

MONTANA FISH, WILDLIFE AND PARKS  
FISHERIES DIVISION

*Draft*  
ENVIRONMENTAL ASSESSMENT  
WESTSLOPE CUTTHROAT TROUT  
RECOVERY PROJECT IN STAUBACH CREEK

**PART I. PROPOSED ACTION DESCRIPTION**

**A. Type Of Proposed Action:** The **Staubach Creek Westslope Cutthroat Trout Recovery Project** will help secure and increase the number of genetically pure westslope cutthroat trout (WCT) as part of the overall restoration program for WCT populations in the Elkhorn Mountains. The proposed action consists of three Phases to be implemented during the years 2000 through 2005:

Phase 1: Increase isolation of WCT from colonizing brook trout and rainbow trout by installing two culvert-type barriers that will prevent upstream migration of these non-native trout. (July 2000)

Phase 2: Physical removal (via electrofishing) and relocation of brook trout and WCT in a 2.2 mile reach of Staubach Creek upstream of a culvert-type barrier prior to antimycin treatments during 2000 and 2001. (September 2000; September 2001)

Phase 3: Monitoring westslope cutthroat trout response to complete removal of brook trout and monitoring effectiveness of barriers for maintaining isolation of the WCT population from non-native trout. (2001 through 2005).

**B. Agency Authority for the Proposed Action:** The Montana Fish, Wildlife & Parks (FWP) "...is hereby authorized to perform such acts as may be necessary to the establishment and conduct of fish restoration and management projects...." under statute 87-1-702.

**C. Estimated Commencement Date:** Summer/Fall 2000

*Estimated Completion Date:*

Phase 1: Barriers in August, 2000.

Phase 2: Electrofishing and application of toxicants in September 2000 and 2001.

Phase 3. Monitoring, 2005.

*Current Status of Project Design: (% Complete): 100%*

**D. Name and Location of the Project:** *Elkhorn Mountains Westslope Cutthroat Trout Restoration Program: Staubach Creek Project.*

Staubach Creek is in a small isolated drainage near Winston, Montana in Broadwater County (T8N, R1W, Sections 3, 4, 8, 9) (**Figure 1**). This drainage flows northeasterly from the Helena National Forest, and goes subsurface on adjacent private lands prior to reaching Beaver Creek,

a tributary to Canyon Ferry Reservoir/Missouri River. Approximately 2.5 miles of the stream drains Forest Service lands, with an additional 2.5 miles flowing through private lands.

#### **E. Project Size (acres affected)**

1. Developed/residential - 0 acres
2. Industrial - 0 acres
3. Open Space/Woodlands/Recreation - 0 acres
4. Wetlands/Riparian - < 0.5 acres (culvert installation); 5 miles of stream
5. Floodplain - < 0.5 acres (culvert installation)
6. Irrigated Cropland - 0 acres
7. Dry Cropland - 0 acres
8. Forestry - 0 acres
9. Rangeland - 0 acres
10. Other - 0 acres

#### **F. Narrative Summary of the Proposed Action and Purpose of the Proposed Action**

##### **1. Summary of the Proposed Action:**

Staubach Creek has one of 6 populations of genetically pure westslope cutthroat trout in the Elkhorn Mountains. This project has a high priority within the overall context of the Westslope Cutthroat Trout Restoration Project in the Elkhorn Mountains (FWP 1999) because it contains a very small population and recent data show a declining trend in numbers. The abundance of WCT and their continued persistence in Staubach Creek is limited mostly by competition with non-native brook trout.

There are 3 phases to the proposed project on Staubach Creek. In phase 1, barriers will be constructed. In phase 2, non-native trout will be removed by electrofishing and use of a fish toxicant (antimycin). The objective of phases 1 and 2 is to provide isolation for the existing genetically pure population of WCT, which in turn should result in an increase in their abundance and size. The monitoring program, which is phase 3, will provide information on the success of the barrier and non-native fish removal in meeting the objective for WCT in Staubach Creek. Monitoring will determine the need for future management activities, including habitat enhancement or further removal of non-native fish.

More specifically in phase 1, scheduled for summer 2000, 2 culvert-type barriers will be installed (**Figure 2**). One barrier, located on a county road, will replace an existing culvert and provide a fairly large drop which will serve to isolate westslope cutthroat trout from relatively large rainbow trout in the downstream canals. The other barrier, to be constructed near an existing ford at the Hahn/Clark property boundary, and will provide a smaller drop, sufficient to isolate WCT from the relatively small competing brook trout once

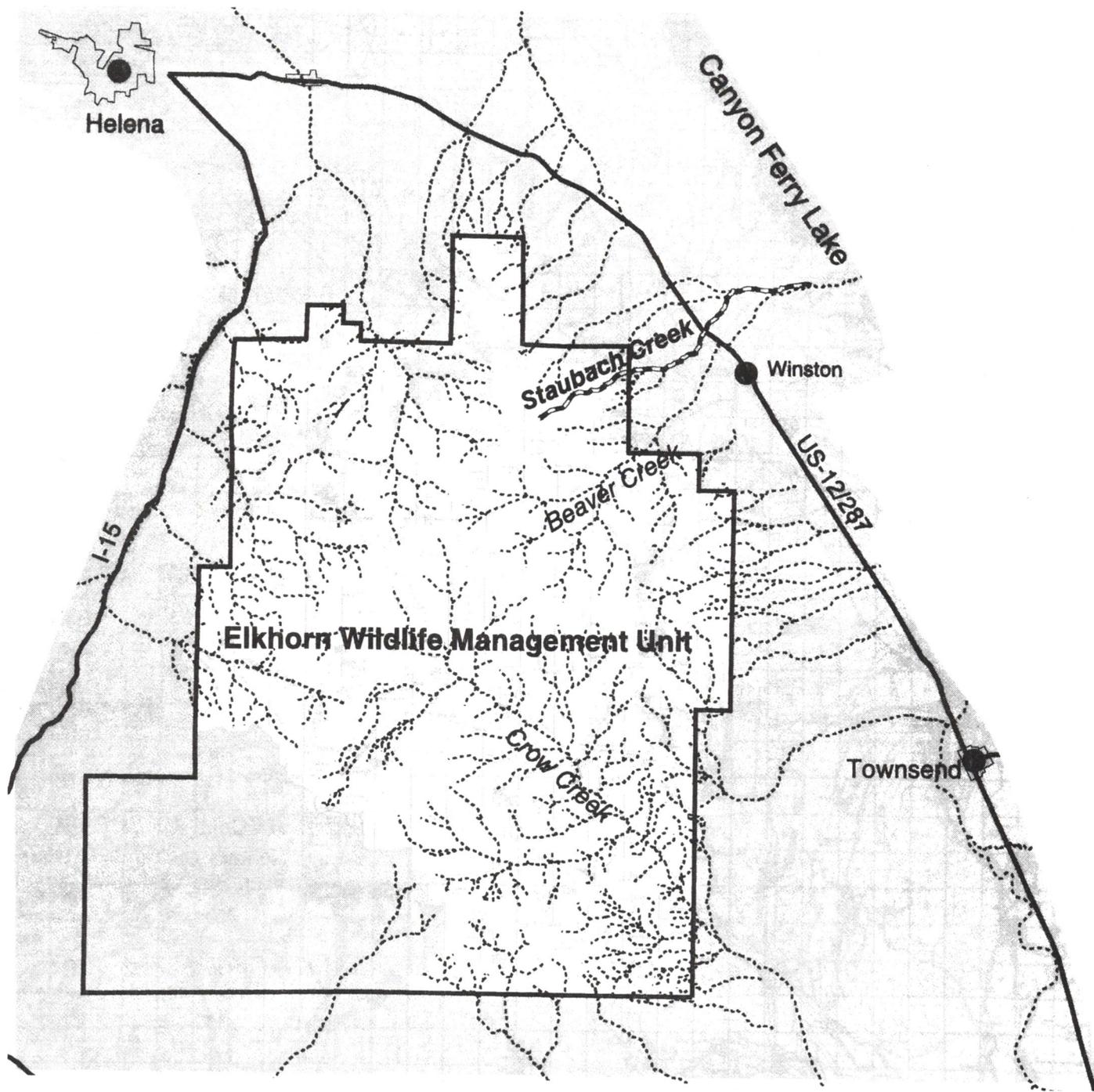
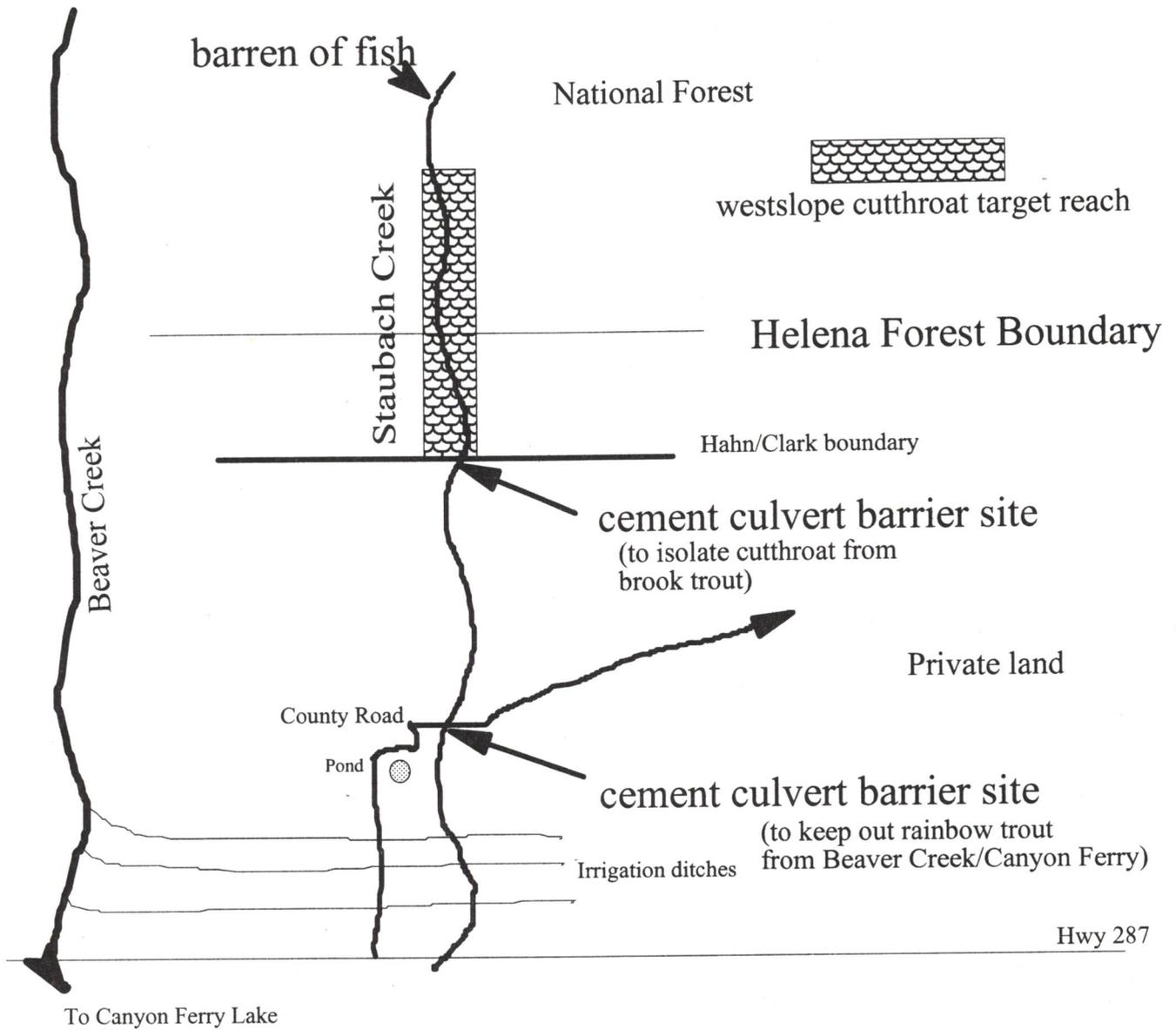


Figure 1. Project Area Vicinity





Note: diagram is not to scale

Figure 2. Schematic drawing of Staubach Creek WCT restoration project

brook trout are removed from the target reach (Figure 2). In addition, at the time barriers are installed, minor stream enhancement work may be needed to consolidate braided channels to allow for effective removal of brook trout, and to secure the barrier.

Phase 2, scheduled to occur during low water in the fall of 2000, will provide for long-term removal of brook trout within the target reach. Electrofishing will be used to remove as many fish, both brook trout and WCT, as possible from the target reach. WCT will be confined to an upstream holding area. The brook trout removed through electrofishing will be transported downstream of the target reach. Due to the complexity of the habitat (braiding and dense vegetation and debris), complete, long-term removal of brook trout will only be possible through the use of antimycin. During this phase, the target reach will be treated with antimycin to remove any brook trout not captured through electrofishing. Downstream of the target reach, potassium permanganate will be used to completely neutralize the antimycin. WCT will then be released back into the target reach.

Extensive information on the use of antimycin is found in Bramblett (1998); the Elkhorn Westslope Cutthroat Trout Restoration Project EA (FWP 1999); and the Department of Environmental Quality analysis of the Cherry Creek WCT project (DEQ, 1999). In summary, the concentration of antimycin to be used in this project is not harmful to plants, most invertebrates, amphibians, reptiles, birds, or mammals, including humans, either from exposure to treated water, drinking of treated water, or ingestion of treated fish. DEQ's analysis demonstrated that "there would be no effect on human health even if the chemicals (in this case, both antimycin and rotenone were considered) were not detoxified, did not breakdown, and people drank the "contaminated" water continuously for their entire lives."

The effect on invertebrates may include a temporary decrease in populations of certain taxa. This effect in Staubach Creek will be monitored through invertebrate sampling before and after antimycin is applied.

In phase 3, following application of fish toxicants, electrofishing and/or snorkeling surveys will be used to evaluate the effectiveness of the non-native fish removal and of the barriers.

## **2. Purpose and Need for the Proposed Action:**

**a. Statewide:** Westslope cutthroat trout (*Oncorhynchus clarki lewisi*), Montana's state fish, once inhabited the entire upper Missouri River basin down to the Musselshell River (Hanzel 1959). It is now estimated that this subspecies of cutthroat trout occupies less than 10% of its historic range (Montana Rivers Information System: January 1996 update). Their distribution and abundance within the upper Missouri River continues to decline and a recent assessment indicates most of the remaining populations have a relatively high risk of becoming extinct (Shepard et al. 1997).

At present, there is a petition under review by the US Fish and Wildlife Service for listing of WCT under the Endangered Species Act (ESA). Should WCT be listed, there would be a loss of local management options. In addition to the considerations of acting to recover populations to keep them from being listed under ESA, there is a need to recover WCT because of their symbolic and intrinsic value as a native trout and the state fish. Although FWP implemented a "catch and release" fishing regulation for WCT in most streams and rivers within the upper Missouri River basin in 1996, WCT still are an important component of the overall recreation opportunities for anglers in Montana.

The reasons for the existing plight of this subspecies includes loss of habitat, competition, and hybridization with and/or predation from non-native fishes, and past angling overharvest. The goal for WCT in Montana, as stated in the Memorandum of Understanding and final Conservation Agreement (FWP, May 1999), is to "ensure the long-term self-sustaining persistence of the subspecies within each of five major river drainages they historically inhabited in Montana (Clark Fork, Kootenai, Flathead, upper Missouri, and Saskatchewan), and to maintain the genetic diversity and life history strategies represented by the remaining populations".

**b. Elkhorn Mountains:** The Elkhorn Mountains in southwest Montana are home to native WCT. This island mountain range includes over 230,000 acres of lands managed by the Helena and Beaverhead-Deerlodge National Forests and the Bureau of Land Management (BLM). Forest system lands are known as the "Elkhorn Wildlife Management Unit". Forest Plan direction for these lands emphasizes management actions that enhance or maintain wildlife habitats.

Hadley (1981) initially surveyed waters of the Elkhorn Mountains to evaluate and make recommendations about WCT populations. Although Hadley categorized WCT trout distribution in 1981 as "remnant", he felt that reintroductions of specimens from pure populations in the Elkhorns to suitable unoccupied habitats was the best way to secure the future survival of the species. Hadley wrote that the "Elkhorns could very well become the most diverse and secure upper Missouri cutthroat habitat within the entire original range". Since 1981, biologists have documented that the WCT population in the South Fork Warm Springs Creek on the west side of the Elkhorn Mountains has become extinct. There is a high risk of extinction of the six remaining populations in the Elkhorn Mountains.

Currently, WCT are the sole occupants in only about 7.5 miles of the 126 miles of currently occupied fish habitat within the Elkhorn Mountains. In addition, they co-exist with brook trout in an additional 6.5 miles of stream.

The Elkhorn Mountain Westslope Cutthroat Trout Restoration Program EA was completed in April, 1999. A decision adopting Alternative 3 from the EA was made on July 2, 1999. Alternative 3 includes a comprehensive restoration program which would increase the distribution of WCT in the Elkhorn Mountains from its current 7.5 miles to about 70 miles in about 10 years. Because the numbers of WCT in Staubach Creek are declining, the Staubach Creek project is a high priority within the overall Elkhorn WCT Restoration Program.

**c. Staubach Creek:** As shown in **Figure 3**, fish sampling in 1980 by Hadley (1981) documented that about 1 mile of Staubach Creek was occupied exclusively by genetically pure WCT in Staubach Creek (from about the Forest Boundary upstream). In 1991, sampling by the Helena National Forest confirmed this same distribution. At that time,

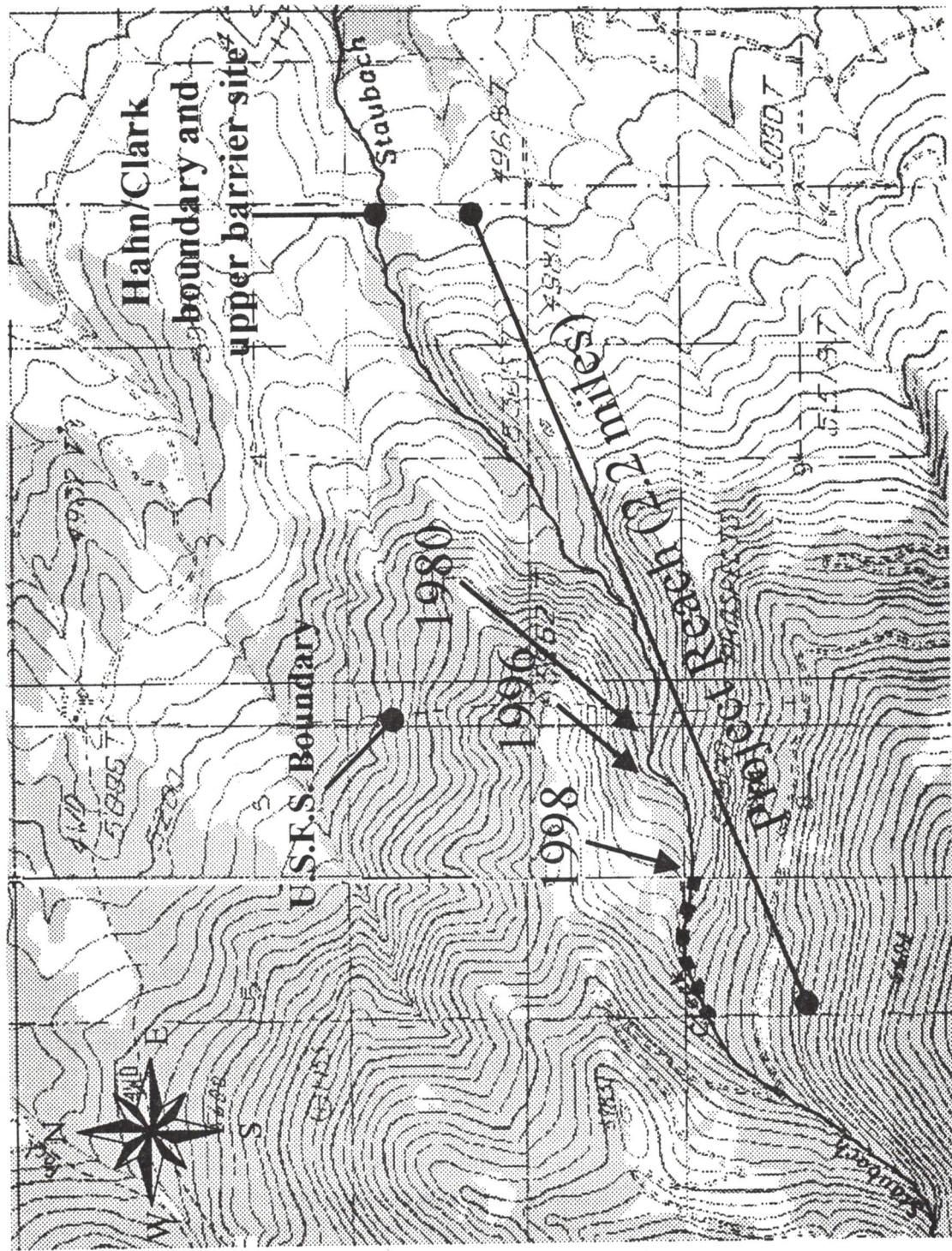


Figure 3. Diagrammatic view of the increase in upstream presence of brook trout in Staubach Creek with arrows denoting their uppermost distribution between 1980 and 1998. Dashed line indicates stream reach (0.6 miles) where cutthroat trout were the only species present in 1998.

fisheries personnel speculated that there was a barrier at or near the Forest Boundary. Sampling in 1996 showed that brook trout were beginning to colonize the cutthroat-occupied reach. In 1998, joint FWP and Forest Service sampling revealed that brook trout and cutthroat were mixed in about half of the original 1981 cutthroat-occupied habitat. It is believed that between 1991 and 1996, a natural barrier was compromised, and brook trout were able to colonize further upstream reaches of Staubach Creek. It may also be possible that the loss of isolation was due to an on-going expansion of brook trout which hadn't affected this reach until 1991. A short segment of Staubach Creek is barren of fish above a rock outcrop barrier located about one mile upstream of the Forest Boundary. For additional information on the fish and their habitat, see Appendix A.

Because fishing pressure is minimal and habitat is adequate, the decline of WCT numbers in Staubach Creek is thought to be primarily due to competition with brook trout. The purpose of this project is to isolate existing genetically pure WCT from competing brook trout, and to reduce the risk of hybridization with rainbow trout. Rainbow trout, which hybridize with WCT, are known to occupy several irrigation ditches which periodically enter lower Staubach Creek (see Figure 2).

The objective of the Staubach Creek project is to isolate the WCT, and to increase their abundance.

### **3. Benefits of the Project:**

This project will reduce competition with brook trout and reduce the risk of entry by either brook trout or rainbow trout into habitat occupied by genetically pure WCT. Ultimately, this project will enhance the population and reduce the risk of extinction of WCT in Staubach Creek. In turn, this project will help achieve the goal and objectives listed in the Conservation Agreement for the restoration of WCT both Statewide and in the Elkhorn Mountains. Threats that warrant consideration of WCT as an Endangered Species should be significantly reduced or eliminated through implementation of these restoration efforts. The social benefit of these efforts will be the ability of future generations of Montanans to use and enjoy this unique native fish species.

### **G. Other Local, State, or Federal agencies with overlapping jurisdiction**

U.S.D.A. Forest Service - Helena National Forest manages the land base adjacent to Staubach Creek over about 1 mile of the reach targeted for WCT. The Forest Service does not have regulatory authority to approve or disapprove the removal of existing fish species. However, there is an existing Memorandum of Understanding (MOU) which outlines the agreements between the agencies regarding recovery and management of WCT in the Elkhorn Mountains. The MOU states that "The purpose of the Elkhorn Mountains Cutthroat Trout Restoration Program is to secure existing populations of Missouri westslope cutthroat trout within the streams flowing within and from the Elkhorn Mountains, and to expand cutthroat distribution in suitable barren habitats. This species has been extirpated from most of its original range in the Elkhorns through the loss of habitat and competition with non-native salmonid fishes, principally brook and rainbow trout. Cutthroat trout are an important component of the overall biodiversity objectives in the Elkhorn Cooperative Management Area."

**H. Agencies Consulted During the Preparation of the EA**

Montana Fish, Wildlife & Parks - Helena, Bozeman  
 U.S.D.A. Forest Service - Helena National Forest  
 U.S. Fish and Wildlife Service - Bozeman  
 Montana State University - Bozeman  
 Montana State Historic Preservation Office- Helena  
 Department of Environmental Quality - Helena

**PART II. ENVIRONMENTAL REVIEW**

**A. PHYSICAL ENVIRONMENT**

<b>1. LAND RESOURCES</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
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		YES	1b
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		YES	1d
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				

**Comment 1b:** Some areas will be disturbed through barrier placement. However, disturbed areas will be returned to previously existing conditions by standard reclamation techniques such as placing biodegradable erosion-control fabrics and revegetation of disturbed soils.

**Comment 1d:** At the time barriers are installed, minor stream enhancement work may be needed to consolidate braided channels to allow for effective removal of brook trout, and to secure the barrier. This will increase the stability of the channel and have a net beneficial effect. Braided channels may re-form after fish removal activities, because streams braid based upon the load they carry.

<b>2. WATER</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?			X		NO	2a
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of flood water or other flows?		X				2c
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				2f
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?			X		YES	see 2f
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		YES	2j
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		YES	2l
m. Will the project result in any discharge that will affect federal or state water quality regulations? (Also see 2a)			X		NO	see 2a

**Comment 2a.** In phase 2 of the project, antimycin will be introduced into the waters of Staubach Creek. Because Staubach Creek is isolated, has low flows, and can be diverted prior to entering Beaver Creek, the application of antimycin presents a very low risk of exposure to humans.

Antimycin is an antibiotic produced in cultures of mold which is similar to penicillin. It is toxic to animals because it interferes with the use of oxygen at the cellular level. It is particularly toxic to fish and other aquatic organisms with gills because it can quickly move into the bloodstream and then to the tissues.

Antimycin itself has only a minor potential impact on the water quality for several reasons. The concentration of antimycin in the target reach will be very low (8-10 parts per billion {ppb}), and will decrease downstream as the chemical degrades. An antimycin concentration of 10 ppb is about 1,750 times lower than the level determined by DEQ to be safe for long-term human consumption, and 175,000 times lower than the safe level for short-term consumption. Staubach creek discharge during the fall treatment period averages about 3 cfs; the quantity of antimycin needed to effectively treat one mile of Staubach Creek is about one gallon (134 oz) which will only be introduced into the stream for two 8 hour periods in each treatment year.

The half-life of antimycin in the laboratory at a pH similar to that in Staubach Creek is about 5 days. Degradation will be much faster once applied to Staubach Creek due to exposure to sunlight, stream turbulence, and hydrolysis. Because of these factors, antimycin loses much of its toxicity over a drop in stream elevation of about 200 feet (Tiffan and Bergersen 1996), or every 30-60 minutes of flow time. This degradation is so quick that fish can be replanted in a stream treated with antimycin after 48 hours. This also means that there will be no persistent or long-term effects of this chemical on the existing or anticipated uses of the water.

To reduce the potential risks associated with the use of antimycin, the following mitigation measures and monitoring efforts will be employed:

1. A pre-treatment bioassay will be conducted to determine the lowest effective concentration and travel time.
2. Antimycin will be diluted in water and dripped into the stream at a constant rate using a device that maintains a constant head pressure.
3. A detoxification station will be set up downstream of the target reach. Potassium permanganate will be used to neutralize the fish toxicant at this point.
4. Project personnel will be trained in the use of these chemicals including the actions necessary to deal with spills; personnel will wear rubber gloves and safety goggles.
5. Only the amount of antimycin and potassium permanganate that is needed for immediate use will be held near the stream.
6. Prior to the use of antimycin, livestock permittees and local landowners will be notified. At the discretion of the permittee or landowner, project personnel will assist with removing livestock from the stream area temporarily when antimycin is applied.
7. Sentinel (fish in a cage) fish will be located below the detoxification station and within the target reach to determine and monitor the effectiveness of both the antimycin and potassium permanganate.

**Comment 2c:** culverts are adequately oversized to handle flood events

**Comment 2f:** Changes in groundwater quality: The risk that antimycin will enter and be mobile in groundwater is minimal because it has a strong tendency to adsorb to sediment particles and has a low solubility in water (Schnick 1974). Even if groundwater contamination did occur, there would be no consequences for human health because the surface water concentrations to be used in this project have already been shown to have no toxic effect on humans or other mammals (see 2j). Furthermore, the chance for exposure to these chemicals is likely to be minimal given the location of nearby domestic wells. The nearest well to the target reach of Staubach Creek is ½ mile to the south. However, it is in an adjacent drainage, and for this reason it is assumed to not be hydrologically connected to Staubach Creek. There are shallow wells very close to Staubach Creek but these are at least 1 ½ miles downstream of the target reach. Even if it was assumed that Staubach Creek feeds the aquifer that these wells draw from, there are several reasons to believe that very little, if any, antimycin would reach the wells: 1) virtually all antimycin that reaches this point in Staubach Creek will have already been broken down by natural conditions or oxidized by  $KMnO_4$ ; 2) any remaining antimycin will likely be bound up by sediments before entering groundwater; and 3) any antimycin that enters groundwater will be diluted by water already present in the aquifer.

**Comment 2j:** Effects on other water users: Bioassays on mammals indicate that, at the proposed concentrations antimycin will have no effect on mammals, including humans, that drink the treated water (Schnick 1974). However, the product label for the commercial form of antimycin, Fintrol, recommends that treated water not be used for drinking. This is not a concern since Staubach Creek has no public access.

**Comment 2i:** Installation of the culvert-type barriers will include disturbance in the floodplain of Staubach Creek. This disturbance will be temporary and mitigated by revegetating all exposed soil.

<b>3. AIR</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
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 regs?		X				

<b>4. VEGETATION</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
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		YES	4e
f. Will the project affect wetlands, or prime and unique farmland?		X				

**COMMENT 4e:** During the installation of the 2 culvert barriers, there will be some ground disturbing activities. To mitigate and reduce the risk of noxious weed invasion or spread, all equipment will be cleaned before arrival on site; all bare soil will be seeded with a sterile annual and a suitable native vegetation mix; and the sites will be monitored and treated if necessary for 2 years following disturbance.

5. FISH/WILDLIFE	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
<b>Will the proposed action result in:</b>						
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?			X		NO	5b
c. Changes in the diversity or abundance of nongame species?			X		NO	5c
d. Introduction of new species into an area?		X				
e. Creation of a barrier to the migration or movement of animals?			X		NO	5e
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				
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				

**Comment 5b:** This proposed action is expected to result in an increase in native WCT, and a decrease in non-native brook trout, in one stream reach of Staubach Creek. This is a minor impact because 1) As many brook trout as possible will be removed with electrofishing and transported below the barrier; and 2) Even after this project, brook trout will continue to be the dominant fish species in the Elkhorn Mountains, occupying about 116 miles of streams. The project will increase WCT, a unique and potentially endangered environmental resource with limited distribution in the Missouri River drainage. This increase in abundance associated with this project will help insure the long-term viability of WCT in Staubach Creek.

**Comment 5c:** Since there are no sculpin in Staubach Creek, the only nongame species that will potentially be affected are some taxa of invertebrates. The predicted effect is a temporary decrease in some invertebrate populations (Bramblett 1998; FWP 1999). Invertebrates will be sampled before and after antimycin is applied. Any information gained in Staubach Creek will be integrated into the overall Elkhorn WCT restoration program. There is no effect on birds or mammals that are exposed to antimycin by direct exposure, drinking treated water, or eating fish killed by fish toxicants (Schnick 1974). Amphibians are not affected by antimycin at the proposed concentrations (Bramblett 1998).

**Comment 5e:** The proposed action will create 2 barriers to prevent upstream migration of brook trout and rainbow trout into waters occupied by WCT.

**B.HUMAN ENVIRONMENT**

<b>6. NOISE/ELECTRICAL EFFECTS</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
a. Increases in existing noise levels?		X				
b. Exposure of people to serve 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				

<b>7. LAND USE</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?	X					7a
b. Conflicted 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				
d. Adverse effects on or relocation of residences?		X				

**Comment 7a:** This project is likely to be successful in securing the population of WCT in Staubach Creek. Although the habitat in Staubach Creek varies in quality (see Appendix A), changes in land use or enhancement of fish habitat should not be necessary to secure WCT in Staubach Creek. If monitoring shows that changes in local land use on private lands are needed to improve habitat conditions for WCT, these will be negotiated and documented in a conservation agreement between FWP, the US Fish and Wildlife Service, and the local landowner, whether or not WCT are listed under the Endangered Species Act.

<b>8. RISK/HEALTH HAZARDS</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
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		YES	8a
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		YES	see 8a
d. Will any chemical toxicants be used?			X		YES	see 8a

**Comment 8a:** Antimycin will be used in phase 2 of this project. The concentration of antimycin to be used (10 ppb) is about 1,750 times lower than the level that is safe for long-term human consumption and 175,000 times lower than the concentration that is safe for short-term consumption (DEQ 1999). The DEQ risk analysis assumed that all intake of antimycin from a fish poisoning project would be through the ingestion of water. Because antimycin does not bioaccumulate in fish to concentrations that exceed the concentration in water, the daily intake of antimycin from fish was not included in their calculation of risk. Their evaluation of long-term risk also assumed that there was no degradation or dilution of antimycin once it was in the creek, and so this can be considered an extremely conservative estimate. Exposure of the public to this chemical can be eliminated because this stream is on private land and can be diverted before reaching Beaver Creek. Even the nearest domestic well is more than one mile away and contamination of this well has already been discussed as very unlikely.

The commercial formulation of antimycin (Fintrol) contains numerous other constituents including diethyl phthalate (used as a surfactant), acetone (used to extract the antimycin), and nonylphenol polyglycol ether (used as a detergent to put the antimycin in solution). None of these constituents will be present at levels that can be expected to have any effect on animal life. The nonylphenol polyglycol ether does contain some residual amount of ethylene oxide (maximum of 5 mg/L) which is a potential carcinogen. Under the proposed treatment level on Staubach Creek, it is anticipated that ethylene oxide would be introduced to the water at the extremely low rate of 62.5 pg/L (parts per quadrillion). This compound has a very low vapor pressure and is expected to volatilize immediately upon application.

The expected concentration of potassium permanganate (KMnO<sub>4</sub>) that will be needed to neutralize antimycin is less than 2 mg/L. The EPA believes the chronic toxicity of KmnO<sub>4</sub> breakdown products to be of no health concern based on the fact that they are naturally occurring and common in surface waters. The safety of KMnO<sub>4</sub> is further demonstrated by the fact that it is routinely added to municipal water supplies.

<b>9. COMMUNITY IMPACT</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
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				

<b>10. PUBLIC SERVICES/TAXES/UTILITIES</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
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		YES	10e
f. Define projected maintenance costs			X		YES	10f

**Comment 10e:** This proposed project would be accomplished cooperatively using funds contributed by the Helena National Forest (\$3,000), a \$500 in-kind contribution from Broadwater County, and \$3,000 of State FWP money through the Future Fisheries Improvement Program. Implementation of this project will be accomplished through a commitment of 50 man days from agency biologists and volunteers from 2000 - 2005.

**Comment 10f:** Maintenance would include both cleaning of the culvert barriers and monitoring of the fishery. Currently, Broadwater County maintains the lower culvert. The existing culvert will be replaced by a larger culvert and hence maintenance needs will be reduced. On the upper site (currently a ford), FWP will maintain the culvert. This is estimated to cost less than \$100/year. A site visit will occur annually, but the intensity of maintenance will vary, and it is estimated that it will take from 1 day to 1 week per year. This work will be accomplished by the Elkhorn WCT Program staff.

<b>11. AESTHETICS/RECREATION</b>	<b>IMPACT Unknown</b>	<b>None</b>	<b>Minor</b>	<b>Potentially Significant</b>	<b>Can Impact Be Mitigated</b>	<b>Comment Index</b>
<b>Will the proposed action result in:</b>						
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				
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	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
<b>Will the proposed action result in:</b>						
a. Destruction or alteration of any site, structure or object of prehistoric historic, or paleontological importance?	X					12a
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					see 12a

**Comment 12a:** Prior to any ground disturbing activities associated with this project, consultation with the State Historic Preservation Office will be completed.

13. SUMMARY EVALUATION OF SIGNIFICANCE	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
<b>Will the proposed action, considered as a whole:</b>						
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		YES	13e
f. Is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)			X		YES	see 13e
g. List any federal or state permits required.						13g

**Comment 13e:** A recently proposed WCT restoration project (Cherry Creek, Gallatin National Forest) generated substantial controversy over the use of fish toxicants (particularly rotenone) to remove non-native trout.

During the public involvement period for the overall Elkhorn westslope cutthroat trout restoration program, the comments received, and the people who attended the 3 public meetings that were held following the release of the environmental assessment, indicated support for the most expansive restoration alternative. At the meetings, some people expressed concern with use of the fish toxicant antimycin. However, when an agency expert explained how antimycin works, the persons attending the meetings were satisfied that the use of antimycin in the

concentrations needed to remove brook trout had low risk to humans and the environment. This was confirmed by DEQ's recent analysis of the effects of antimycin (1999).

A few months later, convenience stores, bars, and gas stations in the Townsend and Montana City area were supplied with signature sheets contesting the Elkhorn westslope cutthroat trout restoration decision. FWP met with the organizers of this effort several times to better understand their concerns, and to ask for the signature sheets. These critics agreed that the Staubach Creek project would be an opportunity for further discussion of the use of antimycin and for further public awareness and involvement in the Elkhorn WCT restoration program.

To mitigate the potential controversy associated with the use of antimycin in Staubach Creek, FWP will conduct at least two widely advertised public meetings on the Staubach Creek project. Individuals that signed the sheets regarding the Elkhorn WCT restoration strategy will be contacted by mail and invited to these public meetings. All those unable to attend the meetings will be invited to contact FWP to arrange for an alternative meeting time.

**Comment 13g:** The following list of permits will be required:

- FG 124 - FWP (Stream Protection Act Permit for culvert placement and stream channel consolidation)
- DEQ 308 - Department of Environmental Quality (authorization for use of a fish toxicant)
- DEQ 318 - Department of Environmental Quality (authorization for short-term turbidity exemption)
- 404 - Army Corp of Engineers (discharge of fill into wetland areas required for installation of fish barriers) (Nationwide 14 for culvert installation)

### **PART III. ALTERNATIVES**

Three alternatives were considered during preparation of the Environmental Assessment.

#### **Alternative 1 - No Action.**

The predicted consequence of the "No Action" alternative is a high probability that the WCT population in Staubach Creek will be eliminated. The distribution of isolated WCT populations in the Elkhorn Mountains would then drop from 7.5 to about 5.5 miles.

#### **Alternative 2 - Proposed Action**

The proposed action includes installing 2 culvert-type barriers and removal and downstream transport of eastern brook trout in 2.2 mile reach of Staubach Creek using both electrofishing and antimycin to reduce the risk of colonization by this competing species and to prevent invasion of rainbow trout. It is anticipated that this action will result in the complete removal of brook trout from the project area, because antimycin has been demonstrated to be 100% effective when proper techniques are used.

The predicted consequences of Alternative 2 include:

- An increase in the abundance of WCT in Staubach Creek and a reduction in the probability that the WCT population in Staubach Creek will be eliminated.
- The ability to maintain the locally adapted genetic makeup for the Staubach Creek WCT and the potential for these fish to provide a source for future Elkhorn Mountain WCT Restoration Program projects.

Mitigation Measures associated with Alternative 2 are listed under the comments in the Environmental Review, and are aimed at minimizing the amount of toxicant used and reducing the risk of exposure to humans and livestock. Consequently, this alternative has been fashioned so that it minimizes degradation of state waters while being economically, environmentally, and technologically feasible. It's economic feasibility is demonstrated by the fact that it will involve less time and money to use antimycin to remove fish than it would be to use angling or electrofishing (see Alternative 3). Environmental feasibility is shown by the fact that these chemical have low persistence in the environment and steps are being taken to mitigate for its use. Technological feasibility is demonstrated by the fact that antimycin can be 100% effective in removal.

### **Alternative 3 – Mechanical Removal**

This alternative is the same as the Proposed Action except that no fish toxicants would be used. Removal of fish would be by mechanical means only, including both electrofishing and angling. Angling is the least effective of these methods, and it is estimated that only 20% of fish can be removed this way on an annual basis. Reproduction from year-to-year will nullify much of this effect. Angling is also a particularly inefficient method for removing small fish. Electrofishing is also inefficient at removing small fish, and is generally considered to be about 75% effective even after repeatedly working an area for 5-7 years (Steve Moore, Great Smoky Mountains National Park, pers. comm.). Part of the problem is that fish will sense the electricity and hide under rocks or in woody debris and avoid capture. This problem gets progressively worse as the width and depth of the stream increases.

This alternative is considered to be economically and technologically infeasible because of the uncertainties associated with the success, and the number of years that would be required before success could be guaranteed. These time delays would not only cost more money, but would also slow the process of WCT recovery.

## PART IV. ENVIRONMENTAL ASSESSMENT CONCLUSION SECTION

A) *Is an EIS required?* No

This environmental review demonstrates that the impacts of this proposed project are not significant. The proposed action would benefit WCT in Staubach Creek with minimal impact on the physical, biological, or the human environment.

B) *Public Involvement.*

The project in Staubach Creek was first presented to the public as a component of the overall WCT restoration program in the Elkhorn Mountains in February, 1997. The formal Elkhorn Mountain Westslope Cutthroat Trout Restoration Program EA was released for a 30 day public comment period on May 1, 1999, with three public meetings held on May 18, 19, and 20, 1999, in Townsend, Helena, and Boulder, respectively. Public notification of the proposed action was completed via press releases to all southwestern Montana newspapers, publishing a Legal Notice in the Helena Independent Record, and through a mailing that included about 150 executive summaries and about 100 EAs to individuals who had expressed interest in fish management and in management of the Elkhorn Mountains.

FWP received a total of 14 written comments on the Elkhorn WCT project. In addition, oral comments were noted at the three public meetings held during the month of May in Townsend, Helena, and Boulder, Montana. A total of 27 individuals attended the 3 meetings. At the meeting held in Townsend, there was substantial interest and discussion relative to the Staubach project. There were no comments, oral or written, which opposed a program of WCT restoration in the Elkhorn Mountains overall, or specifically in Staubach Creek.

News releases announcing the availability of the Staubach Creek EA and Legal notices soliciting comments were sent to the *Helena Independent Record* and the *Townsend Star*.

The EA was mailed to FWP's MEPA mailing list and to approximately 150 citizens and groups expressing prior interest.

FWP will conduct two widely advertised public meetings on the Staubach Creek project on January 12-13, 2000 in Helena (Helena National Forest, Supervisor's Office, 2880 Skyway Dr., Helena, 7 p.m.) , and Townsend (School-Community Library, 201 North Spruce, 7 p.m.) respectively. In addition, individuals that signed a signature sheet regarding the Elkhorn WCT restoration strategy will be contacted by mail and invited to these public meetings. All those unable to attend the meetings will be encouraged to contact FWP to arrange for an alternative meeting time.

C) *Duration of the comment period?*

Public comment will be accepted through January 28, 2000

*D) Name, title, address and telephone number of the Person Responsible for Preparing the EA Document.*

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## References

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## Appendix A

# Detailed information on the Staubach Creek WCT and their habitat

### Fish

Initial genetic testing of 11 Staubach Creek WCT in 1991 showed the population to be genetically pure. Westslope cutthroat in Staubach Creek are generally less than nine inches in total length. Surveys in 1996 by Forest Service fisheries personnel to determine relative abundance and distribution of the westslope cutthroat population revealed 0.6 mile of occupied habitat on National Forest lands, and eastern brook trout had invaded cutthroat habitat in the lower 0.3 mile above the National Forest boundary. The catch in one electrofishing pass standardized to 1000 feet showed brook trout outnumbered cutthroat 1.9 to 1 in the lower 0.3 mile on the National Forest. Actual catch of cutthroat numbered 39 per 1000 feet of stream while brook trout numbered 75 per 1000 feet of stream. No brook trout occupied the upper 0.3 mile of cutthroat habitat in 1996.

Staubach Creek was sampled on 5 June, 1998, to determine the current status of brook trout and WCT distribution. Brook trout were the dominant species for approximately 1/2 mile above the Clark/Hahn property boundary by a ratio of 25:1 (94 brook trout and 4 cutthroat were captured). Additional sampling was undertaken in October, 1998. At that time, 203 brook trout and 8 WCT were captured -- also a 25:1 ratio.

The upstream distribution of brook trout extended to the abandoned trail crossing located about 1/4 mile upstream of the Forest boundary. Westslope cutthroat trout outnumbered brook trout by about 6:1 at 2 sampling locations 1/4 mile above the Forest boundary. Only WCT were observed in the vicinity of the Forest boundary. The upstream distribution of WCT is about 1/2 mile above the Forest boundary.

Until 1998, the risk of rainbow trout hybridization with the native cutthroat population was considered to be insignificant due to the fact that waters of Staubach Creek rarely reach Beaver Creek where rainbow trout are present. Survey work during spring, 1998 revealed the presence of three irrigation canals crossing Staubach Creek. These canals originate from Beaver Creek, and at least at one location, irrigation water is sometimes delivered directly into Staubach Creek. Local ranchers have recently observed large spawning rainbow trout in these canals, presumably originating from the Canyon Ferry Reservoir spawning population.

### Habitat

Habitat quality for supporting WCT in Staubach Creek varies by stream reach. In the upper reaches on the National Forest, the stream is confined by gradient and habitat quality is considered good to excellent. Assessment of riparian conditions in 1995 assigned a "high similarity" rating to upper Staubach Creek. High similarity refers to a site's physical characteristics and plant communities that reflect low grazing disturbance regimes. In addition Staubach Creek is predominately resistant to livestock grazing within the Forest reaches due to steeper gradients, coarse rock, and heavy woody material. Large woody debris and boulder/cobble substrates, combined with a general stepped channel profile, provide quality

pool habitat and escape cover. Pool frequency is high, but pool quality diminishes in the upstream reaches. There is a short barren reach in the uppermost portion of the drainage.

Past land use activity on National Forest lands in the Staubach Creek drainage includes commercial timber harvest and road construction, livestock grazing and recreation primarily in the form of hunting. Approximately 2.6 miles of Forest Road # 491 are present within the Staubach Creek drainage, which covers an area only about 1.9 square miles on National Forest lands. One culvert crossing is located 1/4 mile above the limit of fish distribution. Past mining prospects are located on the eastern foothills to the south of the main drainage, but do not contribute sediment directly or indirectly into Staubach Creek. Some livestock access to the stream corridor is evident from trailing and a few crossing sites, but otherwise utilization and trampling from livestock is minimal to nonexistent in the stream corridor.

Below the Forest Boundary, habitat quality diminishes due to the tendency for the stream to braid around debris jams. In addition, more livestock use this area along the stream and their impacts on its banks is evident. In the lower-most reach of Staubach, a healthy riparian plant community exists, but the stream is very unstable with extensive braiding and lack of pool development. This lowest reach is poor habitat for fish of any species.

The Warm Springs fire of 1988 affected up to 50% of the drainage with high intensity wildfire in the headwaters portion and low intensity fire confined to the south side of the drainage. There appears to be a general increase in bedload movement based on observations from local ranchers and agency biologists that may be attributable to the fire event. Private timber harvest and road construction in the stream corridor below the Forest boundary in the mid 1970s resulted in an altered channel morphology and substantial removal and modification of woody debris in the stream.

The depletion of large woody debris from the floodplain and channel set the stage for changes in the channel. This was exacerbated by the flood event which followed the 1988 Warm Springs fire. In combination with above normal rainfall in 1993, these events may have served to breach a natural barrier, such as a log drop falls, which in turn resulted in the upstream migration of brook trout into areas previously occupied only by WCT.

### **Access**

Much of Staubach Creek is accessible only by roads controlled by private landowners. The headwaters can be reached from Forest Road #491. This, in combination with dense riparian vegetation, results in negligible use of the stream for angling or other purposes.