ENVIRONMENTAL ASSESSMENT DECISION NOTICE

CHERRY CREEK WESTSLOPE CUTTHROAT TROUT RESTORATION

REMOVAL OF NONNATIVE BROOK TROUT AND HYBRIDIZED CUTTHROAT TROUT WITH ROTENONE IN DYCE CREEK

MCVEY CREEK WESTSLOPE CUTTHROAT TROUT RESTORATION

Montana Fish, Wildlife & Parks
Region Three, Bozeman
May 19, 2011

Proposed Actions

Montana Fish, Wildlife & Parks (FWP) has proposed three projects that facilitate conservation of native westslope cutthroat trout (WCT) in Southwest Montana. Genetically "pure" WCT are estimated to only persist in 4% of their historic range in the upper Missouri River drainage, and most remaining populations are considered "*at-risk.*" The proposed projects, located in Cherry Creek (near Melrose), Dyce Creek (near Polaris) and McVey Creek (near Wisdom), include the use of a piscicide (rotenone) to remove non-native trout that threaten WCT, construction of barriers (Cherry and McVey creeks) that prevent future invasion of nonnative trout, and transfer of WCT into stream reaches where nonnative trout have been removed. The projects are designed to reduce threats to WCT populations considered *at-risk*, to increase the overall distribution of WCT, and to conserve the genetic legacy of existing WCT populations.

Montana Environmental Policy Act

Montana Fish, Wildlife & Parks is required by the Montana Environmental Policy Act (MEPA) to assess significant potential impacts of a proposed action to the human and physical environment. In compliance with MEPA, three draft Environmental Assessments (EAs) were prepared by FWP for the proposed projects and released on March 24, 2011, for a 30-day public comment period. The draft EAs were titled: Cherry Creek WCT Restoration, Removal of Nonnative Brook Trout and Hybridized Cutthroat Trout with Rotenone in Dyce Creek, and McVey Creek Westslope Cutthroat Trout Restoration.

The draft EAs were circulated to a standard FWP Region 3 contact list, and to local landowners, sporting groups, governments, and federal agencies. The EAs were also posted and remain available for viewing on the FWP webpage: http://fwp.mt.gov/news/publicNotices. Legal notices indicating release of the EAs were sent to local media including the *Montana Standard* (Butte), *Anaconda Leader*, and *Dillon Tribune*, and a press release was sent to major TV stations and daily and weekly papers in southwest Montana. Two public open houses were held in Dillon (April 13, 2011) and Butte (April 14, 2011) to discuss the proposed projects with the interested public.

This Decision Notice pertains to all three identified EAs. A single Decision Notice is appropriate based on the similarity of the projects, parallel public notification of the draft EAs (mailing list, comment timeframe, press release, and public meetings), and similar comments received for all of the draft EAs.

Summary of Public Comment and FWP Response

Eighteen written public comments were received during the 30-day EA review period ending May 24, 2011. An additional 5 comments were received within several days after the identified comment period, but these were accepted as official comments. Ten individuals attended the informational public meeting in Dillon, and 9 attended the meeting in Butte. Oral comments were not taken at these meetings.

Of the written comments received, 14 were classified as *opposed* to the proposals while 9 are classified as *supportive* of the proposals. The *opposed* comments included those from the Beaverhead Outdoors Association, and the Skylines Sportsmen's Association. *Supportive* comments included those from Montana Trout Unlimited, the George Grant Chapter of Trout Unlimited, and the Lewis and Clark Chapter of Trout Unlimited.

A majority of the *opposed* commenters (10) focused on the issue of rotenone use. This topic is extensively addressed in the following section (Issue 1). More specific issues (35) were raised by 1 to 5 *opposed* commenters. These are also identified and addressed below.

Issue 1. The use of the piscicide rotenone including topics related to Parkinson's disease; impacts on mammals, birds, and aquatic organisms; movement in groundwater; effects on the human eye; and current necessity for its use. (10 commenters)

Background Information: As described in the EA's, rotenone is a naturally occurring substance derived from the roots of tropical plants found in Australia, Oceania, southern Asia, and South America. Rotenone has been used by native people for centuries to capture fish for food in areas where these plants are naturally found. It has been used in fisheries management in North America since the 1930s. Rotenone has also been used as a natural insecticide for gardening and to control parasites such as lice on domestic livestock. Several formulations of rotenone are currently Environmental Protection Agency (EPA) registered products for the removal of unwanted fish.

FWP has a long history of using rotenone to manage fish populations in Montana, spanning as far back as 1948. The department has administered rotenone projects for a variety of reasons, but principally to improve angling quality or for native fish conservation. Rotenone acts by inhibiting electron transfer at the cellular level. It is especially effective at low concentrations (<1 part per million) with fish because it is readily absorbed into the bloodstream through the thin cell layer of the gills. Mammals, birds, and other non-gill breathing organisms do not have this rapid absorption route into the bloodstream and thus can tolerate exposure to concentrations much higher than that used to kill fish. Gill breathing amphibians can be impacted by rotenone; however, this can be mitigated by implementing treatments when larvae have metamorphosed

into air-breathing adults as proposed in these projects. Aquatic invertebrates are impacted by rotenone, though studies have shown they rapidly re-colonize treated stream reaches.

Rotenone in the proposed projects would be primarily applied to the stream with the use of drip stations that disperse a precise amount of diluted rotenone. Backpack sprayers and a boat would be used to help apply rotenone to areas of slow moving water, ponds, and lakes. Potassium permanganate would be applied to the stream at the lower bounds of the projects to detoxify rotenone within a short distance (< 0.5 miles) thereby preventing impacts to lower reaches of the streams and downstream waters. Neutralizing rotenone is discussed in more detail in the response to Issue 2 below.

Response to Rotenone Issues: All three EAs discussed the proposed rotenone application methods and the potential impacts of rotenone on human health and the environment. The specific rotenone issues expressed in the written comments were generally addressed in the EAs, and are also addressed below.

Rotenone and Parkinson's disease

Response: The reported link between rotenone and Parkinson's disease (PD) was cited in several comments, and it was noted that the EAs failed to mention a recent study (Tanner et al 2011)[1] that associated PD in pesticide applicators and their spouses to rotenone use. FWP was not aware of this study when the EAs were under preparation or at the time of their release, but the conclusions of the article will be addressed here.

The reported link between rotenone and PD is not a new issue, and the matter was discussed in the EAs (Comment 5c.). The issue of PD and rotenone began with the publication of a study by Betarbet et al (2000) which reported that rotenone produced Parkinson's-like anatomical, neurochemical, and behavioral symptoms in laboratory rats when administered chronically and intravenously. However, the results of the study have been challenged on the basis of methodology: (1) that the continuous intravenous injection method used leads to "continuously high levels of the compound in the blood," and (2) second, that dimethyl sulfoxide (DMSO) was used to enhance tissue penetration (normal routes of exposure actually slow introduction of chemicals into the bloodstream). In addition, injecting rotenone into the body is not a normal way of assimilating the compound. The most recent article by Tanner et al (2011) entitled *Rotenone, Paraquat and Parkinson's Disease* provided evidence for a link between rotenone exposure and development of PD among private pesticide applicators. The study examined pesticide applicators (mostly farmers) and their spouses from Iowa and North Carolina. It found that among members of this group with PD, 19% had used rotenone at least once whereas among members of the group without PD 9% had used rotenone. This provides evidence that a link may exist between rotenone use and PD, but does not provide causal proof that using rotenone leads to PD. It is very important to note that the study examined only private pesticide applicators and their spouses, in other words individuals likely to come into contact with

undiluted pesticide products of all kinds. The article does not provide information on the specific rotenone products users had contact with, degree of training for rotenone use, product formulation (liquid or powder), duration of exposure, personal protective equipment worn during exposure, or other aggravating or mitigating factors affecting exposure. The study identifies among its limitations that most participants were exposed to many pesticides and effects of other agents cannot be excluded nor can the possibility of results being due to exposure of combinations of pesticides. The study does not specifically address piscicides, beyond the generalization that rotenone is used as a piscicide, or therefore, the specific risks posed by piscicides. It seems unlikely, however, that farmers would routinely be exposed to piscicides and would more likely have been exposed to agricultural rotenone products no longer registered for use by the EPA.

From the previous discussion, there are reasons to doubt the validity of some of the results of these studies or the relevance to the kinds of exposure likely to occur during a piscicide treatment. Nonetheless, it underscores the need for applicators of rotenone products to institute procedures and protocols designed to ensure safety of workers and the public through minimal human exposure. The safe and effective use of pesticides is the responsibility of the EPA. During the recent re-registration process (2007) for piscicide formulation of rotenone, the EPA evaluated the link between PD and rotenone use and concluded that human health would be protected if new modifications to the label and new Standard Operating Procedures (SOPs) were followed. These changes include changes to the PPE (personal protective equipment) used by applicators, requirements for deactivation of rotenone with potassium permanganate, restrictions on access to treatment areas by the public, monitoring requirements for water that is used for drinking, and stipulations on the types of equipment that may be used for dispensing rotenone. These required changes by EPA can be viewed online at http://www.epa.gov/oppsrrd1/REDs/rotenone_red.pdf., and the SOP manual is available through the American Fisheries Society at www.fisheries.org. Appendix B of the EAs outlines the applicable treatment, neutralization, and safety procedures and SOPs that will be used for these projects.

[1]Tanner, C.M., F. Kamel, G.W. Ross, J.A. Hoppin, S.M. Goldman, M. Korell, C. Marras, G.S. Bhudhikanok, M. Kasten, A.R. Chade, K. Comyns, M.B Richards, C. Meng, B. Preistley, H.H. Fernandez, F. Cambi, D.M. Umbach, A. Blair, D.P. Sandler, and J.W. Langston. 2011. Rotenone, Paraquat and Parkinson's Disease. Environmental Health Perspectives; DOI: 10.1289/ehp.1002839

Rotenone movement in groundwater

Response: Comment 2f in the EAs addressed this concern. As stated in the EAs: No contamination of groundwater is anticipated to result from this project. Rotenone binds readily to sediments, and is broken down by soil and in water. Rotenone moves only one inch in most soil types; the only exception would be sandy soils where movement is about three inches. In California, studies where

wells were placed in aquifers adjacent to and downstream of rotenone applications have never detected rotenone, rotenolone, or any of the other organic compounds in the formulated products. Case studies in Montana have concluded that rotenone movement through groundwater does not occur.

The impacts and consequences of rotenone use on mammals, birds and aquatic organisms

Response: These issues were extensively addressed in Comments 5b. and 5c. of the EAs and above. Any impacts to mammals and birds would be indirect through short-term changes in food abundance (fish and aquatic insects). Besides fish, other aquatic organisms that have gills (invertebrates and amphibians) could be impacted by rotenone. These impacts are considered short-term and minor for populations of aquatic invertebrates which have been shown to rapidly recolonize streams after rotenone treatments and to amphibians where the timing of treatments (late summer) will ensure that many larvae have metamorphosed into air-breathing adults.

Distance fish would be killed downstream of the treatments

Response: During the stream treatments, rotenone passing downstream of the lower bounds of the treatment area would be detoxified with the addition of potassium permanganate to the stream. Potassium permanganate fully detoxifies rotenone with 15 to 30 minutes of contact time which for the proposed projects equates to less than 0.5 miles of stream. Fish could be impacted, and potentially killed, in up to 0.5 mile of stream below the project reach though it is more likely fish will only receive a lethal dose of rotenone in a much shorter stream reach. See comment 2a in the EAs and the response to Issue 2 for additional information.

Rotenone as an eye irritant

Response: Comments 8c. in the EAs stated "It (rotenone) is not an eye or skin irritant nor a skin sensitizer." This statement is not correct. Rotenone labels and the EPA Registration indicate rotenone is an eye irritant. Of primary concern would be to those persons applying concentrated rotenone to treated waters. This risk is minimized by FWP through training of applicators and the use of safety equipment (i.e., goggles). The potential for the general public to be exposed to eye irritating levels of rotenone would be eliminated by the closing of the area to the public during the treatment. Further, due to its dilution in treated waters, rapid degradation, and neutralization process, rotenone persistence is expected to be short.

Necessity of rotenone use

Response: Rotenone is a highly effective tool for the removal of unwanted fish species in selected bodies of water and has been used for this purpose in Montana since 1948. In the proposed projects, rotenone would be used to eradicate nonnative brook and hybridized trout from portions of the Cherry, Dyce, and McVey creek drainages in order to promote conservation and restoration of native WCT. In some situations, other methods like electrofishing and netting can be

used to remove unwanted fish. However, as the EAs described (see Alternatives 3 and 4), due to stream size and habitat complexity it is highly unlikely that these alternative methods would be effective at eradicating nonnative trout in the proposed project streams.

Issue 2. There were several questions and concerns related to an unintended rotenone fish kill in the lower reaches of Cherry Creek (Madison River drainage; near Ennis, MT) on August 4, 2010. For several potential reasons, described below, rotenone traveled farther than anticipated (8 - 9 miles) during the rotenone treatment on that day. This resulted in several thousand fish killed outside of the intended treatment area. At the time of the incident, potassium permanganate ***was not*** being applied to the stream to neutralize the rotenone.

What went wrong?

Response: Rotenone did not decay at the expected rate, causing it to travel farther downstream than had occurred during three previous applications at that same point. The degradation rate of rotenone was likely reduced by higher stream flow, cooler water temperature, and diminishing daylight. Rotenone persisted for about 12 miles, travelling about 3 – 4 miles beyond the project area (Cherry Falls). Because rotenone was not anticipated to travel as far as it did, the neutralization station which applies potassium permanganate to the stream was not turned on. Had the neutralization station been turned on, it would have completely neutralized the rotenone, preventing the unintended fish kill downstream. Active neutralization of rotenone has never failed during the Cherry Creek project. For example, two additional rotenone treatments were conducted in Cherry Creek 5 miles farther downstream after the August 4th accidental fish kill. In both cases, neutralization stations successfully decayed rotenone as evidenced by the survival of sentinel fish placed in the stream downstream from the neutralization station. Also during the Cherry Creek project, in addition to the sentinel fish FWP used a colorimeter during every instance potassium permanganate was applied to measure the residual potassium permanganate concentration at 30 minutes flow time below the neutralization station. This provided another measure of the rotenone neutralizing effectiveness and provided a quantifiable measurement so FWP could adjust the potassium permanganate concentration as needed.

There has been no explanation from FWP

Response: An FWP news release describing the incident on was issued August 6, 2010, with follow-up articles in the Bozeman Daily Chronicle on August 10 and 14, 2010, September 15, 2010, and May 16, 2011.

No new steps taken to prevent similar problems

Response: Since the problem at Cherry Creek, FWP has initiated development of a policy that will be in place prior to initiating any rotenone projects in 2011. This policy is expected to detail conditions under which:

a.) active rotenone neutralization occurs prior to rotenone reaching the end of the treatment area,
b.) close monitoring (sentinel fish) of rotenone as it approaches the end of the treatment area,
c.) when neutralization can cease.

It could happen again

Response: Yes it could, but FWP is committed to eliminating as many variables as possible that could result in another incident including the development of the neutralization policy. For all rotenone projects, FWP already had in place internal communications and reporting requirements that are designed to describe project specifics including what went right, what went wrong, and certain details of each application so that we continue to build our knowledge and experience base.

FWP is going ahead without knowing the reasons

Response: please see the responses above.

Issue 3. There were several general comments concerning WCT conservation and management. Issues raised included nonnative species management, the extent of WCT and native species management, and the Endangered Species Act. (3 commenters)

Response: FWP and Montanans pride themselves on the quality of fishing and our predominantly wild, self-sustaining, and mostly nonnative trout fisheries throughout the state. People come from all over the country and world to fish waters like the Madison, Big Hole, and Beaverhead rivers that support wild but nonnative brown and rainbow trout, and the many reservoirs and lakes that are stocked with nonnative rainbow trout. Few would argue about the quality and importance of these nonnative fisheries. Westslope cutthroat trout management and restoration will have little impact on the management of these fisheries. FWP and partner's general emphasis for WCT restoration and conservation in southwest Montana will be on smaller tributary streams. FWP understands that these smaller streams provide important angling opportunities for families including those seeking places to go that are not crowded and where fish harvesting possibilities exist. FWP is focusing on opportunities where native species conservation and sport fish conservation can be reasonably balanced. A goal of returning all of the state's waters to native fisheries is impossible to accomplish, that is not our goal.

So where will the end be? FWP will likely continue to propose WCT restoration projects into the future to ensure that WCT do not go extinct from their native range. What does this really mean and how will it impact other non-native small stream fisheries? Take the

Big Hole drainage for example. There are over 100 tributary streams to the Big Hole River which nearly all contain non-native fisheries. Brook trout are present in nearly all tributaries with some rainbow and some brown trout also present. In the next 20-30 years, FWP will potentially propose to work in 15-25 streams where it is possible to restore native WCT in the Big Hole drainage. This leaves the vast majority of small streams untouched to continue to provide the existing fishing opportunities for brook trout and other nonnative fishes. This proportion would be typical in the Ruby and Beaverhead drainages too. The major limiting factors for native fish restoration are creating fish barriers to prevent non-native fish from recolonizing the streams. FWP recognizes that these projects will impact fisheries that are important to a portion of the angling public, but it should also be noted that streams restored with WCT will also offer angling opportunities.

Current fishing regulations in SW Montana streams and rivers require catch and release only for cutthroat trout. These regulations are in place because in almost all streams in Region 3 cutthroat trout are rare and in need of protection. It is anticipated that once WCT are restored to healthy numbers is some streams, like in the proposed projects, the catch and release regulations will be removed and limited harvest of WCT will be allowed. Recent data from the Big Hole also suggest that the native WCT can achieve a greater size than brook trout in some streams therefore potentially providing a better angling experience. FWPs data are very clear that if action is not taken to conserve WCT through projects like the ones proposed, WCT will disappear from the majority of the few places they remain in southwest Montana.

Conservation of sensitive native species like WCT is required by state law; partly to prevent species from being listed under the federal Endangered Species Act. Title 87-1-201 (9)(i) of the Montana Code Annotated directs Montana Fish, Wildlife and Parks to manage wildlife, fish, game and nongame animals [and sensitive species section (9)(ii)] in a manner that prevents the need for listing under title 87-5-107 or under the federal Endangered Species Act, 16 U.S.C. 1531, et seq. Proposed work in McVey, Cherry, and Dyce creeks represents FWP carrying out duties as directed by the Montana State Legislature. Without such actions, the status of WCT in Montana will continue to decline causing extirpation and potentially extinction thereby losing a culturally- and ecologically-important species and increasing the likelihood of petitions for listing of the subspecies under the Endangered Species Act.

Issue 4. Cherry Creek (Madison) WCT restoration project. Where does the project stand? (2 commenters)

Response: Unless monitoring finds surviving non-native fish in the Cherry Creek project area, the rotenone applications that were initiated in 2003 were completed in the fall of 2010. The treatment ended at a natural waterfall barrier that will prevent nonnative trout from reoccupying the drainage. This nonnative trout removal effort has resulted in more than 65 miles of contiguous habitat being made available for WCT conservation; this is an area several times larger than any remaining WCT population in the region. When fully occupied by WCT, the Cherry Creek project will have increased the distribution of

WCT in the Upper Missouri River Basin by 15%. Since 2006, FWP has been establishing WCT in the upper reaches of the Cherry Creek drainage through introduction of eggs collected from wild and other genetically pure WCT sources. Additional egg and live fish introduction are scheduled to continue in the lower sections of the project area and in Cherry Lake until 2013 if necessary. Surveys indicate that introduced WCT have already successfully spawned in portions of the drainage, and adult fish up to 12 inches have been captured several miles downstream from introduction areas. With natural reproduction and dispersal, WCT should naturally colonize much of the 65 miles of stream in the Cherry Creek drainage over the next several years.

Issue 5. There were several general and specific questions regarding project funding including questions on overall and specific costs, funding sources, and how these projects would take away from other programs. (2 commenters)

Response: WCT conservation projects are part of the statutory duties of FWP. Funding of such efforts, including the proposed projects, come from a variety of sources. These include standard FWP budgets (license dollars), cost-share agreements or direct assistance from our federal partners (e.g., U.S. Forest Service, and the Bureau of Land Management), and project specific grants from agencies and organizations (e.g., FWP's Future Fisheries Program, the Big Hole Watershed Committee, U.S.F.S. Resource Advisory Committee, and Montana Trout Unlimited).

Many variables can alter the costs of implementing WCT conservation projects. The following table displays the estimated expenses for the four largest categories of the proposed efforts – barrier construction, rotenone treatment supplies, and equipment, FWP personnel costs for the treatments, and costs associated with introductions of wild WCT to Cherry Creek.

	Estimated Cost by Project		
Major Expense Items	***Cherry Creek***	***Dyce Creek***	***McVey Creek***
Barrier Construction (single expense)	$80,000	N/A	$15,077
Rotenone Treatment This includes purchase of rotenone and potassium permanganate products, application products, helicopter time, and safety equipment. The estimated cost range shows 1 – 2 years of treatment.	$19,500 – 39,000	$2,000 - $4,000	$600 - $1,200

Estimated FWP Personnel Time This includes efforts directly related to on-the-ground project implementation. Calculations assume a per hour cost of $27, which is the estimated average wage and benefits of biologists and technicians. The estimated cost range shows 1 – 2 years of treatment.	$10,800 - $21,600	$8,100 - $16,200	$8,100 - $16,200
Estimated Costs Associated with Introductions of Wild WCT to Cherry Creek. This estimate includes all aspects of egg collections and introductions including personnel time, genetic and health testing, and travel. The estimated cost range is based on egg collections from 3 - 5 WCT populations, for 3 years.	$91,000 – $152,000	$0 - $26,000	$0

Several comments included specific budget questions, these included:

How much of the federal dollars are borrowed for deficit spending?

> ***Response:*** Though we are unsure what the commenter was specifically asking, it appears the issue is not relevant to FWP actions described in the EAs.

Where does the money for EMC^2 come from?

> ***Response:*** This comment refers to the Cherry Creek EA. EMC^2 is a private engineering and design consulting firm in Bozeman, Montana. A certain percentage of the time they spent on the fish barrier design for Cherry Creek was donated to the project as an in kind donation. This donation of time resulted in a $5,000 in kind donation.

Is there federal dollars in the Big Hole watershed grant?

> ***Response:*** This comment refers to the Cherry Creek EA. Yes, the Big Hole Watershed Committee grant was part of a congressional appropriation made to the group in 2006 aimed specifically at such projects. The Cherry Creek project was selected among several other projects for funding by an advisory committee made of local watershed committee members.

How much will these projects take away from other Big Hole River efforts?

Response: These projects will not take away from other Big Hole River efforts. Current and future projects to protect and enhance the fisheries of the Big Hole River are moving forward. These projects include annual fish monitoring, fish tagging study, restoration and monitoring of Kalsta Spring Creek, replacement of Big Hole Ditch diversion, Notch Bottom spring creek restoration, Melrose ditch and diversion improvements, and the Wise River study and restoration. Further, these projects will not affect the restoration work being done for Arctic grayling in the upper reaches of the Big Hole River.

Issue 6. If there are no other methods available but rotenone, FWP should wait until there is a safer method. (1 commenter)

Response: Formulations of rotenone identified for use in these projects are EPA registered pesticides for the removal of unwanted fish. When used in accordance with the label, including appropriate safety and application precautions, rotenone is an effective method available to help conserve native WCT. Please see the responses in Issue 1. Other potential removal methods were discussed in the EAs and in the response to Issue 26 below, but these methods were not considered likely to achieve the objective of eradicating nonnative trout species from the project reaches.

Issue 7. Concerns over the application of rotenone in wetlands. (1 commenter)

Response: The use of rotenone was thoroughly analyzed in the EAs. Whether applied to streams, lakes, ponds, or seeps which may be identified as "wetlands," the results of analysis of the impacts of rotenone on the environments are the same.

Issue 8. If you manage to get rid of non-native trout another will take its place (1 commenter)

Response: The EAs described structures (barriers) that have been placed (Dyce Creek) or will be constructed (Cherry and McVey creeks) to prevent return of nonnative species to the project areas. These structures, which are either culverts or small dams, will prevent upstream movement and re-colonization of nonnative fish.

Issue 9. I would encourage you to develop a plan to aggressively monitor for Grayling presence in the stream, especially in the spring (ice off to late May).

Response: Below is a map detailing areas sampled in McVey Creek prior to developing the WCT restoration strategy. No Arctic grayling were found in the stream, and it was determined that grayling were not currently using the stream for any part of their life history. However, streams of similar size in the vicinity of McVey Creek are used by grayling for spawning and rearing. The likely reason for the lack of grayling in McVey Creek is the poor condition of the habitat downstream of Highway 43. FWP will continue to monitor McVey Creek downstream of the fish barrier for the presence of

grayling and work to improve habitat conditions on this section of stream. There is approximately ¾ miles of stream downstream of the proposed fish barrier to the Big Hole River that would be available for grayling spawning and rearing.

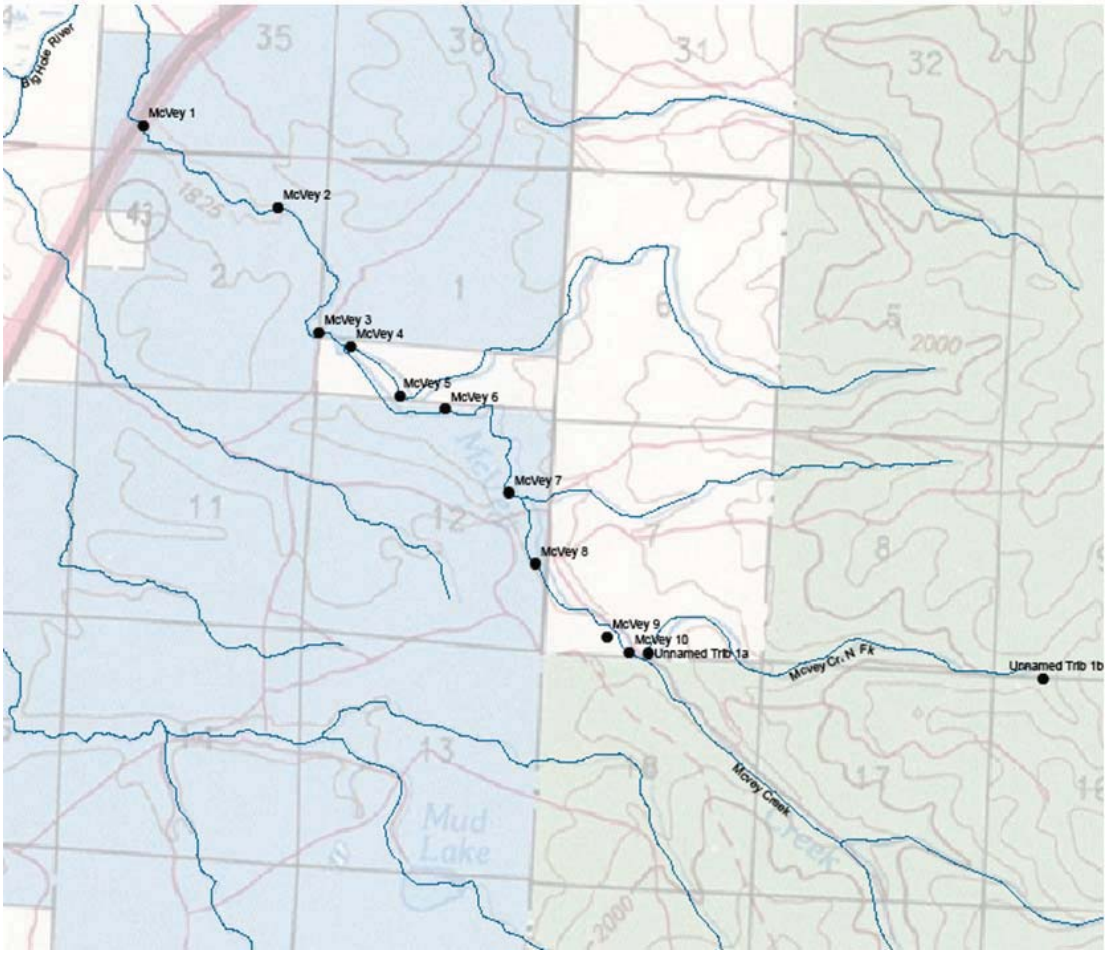


Figure 1. McVey Creek and tributaries with black dots indicating locations of stream sampling events in 2009 and 2010.

Issue 10. Concerns of the classification of WCT as a subspecies (1 commenter)

Response: Westslope cutthroat trout (*Oncorhynchus clarkii lewisi*) are 1 of 14 subspecies of cutthroat trout native to the interior of the western United States (Behnke 1992)[2]. In Montana, native WCT reside in the Columbia River drainage (west of the Continental Divide including the major basins of the Clark Fork, Flathead and Kootenai rivers) and east of the Continental Divide in the Hudson Bay and upper Missouri River drainages. WCT are morphologically and genetically different from other cutthroat subspecies, including Yellowstone cutthroat trout (YCT; *Oncorhynchus clarkii bouvieri*) that are native to Montana in the Yellowstone River drainage. FWP is not aware of any resource agency or organization that questions the classification of WCT as a unique cutthroat trout subspecies. Genetic analysis can be used to identify WCT and YCT and to determine extremely low levels (< 1%) of hybridization between the species.

[2]Behnke, R. J. 1992. Native trout of Western North America. American Fisheries Society, Monograph 6, Bethesda, Maryland.

Issue 11. Concern over placing Washoe Park State Hatchery (Anaconda, MT) WCT east of the continental divide (1 commenter)

Response: Because Cherry and Granite lakes (Cherry Creek project) are important fisheries, as soon as it is verified nonnative trout have been completely removed from the lakes FWP is proposing to restock them with several hundred WCT from the Washoe Park Hatchery. The intent of the effort is to rapidly re-establish fisheries in those waters that see significant angler use. A high-pressure treatment process will be used on fertilized eggs in the hatchery to produce sterile (triploid) WCT that will be unable to reproduce. For several years after the treatment, viable eggs and/or fry from several wild WCT populations in the Big Hole will also be introduced into the Cherry Creek drainage including Cherry and Granite lakes. The goal of establishing a WCT population that genetically represents native Big Hole WCT will not be jeopardized by introducing sterile hatchery WCT into Cherry and Granite lakes.

Issue 12. Concern over the survival rates of introduced WCT (1 commenter)

Response: Survival rates of introduced trout can vary significantly depending on the size of stocked fish and quality of the habitat. Indeed, the survival of "catchable" size hatchery trout stocked in Montana's rivers and streams in the 1970's and earlier (a program that has since ceased; also see Issue 13) was often very low. Two significant reasons for this low survival include competition with wild trout already established in the waters, and the transfer of a trout from the hatchery environment to the more variable and harsh environment of a fast flowing stream or river. For several reasons, these issues are not significant concerns for the proposed projects. One, WCT will be introduced into high quality habitat where there is no competition from other fish. This means food resources will be abundant, and the highest quality habitats (e.g., pools) will be readily available. Essentially, introduced fish will not have the same struggle to survive compared to streams which have established fish populations and are at carrying capacity. Two, the only hatchery fish to be stocked would be sterile hatchery WCT stocked into Cherry and Granite lakes. Again, because competition will have been removed from these lakes and because lakes are a less variable environment, FWP anticipate these fish will have high survival. Other fish transfers in the proposed projects will either be WCT that were naturally produced in the systems (i.e., fish transferred between the East and West forks of Dyce), or eggs that are collected from wild WCT population and introduced to the streams as eyed eggs via remote stream incubators (RSI's).

RSI's have been proven very effective at establishing WCT populations in high quality habitats. For example, enough individuals survived from an introduction of 241 WCT eggs into Eureka Creek in the Elkhorn Mountains (near Townsend, MT) that a naturally reproducing population was established within 3 years. In the Cherry Creek project, over

a 2–4 year period FWP anticipates introducing several thousand eggs collected from multiple wild populations. Though the number of eggs introduced is important, a greater concern will be establishing a genetically sound WCT population; hence, the duration of the introduction effort.

Issue 13. What about the policy of not stocking rivers and streams in Montana (1 commenter)

Response: Historic hatchery fish stocking practices and philosophies were to augment the wild population of fish and produce better fishing and more fishing opportunity. In the 1970s, research showed that the practice of stocking hatchery fish on top of wild trout fisheries caused harm to the wild trout population. Further, the hatchery fish did not survive very long, and the end result was an overall reduction in density and size of fish available to anglers. Due to this research, FWP discontinued augmenting wild trout populations with hatchery fish, and this policy continues today. In the case of the proposed projects, all nonnative trout species are being removed from the streams prior to reestablishing WCT. Also, the purpose of reintroducing WCT is to conserve the species, not to augment the existing fish populations. Finally, the practices used to re-establish WCT are different from historical hatchery stocking practices. Rather than stocking large hatchery trout, FWP proposes to introduce juvenile WCT. One of the primary techniques proposed is to utilize remote streamside incubators (RSIs). To accomplish this, WCT gametes are collected from pure WCT sources and incubated at the introduction site with natural water sources. This allows the developing juveniles to be exposed early in their life stage to the restoration stream's flow and temperature regimens. FWP has successfully used this technique in many cutthroat trout and Arctic grayling restoration projects, and has found much higher survival and instream residency compared to stocking larger sized fish that were raised in a hatchery.

Issue 14. No public benefit to these ventures (1 commenter)

Response: Fishing opportunities will be maintained for the public on project area waters, and harvest opportunities will remain in Cherry and Granite lakes and the ponds on the WF of Dyce Creek. Further, the public will benefit from the presence of WCT by maintaining the opportunity to fish for and observe WCT, the state fish of Montana. Currently, WCT only occupy around 400 stream miles in the Upper Missouri River Basin, and the proposed projects will increase that number by approximately 25 miles. If the WCT continue to decline in the Upper Missouri River Basin, future residents and anglers will not get the benefit of the presence of this species. Non-native rainbow trout and brook trout occupy thousands of river miles in the Upper Missouri River basin. The removal of those species from the project area waters will not impact the ability of the public to benefit from their presence.

Issue 15. Biodiversity will be destroyed (1 commenter)

Response: The concept of biodiversity is commonly misunderstood to assume more species are better, suggesting that introducing additional species to an ecosystem improves the resiliency of that ecosystem. This is not the case. The concept of

biodiversity is rooted in the native ecosystem. Further, the introduction of non-native species is the biggest threat to biodiversity worldwide. Due to the dispersal limitations of fish caused by oceans, waterfalls, and mountain ranges, native fish biodiversity in the Intermountain West is typically represented by few species. For example, historically in the Upper Missouri River drainage less than 15 fish species were present. Many of these fish species evolved without competitors or predators. The introduction of non-native trout and other fish species has caused the biodiversity to be reduced. The proposed projects are intended to increase the biodiversity of the region by providing strongholds for WCT.

Issue 16. Need to explain the projects affect on the floodplain, cropland, forestry, and range land. (1 commenter)

Response: The direct impacts of these projects are to the bodies of water (streams and lakes) during rotenone treatment and stocking of fish, and to a smaller degree, limited bank disturbance associated with construction of migratory barriers on Cherry and McVey creeks. The constructed barriers could impound < 0.25 acre and could be appropriately listed as an effect on the floodplain in the Cherry and McVey drainages. The impacts of these actions are addressed in the EAs and in this document.

Issue 17. How can you take eggs from sterile trout? (1 commenter)

Response: Sterile WCT will be stocked in Cherry and Granite lakes to quickly establish fisheries in those waters after they are treated with rotenone. There is no intention to collect eggs from the sterile trout. However, wild WCT (not sterile) will also be introduced to the Cherry Creek system, including the lakes, and may be used over the long term as a source of eggs for future WCT restoration projects.

Issue 18. Use of Cherry Creek for spawning by Big Hole river fish (1 commenter)

Response: Mountain whitefish, brown trout, and rainbow trout, in order of decreasing abundance, are the most common game fish in the Big Hole River near Melrose. Lower Cherry Creek near the confluence has not been surveyed to determine if these species are using the stream for spawning. However, at the fish barrier location 1.5 miles upstream of the confluence and in locations farther upstream, no brown trout or whitefish have been observed in annual sampling since 2008. One rainbow trout was captured near the Forest Service Boundary in 2009, but this fish appeared to have escaped from a private pond located near the stream (fish's size and fin wear indicated it was not a wild fish). Therefore, it appears that fish from the Big Hole River do not use Cherry Creek for spawning in the area proposed for westslope cutthroat restoration. It is unknown if Big Hole River fish use the lower reaches of Cherry Creek downstream of the proposed fish barrier for spawning, but it is probable. Several large beaver dams are present in Cherry Creek downstream of the proposed barrier site which may affect upstream fish passage. Trout and whitefish population in the Big Hole at Melrose are known to use the main river and side channels for spawning, but the extent of tributary use, such as Cherry Creek, is unknown. The proposed action of fish barrier construction and removal of non-

native fish upstream of that barrier will not impact the current use of the lower 1.5 miles of Cherry Creek as a spawning tributary for fish from the Big Hole River.

Issue 19. How can you predict WCT will disappear due to brook trout? (1 commenter)

Response: Several observations provide evidence that brook trout can replace WCT in many locations. In SW Montana, WCT (genetically pure and slightly hybridized) only persist in about 10% of their historic range. Many of the streams that were historically occupied by WCT are now exclusively occupied by brook trout. In the Big Hole River drainage specifically, 29 streams that were reported to have historic (documented within the last 10 years) conservation populations of WCT were resurveyed from 2008-2010. Of these 29 streams, 11 no longer maintained WCT and 4 maintained very few individuals. Brook trout are present in all of these streams and are the plausible reason for the WCT loses. While habitat changes have certainly impacted WCT in many areas, brook trout dominance and replacement of WCT is also observed in many relatively pristine streams. Finally, WCT abundance often rapidly increases in streams where brook trout have been removed. For example, two populations of WCT near Helena increased from fewer than 100 fish to over 1,000 fish soon after brook trout were eliminated from the short project reaches. Young-of-the-year brook trout have a size advantage over WCT due to their earlier spawn and hatch timing. The size difference provides brook trout young-of-the-year with a competitive advantage over WCT young-of-the-year. Over time, this competitive advantage allows brook trout to replace WCT in many small streams.

Issue 20. Why is this current plan better than previous efforts (mechanical removal) to eliminate brook trout in McVey Creek? (1 commenter)

Response: Multiple-pass electrofishing has been successful in eliminating brook trout in relatively small streams where project reaches are short (< 2 miles) and where habitat conditions are simple (i.e., minimal vegetation and overhanging banks). Electrofishing removal efforts were attempted in McVey Creek in the 1990's and 2000's, but were unsuccessful due to the habitat complexity, overhanging riparian vegetation, and from lack of a sufficient barrier. These early efforts also included over 4 miles of stream in the project area which with a limited numbers of crews was too extensive of an area to effectively work on. The current plan calls for placement of a barrier that will prevent invasion of nonnative trout, and treating 7.3 miles of stream with rotenone. The habitat conditions in McVey Creek that impeded previous electrofishing efforts should not hinder rotenone efforts, and the eradication of brook trout would be expected with the treatment.

Issue 21. What about burbot and suckers being killed in McVey by the barrier? (1 commenter)

Response: The barrier placed in McVey Creek will not kill fish. It will preclude upstream fish passage resulting in the potential loss of habitat for fluvial life forms of these two species. It is unknown whether the suckers and burbot in McVey Creek represent resident populations or if they exhibit a fluvial life history by migrating into

McVey Creek from the Big Hole River to spawn, then return to the river. Adult-sized suckers have been captured in McVey Creek, but it is likely, based upon the abundance and distribution of juvenile suckers in the stream, that there is a fluvial component to the sucker population. The distribution of burbot would suggest that this population is likely a resident population. Burbot were only found in a 1-mile section of stream downstream of the Forest Service boundary whereas suckers were distributed throughout the lower reaches of the stream. There should be minimal impacts to resident life forms of these two species as a result of the fish barrier. The barrier will preclude potential natural refounding of resident populations of these two species should they become extirpated in McVey Creek due to natural causes, but the barrier will not likely isolate critical habitat for resident fish given its location near the mouth.

Both white suckers and burbot are widespread and common throughout the Big Hole drainage. If the burbot population in McVey Creek is fluvial, it is clear based on the abundance of fish upstream of the proposed fish barrier that the stream is not a critical spawning location (i.e., densities of burbot are very low). White suckers are also common and considered stable in the Big Hole River. The loss of access to the middle and upper reaches of McVey Creek would likely represent only a small impact to the overall population. Further, approximately 0.68 miles of stream remains available to fluvial forms of burbot and suckers downstream from the proposed fish barrier.

Issue 22. Concern over McVey treatment within ¼ mile of grayling, i.e., in relation to Cherry Creek incident. (1 commenter)

Response: Arctic grayling have not been documented in McVey Creek despite extensive surveys; however, they are present in the Big Hole River in this area. Detoxification of rotenone treated waters will occur at the fish barrier. This action is intended to neutralize any remaining rotenone in McVey Creek downstream of the proposed fish barrier. Detoxification is highly effective and more stringent neutralization procedures developed following the Cherry Creek incident will be implemented to ensure that treated waters do not reach the Big Hole River. It should also be noted that McVey Creek is a very small stream (less than 1 cfs at the fish barrier) relative to the size of the Big Hole River at this location (>100 cfs). Therefore, in the unlikely event that detoxification was not effective and rotenone treated waters from McVey Creek reached the Big Hole River, they would be diluted by 100 times resulting in levels well below fish-killing concentrations.

Issue 23. You say there are no impacts to rare or endangered species…what about grayling? (1 commenter)

Response: The proposed project was developed with the cooperation of the US Fish and Wildlife Service and Arctic grayling biologist from FWP. McVey Creek was thoroughly inventoried upstream of the proposed fish barrier location, and no grayling were present. There is one stream that is similar sized and near McVey Creek that is used by Arctic grayling for spawning. Because grayling can use streams that are similar to McVey Creek, FWP will continue to monitor the stream downstream of the fish barrier for the presence of grayling. The proposed fish barrier would restrict grayling access to the

middle and upper reaches of McVey Creek; however, the species is not currently using any reach of the stream for spawning and rearing. The proposed project will not impact potential grayling use of the lower 0.68 miles of McVey Creek immediately upstream of the confluence with the Big Hole River. If grayling begin to use McVey Creek and further expansion of the species into upstream reaches above the fish barrier is warranted, the location of the fish barrier will be re-evaluated and potentially moved to aid in grayling recovery. The use of rotenone to remove non-native fish in McVey Creek will not directly or indirectly impact Arctic grayling (see response to Issue 22).

Issue 24. Concerns about reduction in productivity / profitability of land (1 commenter)

Response: There are currently no laws or rules at the state level that affect the management of private land with regard to species of concern. However, state and federal agencies currently manage land use on public land to prevent further harm to species of concern. Many agencies and non-governmental organization work cooperatively with private land owners to satisfy their land management needs and aid in habitat enhancement or protection for species of concern. In the case of Dyce, McVey, and Cherry Creeks, state and federal agencies have already agreed to manage public lands to limit impacts to WCT. If WCT were to be listed under the Endangered Species Act, additional federal oversight and land management standards may be imposed on the Federal land management agencies. Further, regardless of whether or not WCT are present in a historic stream, an Endangered Species Act listing for WCT may affect land management on public lands. The legislative intent of Montana Code Annotated 87-1-201(9)(i) which directs FWP to manage wildlife, fish, game, and nongame animals in a manner that prevents the need for listing under state law or the federal Endangered Species Act, is to retain local control of resource management issues. Aside from the general desire to conserve Montana's State fish for its intrinsic values, the proposed projects are also intended to improve the conservation status of WCT and prevent a listing under the Endangered Species Act.

Issue 25. Why not bury dead fish (1 commenter)

Response: Previous treatments have shown that dead fish rapidly decay and are difficult to find only a few days after rotenone treatments. Dead fish provide nutrients to the stream, benefiting primary and secondary production. If large accumulations of dead fish are found, they would be collected and dispersed to reduce attractiveness to scavengers.

Issue 26. Why not use fishing, catch and release or other methods (1 commenter)

Response: The EAs reviewed alternatives for achieving the goal of WCT conservation in the projects streams. The use of rotenone is considered the most likely method to achieve WCT conservation objectives (also see Issue 20). Methods like electrofishing would not be effective due to the size and complexity of the project streams, and angling would fail to catch the smallest fish. Catch and release regulations for WCT have been in place for many years in most streams of SW Montana; however, because angler harvest is not a

significant issue, the regulation has not stopped the decline of WCT where they are significantly impacted by nonnative trout.

Issue 27. Relocate the unwanted fish (1 commenter)

Response: Relocating unwanted trout from the project areas covered under these EAs is not feasible. FWP has attempted in many cases to remove unwanted species using various methodologies (i.e., multiple-pass electrofishing); however, success has been limited to short project reaches of small streams with simple habitat features. In situations where these techniques have been successful, the amount of effort required is substantial (3 to 6 years, multiple efforts per year, and multiple 2 or 3 person crews). Considering the three project areas in question, FWP and partners have attempted (unsuccessfully) for over 6 years to remove non-native trout species in Dyce Creek using electrofishing techniques. In order for the proposed projects to be successful, a complete removal of non-native trout is required, and the only feasible method to achieve this is with the application of rotenone.

Issue 28. Leave the rivers the way they are (1 commenter)

Response: Title 87-1-201 (9)(i) of the Montana Code Annotated directs Montana Fish, Wildlife and Parks to manage wildlife, fish, game and nongame animals [and sensitive species; section (9)(ii)] in a manner that prevents the need for listing under title 87-5-107 or under the federal Endangered Species Act, 16 U.S.C. 1531, et seq. Proposed work in McVey, Cherry, and Dyce creeks represents FWP carrying out duties as directed by the Montana State Legislature. Without such actions, the status of WCT in Montana will continue to decline causing extirpation and potentially extinction; thereby losing an ecologically and culturally important species.

Issue 29. FWP should make it their priority to cooperate with landowners where there is degraded waters (1 commenter)

Response: FWP has a long track record advocating for better habitat management and working with private landowners to improve aquatic and riparian habitats. The work being done in the upper Big Hole valley is an excellent example of FWP's partnerships with private landowners to improve fish habitat conditions. The habitat in Cherry Creek is excellent, and there are only minimal impacts of livestock grazing on the stream. FWP is currently working with the 2 private landowners, DNRC and USFS, on McVey Creek to maintain or improve aquatic and riparian habitat. FWP will always emphasize management practices that improve or maintain fish habitat because without the habitat there cannot be wild fisheries. However, in the case of westslope cutthroat trout conservation, habitat improvements alone will not result in the maintenance or improvement in the declining status of the species. This is because the most significant immediate threat to westslope cutthroat trout persistence is the presence of non-native species. Therefore, for meaningful cutthroat conservation to occur, both efforts to improve habitat and remove non-native species will be necessary.

Issue 30. Will fishing be restricted in the project area? (1 commenter)

Response: Fishing will not be restricted in the project areas, though catch and release rules will remain for WCT within the streams. The fishing limits will be temporarily liberalized in Cherry and Granite lakes to encourage fish harvest prior to the proposed rotenone treatment. The FWP Commission has tentatively approved the lifting of daily and possession limits at both lakes for the summer of 2011 so anglers can harvest as many fish as they like in both the lakes beginning in mid July. Once cutthroat restoration is complete, the fishing regulations will be maintained in Cherry and Granite lakes and the WF Dyce ponds. It is FWP's goal to eventually remove the catch and release regulations on these streams to allow WCT harvest once the cutthroat populations repopulate the streams.

Issue 31. Concern of location of McVey barrier near the highway (1 commenter)

Response: The barrier placement on McVey was debated substantially. The greatest challenge constructing a barrier on McVey Creek was identifying a suitable location. Better locations (i.e., areas with higher stream gradient and a more restricted floodplain) exist near the Forest Service boundary, but this greatly reduces the amount of available habitat for WCT upstream and could jeopardize the long-term survival of the population if a fire or other random event were to occur. Because much of the lower stream downstream of the National Forest has such a wide, flat floodplain, there are limited locations that would be suitable to construct a small dam-like fish barrier across the stream. This is because the stream flows across the floodplain in the high water and would go around the barrier allowing nonnative fish passage around the structure. Construction of a large dike across the floodplain would restrict floodplain flows and would make a functional barrier, but it would also greatly increase the cost of the barrier structure. A barrier not associated with the highway would likely cost $100,000 or more; the proposed barrier is $14,000. The decision was made to construct the barrier at the highway crossing because the dike (highway fill) is already in place. The highway culvert is also approaching the end of its expected life and will be replaced in the next 20-30 years. At the time it is replaced, FWP will work with MDT to make the culvert itself the fish barrier.

Issue 32. Concern over federal land management in the Dyce Creek drainage (1 commenter)

Response: FWP Region 3 actively works with its federal partners (e.g., the U.S. Forest Service and Bureau of Land Management) on many land management issues. Stream and watershed degradation is widespread from many historic and current land management activities and can require decades to repair. In locations where active WCT conservation activities are occurring, special emphasis is given to reviewing and developing remediation plans for any specific land management concerns. FWP is satisfied that the U.S. Forest Service and Bureau of Land Management are managing the Dyce Creek drainage in a manner consistent with WCT conservation. The following comments were provided by the Beaverhead-Deerlodge National Forest, and Bureau of Land Management, Dillon Field Office, in regards to this comment.

Beaverhead-Deerlodge National Forest, Dillon, MT

"The Forest Service is committed to managing livestock grazing allotments to maintain or restore riparian function while providing sustainable grazing opportunities (B-D Forest Plan 2009). The 2009 Beaverhead-Deerlodge Forest Plan provides an updated set of grazing standards and monitoring to meet these Forest Plan Goals. Based on the results of this monitoring, management changes have and may continue to be made. The Farley-Dyer allotment is managed under a 3 pasture rest rotation system as per the 1995 allotment management plan. All 3 pastures are monitored on an annual basis. Permitted livestock numbers were permanently cut by 40% in 2008. This, combined with the fact that another permit on this allotment has been in long-term non-use status, and will continue to be managed as such, leaves livestock numbers much lower than they have been in the past. The grazing cut combined with construction of internal cross fences outlined in the AMP have made livestock management more efficient and effective at meeting riparian standards in the allotment. Last season, grazing was deferred until cross fencing was installed to ensure cattle stayed in the scheduled pasture. Also an exclosure fence exists on the West Fork of Dyce Creek to keep cows from kegging up in the riparian area near the forest boundary. This exclosure encompasses approximately a quarter mile of stream. This year, rest is scheduled for the Dyce Creek pasture. All of these actions clearly show that the Forest Service is committed to continually updating grazing practices on allotments to ensure that Forest Plan Goals will be met over time. Annual monitoring has and will continue on Dyce Creek as well as other streams in the allotment in order to evaluate how management changes will meet allowable livestock use levels found in the Forest Plan and Allotment Management Plan. Permanent monitoring sites are also re-read periodically to determine long-term trend of stream reaches as well as upland and riparian vegetation." Received May 12, 2011.

Bureau of Land Management, Dillon Field Office

"In response to the concerns expressed by TU, I have compiled a brief summary of what the Dillon Field Office has done as far as management and monitoring within the Dyce Creek Drainage. After going through the administrative records, I was unable to find any reference to poor water quality, so this is not addressed. If that information could be forwarded to this office it will be added to the stream file.

The BLM will be conducting the East Grasshopper Watershed Assessment on BLM lands within the Grasshopper Drainage, which includes Dyce Creek, in the summer of 2011. The information collected during 2010 and summarized below as well as any historic surveys and assessments will be used to help determine riparian trend during the 2011 Watershed Assessment. This information will be used to make a determination on how this area will be managed.

The BLM completed a preliminary riparian health inventory for the Dyce Creek Drainage during the 2010 field season, using the MRWA (Montana Riparian Wetland Assessment) methodology. Dyce Creek Main Stem/East Fork and West Forks were inventoried. The

riparian area was rated on a scale of 0-100, broken down as follows. <60%=Non functional, 60-79%= functional at risk, 80-100%= proper functioning condition. The MRWA scores are determined based on 13 criteria that ranks the current riparian condition based on the abundance of vegetation species, both desirable and undesirable as well as soils and hydrologic condition.

Dyce Creek Riparian Rating

West Fork
Trend studies in 1977 rated the condition in the West Fork as fair to poor.
2010 MRWA inventory resulted in a riparian score of 79% (80% is proper functioning). The score reflects heavy wildlife browsing of trees and shrubs as well as impacts related to historic mining and livestock use.

Main Stem/East Fork
Trend studies in 1977 rated the condition in the East Fork as fair to poor.
2010 MRWA inventory resulted in a riparian score of 69% (80% is proper functioning). The score reflects heavy wildlife browsing of trees and shrubs, two road crossings, as well as impacts related to historic mining and livestock use.

If during the upcoming 2011 Watershed Assessment process, current livestock use is identified as an issue, changes will be made to address the impacts in accordance with BLM regulations.

Dyce Creek Fishery Projects
-A rest rotation grazing plan was implemented to improve riparian and upland health.
-A USFS/BLM boundary fence is being installed to prevent unauthorized livestock use.
-A perched culvert fish barrier was installed in 2004 to support a WCT restoration project.
-An ongoing non-native brook trout removal project was initiated in 2004 to reduce competition/predation impacts to native WCT.
-An 80 acre riparian enclosure was constructed in 2005 in the headwaters of the West Fork to protect two small ponds from livestock impacts.

As shown above, the Bureau of Land Management, Dillon Field Office, has been actively conducting projects to benefit native westslope cutthroat trout in the Dyce Creek drainage for several years and will continue to adjust management if deemed necessary. Additionally the BLM is committed to the restoration of native species such as westslope cutthroat and is prepared to assist Montana Fish, Wildlife and Parks in this project in any way needed." Received May 13, 2011.

Issue 33. Potential transfer of hybrids in Dyce Creek (1 commenter)

Response: As discussed in the EA, the Dyce Creek drainage maintains slightly hybridized WCT in the West Fork and in the mainstem. The WCT population in the East Fork of Dyce has received extensive genetic testing over the last several years. The

results of these tests indicate no conclusive evidence of hybridization. The proposed Dyce Creek project includes removing all hybridized WCT from the West Fork and mainstem, but salvaging all WCT in the East Fork. After hybridized WCT and brook trout are removed from the West Fork, the stream would be restocked with genetically pure East Fork WCT (either live fish or eggs). Because slightly hybridized WCT currently exist in the Dyce Creek drainage and because it is not logistically feasible to genetically test every WCT in the East Fork (400 – 600 fish), there will remain an unavoidable possibility that some hybridized WCT will escape removal. FWP acknowledges this risk, and if deemed necessary will implement procedures that limit the chance of transfer hybridized WCT to the West Fork. These procedures may include genetic testing of transferred fish or transferring only those fish that are isolated by a barrier at the headwaters of the East Fork.

Issue 34. Timing of treatment and amphibian impacts (1 commenter)

Response: Gill breathing, larval amphibians can be impacted by rotenone; however, most larvae will have metamorphosed into air-breathing adults by the time the treatments are scheduled (mid to late August). Though the Dyce Creek EA stated an "Estimated Commencement Date" of late July to early August, the rotenone treatment phase of the project would be in mid to late August.

Issue 35. Provide extra caution in McVey Creek due to location near the Big Hole River (1 commenter)

Response: FWP agrees that extra caution should be taken to avoid unintended impacts to important sport fisheries. The rotenone label will be closely followed and the minimum amount of rotenone will be applied to achieve the desired objective. The most up to date techniques and policies for detoxifying rotenone will be followed to ensure the chemical is fully neutralized (also see response to Issues 1, 2, 22 and 23).

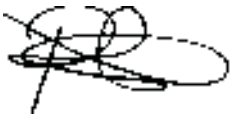
Final Environmental Assessment for the three EAs titled: Cherry Creek WCT Restoration; Removal of Nonnative Brook Trout and Hybridized Cutthroat Trout with Rotenone in Dyce Creek; and McVey Creek Westslope Cutthroat Trout Restoration.

There are no modifications necessary to the Draft Environmental Assessments based on public comment. The Draft Environmental Assessments, together with this Decision Notice, will serve as the final documents for these proposals.

Decision

Based on the Environmental Assessment, public comment, and the need conserve WCT in the Missouri River drainage of SW Montana, FWP's decision is to proceed with the proposed WCT conservation projects in the Cherry, Dyce and McVey creek drainages.

I find there to be no significant impacts on the human and physical environments associated with these projects. Therefore, I conclude that the Environmental Assessment is the appropriate level of analysis, and that an Environmental Impact Statement is not required.



_____
Patrick J. Flowers
Region Three Supervisor