Several mitigation measures have been taken to reduce potential impacts to the aquatic habitat. These include or will include disease and genetic testing of the donor populations. The receiving stream has also been tested for diseases. The MFWP wild fish transfer policy will be followed and WCT will not be transferred until approved by the MFWP Fish Health Committee.

**Disease:** Disease tests were run on sixty brook trout collected from Running Wolf Creek, on September 18, 2002 and on 4 rainbow trout, 18 brown trout and 14 brook trout collected from Ford Creek on November 25, 2002. All fish were negative for all pathogens except *R. salmoninarium* was positive by ELISA (Jim Peterson 2003 and Jim Peterson 2002). Both the recipient and donor streams had low – medium *R. salmoninarium* values. PCR testing for this pathogen was negative in both populations. ELISA tests for this pathogen have been positive in wild fish throughout central Montana. Disease tests have not yet been completed on East Fork Big Spring Creek, but fish from this population will not be transferred until they are tested and the transfer approved by the fish health committee.

#### **Genetic Purity:**

North Fork Running Wolf: A total of 38 fish were tested using PINES DNA testing (sampled in 1999 and 2001) and 12 allozyme samples (1994) were also tested. All of these fish tested as

pure WCT (Leary 1995, Kanda 2000, Cook 2003). Fifty fish were sampled based on the recommendations of the WCT technical committee (Leary et al. 1998). A dry reach (during all but the highest flows) isolates these WCT from downstream non-native trout. Recent sampling indicates that Running Wolf Creek does not contain rainbow trout, only brook trout; it is unlikely that hybridization has occurred since samples were first taken in 1994. Rainbow trout stocking was discontinued in the Dry Wolf drainage in 1993.

East Fork Big Spring Creek: A total of 50 samples were taken in 1999. Twenty-five samples tested as pure WCT using allozyme tests (Leary 2000) and 25 tested as pure WCT using PINES DNA testing (Cook and Knudsen 2002). A dry reach (during all but the highest flows) isolates these WCT from downstream non-native trout.

**Aquatic Invertebrates and Amphibians:** On August 30, 2002 Dr. Dan Gustafson (Montana State University) and Scott Hawkshurst (MFWP) conducted insect surveys on North Fork Ford Creek above and below the barrier. Dr. Gustafson has evaluated invertebrates in many streams and sees no reason that WCT should not be introduced into North Fork Ford Creek (Gustafson 2003).

Michael Enk and Jennifer Lund (USFS) conducted an amphibian survey on North Fork Ford Creek on July 10, 2003. The fishless area does not contain amphibian breeding habitats with direct connections to the stream (Enk 2003). Several potential off-stream breeding sites and adult Columbia spotted frogs (*Rana luteiventris*) were found (Enk 2003). However, Columbia spotted frogs are abundant and widely distributed throughout central Montana and are often found in or near streams with WCT. Their typical breeding habitat is in standing water not directly connected to streams or along vegetated margins of shallow beaver ponds where water temperatures are less favorable for trout (Enk, 2003 personal communications). Tailed frogs (*Ascaphus truei*) may be present in North Fork Ford Creek but no larvae were found. This species is commonly co-exists with WCT in Rocky Mountain Front streams.

**7) Unique, endangered, fragile or limited environmental resources.**

This proposed action should benefit WCT. WCT are a species of special concern in Montana. This action will create an additional pure WCT population in the Sun drainage, which historically contained about 365 miles of WCT (Tews et al. 2000). The only know pure population in the Sun River was founded in 2001 when WCT were transferred from Deep Creek in the Smith River to Petty Creek. Hence, there are no extant pure WCT populations downstream from North Fork Ford Creek, which could be influenced by introduction of new WCT genes into the drainage. Transfer of WCT as proposed, will help conserve the genetics of two WCT populations that occupy about 4 total miles of stream.

## **B. Impacts to the Human Environment**

### **4) Agricultural or Industrial production**

The fishless section of North Fork Ford Creek where WCT are proposed for introduction lies entirely on National Forest lands. There is currently a grazing allotment adjacent to most of the stream, with some riparian areas receiving moderate to heavy use. In 2003 this area had about 10 – 30% bank alteration by cattle (Enk 2003). The 1997 Sun Canyon Range Analysis Environmental Assessment calls for protection and restoration of riparian habitat in North Fork Ford Creek. Efforts to reduce livestock use of the streambanks and improve cattle distribution to upland areas will continue whether WCT are introduced or not. Stocking of fish in North Fork Ford Creek might result in additional monitoring requirements but significant reductions in grazing based solely on the presence of WCT in North Fork Ford Creek are not expected (Enk 2002, personal communications).

### **7) Access to and Quality of Recreational Activities**

The proposed action will improve catch and release fishing opportunities by increasing fishable stream length by about 2 miles along remote North Fork Ford Creek. The public will have a new opportunity to catch native westslope cutthroat trout in a wild area.

### **10) Demands on Government Services**

This action will be undertaken by fisheries staff as part of normal field operations. Other fisheries projects may be postponed due to the fish transfer. Much of the work for this transfer has already been completed. It is anticipated that it will take two, three person fisheries crews about 3 days annually for three years to complete any additional surveys and to transfer the WCT.

## **III. Discussion of Reasonable Alternatives**

### **1) No Action**

North Fork Ford Creek would remain fishless. The North Fork Running Wolf and East Fork populations would not be replicated. There would be no additional costs associated with introduction. The MFWP and USFS have agreed to take actions to benefit WCT (MFWP 1999). If this project is not completed it will be a setback to WCT conservation in Montana. Small isolated WCT populations such as North Fork Running Wolf Creek and East Fork Spring Creek are at risk to catastrophic events and not completing transfers may result in extinction of individual populations.

### **2) Introduction of WCT from other populations**

There are several other populations that could be used for this transfer, but most would require additional testing. Midvale Creek is a pure population recently identified in the Two Medicine

drainage. It will likely be replicated in South Badger, also in the Two Medicine. Green Gulch, in the Teton drainage needs additional testing and there are likely additional fishless areas on the Rocky Mountain front where it could be replicated such as Falls Creek (Dearborn drainage) and Deep Creek (Teton drainage). North Fork Running Wolf Creek was chosen as one of the donor streams because its population faces one of the highest extinction risks of any pure WCT population in North Central Montana due to extreme isolation and very limited habitat.

Montana's WCT hatchery brood stock originated primarily from the South Fork Flathead drainage and is not in any danger of extinction because it is the basis for several WCT populations. Stocking of these hatchery fish is not recommended in this precious fishless habitat.

#### **IV. Environmental Assessment Conclusion Section**

- 1) Is an EIS required?** No the action is expected to be minor and beneficial.

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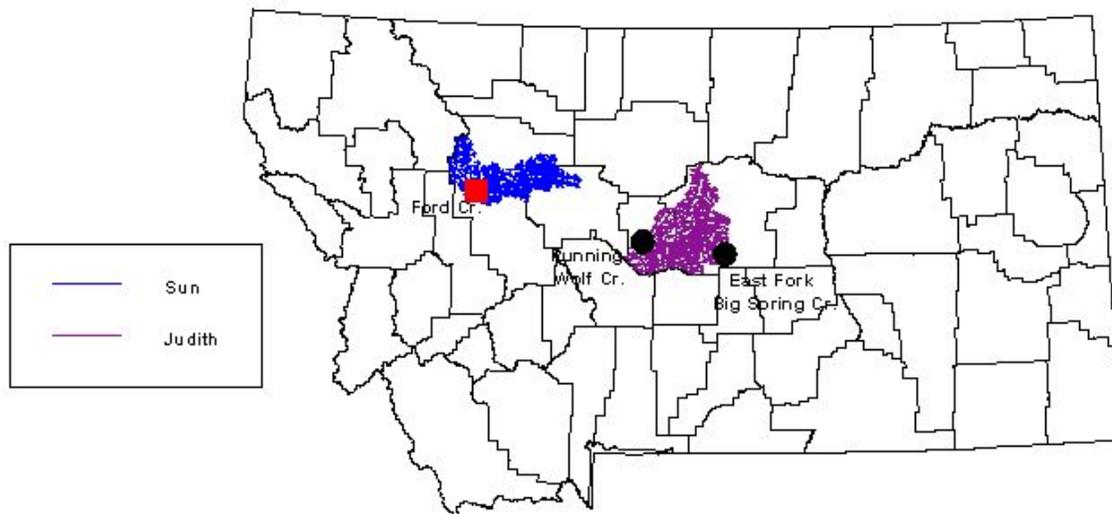
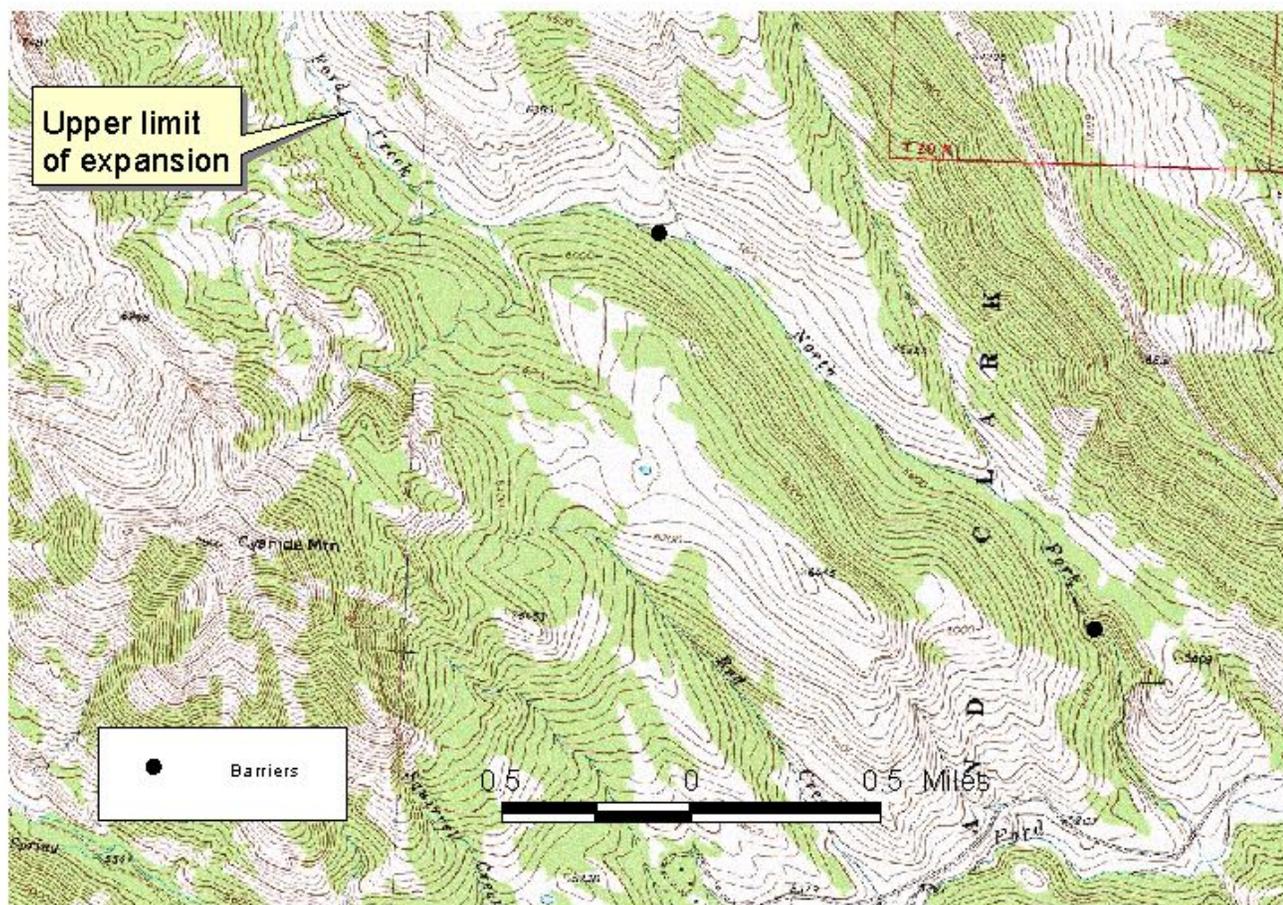


Figure 1. Map of North Fork Ford Creek and relative location with donor populations, North Fork Running Wolf Creek and East Fork Spring Creek.

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**Environmental Assessment Checklist**

**Project:** Westslope Cutthroat Recovery – Transfer of live fish from North Fork Running Wolf Creek and East Fork Spring Creek (Judith Drainage) to North Fork Ford Creek (Sun drainage).

**Division:** Fisheries Division

**Description of Project:** Westslope cutthroat trout will be moved from North Fork Running Wolf Creek and East Fork Spring Creek to a fishless reach above a waterfall barrier on North Fork Ford Creek. Both donor populations are isolated from other fish species by dry stream reaches. A total of about 100 – 600 WCT will be transferred over a 2 – 3 year period; 50 – 200 WCT from one or both populations will be transferred annually.

**Potential Impact on the Physical Environment**

	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Terrestrial & aquatic life and habitats			X			P. 3
2. Water quality, quantity & distribution				X		
3. Geology & soil quality, stability and moisture				X		
4. Vegetative cover, quantity & quality				X		
5. Aesthetics				X		
6. Air quality				X		
7. Unique, endangered, fragile or limited environmental resources		X Benefit				P. 3 - 4
8. Demands on environmental resources of land, water, air & energy				X		
9. Historical & archaeological sites				X		

**Potential Impacts on the Human Environment**

	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Social structures & mores				X		
2. Cultural uniqueness & diversity				X		
3. Local & state tax base & tax revenue				X		
4. Agricultural or industrial production			X			P. 5
5. Human health				X		
6. Quantity & distribution of community & personal income				X		
7. Access to & quality of recreation and wilderness activities			X benefit			P. 5
8. Quantity & distribution of employment				X		
9. Distribution and density of population & housing				X		
10. Demands for government services				X		P. 5
11. Industrial and commercial activity				X		
12. Demands for energy				X		
13. Locally adopted environmental plans & goals				X		
14. Transportation networks & traffic flow				X		

**Other groups or agencies contacted or which may have overlapping jurisdiction:** U.S. Forest Service

**List of Individuals or groups contributing to this EA:** Michael Enk, Fisheries Biologist, Lewis and Clark National Forest, Great Falls, MT; David Moser, MFWP, Great Falls, MT, Lee Nelson, MFWP, Townsend, MT.

**List of all agencies and individuals who have been notified of this proposed transfer:** Notification will be done via the Montana Fish, Wildlife and Parks Web Site. The USFS has been involved in drafting the EA.

**Recommendation concerning preparation of EIS:** No EIS Required. Action expected to be minor.

**EA prepared by:** Anne Tews, Fisheries Biologist, Date: August 20, 2003

**Comments will be accepted until:** September 26, 2003

**Comments should be sent to:** Anne Tews, MFWP, P.O. Box 938, Lewistown, MT 59457; [antews@state.mt.us](mailto:antews@state.mt.us)