DRAFT

ENVIRONMENTAL ASSESSMENT

Westslope Cutthroat Trout Restoration in Trapper and Rock Creeks, Big Hole River Drainage

FWP-CEA-FSH-R3-25-022

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I. Compliance with the Montana Environmental Policy Act

Before a proposed *project* may be approved, environmental review must be conducted to identify and consider potential impacts of the proposed project on the human and physical environment affected by the project. The Montana Environmental Policy Act (MEPA) and its implementing rules and regulations require different levels of environmental review, depending on the proposed project, significance of potential impacts, and the review timeline. § 75-1-201, Montana Code Annotated ("MCA"), and the Administrative Rules of Montana ("ARM") 12.2.430, General Requirements of the Environmental Review Process.

FWP must prepare an EA when:

- It is considering a "state-proposed project," which is defined in § 75-1-220(8)(a) as:
  (i) a project, program, or activity initiated and directly undertaken by a state agency;
  (ii) … a project or activity supported through a contract, grant, subsidy, loan, or other form of funding assistance from a state agency, either singly or in combination with one or more other state agencies; or
  (iii) … a project or activity authorized by a state agency acting in a land management capacity for a lease, easement, license, or other authorization to act.
- It is not clear without preparation of an EA whether the proposed project is a major one significantly affecting the quality of the human environment. ARM 12.2.430(3)(a));
- FWP has not otherwise implemented the interdisciplinary analysis and public review purposes listed in ARM 12.2.430(2) (a) and (d) through a similar planning and decision-making process (ARM 12.2.430(3)(b));
- Statutory requirements do not allow sufficient time for the FWP to prepare an EIS (ARM 12.2.430(3)(c));
- The project is not specifically excluded from MEPA review according to § 75-1-220(8)(b) or ARM 12.2.430(5); or
- As an alternative to preparing an EIS, prepare an EA whenever the project is one that might normally require an EIS, but effects which might otherwise be deemed significant appear to be mitigable below the level of significance through design, or enforceable controls or stipulations or both imposed by the agency or other government agencies. For an EA to suffice in this instance, the agency must determine that all the impacts of the proposed project have been accurately identified, that they will be mitigated below the level of significance, and that no significant impact is likely to occur. The agency may not consider compensation for purposes of determining that impacts have been mitigated below the level of significance (ARM 12.2.430(4)).

MEPA is procedural; its intent is to ensure that impacts to the environment associated with a proposed project are fully considered and the public is informed of potential impacts resulting from the project.

II. Background and Description of Proposed Project

Name of Project: Westslope Cutthroat Trout Restoration in Trapper and Rock creeks, Big Hole River Drainage

Montana Fish, Wildlife & Parks (FWP) proposes to conserve Westslope cutthroat trout *Oncorhynchus clarkii lewisi* (WCT) in Trapper and Rock creeks to expand their range in each drainage by removing nonnative trout upstream of constructed fish barriers. Historically, WCT, Arctic grayling, and mountain whitefish were the only salmonid species in the Big Hole River Valley. In Trapper and Rock creeks, WCT were native and Arctic grayling likely used the streams seasonally. However, introductions of rainbow and brook trout have reduced and threaten these WCT populations through hybridization and competition and predation, respectively.

Trapper Creek is a tributary to the Big Hole River near the town of Melrose. The fishery of Trapper Creek changes longitudinally with brown and rainbow trout in the lower reaches near the Big Hole River and a higher number of rainbow-cutthroat hybrids in the upper reaches; brook trout are ubiquitous throughout the creek. The headwaters of the stream upstream of the outlet of Trapper Lake are fishless. Trapper Lake contains a self-sustaining population of hybridized cutthroat trout. Sucker Creek, a tributary to Trapper Creek in the middle reaches of the stream, harbors a slightly hybridized population of WCT (98% WCT). Sappington Creek is another tributary to Trapper Creek located in the headwaters of the drainage. Sappington Creek harbors a non-hybridized population of WCT (> 99.99% WCT). This population has historically existed in isolation due to a natural cascade near the confluence with Trapper Creek that has precluded brook trout and hybridized trout from the stream. In 2021, brook trout were discovered in Sappington Creek, and their numbers were shown to increase dramatically from 2021 to 2024 (Olsen 2024). In similar streams, brook trout invasion has led to the extirpation of WCT in only a few years (≤ 20 years); therefore, brook trout pose a significant risk to the long-term conservation of nonhybridized WCT in the Trapper Creek drainage. Brook trout presence in Sappington Creek has expedited the need for cutthroat conservation in the drainage.

Rock Creek is a tributary to the Big Hole River southwest of the town of Jackson. The fishery of Rock Creek also changes longitudinally with brook and brown trout and a suite of native species including Arctic grayling, Rocky Mountain sculpin, mountain whitefish, white sucker, and longnose dace are present in the lower reaches of the stream. Farther upstream on BLM and Forest Service administered lands, brook trout and sculpin are present. The headwaters of the stream harbors a small population of non-hybridized WCT which are sympatric with brook trout. An unnamed tributary near the headwaters also contains a small, isolated population of WCT. Access to the middle and upper reaches Rock Creek is limited due to a lack of roads in the drainage. The WCT in Rock Creek are non-hybridized and have high genetic diversity relative to other populations in the upper Missouri River drainage. Given the low numbers of WCT and the abundant and widespread brook trout in the system, WCT will likely be extirpated from Rock Creek over the next decade without management actions.

The cutthroat trout (WCT and Yellowstone cutthroat trout) is Montana's state fish. Westslope cutthroat trout were first described by the Lewis and Clark Expedition in 1805 near Great Falls and are recognized as one of 14 interior subspecies of cutthroat trout. The historical range of WCT includes parts of Idaho, Montana, Washington, Wyoming, and the Canadian provinces of British Columbia and Alberta. In Montana, WCT occupy the Upper Missouri River and Saskatchewan River drainages east of the Continental Divide, and the Upper Columbia Basin drainages west of the continental divide. Although still widespread, WCT distribution and abundance in Montana has declined significantly in the past century due to introductions of nonnative fish, habitat degradation, and over-exploitation (Hanzel 1959, Liknes 1984, McIntyre and Rieman 1995, Shepard et al. 1997, Shepard et al. 2005). Reduced distribution of WCT is particularly evident in the Missouri River drainage where non-hybridized WCT are present in less than 5% of formerly occupied habitat, and most remaining populations are restricted to isolated headwater habitats (Shepard et al. 2003; Shepard et al. 2005). Furthermore, many of these remaining populations are at risk due to small population size, and most importantly, threats from competition, predation, and hybridization with nonnative trout species.

The declining status of WCT has led to its designation as a *Species of Special Concern* by the State of Montana, a *Sensitive Species* by the U.S. Forest Service (USFS), and a *Special Status Species* by the Bureau of Land Management (BLM). In addition, in 1997 a petition was submitted to the U.S. Fish and Wildlife Service (USFWS) to list WCT as "threatened" under the *Endangered Species Act* (ESA), 16 U.S.C. 1531, et seq. USFWS status reviews have found that WCT were "not warranted" for ESA listing (DOI 2003); however, this finding was in litigation until 2008 and additional efforts to list WCT under the ESA are possible.

To advance WCT conservation efforts in Montana, a Memorandum of Understanding (MOU) and a Conservation Agreement for Westslope Cutthroat Trout in Montana was developed in 1999 by several federal and state

resource agencies (BLM, FWP, USFS, and the National Park Service [NPS]), non-governmental conservation and industry organizations, tribes, resource users, and private landowners (FWP 1999). The MOU outlined goals and objectives for WCT conservation in Montana, which, if met, would significantly reduce the need for special status designations and listing of WCT under the ESA. The MOU was revised and endorsed by signatories in 2007 (FWP 2007). As described in the MOU, *the primary management goal for WCT in Montana is to ensure the long-term self-sustaining persistence of the subspecies in its historical range*. To achieve this goal, the Westslope Cutthroat Trout Conservation Strategy for the Missouri River Headwaters of Southwest Montana was developed (Jaeger et al. 2024). This strategy describes specific, measurable objectives to ensure the long-term persistence of WCT in southwest Montana. The highest priority of the strategy is to secure existing, non-hybridized populations of WCT in place to conserve the remaining genetic diversity remaining on the landscape. Secure WCT populations are isolated from nonnative species (usually by a fish barrier) and occupy enough habitat to ensure long-term persistence. A minimum WCT population size of 2,500 fish (Hilderbrand and Kershner 2000) across a minimum watershed size of 5.6 square miles of occupied habitat (Harig and Fausch 2002) is needed for long-term persistence (> 100 years).

According to the Westslope Cutthroat Trout Conservation Strategy for the Missouri River Headwaters of Southwest Montana, the long-term goal for WCT conservation is to restore protected conservation populations of WCT to 20% of their historic tributary distribution east of the Continental Divide (Upper Missouri River Basin upstream from and including the Judith River; FWP 2023). Mainstem rivers, such as the Big Hole River, support important nonnative recreational fisheries (e.g. brown and rainbow trout) and are not part of this conservation goal. FWP recognizes the value of nonnative trout fisheries and will continue to manage mainstem rivers and 80% of the tributary streams in the Missouri Headwaters for nonnative fish such as brook, rainbow, and brown trout (FWP 2023). In the Big Hole River sub-basin, WCT historically occupied approximately 1,752 miles of tributaries and mainstem rivers. Today there are a total of 50 remaining WCT populations in small, headwater tributaries, which occupy just over 264 miles of stream (15% of their historical range). Of these remaining 50 WCT populations, approximately 70% are at risk due to competition and hybridization with nonnative fish. Data collected from streams in the Big Hole drainage over the past 15 years indicate that many of the WCT populations in the drainage have declined or been extirpated (Olsen 2011; 2016; 2020). Projects that protect at-risk populations of WCT, such as those proposed for Trapper and Rock creeks, are necessary to ensure the continued survival of the species, conserve remaining genetic diversity, and meet statutory obligations to prevent listing under the ESA. This approach to WCT conservation is described in the Montana Statewide Fisheries Management Plan (FWP 2023).

Figure 1. WCT would repopulate Trapper and Rock creeks following removal of nonnative trout.

FWP proposes to conserve WCT in Trapper and Rock creeks and expand their range in each drainage by removing nonnative trout upstream of constructed fish barriers. The fish barrier on Trapper Creek is located on the U.S. National Forest lands upstream of 2-Mile Gulch (Figure 2). The fish barrier on Rock Creek will be located on BLM lands upstream of Foothills Road (FR 945). The nonnative fish upstream of the fish barriers would be removed using rotenone, a naturally derived chemical from plants in the bean family that is highly effective at killing fish, with few impacts to non-target organisms. Rotenone acts by inhibiting oxygen transfer at the cellular level. It is especially effective on fish at low concentrations because it is readily absorbed into the bloodstream through the gills. There is no risk to terrestrial and avian animals that consume rotenone treated waters or dead fish because of the low application rate used to kill fish and rotenone is readily broken down by digestive processes. Rotenone does have temporary adverse impacts to aquatic invertebrates, particularly those that breath through gills. However, at the concentrations proposed, invertebrates recover within one year after treatment with rotenone. Similarly, zooplankton communities may see temporary reductions but would be expected to rebound in less than one year (Kiser et al. 1963; Hughey 1975). Rotenone has no effect on aquatic or terrestrial plants. Rotenone would be administered by trained FWP personnel following requirements and guidance on the label, American Fisheries Society Standard Operating Procedures Manual, and the FWP Piscicide Policy. Formulated rotenone (5% active ingredient) would be applied at the label recommended rate for streams (1 part formulated rotenone to 1 million parts of stream water) with drip stations, which are containers that precisely administer diluted rotenone to the stream at a constant rate for 4 hours. In addition, backwaters, spring areas, and small tributaries would be treated with backpack sprayers according to label specifications. The rotenone treatment of Trapper and Rock creeks would take 3-5 days and be repeated in at least one consecutive year to ensure all fish were removed (Lampton et al. 2023).

Figure 2. Fish barrier on Trapper Creek.

To prevent rotenone from traveling downstream of the proposed treatment areas and affecting fish downstream of the fish barriers, potassium permanganate ($KMnO_4$) would be applied to the stream to neutralize rotenone. Potassium permanganate is a strong oxidizer and quickly breaks down rotenone (Engstrom-Heg 1971; Engstrom-Heg 1976; see Direct Impacts to Water Quality Section p 18 for more information). Per the rotenone label requirements, public access to the Trapper and Rock creeks will be prohibited during the prescribed 3–5-day treatment period.

The year following the second rotenone treatment, environmental DNA (eDNA) sampling would be used to verify if all fish in the stream were removed (Carim et al. 2020). eDNA uses genetic methods to detect the DNA of organisms shed into the environment, in this case into the stream, and is highly effective at detecting organisms that may be present at very low densities. This technique has proven effective at detecting even a single fish in an entire watershed (Carim et al. 2020). If eDNA sampling indicates that hybrid trout remain after two consecutive annual treatments, additional localized treatments would occur until it is confirmed that the streams are free of nonnative fishless upstream of the barriers.

Prior to nonnative fish removal, the WCT in Sappington Creek would be salvaged using electrofishing and held in non-treated waters. In 2022, 88 WCT from Rock Creek were genetically tested, transported to the West Fork of Mudd Creek, and released. The goal of this fish transfer was to establish WCT in the West Fork Mudd Creek to prevent the extirpation of Rock Creek WCT while a restoration project was being developed and eventually move WCT back into the drainage. Remaining WCT in Rock Creek would also be salvaged prior to treatment and held in non-treated waters. A helicopter would likely be used to access the upper reaches of Rock Creek for the fish salvage and treatment of the stream. Once nonnative fish removal is confirmed with eDNA, Trapper Creek would be repopulated with WCT from Sappington Creek, which would be distributed throughout the drainage upstream of the fish barrier. Rock Creek would be repopulated through a combination of redistributing salvaged WCT and WCT from the West Fork of Mudd Creek. Experience from other projects indicates salvaged WCT that are released back to the stream following nonnative trout removals will thrive and fill the available habitat within 3-6 years (Clancy et al. 2019; Olsen 2020; Feuerstein 2022).

A secondary goal of this project is to establish a conservation population of Arctic grayling *Thymallus arcticus* in Trapper Lake. Aboriginal Arctic grayling from Mussigbrod and/or Miner Lake would be stocked into Trapper Lake following nonnative fish removal. One of the goals of the Upper Missouri River Arctic grayling Conservation Strategy for the Big Hole drainage is to replicate the grayling populations in Miner and Mussigbrod lakes into at least one additional lake (Montana Arctic Grayling Workgroup 2022). It is anticipated that grayling would become self-sustaining in Trapper Lake; however, the success of grayling introductions is less certain than WCT as past grayling introductions have shown mixed success. If post-project monitoring shows graying from Miner and Mussigbrod lakes do not become self-sustaining in Trapper Lake, other options will be pursued including introducing WCT from Sappington Creek or grayling from other sources. Complete nonnative fish removal in lakes is more likely to occur with a single treatment than in streams. Therefore, it is anticipated that grayling introduction would occur the year following the treatment of Trapper Lake whereas WCT reintroduction into Trapper Creek would occur no sooner than 2 years after the first treatment of the stream.

The primary benefit of these projects is the long-term conservation of at-risk WCT populations in the Upper Missouri. The top priority for WCT conservation in southwest Montana is to protect remaining at-risk core WCT populations WCT (> 99%; Jaeger et al. 2024). Additionally, a conservation goal for Arctic grayling in southwest Montana is to establish new conservation populations of self-sustaining grayling within their historic range. These projects would expand the distributions of protected WCT by approximately 11 and 10 miles in Trapper and Rock creeks, respectively, and create a new grayling fishery in Trapper Lake. Collectively, conservation projects like the one proposed herein are intended to secure a small amount of the overall fish-bearing habitat for WCT and grayling to ensure the long-term, self-sustaining persistence of both species while managing the vast majority of habitat (80%) for nonnative fish like brook trout, rainbow trout, and brown trout (FWP 2023).

Figure 3. Trapper Creek near the headwaters of the drainage.

Affected Area / Location of Proposed Projects

- Legal Description
    - Latitude/Longitude: Trapper Creek: 112.8666828°W 45.6436832°N

      Rock Creek: 113.6553876°W 45.4605714°N
    - Section, Township, and Range: Trapper Creek: T2S R11W Sec 20,21,22; T3S R11W Sec1,2,11

      Rock Creek: T25 N R23 E Sec25-29,31-32.
    - Town/City, County, Montana: Trapper Creek 6 miles west of Melrose, Beaverhead County Montana

      Rock Creek 14 miles southwest of Wisdom, Beaverhead County Montana

Location Map

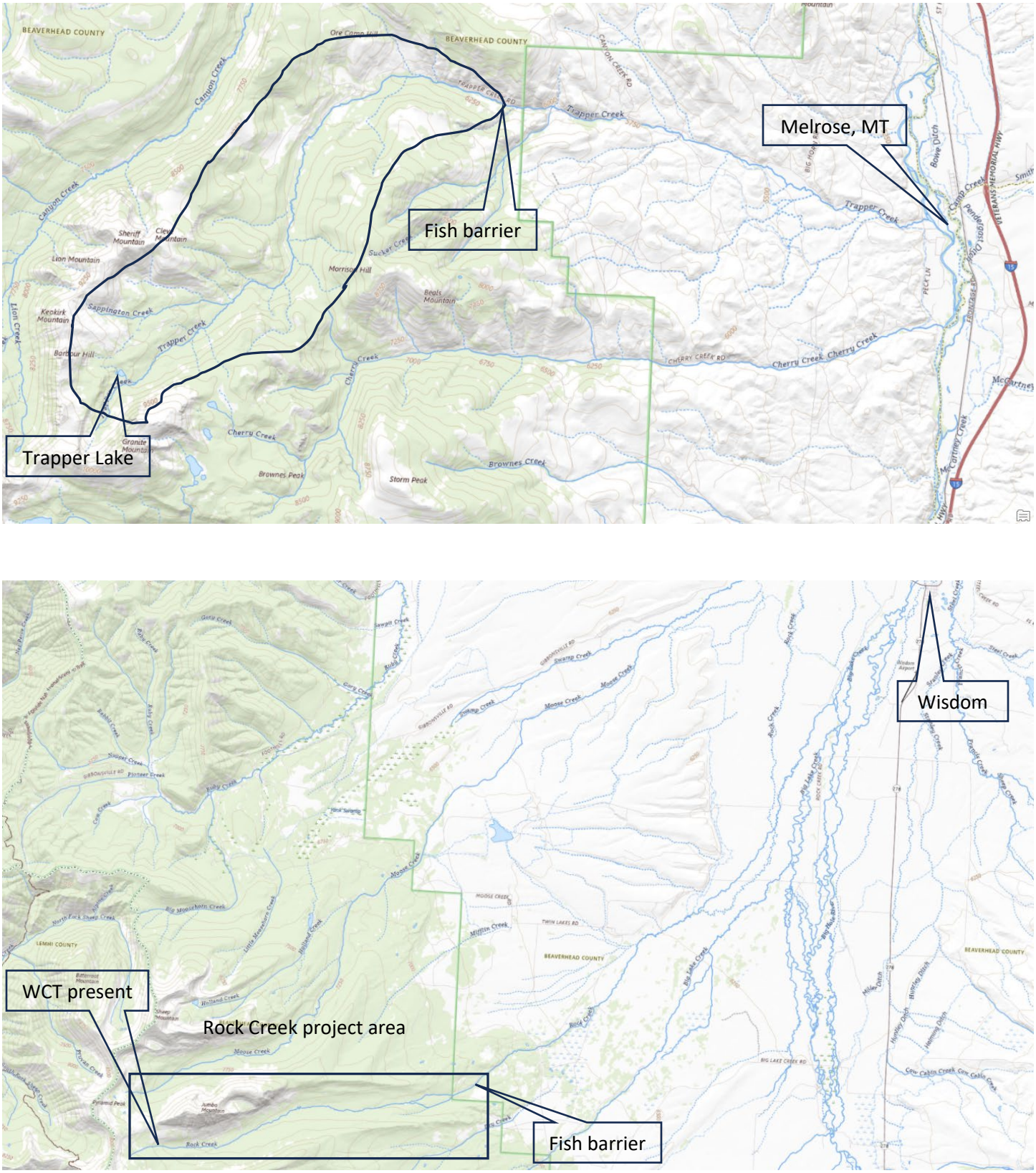

Figure 4. Map of Trapper Creek (top) and Rock Creek (bottom) project areas in the Big Hole drainage.

III. Purpose and Need

The purpose of the proposed projects is to protect and restore native WCT in Trapper and Rock creeks, tributaries of the Big Hole River, by removing non-native trout upstream of constructed fish barriers. Since 2011, 6 populations of unaltered WCT have been extirpated from the Big Hole River drainage, and 4 other populations have been reduced to <99% genetic composition through hybridization. WCT require conservation intervention to ensure their long-term persistence.

FWP is required to manage fish to prevent the need for listing as *Threatened* or *Endangered* under the federal ESA. Further, fish that are listed as *Species of Special Concern*, *Sensitive Species*, *Special Status Species*, or species that are candidates for listing under the ESA must be managed in manner that assists in the maintenance and/or recovery of the species (§ 87-5-107, MCA). Montana state law provides FWP with the authority to implement fish management and restoration projects (MCA § 87-1-702; § 87-1-201[9][a]) and allows the use of chemicals to remove fish (ARM 12. 7. 1503[1][f][ii]). ESA listing of a species can have significant economic and political consequences. Restoration actions like the proposed projects help Montana fulfill their obligation to conserve native species and avoid ESA listing.

Benefits of the proposed projects include the following:

- Ensure continued survival of WCT and Arctic grayling in the Big Hole River drainage (i.e., Trapper and Rock creeks)
- Creation of a new grayling fishery in Trapper Lake.
- Conserve remaining genetic diversity in the affected WCT and Arctic grayling populations.
- Meet Montana's statutory obligation to prevent listing of WCT and Arctic grayling under the ESA.
- Satisfy the conservation objectives of the following guiding documents:
    - Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana (2007);
    - Memorandum of Understanding Concerning Arctic Grayling (2007);
    - WCT Conservation Strategy for the Missouri Headwaters of Southwest Montana (2024);
    - Upper Missouri River Arctic Grayling Conservation Strategy (2022);
    - Montana Statewide Fisheries Program and Guide (2023).

	Yes*	No
Was a cost/benefit analysis prepared for the proposed projects?	☐	☒

* If yes, a copy of the cost/benefit analysis prepared for the proposed project is included in Attachment A to this Draft EA

IV. Other Agency Regulatory Responsibilities

FWP must list any federal, state, and/or local agencies that have overlapping or additional jurisdiction, or environmental review responsibility for the proposed projects, as well as permits, licenses, and other required authorizations. ARM 12.2.432(3)(c).

A list of other required local, state, and federal approvals, such as permits, certificates, and/or licenses from affected agencies is included in **Table 1** below. **Table 1** provides a summary of state requirements but does not necessarily represent a complete and comprehensive list of all permits, certificates, or approvals needed. Rather, **Table 1** lists the primary state agencies with regulatory responsibilities, the applicable regulation(s) and the purpose of the regulation(s). Agency decision-making is governed by state and federal laws, including statutes, rules, and regulations, that form the legal basis for the conditions the proposed projects must meet to obtain necessary permits, certificates, licenses, or other approvals. Further, these laws set forth the conditions under which each agency could deny the necessary approvals.

Table 1: Federal, State, and/or Local Regulatory Responsibilities

Agency	Type of Authorization (permit, license, stipulation, other)	Purpose
USDA Forest Service	Pesticide (Piscicide) Use Permit	Allow the application of pesticides on FS lands
Montana Department of Environmental Quality (DEQ)	Pesticide (Piscicide) Discharge Permit	Discharge of Pesticide to state waters
Department of Agriculture	Pesticide (Piscicide) Applicator License	Authorizes applicators to apply rotenone

V. List of Mitigations, Stipulations

Mitigations, stipulations, and other *enforceable* controls required by FWP, or another agency, may be relied upon to limit potential impacts associated with proposed projects. The table below lists and evaluates enforceable conditions FWP may rely on to limit potential impacts associated with the proposed projects. ARM 12.2.432(3)(g).

Table 2: Listing and Evaluation of Enforceable Mitigations Limiting Impacts

Are enforceable controls limiting potential impacts of the proposed action? If not, no further evaluation is needed.		**Yes ☒**	**No ☐**
If yes, are these controls being relied upon to limit impacts below the level of significance? If yes, list the enforceable control(s) below		**Yes ☒**	**No ☐**
Enforceable Control	**Responsible Agency**	**Authority (Rule, Permit, Stipulation, Other)**	**Effect of Enforceable Control on Proposed Project**
Piscicide Policy: Application rate and neutralization of Rotenone	FWP	Internal Policy	Regulates pre-project planning and neutralization of rotenone to prevent rotenone effects outside project areas.
Rotenone Label	MT Dept of Agriculture, US Environmental Protection Agency	The Montana Pesticides Act (MPA), Title 80, Chapter 8, Sections 80-8-101 through 80- 8-405, MCA, Federal Insecticide, Fungicide and Rodenticide Act	Regulates safety procedures, application rates and neutralization of rotenone application.
Native and sensitive species management	FWP	Section 87-1-201(9)(a), M.C.A.	FWP is required by law to implement programs that manage sensitive fish species in a manner that assists in the maintenance or recovery of those species, and that prevents the need to list the species under § 87-5-107, MCA, or the federal ESA.
Westslope cutthroat conservation	FWP, DNRC DEQ, MT Stockgrowers, MT Farm Bureau Federation, USFS, BLM, USFWS, US Natural Resource	Memorandum of Understanding	FWP is a signatory to the Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana (FWP 1999, 2007) which states: "The management goal for WCT in Montana is to ensure the long-term, self-sustaining persistence of the subspecies within each of the five major river drainages they historically inhabited in

	and Conservation Service and 10 other signatories		Montana, and to maintain genetic diversity and life history strategies represented by the remaining local populations."
Westslope cutthroat conservation goal 20% of historically occupied habitat	FWP	State-Wide Fisheries Management Plan	Specifies a management goal of restoring westslope cutthroat trout int the Upper Missouri River drainage to 20% of their historically occupied habitat. Specifies a management goal to expand distribution of Arctic grayling and preserve existing genetic diversity in secured locations.
Missouri Headwaters Westslope Cutthroat Conservation Strategy	FWP	Conservation Strategy	Defines conservation of WCT by securing existing populations in natal habitat as highest conservation priority.
Memorandum of Understanding Concerning Arctic Grayling	FWP, BLM, USFWS, USFS, TU, AFS, Yellowstone NP, AGRP, NRCS, DNRC	Memorandum of Understanding	Commitment of agencies and resources towards the conservation of UMR Arctic grayling.
Upper Missouri River Arctic Grayling Conservation Strategy	FWP	Conservation Strategy	Identifies management goals to ensure the species' long-term self-sustaining persistence. In the Big Hole drainage there is a goal to replicate Miner, Mussigbrod and Pintler lake grayling into 1-2 additional lakes to increase the geographic distribution of native Big Hole lakes grayling and replicating these populations as a genetic reserve that could be used for subsequent grayling introductions or to improve genetic variation of the native Big Hole lake populations as necessary.
Pesticide Use Permit	USFS	Permit	Stipulates all personnel will either be registered as operators under this license or will be licensed applicators. b) Standard Personal Protective Equipment and appropriate signing will be used (label requirements). c) Projects will be coordinated with the Beaverhead-Deerlodge National Forest d) National BMP's for Water Quality Management on NFS Lands will be implemented. Applicators and operators will adhere to FWP's Piscicide Use Policy and all product label requirements. e) Monitoring will be conducted using sentinel fish to determine the effectiveness of treatments and to ensure that rotenone is degraded to less than lethal concentration. A colorimeter will be used to measure the residual neutralizing agent below the neutralization station.
Pesticide Discharge Permit	DEQ	Permit	Regulates pesticide application to waters of Montana and requires annual reporting.

Pesticide Applicator License	Department of Agriculture	License	Certifies and licenses annually all pesticide applicators, enforces the label requirements, mandates pesticide use documentation.

VI. Alternatives Considered

Alternative 1: No action

Under the "No Action" alternative, the proposed projects would not occur. Therefore, no additional impacts to the physical environment or human population in the analysis area would occur because of the proposed projects.

The no action alternative would result in continued status quo fisheries management, WCT would not be protected in Trapper and Rock creeks, and they would be lost to hybridization or competition with nonnative species or similar projects would have to be pursued in a different drainage to protect these WCT populations.

Loss of additional core WCT populations would adversely impact the State's obligation to conserve native fish and may contribute to potential future listing of the affected species under the ESA. Although there is limited angling that occurs in Trapper and Rock creeks, the no action alternative would maintain the existing fishery and provide uninterrupted opportunities for angling. The no action alternative would also avoid the short-term adverse impacts of rotenone on non-target aquatic invertebrates.

The no action alternative would eliminate Trapper Lake as a possible new conservation population of UMR Arctic grayling in a historically occupied drainage, which is a stated goal in the UMR Arctic Grayling Conservation Strategy (2022), and it would not create a new recreational fishery for Arctic grayling.

Alternative 2: Proposed Projects

FWP proposes to protect and restore WCT in Trapper and Rock creeks by removing nonnative trout upstream of constructed fish barriers using the piscicide rotenone. FWP would salvage the extant WCT from the streams prior to treatment and use those fish to repopulate the streams after nonnative fish are removed. FWP would repopulate Trapper Lake with Arctic grayling from Miner and Mussigbrod lakes (Big Hole ancestry). Reference Section IX. A and B below for an analysis of potential impacts to the human environment associated with Alternative 2, the proposed projects.

	Yes*	No
Were any additional alternatives considered and dismissed?	☒	☐

* If yes, a list and description of the other alternatives considered, but not carried forward for detailed review is included below

Other Alternatives Not Carried Forward for Detailed Analysis

Alternative 3: Mechanically remove nonnative trout from the Trapper and Rock creeks.

Alternative 3 would attempt to protect native WCT in Trapper and Rock creeks by removing nonnative trout with electrofishing rather than rotenone. Multiple-pass electrofishing has been used to eradicate nonnative trout from several small streams in northcentral and in southwest Montana. Electrofishing can be an effective means of capturing fish in streams; however, successful eradication of fish using electrofishing is limited to small, simple systems. Generally, electrofishing is 50-70% efficient at capturing fish depending on the type of habitat and fish size distribution. Furthermore, electrofishing removal is labor intensive, inefficient at capturing juvenile fish, and requires multiple years to allow juvenile fish to grow to the size where they can be readily captured. The reaches where electrofishing removals have been successful were generally less than 3 miles and required up to 25 electrofishing removal passes over several years to eradicate the target species (Shepard et al. 2014). Each electrofishing pass generally requires a crew of 3 to 9 people and would likely occur over at least 5 years. Most commonly in the Upper Missouri River basin, mechanical

removals using electrofishing require years of suppression, and while they may significantly reduce the density of nonnative trout, ultimately the nonnative population rebounds and a chemical treatment is required (Thompson and Rahel 1996, Shepard et al. 2014). In Alberta, a combination of angling and electrofishing was used over an 18-year period to remove brook trout and restore native trout. However, no positive response by the native species was observed (Sinnatamby et al. 2023).

Removing nonnative trout from Trapper and Rock creeks with electrofishing would likely be unsuccessful because of the length of stream occupied by fish (20+ miles total) and the complexity of the habitat (e.g., log jams, beaver dams). Such an effort would be impractical and likely would not achieve the intended result, as it is uncertain if 100% removal of nonnative trout could be achieved with electrofishing given the length of the stream and the complexity of the habitat in Trapper and Rock creeks.

Rainbow-cutthroat hybrids would also need to be removed Trapper Lake with gill netting, which has similar limitations as electrofishing. Furthermore, fish abundances in Trapper Lake would remain low for a much longer period using mechanical means (4-5 years) versus using rotenone (1 year). Because mechanical removal would be impractical and likely would not achieve the intended result (long-term conservation of WCT), such an alternative is not practicable compared to the preferred alternative. Therefore, Alternative 3, mechanically removing nonnative trout from Trapper and Rock creeks, was eliminated from further consideration.

VII. Terms Used to Describe Potential Impacts on the Physical Environment and Human Population

The impacts analysis identifies and evaluates **direct**, **secondary**, and **cumulative impacts**.

- **Direct impacts** are those that occur at the same time and place as the action that triggers the effect.
- **Secondary impacts** "are further impacts to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action." ARM 12.2.429(18).
- **Cumulative impacts** "means the collective impacts on the human environment of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location or generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impact statement evaluation, or permit processing procedures." ARM 12.2.429(7).

Where impacts are expected to occur, the impact analysis estimates the **extent, duration, frequency,** and **severity** of the impact. The duration of an impact is quantified as follows:

- **Short-Term**: impacts that would not last longer than the proposed projects.
- **Long-Term**: impacts that would remain or occur following the proposed projects.

The severity of an impact is measured using the following:

- **No Impact**: there would be no change from current conditions.
- **Negligible**: an adverse or beneficial effect would occur but would be at the lowest levels of detection.
- **Minor**: the effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.

- **Moderate**: the effect would be easily identifiable and would change the function or integrity of the resource.
- **Major**: the effect would irretrievably alter the resource.

Some impacts may require mitigation. As defined in ARM 12.2.429, mitigation means:

- Avoiding an impact by not taking a certain action or parts of a project;
- Minimizing impacts by limiting the degree or magnitude of a project and its implementation;
- Rectifying an impact by repairing, rehabilitating, or restoring the affected environment; or
- Reducing or eliminating an impact over time by preservation and maintenance operations during the life of a project or the time period thereafter that an impact continues.

FWP may, as an alternative to preparing an EIS, prepare an EA whenever the action is one that might normally require an EIS, but effects which might otherwise be deemed significant appear to be mitigable below the level of significance through design, or enforceable controls or stipulations, or both, imposed by the agency or other government agencies. For an EA to suffice in this instance, the agency must determine that all the impacts of the proposed action have been accurately identified, that they will be mitigated below the level of significance, and that no significant impact is likely to occur. The agency may not consider compensation for purposes of determining that impacts have been mitigated below the level of significance. ARM 12.2.430(4).

A list of any mitigation strategies including, but not limited to, design, enforceable controls or stipulations, or both, as applicable to the proposed projects is included in **Section VI** above.

FWP must analyze impacts to the physical and human environment for each alternative considered. The proposed projects considered the following alternatives:

- Alternative 1: No Action
- Alternative 2: Proposed Projects

VIII. Alternative 1: No Action. Evaluation and Summary of Potential Impacts on the Physical Environment and Human Population

Under the "no action" alternative, the proposed projects would not occur. Therefore, no additional impacts to the physical or human environment in the analysis area would occur. The no action alternative forms the baseline from which the potential impacts of the proposed projects can be measured.

IX. Alternative 2: Proposed Action. Evaluation and Summary of Potential Impacts on the Physical Environment and Human Population

A. Evaluation and Summary of Potential Impacts on the Physical Environment

1. Terrestrial, Avian, and Aquatic Life and Habitats

Existing Environment/No Action Alternative

Wildlife species found in the Big Hole drainage include small and large mammals, birds, reptiles, amphibians, and fish. The Big Hole provides habitat for big game species (elk, antelope, mule deer, white-tailed deer, moose, bighorn sheep, mountain goat, black bear, mountain lion); furbearers (beaver, muskrat, mink, marten, bobcat); one omnivore listed as *threatened* under the ESA (grizzly bear), two furbearers listed as *threatened* under the ESA (North American wolverine, Canada lynx), one ESA-delisted carnivore (gray wolf), two species of fish listed by the state of Montana as species of concern (westslope cutthroat trout, Arctic grayling), and one ESA-delisted bird (bald eagle). The Big Hole also provides habitat for upland game bird species' (ruffed grouse, Franklin's grouse, blue grouse) and an upland game bird *species of concern* (greater sage grouse). A more detailed impacts analysis for *species of concern, species of special status,* and ESA-*threatened* species is included within this impacts analysis under the section titled *Unique, Fragile, or Limited Environmental Resources*.

The terrestrial and aquatic habitat and species present in the Trapper and Rock creeks drainage are typical of those found throughout Big Hole River sub-basin. The lower elevation valleys are surrounded by sage brush hill slopes. Lower Trapper Creek also has juniper and Douglas fir in the riparian area and surrounding hills. The middle drainages of both streams are a mix of lodgepole pine, Engelmann spruce, and willows. In the upper watershed, spruce and white bark pine become more common.

The aquatic habitat consists primarily of moderate gradient Rosgen "B" type stream channel dominated by boulders and large cobble substrates. Short reaches of stream exist in both Trapper and Rock creeks with low gradient channels and abundant fine gravels. The fishery in Trapper Creek within the project area consists of rainbow x cutthroat trout hybrids, brook trout, brown trout, and Rocky Mountain sculpin. WCT are present in Sappington Creek, and hybridized cutthroat are found throughout the stream. Rock Creek within the project area only contains brook trout and Rocky Mountain sculpin, and WCT are present in the headwaters of the stream.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. However, the proposed projects may result in minor impacts to terrestrial, avian, and aquatic life and habitats.

Terrestrial Habitats:

No ground disturbing activities would occur under the proposed action. However, some direct but minor and temporary adverse impacts to terrestrial habitats would be expected. These impacts would be primarily related to the trampling of vegetation by project personnel walking along the banks of Trapper and Rock creeks and its tributaries during project implementation. The treatment of Trapper and Rock creeks with rotenone would be performed by as many as 15 FWP, BLM, USFS, and other partner personnel. Any trampling impacts on vegetation are anticipated to be unnoticeable within one growing season. Furthermore, a limited number of personnel would work on a particular section of stream each year (1-2), so potential impacts would be mitigated by a periodic lack of activity. These impacts would be further minimized using existing trails and road systems to the extent practicable. Direct impacts to terrestrial habitat would be short-term, negligible, and mitigated by personnel working primarily along the margins of the stream and use of existing roads and trails.

Terrestrial and Avian Life (Generally):

Terrestrial and avian life may be temporarily displaced because of the presence of personnel working in the area during the application of rotenone to Trapper and Rock creeks and their tributaries. However, the entire treatment is expected to last less than 5 days per year over 2 years. Helicopter use in the Rock Creek drainage may also temporarily displace animals in the Rock Creek drainage. Project

personnel will only be present in each affected reach of Trapper and Rock creeks for a single day (less than 8 hr), so displaced terrestrial life would be expected to quickly return to the area. The helicopter would only be used the initial 2 days of the project in Rock Creek and would land in only one designated spot each day. Any adverse direct impacts to terrestrial and avian life would be short-term, minor, and mitigated by personnel working primarily along the margins of the stream.

Mammals:

Mammals are not affected by rotenone at concentrations applied for fish removal because terrestrial wildlife exposure occurs only through consuming treated water or fish killed by rotenone. Ingested rotenone is rapidly broken down by enzymatic action in the stomach and intestines (American Fisheries Society 2002). Therefore, the low concentrations of rotenone used to kill fish pose no risk to terrestrial wildlife. A 22-pound dog would have to drink 7,915 gallons of treated water within 24 hours, or eat 660,000 pounds of rotenone-killed fish, to receive a lethal dose (California Department of Fish and Game 1994). A half pound mammal would need to consume 12.5 mg of pure rotenone to receive a lethal dose (Bradbury 1986). Considering the only conceivable way terrestrial wildlife or domestic animals could consume rotenone under field conditions is by drinking treated water or consuming dead fish, a half-pound animal, such as a squirrel, would need to drink 16 gallons of water treated at 1 ppm rotenone in a 24-hour period to receive a lethal dose.

The EPA (2007) made the following conclusions the consumption of rotenone by small mammals and large mammals:

When estimating daily food intake, an intermediate-sized 350 g mammal will consume about 18.8 g of food. Using data previously cited from the common carp with a body weight of 88 g, a small mammal would only consume 21% (18.8 g/88 g) of the total carp body mass. According to the data for common carp, total body residues of rotenone in carp amounted to 1.08 µg/g. A 350-g mammal consuming 18.8 grams represents an equivalent dose of 20.3 µg of rotenone; this value is well below the median lethal dose of rotenone (13,800 µg) for similarly sized mammals. When assessing a large mammal, 1000 g is considered to be a default body weight. A 1,000 g mammal will consume about 34 g of food. If the animal fed exclusively on carp killed by rotenone, the equivalent dose would be 34 g *1.08 µg/g or 37 µg of rotenone. This value is below the estimated median lethal equivalent concentration adjusted for body weight (30,400 µg). If fish were available for consumption by mammals scavenging along the shoreline for dead or dying fish, it is extremely unlikely that piscivorous mammals will consume enough fish to result in observable acute toxicity. Any direct impacts to mammals would be short-term and negligible.

Birds:

Similar results determined that birds, or avian life, required levels of rotenone at least 1,000 to 10,000-times greater than is required for lethality in fish (Skaar 2001). Chickens, pheasants, and members of lower orders of Galliformes were resistant to rotenone, and four-day old chicks were more resistant than adults (Cutkomp 1943). Swine are uniquely sensitive to rotenone and it is slightly toxic to wildfowl, but to kill Japanese quail required 4,500 to 7,000 times more than is used to kill fish (Ware 2002).

The EPA (2007) made the following conclusion for birds (avian life);

Since rotenone is applied directly to water, there is little likelihood that terrestrial forage items for birds will contain rotenone residues from this use. While it is possible that some piscivorous birds may feed opportunistically on dead or dying fish located on the surface of treated waters, dead fish degrade quickly, rendering them less available for consumption. In addition, many of the dead fish will sink and

not be available for consumption by birds. However, whole body residues in fish killed with rotenone ranged from 0.22 µg/g in yellow perch to 1.08 µg/g in common carp (Jarvinen and Ankley 1998). For a 68 g yellow perch and an 88 g carp, this represents totals of 15 µg and 95 µg rotenone per fish, respectively. Based on the avian subacute dietary LC50 of 4,110 mg/kg, a 1,000-g bird would have to consume 274,000 perch or 43,000 small carp. Thus, it is unlikely that piscivorous birds will consume enough fish to result in a lethal dose. Direct impacts to avian life would be short-term and negligible.

Fish:

The purpose of the projects is to remove nonnative trout in Trapper and Rock creeks upstream of fish barriers to restore native WCT (and Arctic grayling in Trapper Lake). Adverse project impacts would be minor and primarily include the temporary loss of a fishery while WCT become reestablished. Nonnative trout are common and widespread throughout the Big Hole River drainage. The loss of nonnative fish in Trapper and Rock creeks would be mitigated by other similar creeks nearby where FWP will continue to manage for nonnative fish (the established fisheries management goal is to manage 80% of the available habitat in the Upper Missouri River Basin for nonnative trout, Statewide Fisheries Management Plan; FWP 2023). Furthermore, the loss of the fisheries in Trapper and Rock creeks will be temporary because WCT would repopulate the available habitat and provide a recreational fishery similar to the current fishery. The impacts to WCT will be long-term and beneficial (Statewide Fisheries Management Plan, FWP 2023).

Rocky Mountain sculpin, a native species, are also present in the Trapper and Rock creeks drainages. Sculpin are susceptible to rotenone but have a higher tolerance than trout species. Sculpin generally survive rotenone treatments at the concentrations used to remove trout. Because sculpin have a higher tolerance for rotenone than salmonids, we anticipate that many sculpin will survive the rotenone treatments. However, if subsequent surveys in Trapper and Rock creeks fail to detect sculpin, fish will be captured below the fish barriers or in an adjacent stream and reintroduced into the project areas. Any direct impacts to Rocky Mountain sculpin are anticipated to be short term and minor and can be mitigated to avoid any long-term impacts.

Aquatic Invertebrates:

Rotenone can have acute and sometimes substantial impacts on aquatic invertebrates, but impacts are short-term and invertebrate communities generally rebound to pre-project abundance and diversity within 1 year. No long-term significant reduction in aquatic invertebrates was observed due to the effects of rotenone, which was applied at levels twice as high as the concentrations for proposed projects (Houf and Campbell 1977). Delayed recovery of taxa richness (number of taxa present) has been observed following some rotenone treatments, but many of these treatments were at higher concentrations than proposed herein (Mangum and Madrigal 1999). High concentrations of rotenone (>100 ppb) and treatments exceeding 8 hours typically resulted in severe impacts to invertebrate richness and abundance (Finlayson et al. 2010). Conversely, lower rotenone concentrations (< 50 ppb as is proposed in Trapper and Rock creeks) and treatments less than 8 hours (4 hours proposed in Trapper and Rock creeks), resulted in less impact to invertebrate assemblages. Clams and snails were between 50 and 150 times more tolerant than fish to Noxfish (5% rotenone formulation; Chandler and Marking (1982). In all cases, the reduction of aquatic invertebrates was temporary, and most treatments used a higher concentration of rotenone than proposed for these projects (Schnick 1974). In a study on the relative tolerance of different aquatic invertebrates to rotenone, the long-term impacts of rotenone are mitigated because those insects that were most sensitive to rotenone also tended to have the highest rate of recolonization (Engstrom-Heg et al. 1978).

Temporary changes in aquatic invertebrate communities due to a rotenone treatment would be similar to what is observed after natural (e.g., fire) and/or anthropogenic (livestock grazing) disturbances (Mihuc and Minshall 1995; Wohl and Carline 1996; Minshall 2003), though the physical impacts and resulting modifications of invertebrate assemblages after these types of disturbances can last for a much longer period than a rotenone treatment. Because of their short life cycles (Matthaei et al. 1996), good dispersal ability (Pennack 1989), and generally high reproductive potential (Matthaei et al. 1996), aquatic invertebrates are capable of rapid recovery from disturbance (Boulton et al. 1992; Matthaei et al. 1996). In addition, recolonization would include aerially dispersing invertebrates from outside the project areas (e.g., mayflies, caddis, stoneflies). Therefore, the possibility of eliminating a rare or endangered species of aquatic invertebrates by treating with rotenone in is unlikely. Furthermore, the Montana Natural Heritage Program lists no aquatic invertebrate species of concern or potential species of concern in Trapper and Rock creeks. Based on these studies, FWP would expect the aquatic invertebrate species composition and abundance to return to pre-treatment diversity and abundance within one to two years after treatment. Therefore, any adverse impacts to aquatic invertebrate communities would be short-term and minor to moderate.

Amphibians and Reptiles:

Amphibians and reptiles potentially found within the proposed treatment area include: Columbia spotted frogs, western toads, Rocky Mountain tailed, long-toed salamander (amphibians), western terrestrial garter, common garter, prairie rattlesnake, and rubber boa snakes. Rotenone has little to no effect on adult, air-breathing amphibians but it can be toxic to gill-breathing larval amphibians. Reptiles would not be directly affected by the rotenone treatment because they are highly resistant to rotenone at fish killing concentrations. Southern Leopard frog tadpoles were between 3 and 10 times more tolerant than fish to Noxfish (5% rotenone formulation; Chandler and Marking 1982). Long-toed salamanders, Rocky Mountain tailed frogs, and Columbia spotted frogs would not suffer an acute response to rotenone at trout killing concentrations (0.5-1 ppm), but the larvae would likely be affected (Grisak et al. 2007). These authors recommended implementing treatments at times when larvae are not present, such as the fall, to reduce the chance of exposure to rotenone treated water and potential impacts to larval amphibians.

Among the amphibians present, Columbia spotted frogs and western toads have been documented in Trapper and Rock creeks. The Columbia spotted frog is a native species considered *stable* within Montana and the affected area, though it may be quite rare in parts of its range, and/or suspected to be declining. The western toad is listed by the State of Montana as a *species of concern*. A more detailed analysis of potential project impacts to the western toad is included in this impacts analysis under the section titled *Unique, Endangered, Fragile, or Limited Environmental Resources*. Any reduction in amphibian abundance would be expected to be short-term because of the low sensitivity of adults to rotenone, and because reproductive habitats will not be targeted for treatment as they generally lack fish. Spotted frogs and toads generally seek out shallow, lentic areas for reproduction. On a recent rotenone treatment in Selway Creek (Beaverhead River drainage), Columbia spotted frogs were observed to be abundant in Selway Lake in the spring following a rotenone treatment the previous summer. Direct impacts to amphibians would be short-term and minor.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. Following treatment with rotenone, short-term and minor adverse secondary impacts to mammals, birds, amphibians, and reptiles would be expected due to the temporary and minor loss or reduction of

food sources, such as fish and aquatic invertebrates, in Trapper and Rock creeks. Mink, blue heron, king fisher, and other potential piscivorous mammals and birds may be displaced for up to two years while there are few or no fish in the affected reaches of Trapper and Rock creeks. Adverse impacts would be minor because no mammal species present in the Trapper and Rock creeks drainage are fish obligates and other potential food sources for these organisms will not be affected by the proposed action. Furthermore, piscivorous avian species are mobile and as such would have access to other nearby waters where fish are more abundant such as downstream of the fish barriers in each stream, adjacent streams, mountain lakes, and the Big Hole River. Therefore, impacts to these species would be limited to temporary displacement until WCT repopulate the stream.

Some snakes are also known to consume fish from streams; therefore, snakes may realize a temporary and minor reduction in available food because of the proposed piscicide treatment. However, none of the reptiles known to be present in the Trapper and Rock creeks drainage are fish obligates. Furthermore, WCT would be available to snakes within a few years after treatment. Therefore, any adverse secondary impacts would be short-term and minor.

A reduced abundance of aquatic invertebrates may temporally impact adult amphibians and potentially some bird species that prey on these species. Bird species such as the American dipper, which feeds primarily on aquatic invertebrates, may be temporarily displaced to areas downstream of the fish barriers or nearby streams where invertebrates would not be affected. However, the aquatic invertebrate community is expected to rapidly recover and most amphibians and reptiles are not aquatic invertebrate obligates. Therefore, adverse secondary impacts would be short term and minor.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. Cumulative impacts from the proposed projects would include substantial benefits for WCT and Arctic grayling conservation. According to the Statewide Fisheries Management Plan (FWP 2023), the WCT conservation goal for the Upper Missouri River basin is to restore secured WCT populations to 20% of their historic range. In the Big Hole River, that would equate to 431 miles of stream. Additionally, the highest priority of the Westslope Cutthroat Trout Conservation Strategy for the Missouri River Headwaters of Southwest Montana (Jaeger et al. 2024) is to protect existing non-hybridized populations (> 99%) of WCT to conserve the remaining genetic diversity remaining on the landscape. Trapper and Rock creeks contain non-hybridized population that are at a high risk of extirpation due to the presence of nonnative fish. When combined with similar projects performed in the Big Hole drainage and existing WCT populations, once the Trapper and Rock creeks projects are complete, WCT will occupy 200 miles of stream (57%) of the native WCT restoration goal (350 miles). Furthermore, the proposed projects would mitigate against the potential for future federal ESA-listing of WCT, as required by § 87-5-107, MCA.

Arctic grayling would benefit from the proposed projects through the establishment of a new, self-sustaining population in Trapper Lake. Miner and Mussigbrod lakes will be used to establish grayling following treatment.

FWP is unaware of any other past or present related state projects that would impact terrestrial, avian, and aquatic life and habitats in the Trapper and Rock creek drainages. FWP has not previously treated the affected section of Trapper and Rock creeks with rotenone.

2. Water Quality, Quantity, and Distribution

Existing Environment/No Action Alternative

Rock Creek is a relatively pristine basin with no known water quality impairments. Trapper Creek has an extensive mining history at Hecla (in the vicinity of Sappington Creek) and smelting at Glendale (downstream of the project area), which lasted through the early 1900s. Despite its extensive mining history, Trapper Creek is only listed as impaired by DEQ for sediment (DEQ 2009). Cattle grazing does occur in both drainages, but significant impacts from this activity have not been documented. Irrigation diversions are present on Trapper and Rock creeks that irrigate private property downstream of the proposed project areas.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. The proposed action would intentionally introduce the pesticide rotenone to surface water to remove nonnative trout from the proposed project areas of Trapper and Rock creeks. CFT Legumine (5% rotenone) is an EPA registered pesticide and is deemed safe to use for removal of unwanted fish when handled and applied according to the product label. The concentration of rotenone proposed for use is 1 part formulation to one million parts of water (1 ppm).

Once applied to water, rotenone is susceptible to rapid natural breakdown and therefore does not persist in the environment. Natural breakdown are influenced by water chemistry, water temperature, exposure to organic substances, exposure to air, and sunlight intensity (Loeb and Engsrtom-Heg 1970; Engstrom-Heg 1972; Gilderhus et al. 1986; Ware 2002; ODFW 2002;). The half-life of rotenone (amount of time it takes for 50% of the compound to naturally decompose) once applied to water was 3.5 to 5.2 days (Gilderhus et al. 1986; Dawson et al. 1991). Natural detoxification of rotenone also occurs through dilution which occurs when untreated ground or surface water flows into a lake or stream. The combination of natural breakdown and dilution in streams usually results in complete detoxification of rotenone within 24-48 hours.

In addition to natural methods of breakdown, rotenone can be rapidly neutralized through application of an oxidizing agent such as potassium permanganate ($KMnO_4$). The dry crystalline substance is mixed with stream or lake water to produce a concentration of liquid sufficient to detoxify the rotenone. Neutralization is accomplished after about 15-30 minutes of exposure time of treated waters. As treated water leaves the project areas at the fish barriers, $KMn0_4$ is applied to the stream at a rate such that the residual value measured 30-minutes of travel time downstream remains at 0.5-1.0 ppm. The reach of stream between the $KMnO_4$ application point and 30 min of travel time downstream is known as the neutralization zone. Concentrations of $KMnO_4$ can be directly measured in the stream with a hand-held meter to maintain concentrations between 0.5 and 1.0 ppm. $KMnO_4$ can be toxic to fish at higher concentration, but few impacts to fish occur at concentrations used to detoxify rotenone. $KMnO_4$ is a respiratory and eye irritant and creates persistent stains on both skin and clothes. $KMnO_4$ is commonly used for other applications such as treatment of skin conditions (e.g., eczema, athlete's foot), disinfection, and treating wastewater.

Detoxification of rotenone would be used in Trapper and Rock creeks at the fish barriers to prevent any treated waters from traveling downstream and affecting fish outside of the treatment area. Rotenone neutralization would commence according to FWP Rotenone Deactivation Procedures found in the FWP Piscicide Policy (FWP 2021) which states that neutralization with KMnO4 will begin no less than 2 hours before the theoretical arrival time of treated waters at the neutralization station. Therefore, $KMnO_4$

application would begin no less than two hours before any rotenone treated waters would be present at the fish barriers. $KMnO_4$ would be continuously applied to the streams until all treated waters have passed over the fish barriers and sentinel fish placed in the stream survive for four hours with no signs of stress.

The detoxification efficacy would be measured in two ways: first, sentinel fish would be placed in live-car cages immediately upstream and downstream of the neutralization zone. Signs of rotenone toxicity in fish (loss of equilibrium and/or death) at the fish barriers indicate the presence of treated waters at the fish barriers. A lack of rotenone toxicity at the 30-minute mark indicates that rotenone has been fully neutralized. Second, residual $KMnO_4$ levels would be measured at the 30-minute downstream location with a handheld meter. The hand-held meter allows direct measurement of $KMnO_4$ concentrations in the stream. Residual levels of 0.5-1.0 ppm $KMnO_4$ at 30 min travel downstream fully neutralizes rotenone. These two methods of monitoring ensure full neutralization of rotenone downstream of the project areas. It is anticipated that neutralization will occur continuously for 24 to 48 hours after the application of rotenone is complete. Adverse direct impacts of rotenone application would be short-term, mitigated by the use of $KMnO_4$, and minor.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. Dead fish (nonnative trout and some Rocky Mountain sculpin) would result from the proposed projects. As dead fish decay, they may cause secondary impacts to water quality. Nine of 11 lakes in Washington treated with rotenone experienced an algae bloom shortly after treatment (Bradbury 1986). This is attributed to the input of phosphorus to the water from decaying fish. Approximately 70% of the phosphorus content of the fish stock would be released into the water through bacterial decay (Bradbury 1986). This action may be beneficial because it would stimulate algae and invertebrate production. Impacts to water quality resulting from decaying fish would be short term and minor.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP is unaware of any other past, present, or future related state projects that would impact water quality, quantity, and distribution in the Trapper and Rock creeks drainages.

3. Geology

Existing Environment/No Action Alternative

The geology of the Pioneer Mountains (Trapper Creek) consists primarily of Middle Proterozoic (Belt Supergroup) through Mesozoic sedimentary rocks, intruded by the late Cretaceous to early Tertiary silicic plutons of the Pioneer Batholith. The Hecla District is located within a structural dome of Precambrian (Black Lion Formation) through Mississippian (Madison Group) sedimentary rocks. Most of the known deposits are in dolomite of the Cambrian Hasmark and Devonian Jefferson Formations. Mineralization is generally stratiform within the main dome structure, following a handful of preferred bedding planes and fracture networks. The district is bordered on the north by the Great Fault, an east-west trending, steeply north-dipping normal fault, and on the south by a quartz-diorite intrusion. Contact metamorphism suggests that a shallow but unexposed pluton is present beneath the Hecla dome. Numerous deformation events before, during, and after the late Cretaceous magmatic activity have affected the sedimentary section in the area, resulting in complex large to small-scale structures. The basin that hosts the Hecla District is a compound cirque, presently drained to the northeast by

Trapper Creek. Glaciation prior to and during the Pleistocene is responsible for the exposure of many of the orebodies and also produced large amounts of glacial till that currently obscures much of the bedrock of the valley floor. It was estimated that during the peak of the last glaciation, thicknesses of ice in the valley exceeded 1000 feet. Lateral, medial, and recessional moraines are readily identifiable in the area, along with locales of kame and kettle topography. Talus slopes and trimlines around the cirques clearly delineate the lateral extent of ice (Montana Bureau of Mines and Geology 2016).

The geology of the southern Beaverhead Mountains (Rock Creek) is extremely complex, both structurally and stratigraphically, and mineralization was influenced by this complex system. The area is situated in a thrust belt covering southwest Montana, east-central Idaho, and part of eastern Washington. The thrusting occurred in the Cenozoic age. Two major thrust plates composed of Belt Supergroup rocks overlap within and adjacent to the area. The Grasshopper thrust plate is structurally beneath the Medicine Lodge plate. The emplacement of Tertiary-age intrusive igneous rocks near or in the thrust system appears to have been controlled by both plates. Throughout the area, strongly sheared and altered, Cretaceous/Tertiary-age diabasic and mafic dikes intrude the plates. Another system of dikes and sills with accompanying mineralization are composed predominantly of granodiorite and have their largest exposures around Squaw Mountain. Large areas of the Belt Supergroup are obscured by Pleistocene-age glaciation debris. Other geologic structures in the area also controlled mineralization. The Miner Lake fault runs northwest along the continental divide and merges with the Beaverhead Divide fault zone. The fault zone continues southeast until it is cut off by the Dark Horse Creek fault. This fault runs northeast. Mineral-bearing quartz veins and stringers occur throughout the Belt rocks and in most cases are associated with the diabase dikes. Twenty-one mines and prospects explore this type of occurrence, notably the Ajax and Copper Queen mines and the Flying Cloud, Hope, Treasure Box, High, and Old Timer prospects, as well as an unnamed prospect. Several other quartz vein systems are closely related to granodiorite-diorite sills and dikes such as at the HRS claim group, Jahnke mine, Silver Ridge group, and Lucy prospect (Lipton et al. 1988).

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. No ground disturbing activities would occur during the proposed projects. Therefore, no direct impacts to geological resources would be expected because of the proposed projects.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. No ground disturbing activities would occur during the proposed projects, and the elimination of nonnative trout to protect native WCT and grayling would not result in long-term or ongoing impacts to geology. Therefore, no secondary impacts to geological resources would be expected because of the proposed projects.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP is unaware of past or present related state projects that would impact geology in the Trapper and Rock creek drainages. FWP has not previously treated the affected section of Trapper and Rock creeks with rotenone. However, if initial rotenone treatments are unsuccessful in eradicating the nonnative trout from the project reaches of Trapper and Rock creeks, additional treatments may be deemed necessary. If additional treatment with rotenone is deemed necessary, no impacts to geology of the affected area would be expected.

4. Soil Quality, Stability, and Moisture

Existing Environment/No Action Alternative

The soils of the Big Hole Valley, particularly in the west, are characterized by deep, well-drained soils formed from mixed alluvium including sand, clay, mud, and gravel, that overlie deeply buried volcanic rocks. The area around the Beaverhead National Forest, has soils that are derived from intrusive and metamorphic basement rocks.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. No ground disturbing activities would occur because of the proposed projects. Therefore, no direct impact to soils would be expected because of the proposed projects.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. No ground disturbing activities would occur because of the proposed projects, and the elimination of nonnative trout to conserve native WCT and grayling in the affected sections of Trapper and Rock creeks will not result in any long-term or ongoing impacts to soils. Therefore, no secondary impacts would be expected because of the proposed projects.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP is unaware of any past or present related state projects that would impact soils in the Trapper and Rock creeks drainage. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the hybrid trout population from the affected stretch of Trapper and Rock creeks, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no impacts to soils in the affected area would be expected.

5. Vegetation Cover, Quantity, and Quality

Existing Environment/No Action Alternative

The Trapper Creek riparian area is forested with a mix of Douglas Fir, Rocky Mountain juniper, spring birch, green alder, and willow species in the lower reaches of the stream transitioning to lodgepole pine and Engelman spruce at higher elevations. Rock Creek is heavily forested with primarily lodgepole pine, but Engelman spruce are present the upper watershed. Short meadow reaches of Rock Creek also contain some willow species. Eight sensitive plant species are potentially present in the Trapper drainage: Lemhi beardtongue, low Braya, marsh horsetail, beautiful bladderpod, tiny swamp saxifrage, whitebark pine, Sitka columbine, and sapphire rockcress. In Rock Creek, only three sensitive plant species are potentially present: meadow Horsetail, whitebark pine, and floriferous monkeyflower. A more detailed analysis of potential impacts to these species is included below under the section titled *Unique, Endangered, Fragile, or Limited Environmental Resources*.

Direct Impacts

No significant adverse direct impacts would be expected to vegetation cover, quantity and quality

because of the proposed projects. Short-term and negligible impacts to vegetation cover, quantity, and quality may occur. Riparian (streamside) vegetation may be adversely and directly impacted by the trampling of plants from project personnel walking up and down the banks of Trapper and Rock creeks and their tributaries to execute the proposed projects. The rotenone treatment of Trapper and Rock creeks would be performed by up to 15 FWP, BLM, USFS, and other partner personnel. Furthermore, only a limited number of personnel (1-2) would operate in each affected stream reach at any given time, thereby mitigating any potential impacts from trampling of plants.

Eleven sensitive plant species may be present in the Trapper and Rock creeks drainages. Only one of the sensitive identified species identified above (Sitka columbine) could be present in the Trapper Creek drainage in the area where personnel could pose direct impacts through trampling. The species is not listed as being present in riparian areas but could be present in mesic forest habitat. Therefore, it is possible that Sitka columbine could be present in and around the riparian area of Trapper Creek. However, since there are not ground disturbing activities associated with the proposed projects, potential impacts are expected to be short-term and minor. Potential personnel trampling can be mitigated by the limited number (only 1-2 individuals per reach of stream) and time spent (1 day) in each reach of stream. Any potential impacts to Sitka columbine would be similar to an angler fishing the stream. All other sensitive species are identified as occupying habitats not typically associated with riparian areas where personnel will be present and potential trampling could occur. Whitebark pine is listed as threatened under the ESA and exists on high-elevation ridges which would not be impacted as a part of the proposed action. There are no anticipated impacts to plant species of concern from these projects, and it is expected that any impacts to plants from these projects would be unnoticeable within one growing season. Additional mitigation would occur by project personnel accessing the project areas using existing trail and road systems to the extent practicable. Cattle grazing does occur in the Trapper and Rock creeks drainages and would likely have substantially greater impacts than the proposed actions.

FWP would adhere to all applicable requirements related to management and preservation of the affected species as outlined by guidance available for *species of concern*. Therefore, any adverse cumulative impacts to the state-listed *species of concern* because of the proposed projects would be short-term, and negligible. Overall, the proposed projects would not be expected to impede recovery of any of the listed species. Adverse direct impacts would be short-term, negligible, and mitigated by personnel work practices intended to limit impacts.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. Rotenone does not affect plants. Therefore, no secondary impacts would be expected because of the proposed projects.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the nonnative trout, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, the same potential direct and secondary impacts to vegetation, as previously described, would be expected. FWP is unaware of other past, present, or future related state projects that would impact vegetation cover, quantity, and quality in the affected area. Furthermore, no ground disturbing activities would occur because of the proposed projects. Therefore, no cumulative impacts would be expected because of the proposed projects.

6. Aesthetics

Existing Environment/No Action Alternative

The aesthetic resources of the Trapper and Rock creeks drainage include steep, rugged mountains and forests with small, fast flowing streams. Cattle grazing and irrigation have historically impacted the natural aesthetics of the drainage, but to a minimal extent. Past mining practices have substantially altered the landscape in the Hecla area (near Sappington Creek). Dilapidated buildings and mining equipment litter the ground. Mine adits and waste dumps area also present in the area.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. Dead fish may accumulate in certain areas, which some persons may find aesthetically adverse. The dead fish may also cause objectionable odors. Most of the dead fish will naturally sink and decay, and complete decomposition is expected in 1-2 weeks. Adverse direct impacts to aesthetics would be short-term, minor.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The elimination of nonnative trout to conserve native WCT and grayling in the affected sections of Trapper and Rock creeks will not impact the long-term aesthetic nature of the affected area in any way. Therefore, no secondary impacts would be expected because of the proposed projects.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the hybrid trout population, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no significant adverse cumulative impacts would be expected. FWP is unaware of any other past, present, or future related state projects that would impact aesthetics of the affected area.

7. Air Quality

Existing Environment/No Action Alternative:

Air quality in the area affected by the proposed projects is currently unclassifiable or in compliance with applicable National ambient air quality standards (NAAQS). Further, no significant point-sources of air pollution exist in the area affected by the proposed projects. Existing sources of air pollution in the area are limited and generally include unpaved roads (fugitive dust source), vehicle exhaust emissions, and various agricultural practices (vehicle exhaust emissions and fugitive dust).

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. Under the proposed action, vehicles used to transport equipment and personnel to and from the project areas will cause exhaust fumes and road dust. Such impacts would be short-term and negligible. Additionally, roads are absent throughout much of the Rock Creek drainage, and most treatment sites will be accessed on foot or by helicopter. The proposed projects would not cause or contribute to a violation of

any applicable NAAQS as there are no air quality restrictions in the area and the amount and duration of the emissions would be short-term and negligible. The upper sections of Trapper and Rock creeks are on BLM administered land and would be closed to the public during treatment. Lower Trapper and Rock creeks is on private land, and the landowners are aware of the projects. Therefore, public traffic would be reduced or eliminated when project related traffic is occurring. Impacts to air quality would be short-term, mitigated by work practices, and negligible.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The elimination of nonnative trout to conserve native WCT and grayling in the affected sections of Trapper and Rock creeks will not result in any ongoing, long-term air quality impacts. Therefore, no secondary impacts would be expected because of the proposed projects.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the nonnative trout population, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no cumulative impacts would be expected. FWP is unaware of any other past, present, or future related state projects that would impact aesthetics of the affected area.

8. Unique, Endangered, Fragile, or Limited Environmental Resources

Existing Environment/No Action Alternative.

The State of Montana and the USFWS list the North American wolverine, grizzly bear, and whitebark pine as *species of concern* and *threatened species,* respectively, that may be present in the Trapper Creek drainage. Other state-listed *species of concern* that may be present in the drainage include: northern hoary bat, little brown myotis, long-eared myotis, spotted bat, westslope cutthroat trout, Arctic grayling, brown creeper, Cassin's finch, Clarks nutcracker, green-tailed towhee, veery, evening grosbeak, pileated woodpecker, brewer's sparrow, Pacific wren, and western toad. Plant species of concern potentially in the Trapper Creek project area are marsh horsetail, Lemhi beardtounge, Iow braya, beautiful bladderpod, tiny swamp saxifrage, Sitka columbine, and sapphire rockcress; however, these plant species are generally found in sagebrush-grasslands, alpine forests, or rocky montane slopes. Therefore, none of the identified plant *species of concern* are likely to be present in the riparian area affected by the proposed projects with the exception of Sitka columbine as described above. Westslope cutthroat trout were historically common in Trapper Creek until introductions of non-native trout drastically reduced the abundance and distribution of the species in the drainage.

The State of Montana and the USFWS list the North American wolverine, grizzly bear, and whitebark pine as *species of concern* and *threatened species,* respectively, that may be present in the Rock Creek drainage. Other state-listed *species of concern* that may be present in the drainage include: northern hoary bat, little brown myotis, long-eared myotis (mammal), westslope cutthroat trout, Arctic grayling (aquatic), brown creeper, Cassin's finch, greater sage grouse, Clarks nutcracker, great grey owl, and western toad. Plant species of concern potentially in the Rock Creek project area are meadow horsetail and Floriferous monkeyflower; however, these plant species are generally found in open meadows or high-elevation ridges. Therefore, none of the identified plant *species of concern* are likely to be present in the riparian area affected by the proposed projects. Westslope cutthroat trout were historically

common in Rock Creek until introductions of nonnative trout drastically reduced their abundance and distribution in the drainage.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects.

Mammal Species:

The proposed projects are located within potential grizzly bear habitat, but there are no known grizzly bears currently inhabiting the area. Furthermore, the proposed projects would have little or no impact on grizzly bears because mammals are not sensitive to rotenone at concentrations used to kill fish. Therefore, no adverse impacts to grizzly bears that consume fish killed by rotenone or drink treated waters would be expected. Direct potential impacts to grizzly bears would include potential short-term (< one week) displacement due to increased human presence and the use of a helicopter in the Rock Creek drainage.

The proposed projects are also within the range of wolverine. Because mammals are not sensitive to rotenone at concentrations used to kill fish, no adverse impacts from rotenone treatment would be expected on wolverines that consume dead fish or drink treated waters within the project areas. Adverse impacts to wolverine that may use or travel through the affected area would potentially include only temporary displacement when personnel are present. Multiple drainages with similar habitats and resources are adjacent to the proposed project areas; therefore, it would be expected such areas would be readily used as alternative habitats should wolverine or grizzly bears be temporarily displaced during project implementation. Therefore, any direct adverse impacts to grizzly bears or wolverine would be short-term and minor. Grizzly bears and wolverine are present in the Beaverhead and East Pioneer mountains, but both species have much wider home ranges than the proposed project areas and may not be present during project implementation.

Specific to the ESA-listed *threatened* grizzly bear and North American wolverine, the ESA defines "take," which constitutes a significant adverse impact, as follows: to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct. 16 U.S. C. 1542(b). The term *harm* in the definition of 'take' means an act which actually kills or injures wildlife. Such an act may include *significant habitat modification or degradation* where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering." 50 C.F.R. § 17.3.

To find that habitat modification (addition of rotenone to aquatic environment) constitutes a *taking* of a listed species under the federal definition of "harm", all aspects of the harm definition must be triggered. Therefore, for the purposes of the proposed projects, the following conditions must all be met for a *taking* or a significant adverse impact to occur to grizzly bears, North American wolverine, and Canada lynx (USFWS, FWS/AES/067974, April 26, 2018):

- Is the modification of habitat significant? No. Mammals are highly tolerant of rotenone at the proposed concentration. Furthermore, the proposed projects would be short-lived and intermittent, thereby limiting the duration and extent of any potential impacts associated with displacement caused by human presence. Therefore, no significant adverse impacts to any of the ESA-listed mammals would be expected because of the proposed projects.
- If so, does that modification also significantly impair an essential behavior pattern of an ESA-listed species? NA
- If so, is the significant modification of the habitat, with a significant impairment of an essential behavior pattern, likely to result in the actual killing or injury of wildlife? NA

Therefore, the proposed projects would not constitute a *take* under the ESA and thus would not result in significant, adverse impact to any of the identified ESA-listed species.

The other bat species listed above constitute state-listed *species of concern* that may potentially occupy the proposed project areas. Again, because mammals are not sensitive to rotenone at concentrations used to kill fish, no adverse impacts from rotenone treatment would be expected because of the proposed projects. Direct impacts to these *species of concern* include only temporary displacement due to increased human activity in the drainage. Indirect impacts to bats would be limited to potential reduction in aquatic invertebrates which also have a terrestrial life stage and could be a food source for bats. The northern hoary bat is listed as occupying riparian areas.

Avian (bird) Species:

For most of the sensitive bird species listed above direct impacts include only temporary displacement due to increased human activity in the drainage. None of the sensitive birds that may be within the project areas are piscivorous. Rotenone has no effect on bird species that consume treated waters or consume dead fish when applied at fish killing concentrations.

No machinery or other heavy equipment would be used to implement the projects. Therefore, to some degree, adverse impacts related to the potential for project-related displacement of affected species would be mitigated. Pickup trucks and possibly ATVs would be used on existing roads to access the stream. Due to its remote nature, a helicopter would be used to access the upper most reaches of Rock Creek, but most of the Trapper and Rock creek drainages would be accessed on foot during the proposed treatment.

Vegetation Life:

Of the sensitive plant species above, none are listed as occurring in riparian habitats. Rotenone has no impacts on terrestrial or aquatic plant species. Therefore, the only potential impacts to plant species would be trampling due to increased foot traffic in the riparian areas of Trapper and Rock creeks. The presence of project personnel and associated trampling of riparian vegetation would not be expected to adversely impact any of the identified plant *species of concern* based on the habitats they occupy with the potential exception of Sitka columbine as described above. Potential impacts would be short-term (less than 1 growing season) and minor.

Aquatic Life:

WCT are considered a *sensitive species* and a *species of concern*. The intent of the proposed projects is to restore native WCT to Trapper and Rock creeks by removing nonnative trout and repopulating the stream with aboriginal populations of WCT. The resulting WCT populations would be secured in greater than 7 miles of habitat each. Therefore, it is anticipated that any direct impacts to WCT in the affected area would be long-term, moderate, and beneficial.

Arctic grayling is a *species of concern* in Montana. The species was petitioned for listing under the federal ESA and was deemed by the USFWS a candidate species for several years. In 2020, the USFWS determined that listing the Arctic grayling was not warranted at that time; however, a lawsuit was filed shortly thereafter, objecting to the USFWS decision to not list the Arctic grayling. At the time of this Draft EA, the USFWS decision to not list Arctic grayling under the ESA is under appeal.

Prior to anthropogenic alterations of the Big Hole drainage, grayling were widespread and used most sizeable tributaries for spawning, rearing, and possibly thermal refuge. Grayling in the Big Hole River use

the lower reaches of Rock Creek today for spawning and rearing. It is likely that grayling did access the lower reaches of Trapper Creek seasonally, but there has not been documented grayling reproduction in the lower Big Hole River in recent history. Following the treatment of Trapper Lake, grayling would be stocked into the lake. There is no stocking record for Trapper Lake. It is unlikely that grayling (or any fish for that matter) had access to Trapper Lake historically. These projects, once successful, would represent an expansion of the range of graying into suitable habitat. Therefore, any impacts to grayling because of the proposed projects would be long-term, moderate, and beneficial.

Western toads constitute a *species of concern* and may be present in the Trapper and Rock creek drainages. The proposed action could have minor impacts on larval toads but would not be expected to significantly impact adults. Rotenone can affect larval amphibians including western toads because larval amphibians respire through their skin and gills. Western toads select lentic waters for reproduction and the rearing of tadpoles. Such areas are typically not found in fast flowing mountain streams like Trapper and Rock Creeks. These habitats generally are located off stream in shallow ponds and swamps, which, if not connected to the stream, would not be treated with rotenone. Impacts from these projects on western toad are expected to be minor. Adult toads occupy terrestrial habitats that would not be treated with rotenone, and adult amphibians are less susceptible to rotenone. Impacts to juvenile amphibians would be mitigated by treating later in the summer when most juveniles have metamorphosed into adults. WCT and grayling introduced to Trapper and Rock creeks may prey upon western toad tadpoles, but these impacts anticipated to be similar or less than the exiting impacts of the established populations of nonnative trout. Therefore, it is expected adverse impacts to western toads because of the proposed projects would be short-term and negligible.

FWP would adhere to all applicable requirements related to management and preservation of the affected species as outlined by federal and state guidance available for at-risk species. Therefore, adverse direct impacts to any state and/or federally-listed species because of the proposed projects would be short-term and negligible. Overall, the proposed projects would not be expected to impede recovery of any of the identified state or federally-listed species.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The restoration of WCT and Arctic grayling to Trapper and Rock creeks would benefit both species and, for the purposes of other affected species, would be consistent with existing conditions. Expected long-term secondary impacts would be negligible to moderate and beneficial.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. For the purposes of MEPA, *cumulative impact* means “the collective impacts on the human environment of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location or generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impact statement evaluation, or permit processing procedures.”

Cumulatively, the proposed projects would benefit historic and ongoing WCT and Arctic grayling conservation efforts in the Big Hole drainage and help FWP meet its obligation to prevent these species from becoming listed as *threatened* or *endangered* under the ESA. Furthermore, no cumulative impacts to species currently listed as threatened under the ESA (grizzly bear, wolverine, whitebark pine) would be expected because of the proposed projects.

The long-term goal for WCT conservation is to restore secure conservation populations to 20% of their historical tributary distribution east of the Continental Divide (Upper Missouri River Basin upstream from and including the Judith River; FWP 2019). With consideration for related past, present, and known future related actions in the Big Hole River drainage, once the proposed projects are completed, WCT will occupy 200 miles of stream or 57% of the restoration goal. Collectively, WCT conservation projects like the ones proposed for Trapper and Rock creeks are intended to secure a small amount of the overall fish-bearing habitat for WCT to ensure the species long-term, self-sustaining persistence while managing the vast majority of habitat (80%) for nonnative fish like brook trout, rainbow trout, and brown trout. Therefore, any cumulative impacts to affected WCT populations in the Big Hole drainage would be long-term, moderate to major, and beneficial.

Under the proposed projects, a new conservation population of Arctic grayling would also be established in Trapper Lake, thereby further supporting ongoing efforts to preserve the species. One of the grayling conservation goals is to replicate the extant, adfluvial populations of Big Hole grayling in Miner and Mussigbrod lakes into 1 or 2 additional lakes (Montana Arctic 2022). This conservation measure would increase the geographic distribution of native Big Hole lakes grayling, replicate these indigenous populations and create a genetic reserve that could be used for subsequent grayling introductions or to improve genetic variation of the native Big Hole lake populations.

FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatments are unsuccessful in eradicating the nonnative trout populations, additional treatment may be deemed necessary. If additional treatment with rotenone occur, no cumulative impacts would be expected. FWP is unaware of any other past, present, or future related state projects that would impact any unique, fragile, or limited environmental resources in the affected area.

9. Historical and Archaeological Sites

Existing Environment/No Action Alternative

Historical resources in the Trapper and Rock creeks drainages within the proposed project areas include evidence of use by Native Americans and early European settlers. Trapper Creek in particular has many historical, mining-related features including buildings, old machinery, adits, and spoil piles.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. No ground disturbance would occur because of the proposed action. In keeping with the Montana Antiquities Act and related regulations (12.8.501-12.8.510), undertakings on state lands are assessed by a qualified archaeologist or historian for their potential to affect cultural resources. The process for this assessment may include a cultural resource inventory and evaluation of cultural resources within or near the project areas, in consultation with the State Historic Preservation Office, as necessary. FWP also consults with all Tribal Historic Preservation Offices affiliated with each property in accordance with FWP's Tribal Consultation Guidelines. If cultural resources within or near the project areas are recorded and are eligible for the National Register of Historic Places, they will be protected from adverse impacts through adjustments to the project design or cancellation of the projects if no design alternatives are available. If cultural resources are unexpectedly discovered during project implementation, FWP will cease implementation, and contact FWP's Heritage Program for further evaluation. Therefore, no

adverse direct impacts to any cultural resources (historical, archaeological) that may exist in the affected areas would be expected because of the proposed projects.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. No ground disturbance would occur because of the proposed projects. In addition, the elimination of nonnative trout to conserve native WCT and grayling in Trapper and Rock creeks will not result in any ongoing, long-term impacts to any cultural resources that may be located in the affected areas. Therefore, no adverse secondary impacts would be expected because of the proposed projects.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. FWP is unaware of any other past, present, or future related state projects that would impact cultural resources that may be located in the affected area. No cumulative impacts to cultural resources would be expected because of the nonnative fish removal project or the resulting future WCT and Arctic grayling stocking activities. Therefore, no adverse cumulative impacts would be expected because of the proposed projects.

10. Demands on Environmental Resources of Land, Water, Air, and Energy

Existing Environment/No Action Alternative

The existing aquatic and terrestrial resources have been described previously in this document. Demands on environmental resources are currently limited to water use for irrigation. Despite its history, no current mining or smelting activities are occurring in the Trapper Creek drainage.

Direct Impacts

No significant adverse impacts to demands on the environmental resources of land, water, air, and energy would be expected because of the proposed projects. Fuel would be required to operate equipment used for the proposed projects such as pickups, ATV's, and helicopter. However, impacts would be limited by the anticipated short timeline of the proposed projects and, as such, the amount of fuel used would be negligible. Therefore, impacts to the demands for energy would be short-term and negligible.

As identified previously through the analyses of potential impacts to water quality, quantity, and distribution; soil quality, stability, and moisture; vegetation cover, quantity, and quality; and air quality; impacts to the environmental resources of land water, and air may occur because of the proposed projects. However, such impacts would be short-term and negligible or minor (see cited impacts analyses above). No other impacts to the demands on environmental resources of land, water, air, and energy would be expected because of the proposed projects.

The proposed action would not result in significant adverse direct climate change impacts. Impacts of the proposed actions would be consistent with current impacts (i.e., the no action alternative).

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The elimination of existing hybrid trout to conserve native WCT and Arctic grayling, and to establish conservation populations for both species, in the affected sections of Trapper and Rock creeks will not result in any changes to current water use for irrigation or other purposes. Therefore, no secondary impacts would be expected because of the proposed projects.

The proposed action would not result in significant adverse secondary climate change impacts. Impacts of the proposed action would be consistent with current impacts (i.e., the no action alternative).

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. In fact, no additional demands for the environmental resources of land, water, air, and energy would be expected because of the proposed projects. Furthermore, FWP is unaware of other past, present, or future related state projects that would impact the environmental resources of land, water, air, and energy in the affected area. Therefore, no cumulative impacts would be expected because of the proposed projects.

The proposed actions would not result in significant adverse climate change impacts. Impacts of the proposed actions would be consistent with current impacts (i.e., the no action alternative).

B. Evaluation and Summary of Potential Impacts of the Proposed Projects on the Human Environment

1. Social Structures and Mores

Existing Environment/No Action Alternative

WCT and Yellowstone cutthroat trout represent the two subspecies of native cutthroat found in Montana and together they have been designated Montana's state fish. Many Montanans and visitors to the state hold high regard for WCT as an angling resource, an icon of the state, and a valuable component of the ecosystems in which they reside. As such, WCT, and associated recreational values, are deeply engrained in the customs and lifestyles of residents and visitors to Montana alike.

Indigenous Arctic grayling in the lower 48 states exist only in the Centennial and Big Hole valleys of southwest Montana. Grayling are a rare and unique species in Montana, and are treasured by anglers and conservation groups.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects to social structures and mores. The restoration of WCT to Trapper and Rock creeks may be viewed as restoring the cultural values of the existing and historic human population in the area. Native fish restoration projects in Montana generally have the support of indigenous tribes and many who enjoy fishing for and otherwise appreciate native species on the landscape. Adverse direct impacts associated with the elimination of hybrid trout from the affected sections of stream (i.e., loss of nonnative trout fishing opportunities in Trapper and Rock creeks) would be mitigated by other nearby opportunities to fish for

these nonnative fish species during and following the proposed projects, including immediately downstream of the fish barriers. Nearby fisheries for non-native fish exist in Canyon, Rock (near Glen), Moose, and Big Lake creeks, which are adjacent to Trapper and Rock creeks. Mountain lake fisheries like Canyon, Crescent, Grayling, Lion, and Green lakes all have non-native fisheries near Trapper Lake and will continue to provide these fisheries into the future.

The intent of the proposed projects is to conserve and restore native WCT and Arctic grayling by eliminating hybridization and competition from nonnative trout. Therefore, the proposed projects would create a unique native fishery that would directly benefit any person who enjoys fishing for native WCT and/or native Arctic grayling or otherwise values these species' existence, the State of Montana, and the ecosystem in which they reside. Direct impacts from the proposed project would be long-term, moderate, and beneficial.

Secondary Impacts

No significant secondary impacts would be expected because of the proposed projects. The elimination of non-native trout to conserve native WCT and Arctic grayling in Trapper and Rock creeks will not result in any ongoing, long-term impacts to current land use or human activities. However, many Montanans, and those visiting the state for outdoor recreational purposes, hold high regard for the conservation of native species on the landscape, including WCT and Arctic grayling. Therefore, because the proposed projects would create a unique native fishery and improve both species' distributions, the proposed projects would preserve important pre-project social structures, customs, values, and conventions associated with WCT. Furthermore, the loss of WCT and Arctic grayling conservation populations would result in a reduction in the remaining range of both native species and could contribute to their listing as threatened or endangered species under the ESA. Listing under the ESA would drastically change state management of the species and likely limit public opportunity to fish for and otherwise interact with and enjoy these native fish species.

Secondary impacts associated with the elimination of the nonnative trout fishery from the affected sections of the Trapper and Rock creeks would be mitigated by other opportunities to fish for non-native trout as numerous surrounding streams will continue to provide recreational fisheries. Therefore, adverse secondary impacts would be long term and minor.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the nonnative trout populations, additional treatments may be necessary. If an additional treatment with rotenone is necessary, no cumulative impacts would be expected.

Montana's existing WCT conservation plans intend to restore WCT to 20% of their historical range. The loss of WCT conservation populations would result in a reduction in the remaining range and could lead to their listing as threatened or endangered under the ESA, changing state management of the species, and likely limiting public opportunity to fish for and otherwise interact with and enjoy these native fish species. FWP is unaware of any other past, present, or future related state projects that would cumulatively impact the existing social structures and mores of the affected human population, related to the affected native salmonid populations. Therefore, cumulative impacts would be long-term, moderate and beneficial.

2. Cultural Uniqueness and Diversity

Existing Environment/No Action Alternative

The proposed projects would be located mostly in a rural or uninhabited landscape on public land managed by the US Forest Service and Bureau of Land Management. Some small private inholdings (historic, patented mining claims) exist in the Trapper Creek drainage within the project area, but only a few of these properties intersect Trapper Creek or its tributaries, and there are no permanent dwellings in this area. The headwaters of the Trapper and Rock creek drainages are a relatively remote and natural setting. The lower reaches of the drainages outside of the proposed project areas are mostly private property with some permanent dwellings.

Direct Impacts

No significant direct impacts to the cultural uniqueness and diversity of the affected human population would be expected because of the proposed projects. The elimination of nonnative trout to conserve native WCT and Arctic grayling within the proposed project areas of Trapper and Rock creeks will not result in any impacts to current land use or human activities in the affected area and would not be expected to result in the relocation of people into or out of the affected area. Therefore, no impacts to the existing cultural uniqueness and diversity of the affected human population would be expected because of the proposed projects.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The proposed action would not be expected to result in any relocation of people into or out of the affected area. Therefore, no impacts to the existing cultural uniqueness and diversity of the affected human population would be expected because of the proposed projects.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected reaches of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating nonnative trout, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no cumulative impacts would be expected. FWP is unaware of any other past, present, or future related state projects that would impact cultural uniqueness and diversity of the area.

3. Access to and Quality of Recreational and Wilderness Activities

Existing Environment/No Action Alternative

Under the No Action alternative, there would be no change in access to and the quality of recreational activities in the Trapper and Rock creek drainages. Trapper and Rock creeks within the proposed project areas are located mostly (Trapper) and entirely (Rock) on public lands managed by the BLM and US Forest Service and are accessible to seasonal recreation opportunities including hiking, horseback riding, fishing, hunting, trapping, and wildlife viewing. Vehicle and ATV access is present in the Trapper Creek drainage.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. There would be a temporary loss of angling opportunity in the upper reaches of Trapper and Rock creeks during project implementation. Impacts to access to recreational resources can be mitigated by the numerous nearby opportunities to fish for non-native trout would offset any short-term adverse impacts realized by the proposed projects. Trapper and Rock creeks are relatively small and angling pressure is limited. Multiple nearby streams of similar size and with similar fisheries exist within 10 miles of Trapper and Rock creeks. These streams provide ample opportunities to angle for non-native trout in a small stream and would be available for public access during implementation of the proposed projects. Furthermore, within only a few years after completion, WCT would be available for anglers to catch in both creeks. Therefore, any adverse direct impacts would be short-term, negligible, and mitigated by other nearby and similar angling opportunities.

There would be short term impacts to public access into the Trapper and Rock Creek drainages during the treatment of the streams with rotenone. To reduce potential exposure, the rotenone label requires that public access to the treatment area be closed during the application of the piscicide. These impacts would be short term and minor as the treatments are expected to last less than 5 days. Impacts to access can also be mitigated by performing the treatments Monday to Friday and avoiding weekends or holidays when recreation increases. Trapper Creek is accessible via a road network that is open to both ATVs and high clearance vehicles. Some primitive camping opportunities exist along Trapper Creek, but the rough nature of the road precludes most trailer and RV traffic from accessing the upper watershed. Impacts to camping would be mitigated by timing the projects such that affected roads are not closed during popular recreation time, such as holidays and weekends, and maintaining access to adjacent drainages that provide similar recreational opportunities during the 2-5 days of the treatment each year until project objectives are achieved. Rock Creek is much more remote, and most of the drainage is only accessible by foot or horseback. Similarly, impacts to those recreating in Rock Creek would be mitigated as described above.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. People who recreate in Trapper and Rock creeks may view the loss of the existing nonnative trout fishery as an adverse impact, but angling pressure on the affected reaches of Trapper and Rock creeks is minimal. Once native WCT and Arctic grayling are re-established in the treatment areas of Trapper and Rock creeks, it would be expected these native species would provide the same or improved angling opportunities as the existing nonnative trout fishery provides today.

The long-term goal for WCT conservation in Montana is to restore secure conservation populations of WCT to 20% of their historical tributary distribution east of the Continental Divide (Upper Missouri River Basin upstream from and including the Judith River; FWP 2019). Mainstem rivers, such as the Big Hole River, support important nonnative recreation fisheries (i.e., brown, brook, and rainbow trout) and are not part of the WCT goal. FWP recognizes the value of non-native trout fisheries and will continue to manage 80% of the streams in the Big Hole River drainage for non-native species such as brook, rainbow, and brown trout.

In the Big Hole River drainage, WCT historically occupied approximately 1,752 miles of streams and rivers. Today there are a total of 50 remaining WCT populations (including slightly (> 90%) hybridized WCT) in small headwater tributaries which occupy just over 246 miles of stream (16.5% of their historic range). Of these 50 WCT populations, 70% are at risk due to competition and hybridization with

nonnative fish. Data collected from streams in the Big Hole River drainage since 2011 indicate that 6 populations of unaltered fish have been extirpated, and 4 additional populations have become hybridized.

Arctic grayling were once widely distributed in the Upper Missouri River above Great Falls but have been reduced to approximately 5% of their historical range in Montana. Indigenous populations of Arctic grayling in Montana are limited to the Big Hole and Centennial Valley of southwest Montana. The Big Hole is home to 4 aboriginal populations: one in the mainstem river (only fluvial Arctic grayling in lower 48 states) and in Miner, Mussigbrod and Pintler lakes (adfluvial populations; MAGW 2022). Grayling populations in the Big Hole are relatively stable. Upper Missouri River Arctic grayling are listed as Species of Concern by the State of Montana and a Sensitive Species by the BLM and the USFS. Though previously identified as a Candidate Species under the ESA, in 2014 the USFWS found that listing UMR grayling as threated or endangered was not warranted. This finding was confirmed in 2020 following a legal challenge (USFWS 2020) but is currently under appeal.

Projects that restore WCT and Arctic grayling, such as those proposed for Trapper and Rock creeks, are necessary to ensure the continued survival of these native species, conserve remaining genetic diversity, meet statutory obligations to prevent listing under the ESA, and preserve angling opportunities for these native species. The proposed projects would restore and protect (as conservation populations) native WCT and Arctic grayling in the affected area. Therefore, secondary impacts would be long-term, moderate to major, and beneficial.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatments are unsuccessful in eradicating the non-native trout populations, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no additional cumulative impacts would be expected. FWP is unaware of any other past, present, or future related state projects that would impact access to and the quality of recreational opportunities in the affected area because of the proposed projects.

4. Local and State Tax Base and Tax Revenue

Existing Environment/No Action Alternative

Trapper and Rock creeks within the proposed project areas are primarily (Trapper) and entirely (Rock) located on public lands administered by the BLM and US Forest Service which constitute federally administered public lands that are not subject to any local or state taxes. Inholdings within the Trapper Creek drainage and the lower reaches of both drainages are on private lands which is subject to state and local taxes.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. The proposed projects do not involve the acquisition of land or property, does not change land use, does not result in the production of any products, and does not displace any existing businesses. The proposed projects would be expected to increase state and local tax revenues from the sale of fuel, supplies, and/or equipment necessary to implement and complete the proposed project. Because the proposed projects would be limited to 2-5 days per year over two consecutive years, the use of fuel and purchase

of products to implement the projects would be limited. Therefore, adverse direct impacts would be short term and negligible, lasting only as long as the proposed projects.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The proposed projects do not involve the acquisition of land or property, production of any products, or displacement of any existing businesses. Therefore, long-term impacts to the existing local and state tax base and tax revenue from such activities would not occur because of the proposed projects.

The proposed projects may adversely affect anglers that enjoy fishing for nonnative trout, or, conversely, beneficially impact those that prefer to fish for native WCT and Arctic grayling in Trapper and Rock creeks. Therefore, the proposed projects may adversely or beneficially impact the associated local purchase of fishing licenses and goods and services to accommodate fishing opportunities. However, because relative fishing pressure is low in Trapper and Rock creeks and the proposed projects would impact a relatively small section of Trapper and Rock creeks, and many other nearby opportunities exist to fish for or otherwise enjoy recreational opportunities associated with either non-native hybrid trout or the restored native WCT and Arctic grayling populations, secondary impacts to the local and state tax base and tax revenue because of the proposed projects would be short-term and negligible to minor.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the hybrid trout population, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no cumulative impacts would be expected. FWP is unaware of any other past, present, or future related state projects that would impact local and state tax base and tax revenues.

5. Industrial, Commercial, and Agricultural Activities and Production

Existing Environment/No Action Alternative

Agriculture and potentially outfitting and are two commercial activities which occur in the Trapper and Rock creeks drainages. The primary commercial, agricultural activity in the Trapper and Rock creek drainages within the project areas is cattle grazing. Outfitting may occur for hunting at the headwaters of Trapper and Rock creeks, but actual outfitting use is not known. Based on local scoping activities and similar projects nearby, private landowners with grazing and irrigation rights are supportive of the proposed projects, and agreements will be put in place to ensure that all current agricultural practices will remain that way following the conclusion of the proposed projects. No timber harvest or mining currently occur within the drainage.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. No outfitting for fishing occurs in the Trapper or Rock creek drainages, and the projects would be conducted outside of any big game hunting season so the temporary access restrictions should not affect outfitting. Private landowners with grazing permits in Trapper and Rock creeks are aware of the projects, and agreements will be put in place to ensure that all agricultural practices currently in place will not be affected by the proposed projects. The removal of nonnative trout to conserve native WCT and Arctic

grayling in the affected sections of Trapper and Rock creeks will not result in any direct impact to commercial, industrial, or agricultural activities and/or production. While rotenone is actively in the stream, cattle will be temporarily excluded from accessing Trapper and Rock creeks. This will be done by coordinating pasture rotations and use timing to avoid grazing in the treatment area during the implementation of the projects. Therefore, no significant direct impacts would be expected because of the proposed projects.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. No industrial activities occur in the affected area; therefore, no industrial activities or production would be impacted by the proposed projects.

The elimination of non-native trout to conserve native WCT and Arctic grayling in the affected sections of Trapper and Rock creeks will not result in any impact to commercial agricultural activities in or around the project areas. Because the proposed project would impact a relatively small section of Trapper and Rock creeks, and numerous other opportunities to fish for the affected native and non-native fish species exist in the affected area, secondary impacts to fishing outfitters would be negligible.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the hybrid trout population, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no cumulative impacts would be expected. FWP is unaware of any other past, present, or future related state projects that would impact industrial, commercial, and agricultural activities and production.

When combined with other native WCT and Arctic grayling conservation projects some beneficial impacts to existing agricultural activities would be expected as a result of the proposed actions. Many streams located on BLM and Forest Service land, which also support existing native WCT populations, have stipulations regarding grazing and logging to specifically protect WCT from potential adverse impacts associated with such activities. Many of these regulations are in effect because of the rare and declining nature of WCT, and any impacts to extant populations could have negative outcomes to their long-term persistence. As WCT are conserved through projects such as those in Trapper and Rock creeks, these regulations could become obsolete and ultimately removed. Non-native fish pose the greatest risk to WCT conservation, not grazing. Impacts would be long-term, moderate, and beneficial.

6. Human Health and Safety

Existing Environment/No Action Alternative.

There are no known current human health or safety concerns within the Trapper and Rock creek drainages.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. Direct contact with water treated with rotenone and consumption of water and/or fish exposed to rotenone should have no adverse impacts to human health and safety.

Rotenone is a naturally occurring substance derived from tropical plants in the bean family such as the jewel vine and lacepod found in Australia, 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 (Teixeira, et al. 1984). The plant roots that produce rotenone also produce other similar compounds, collectively called rotenoids. Rotenone is produced in the greatest quantity and has the greatest toxic effect on fish and other gill-breathing organisms; the next most active rotenoid is deguelin. These two rotenoids degrade under different environmental conditions to rotenolone and tephrosin, respectively. The EPA (2007) and Fang and Cassida (1997) concluded these other rotenoids are less toxic than rotenone.

The primary means of protecting human health from the potential impacts of rotenone application are to follow the label requirements. These include public entry restrictions into a treatment area and preventing consumption of treated waters and rotenone-killed fish. Applicators of rotenone face the highest probability of being exposed to rotenone. Their safety would be protected by the use of label-required personal protective equipment (PPE) including gloves, waders, eye protection, and a paper respirator. The EPA (2007) conducted an analysis of the human health risks for rotenone exposure and concluded it has a high acute toxicity in its concentrated form for both oral and inhalation routes but has a low acute toxicity for dermal route of exposure. However, when diluted with water at concentrations proposed for the treatment of Trapper and Rock creeks, no adverse impacts to human health and safety would be expected. The EPA concluded there is a low risk for human chronic risk from exposure to rotenone treated water based on four principles: first, the rapid natural degradation of rotenone, second, using active neutralization measures by applicators such as potassium permanganate, third, properly following piscicide labels, the additional precautions stated in this document and, finally, proper signing, public notification, and area closures which would eliminate or limit the potential for public exposure to rotenone treated water.

Risk to humans from recreational exposure (i.e., swimming or wading) to rotenone would be negligible. The EPA (2007) established 90 ppb as a threshold level of concern for recreational exposure, meaning there will be no health effects on humans exposed to levels in water below 90 ppb. Swimming is the primary recreational activity of concern to the EPA, and rotenone labels require the posting of placards at public access points to the treatment area prohibiting access while rotenone is being applied. If the stream is treated with less than 90 ppb rotenone, the placards can be removed immediately after the treatment is over; Trapper and Rock creeks would be treated at 50 ppb. Also, during application, the road accessing the Trapper Creek drainage would be closed and personnel would be onsite to inform the public and escort them from the treatment area should they enter. Placards would be place at the trailheads to the Rock Creek drainage during the treatment. Rotenone treated waters would be contained to the proposed treatment areas by adding potassium permanganate ($KMnO_4$) to the stream at the fish barriers which would neutralize remaining rotenone before leaving the project areas. The efficacy of the neutralization would be monitored using fish (the most sensitive species to the chemical) and a handheld meter. It is expected that rotenone applied to Trapper and Rock creeks would be present in the stream for a maximum of 24-48 hours after application, after which time natural processes will have fully neutralized any remaining chemical. Therefore, the potential for public exposure to rotenone-treated waters is minimal and no direct impacts would be expected as a result of the proposed projects.

Risk to humans from drinking rotenone treated water would also be negligible. The EPA (2007) established a threshold level of concern of 40 ppb rotenone for drinking water. Although Trapper and Rock creeks would be treated at 50 ppb, placards will prohibit entry to the waters within the project areas during treatments to prevent exposure. $KMnO_4$ will be applied at the fish barriers to the streams

to neutralize rotenone. Following deactivation with $KMnO_4$, rotenone would be undetectable (< 1 ppb) and well below the threshold level of concern (40 ppb) making incidental consumption of water downstream of the neutralization zone by humans entirely safe. Contamination of groundwater is very unlikely because rotenone has a high affinity for partitioning from water to organic materials in aquifers. Extensive well sampling in areas proximal to rotenone treatments in California, Washington, and Montana has never found measurable levels of rotenone (Finlayson et al 2018; Skaar 2024 Personal Communication).

Fisher (2007) conducted an analysis of the inert constituent ingredients found in the rotenone formulation of CFT Legumine (5% rotenone) for the California Department of Fish and Game. These inert ingredients are principally found in the emulsifying agent Fennodefo99 which helps make the generally insoluble rotenone more soluble in water. The constituents were considered because of their known hazard status and not because of their concentrations in the formulation. Solvents such as xylene, trichloroethylene (TCE), and tetrachloroethylene are residue left over from the process of extracting rotenone from the root and can be found in some lots of CFT Legumine. However, inconsistent detectability and low occurrence in other formulations that used the same extraction process were below the levels for human health and ecological risk. Solvents such as toluene, n-butylbenzene, 1,2,4 trimethylbenzene, and naphthalene are present in Legumine, and when used in other applications can be an inhalation risk. However, because of their low concentrations in this formulation, the human health risk is low. The remaining constituents, the fatty acid esters, resin acids, glycols, substituted benzenes, and 1-hexanol were likewise present but either analyzed, calculated, or estimated to be below the human health risk levels when used in a typical fish eradication project. Methyl pyrrolidone is also found in Legumine. It is known to have solvency properties and is used to dissolve a wide range of compounds including resins (rotenone). Analysis of Methyl pyrrolidone in Legumine showed it represents about 9% of the formulation (Fisher 2007). Fisher 2007 concluded, "None of the constituents identified are considered persistent in the environment nor will they bioaccumulate. The trace benzenes identified in the solvent mixture of CFT Legumine will exhibit limited volatility and will rapidly degrade through photolytic and biological degradation mechanisms. The PEGs are highly soluble, have very low volatility, and are rapidly biodegraded within a matter of days. The fatty acids in the fatty acid ester mixture (Fennodefo99™) do not exhibit significant volatility, are virtually insoluble, and are readily biodegraded, although likely over a slightly longer period of time than the PEGs in the mixture. None of the new compounds identified exhibit persistence or are known to bioaccumulate. Under conditions that would favor groundwater exchange, the highly soluble PEGs could feasibly transmit to groundwater, but the concentrations in the treated water, and the rapid biodegradation of these constituents, makes this scenario extremely unlikely. Based upon a review of the physical chemistry of the chemicals identified, FWP concludes they are rapidly biodegraded, hydrolyzed and/or otherwise photolytically oxidized; therefore, the affected chemicals pose no additional risk to human health or ecological receptors from those identified in the earlier analysis. None of the constituents identified appear to be at concentrations that suggest human health risks through exposure to water, or ingestion exposure scenarios, and no relevant regulatory criteria are exceeded in estimated exposure concentrations…"

One study, in which rats were injected with rotenone for a period of weeks, reported finding lesions characteristic of Parkinson's disease (Betarbet et al. 2000). However, the relevance of the results to the use of rotenone as a piscicide have been challenged based upon the following dissimilarities between the experimental methodology used and fisheries related applications: (1) the continuous intravenous injection method used to treat the rats leads to "continuously high levels of the compound in the blood," unlike field applications where 1) the oral route is the most likely method of exposure, 2) a much

lower dose is used and 3) potential exposure to rotenone is limited to a matter of days because of the rapid breakdown of the rotenone following application. Furthermore, dimethyl sulfoxide (DMSO) was used to enhance tissue penetration in the laboratory experiment (normal routes of exposure actually slow introduction of chemicals into the bloodstream), no such chemicals enhancing tissue penetration are present in the rotenone formulation proposed for use in this treatment. Similar studies (Marking 1988) have found no Parkinson's-like results. Extensive research has demonstrated that rotenone does not cause birth defects (Hazelton Raltech Laboratories 1982), gene mutations (Van Geothem et al. 1981; Biotech Research Laboratories 1982), or cancer (Marking 1988). Rotenone was found to have no direct role in fetal development of rats that were fed high concentrations of rotenone. Spencer and Sing (1982) reported that rats that were fed diets laced with 10-1,000 ppm rotenone over a 10-day period did not suffer any reproductive dysfunction. Typical concentrations of actual rotenone used in fishery management range from 1-2 ppm and are far below that administered during most toxicology studies.

A study linked the use of rotenone and paraquat with the development of Parkinson's disease (PD) in humans later in life (Tanner et al. 2011). The after-the-fact study included mostly farmers from 2 states within the United States who presumably used rotenone for terrestrial application to crops and/or livestock. Rotenone is no longer used for agricultural applications and is only used in aquatic applications as a piscicide. The results of epidemiological studies of pesticide exposure, such as this one, have been highly variable (Guenther et al. 2011). Studies have found no correlations between pesticide exposure and PD (e.g., Jiménez-Jiménez 1992; Hertzman 1994; Engel et al. 2001; Firestone et al. 2010), some have found correlations between pesticide exposure and PD (e.g., Hubble et al. 1993; Lai et al. 2002; Tanner et al. 2011) and some have found it difficult determine which pesticide or pesticide class is implicated if associations with PD occur (e.g., Engel et al. 2001; Tanner et al. 2009). Recently, epidemiological studies linking pesticide exposure to PD have been criticized due to the high variation among study results, generic categorization of pesticide exposure scenarios, questionnaire subjectivity, and the difficulty in evaluating the causal factors in the complex disease of PD which may have multiple causal factors (e.g., age, genetics, environment; Raffaele et al. 2011). A specific concern is the inability to assess the degree of exposure to certain chemicals, including rotenone, particularly the concentration of the chemical, frequency of use, application (e.g., agricultural, insect removal from pets), and exposure routes (Raffaele et al. 2011). No information is given in the Tanner et al. (2011) study about the formulation of rotenone used (powder or liquid) or the frequency or dose farmers were exposed to during their careers. No information was given about the personal protective equipment used or any information about other pesticides farmers were exposed to during the period of the study. Without information on how much rotenone individuals were exposed to and for how long, it is difficult to evaluate the potential risk to humans of developing Parkinson's disease from aquatic applications of rotenone products from this study.

The State of Arizona aptly summarized the issue following an exhaustive review of the risks to human health of rotenone use as a piscicide (Guenther et al. 2011). They concluded: "To date, there are no published studies that conclusively link exposure to rotenone and the development of clinically diagnosed PD. Some correlation studies have found a higher incidence of PD with exposure to pesticides among other factors, and some have not. It is very important to note that in case-control correlation studies, causal relationships cannot be assumed, and some associations identified in odds-ratio analyses may be chance associations. Only one study (Tanner et al. 2011) found an association between rotenone and paraquat use and PD in agricultural workers, primarily farmers. However, there are substantial differences between the methods of application, formulation, and doses of rotenone used in agriculture and residential settings compared with aquatic use as a piscicide, and the agricultural workers interviewed were also exposed to many other pesticides during their careers. Through the EPA

re-registration process of rotenone, occupational exposure risk is minimized by new requirements that state handlers may only apply rotenone at less than the maximum treatment concentrations (200 ppb), the development of engineering controls to some of the rotenone dispensing equipment and requiring handlers to wear specific PPE."

No significant adverse direct impacts would be expected because of the proposed projects. Following the label restrictions on rotenone use (i.e., restricting access to the treatment area, placarding and deactivation with $KMnO_4$) would eliminate or reduce to the extent practicable public exposure to rotenone. Therefore, any adverse direct risks associated with human rotenone exposure would be short-term and negligible.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. Based on the above discussion of direct impacts (and secondary impacts), no adverse secondary impacts would be expected because of the proposed projects.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the hybrid trout population, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no cumulative impacts would be expected. FWP is unaware of other past, present, or future related state projects that would impact human health.

7. Quantity and Distribution of Employment

Existing Environment/No Action Alternative

Employment directly tied to the Trapper and Rock creeks within the project areas are primarily attributed to private agricultural grazing leases with the BLM and USFS. BLM and USFS personnel manage the land resources in the two drainages and FWP manages the fish and wildlife resources. Existing staff for both agencies would cover these management responsibilities as part of their typical duties.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. The proposed projects would utilize existing agency staff (FWP, BLM, USFS, USFWS) and other partners to conduct the proposed projects; therefore, no impacts to the quantity and distribution of employment in the affected area would be expected because of the proposed projects.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The proposed projects may modify ongoing FWP activities in the affected area to ensure the established native WCT and Arctic grayling populations in Trapper and Rock creeks remain intact and viable. However, such activities would not be a departure from typical duties. Therefore, any adverse secondary impacts would be long-term, consistent with existing impacts (FWP staff duties), and negligible.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP is unaware of past or present related state projects that would impact employment in the Trapper and Rock creek drainages. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the non-native trout population from the project areas of Trapper and Rock creeks, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no additional cumulative impacts would be expected.

8. Density and Distribution of Human Population and Housing

Existing Environment/No Action Alternative

No permanent residences exist within the proposed project areas in Trapper and Rock creeks.

Direct Impacts

No significant direct adverse impacts would be expected because of the proposed projects. The proposed projects would use existing agency personnel (FWP, BLM, USFS, USFWS) and/or other partners and would not otherwise require or result in the movement of existing or new populations into or out of the affected area. Applicators could temporarily camp in the area for the duration of the treatment (3-4 days for two years). Private landowners in Trapper and Rock creeks have been notified of the proposed projects. Therefore, no direct impacts to the density and distribution of population and housing would be expected because of the proposed projects.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The proposed projects would use existing government personnel and would not otherwise require or result in the movement of existing or new population into or out of the affected area. Therefore, no secondary impacts would be expected because of the proposed projects.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP is unaware of past or present related state projects that would impact the density and distribution of the human population and housing in the affected area. FWP has not previously treated the affected section of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatments are unsuccessful in eradicating non-native trout from the affected stretches of Trapper and Rock creeks, additional treatment may be deemed necessary. If additional treatments with rotenone are deemed necessary, no cumulative impacts would be expected because of the proposed projects.

9. Demands for Government Services

Existing Environment/No Action Alternative.

The US Forest Service and BLM manage the land and aquatic habitat in the upper portions of the Trapper and Rock creeks drainages, while the lower halves of the drainages outside the project areas are privately owned. Private inholdings exist in Trapper Creek within the project area. FWP manages the wildlife and fisheries resources of the drainage. The loss of additional native WCT and Arctic grayling

populations across Montana, including in the Big Hole drainage, could result in either species being federally listed as threatened or endangered under the ESA. Native WCT and Arctic grayling have been petitioned for ESA listing in the past and if conservation actions are not performed, these species could qualify for ESA listing in the future. Federally ESA-listed species require significantly more government resources to manage than a species that is under state jurisdiction.

Direct Impacts

No significant adverse direct impacts would be expected because of the proposed projects. Primarily government personnel (FWP, USFS, USFWS, and BLM) would be used to implement and complete the proposed projects. The proposed projects would require 2-5 days of work for up to 15 government employees. The affected native WCT and Arctic grayling populations would be expected to readily re-establish themselves and become self-sustaining without further government assistance. Therefore, adverse direct impacts would be short-term and negligible.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The proposed projects may modify ongoing FWP activities in the affected area to ensure the established WCT populations in the affected section of Trapper and Rock creeks remain intact and viable. Modified activities would include periodic monitoring of the restored WCT population, including genetic testing. Secondary impacts would be long-term and minor because all remaining WCT populations are monitored with roughly the same frequency and effort.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the nonnative trout populations from the Trapper and Rock creeks, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no adverse cumulative impacts would be expected because of the proposed projects.

10. Locally Adopted Environmental Plans and Goals

Existing Environment/No Action Alternative

Under the No Action Alternative, the current fisheries in Trapper and Rock creeks would remain intact. It is likely that more nonhybridized populations of WCT in the Big Hole River drainage would be lost within the next 5-10 years, including those in Trapper and Rock creeks. Since 2011, ten populations of WCT in the Big Hole drainage have been lost or become hybridized. FWP is obligated to keep species from being listed under the ESA. FWP also manages WCT and Arctic grayling according to the MOU and Conservation Agreement for Westslope Cutthroat Trout in Montana (2007), MOU Concerning Arctic Grayling (2007), WCT Conservation Strategy for the Missouri Headwaters of Southwest Montana (2022), Upper Missouri River Arctic Grayling Conservation Strategy (2022), and Montana Statewide Fisheries Program and Guide (2023).

Direct Impacts

No significant direct adverse impacts would be expected because of the proposed projects. The proposed action would adhere to existing state policy, guidelines, and strategies and thereby further FWP's objectives under these existing plans (FWP 2007; FWP 2023; Jaeger et al. 2024). Therefore, impacts would be long-term, minor to moderate, and beneficial.

Secondary Impacts

No significant adverse secondary impacts would be expected because of the proposed projects. The proposed projects would conserve populations of native WCT in the affected sections of Trapper and Rock creeks. Furthermore, the proposed action would adhere to existing state policy, guidelines and strategies (FWP 2007, FWP 2019; Jaeger et al. 2024), thereby furthering FWP's objectives related to long-term management of WCT. Secondary impacts would be long-term, moderate to major, and beneficial.

Cumulative Impacts

No significant adverse cumulative impacts would be expected because of the proposed projects. The proposed projects would benefit native WCT and Arctic grayling conservation efforts, which would help FWP meet its obligation to prevent the species from becoming listed as threatened or endangered under the ESA and prevent the extirpation of these iconic native Montana fish species. The long-term goal for WCT conservation is to restore secure conservation populations of WCT to 20% of their historical tributary distribution east of the Continental Divide (Upper Missouri River Basin upstream from and including the Judith River; FWP 2019). Once the proposed projects are completed and combined with similar projects performed in the Big Hole River drainage, WCT will occupy 200 miles of stream or nearly 57% of the restoration goal. Collectively, WCT conservation projects, like the proposed projects, are intended to secure a small amount of the overall fish-bearing habitat for WCT to ensure the species long-term, self-sustaining persistence while managing the vast majority of habitat (80%) for nonnative fish like brook trout, rainbow trout, and brown trout.

FWP has not previously treated the affected sections of Trapper and Rock creeks with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the nonnative trout population, additional treatment may be deemed necessary. If additional treatment with rotenone is deemed necessary, no adverse cumulative impacts would be expected.

X. Determining the Significance of Impacts

If the EA identifies impacts associated with the proposed action FWP must determine the significance of the impacts. This determination forms the basis for FWP's decision as to whether it is necessary to prepare an environmental impact statement. FWP considered the criteria identified in **Table 3** below to determine the significance of each impact on the quality of the physical and human environment. ARM 12.2.431.

The significance determination is made by giving weight to these criteria in their totality. For example, impacts identified as moderate or major in severity may not be significant if the duration is short-term. However, moderate or major impacts of short-term duration may be significant if the quantity and quality of the resource is limited and/or the resource is unique or fragile. Further, moderate or major impacts to a resource may not be significant if the quantity of that resource is high or the quality of the resource is not unique or fragile.

Table 3: Determining the Significance of Impacts

	Criteria Used to Determine Significance
1	The **severity, duration, geographic extent,** and **frequency** of the occurrence of the impact **"Severity"** describes the density of the potential impact, while **"extent"** describes the area where the impact will likely occur, e.g., a project may propagate ten noxious weeds on a surface area of 1 square foot. Here, the impact may be high in severity, but over a low extent. In contrast, if ten noxious weeds were distributed over ten acres, there may be low severity over a larger extent. **"Duration"** describes the time period during which an impact may occur, while **"frequency"** describes how often the impact may occur, e.g., an operation that uses lights to mine at night may have frequent lighting impacts during one season (duration).
2	The probability that the impact will occur if the proposed projects occur; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur
3	Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts
4	The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values
5	The importance to the state and to society of each environmental resource or value that would be affected
6	Any precedent that would be set as a result of an impact of the proposed projecst that would commit FWP to future actions with significant impacts or a decision in principle about such future actions
7	Potential conflict with local, state, or federal laws, requirements, or formal plans

XI. Private Property Impact Analysis (Takings)

The 54th Montana Legislature enacted the Private Property Assessment Act, now found at § 2-10-101. The intent was to establish an orderly and consistent process by which state agencies evaluate their proposed projects under the "Takings Clauses" of the United States and Montana Constitutions. The Takings Clause of the Fifth Amendment of the United States Constitution provides: "nor shall private property be taken for public use, without just compensation." Similarly, Article II, Section 29 of the Montana Constitution provides: "Private property shall not be taken or damaged for public use without just compensation..."

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

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

Table 4: Private Property Assessment Act (Taking and Damaging Assessment)

PRIVATE PROPERTY ASSESMENT CHECKLIST			
Does the Proposed Action Have Takings Implications under the PPAA?	**Question #**	**Yes**	**No**
Do the projects pertain to land or water management or environmental regulations affecting private property or water rights?	1	☐	☒
Does the action result in either a permanent or an indefinite physical occupation of private property?	2	☐	☒
Does the action deprive the owner of all economically viable uses of the property?	3	☐	☒
Does the action require a property owner to dedicate a portion of property or to grant an easement? (If answer is NO, skip questions 4a and 4b and continue with question 5.)	4	☐	☒
Is there a reasonable, specific connection between the government requirement and legitimate state interest?	4a	☐	☐
Is the government requirement roughly proportional to the impact of the proposed use of the property?	4b	☐	☐
Does the action deny a fundamental attribute of ownership?	5	☐	☒
Does the action have a severe impact of the value of the property?	6	☐	☒
Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public general? (If the answer is NO, skip questions 7a-7c.)	7	☐	☒
Is the impact of government action direct, peculiar, and significant?	7a	☐	☐
Has the government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?	7b	☐	☐
Has the government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?	7c	☐	☐
Does the proposed action result in taking or damaging implications?		☐	☒
Taking or damaging implications exist if **YES** is checked in response to Question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if **NO** is checked in response to question 4a or 4b.			
If taking or damaging implications exist, the agency must comply with MCA § 2-10-105 of the PPAA, to include the preparation of a taking or damaging impact assessment. Normally, the preparation of an impact assessment will require consultation with agency legal staff.			
Alternatives: The analysis under the Private Property Assessment Act, §§ 2-10-101-112, MCA, indicates no impact. FWP does not plan to impose conditions that would restrict the regulated person's use of private property to constitute a taking.			

XII. Public Participation

Scoping and Public Meetings

Ongoing local scoping activities for similar native WCT and Arctic grayling population restoration projects have occurred historically. Public meetings will be held in Melrose, MT and Wisdom, MT during the public comment period. Public meeting dates and times are listed below:

- Wisdom Community Center, June 9, 2025, 7:00 PM
- Melrose School, June 10m 2025 7:00 PM

Several strategies were used to inform the public about and solicit comments on the proposed action. These strategies included:

- Direct contact with landowners and concerned citizens over the phone or in person
- Press release
- Legal notice
- Distribution of a scoping letter

For the proposed projects, scoping efforts included queries to the following affected agencies:

- Montana Natural Heritage Program
- US Department of the Interior
    - Fish and Wildlife Service
    - Bureau of Land Management
- US Department of Agriculture
    - Forest Service

Public notice announces availability of the Draft EA for public review, summarizes the proposed projects, identifies the time-period available for public comment, and provides direction for submitting comments.

- **Duration of Public Comment Period:** The public comment period begins on the date of publication on FWP's Public Notice website at https://fwp.mt.gov/news/public-notices. Written or e-mailed comments will be accepted until 5:00 p.m., Mountain Time, on the last day of public comment period, as listed below:

  Length of Public Comment Period: 30 days

  Public Comment Period Begins: May 23, 2025

  Public Comment Period Ends: June 23, 2025

Comments must be addressed to the FWP contact listed below.

- **Where to Mail or Email Comments on the Draft EA:**

  Name: Jim Olsen
  Email: jimolsen@mt.gov
  Mailing Address:
  Montana Fish, Wildlife & Parks
  c/o Trapper and Rock creeks WCT Restoration EA comments
  1820 Meadowlark Lane
  Butte, MT 59701

  Recommendation for Further Environmental Analysis:

NO further analysis is needed for the proposed action	☒
FWP must conduct **EIS** level review for the proposed action	☐

XIII. EA Preparation and Review

	Name	Title

EA prepared by:	Jim Olsen	Big Hole River Fisheries Biologist
EA reviewed by:	Ryan Kreiner Matt Jaeger Deb O'Neill	Region 3 Native Fish Biologist Regional Native Fish Program Manager MEPA Coordinator Legal Counsel

Appendix A: References

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