

**Scoping
and
Notice of Opportunity to Comment
East Fork Boulder Creek Native Trout Restoration Project
Dixie National Forest
March 2010**

Proposed Action:

The Dixie National Forest (Forest Service) proposes to approve implementation of a chemical treatment of East Boulder Creek with the fish toxicant rotenone during the period 2010-2011, with possible extension through 2013. The project activities addressed by the Proposed Action would completely eradicate nonnative trout from the East Fork Boulder Creek and a short segment of Boulder Creek. All fish would be temporarily eliminated from target waters.

Several actions that would not be part of the Forest Service decision are connected to the project, as follows. Treatment of connected waters on private property is required to meet the purpose of the project. Following fish removal, UDWR would introduce the native trout, Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*; CRCT), into the treated stream segments to establish self-sustaining populations. Sterile hybrids of species of nonnative trout may also be stocked by UDWR at some locations following the treatments to provide sport fishing opportunities while native trout become established. The following describes the project in detail, including identification of those actions that are associated with but not part of this Forest Service decision.

Treatment area. The total chemical treatment area would be as follows (see Figure 1):

1. approximately 7.8 miles (12.6 km) of East Fork Boulder Creek from the natural barrier (below headwater meadow) on the East Fork to its confluence with the West Fork Boulder Creek;
2. approximately 0.2 miles (0.4 km) of lower West Fork of Boulder Creek, from a previously constructed barrier to its confluence with East Fork Boulder Creek;
3. approximately 0.5 miles (0.8 km) of Boulder Creek from the confluence of the East and West Forks of Boulder Creek downstream to a previously constructed fish barrier;
4. all seeps and springs flowing into those sections of streams proposed for fish removal; and
5. the Garkane Energy water transfer pipeline between the West Fork Reservoir and King's Pasture Reservoir; King's Pasture Reservoir; a pond on private property in King's Pasture, and the Garkane Energy penstock, between King's Pasture Reservoir and the Garkane Energy Boulder Creek Hydroelectric Power Plant.

Chemical. Liquid emulsifiable and powder rotenone (Liquid Rotenone, 5% Active Ingredient, EPA Registration No. 432-172; Powder Rotenone, 7.4% Active Ingredient,

EPA Registration No. 6458-6) would be used to treat target waters. Rotenone was selected as the chemical to use because of its effectiveness in controlling fish populations and its lack of long-term effects on the environment (Sousa et al 1987). Rotenone is a naturally occurring fish toxicant that is toxic to only fish, some aquatic invertebrates, and some juvenile amphibians at the concentrations planned for the project. It is not toxic to humans, other mammals, and birds at the concentrations used to remove fish (US EPA 2007). It has been widely used in the United States since the 1950's. UDWR has used rotenone successfully in many similar projects and has refined application techniques to minimize adverse side effects to the environment (Hepworth 2000, Hepworth et al. 2000, Hepworth et al. 2001a, Hepworth et al. 2001b, Hepworth et al. 2001c, Ottenbacher and Hepworth 2001, Chamberlain and Hepworth 2002a, Chamberlain and Hepworth 2002b, Chamberlain and Hepworth 2002c, Fridell et al. 2004a, Fridell et al. 2004b, Fridell et al. 2005, Fridell and Rehm 2006).

Potassium permanganate would be used to neutralize the rotenone at suitable locations to prevent the movement of rotenone into non-target waters. Potassium permanganate is a strong oxidizer that breaks down into potassium, manganese, and water. All are common in nature and have no deleterious environmental effects at the concentrations that will be used under the proposed action (Finlayson et al. 2000). Potassium permanganate is used as an oxidizing agent in treatment plants to purify drinking water (EPA 1999). The oxidation process can take some time, and the rotenone/potassium permanganate mixture may remain toxic to fish for a short distance downstream.

Application. Liquid Rotenone would be applied at a rate of 0.5 - 2.0 ppm. In the pond and reservoir, liquid rotenone would be dispersed from small water-craft using pressurized backpack spray units. On streams, liquid rotenone would be applied using drip stations over a 3 - 24 hr period (Finlayson et al. 2000). Drip stations would be located at approximately 0.5 mile (0.8 km) intervals on the main stem, at major springs and seeps in the target reach, and at the intake for the water transfer pipeline. Pressurized backpack sprayers would be used to apply a diluted solution of the chemical to springs and backwater areas containing fish which were not effectively treated by boat or drip station. Rotenone powder may be used in addition to liquid when treating ponds. Rotenone powder would be applied at 0.5 - 2.0 ppm as a wet slurry by boat or hand.

To ensure complete removal of nonnative trout, a minimum of two rotenone treatments is needed throughout the entire proposed treatment reach. East Fork Boulder Creek upstream from the diversion structure that creates Kings Pasture Reservoir, the water transfer pipeline, ponds on private property, and penstock received their first treatment in 2009 under a 2009 Memorandum of Understanding (MOU) between the Forest Service and UDWR and, therefore, would need only one additional treatment in autumn 2010. The remainder would require two treatments, preferably in autumn 2010 and 2011. Following the second treatment, surveys would be conducted to ensure nonnative trout have been completely removed. The project may extend through 2013 in case treatment needs to be postponed due to unsatisfactory conditions or if monitoring indicates that a third treatment is needed.

Rotenone would be neutralized with potassium permanganate downstream from target waters. Two sites are planned: where the penstock water is released at the power plant and at the fish barrier at the lower end of the treatment area. Each site would have a main neutralization station and at least one contingency neutralization station to ensure effectiveness. The neutralization stations will prevent rotenone from escaping the target area.

Post-treatment activity. Following confirmation of complete nonnative trout removal, UDWR would reintroduce CRCT into project stream reaches from “core” CRCT populations or from fish produced by UDWR CRCT brood stocks. Sterile hybrids of species of nonnative trout may also be stocked at some locations following the treatments to provide sport fishing opportunities while native trout become established. All transfers or stocking of fish will comply with Utah State Department of Agriculture rules and UDWR policies.

Design Criteria. The following design criteria will be included in the Proposed Action:

1. Stream sections will be treated in the fall to minimize impacts on non-target wildlife species (amphibians, insectivorous birds and bats). The fall treatment period would also minimize the impacts on sport fishing recreation.
2. All treatments will be preceded by news releases in local papers to notify the public of treatment sites and dates.
3. Application of the chemical will be conducted by licensed pesticide applicators in accordance with all applicable regulations and policies.
4. Motorized access will be by Forest Service system roads. Exception will be minimal, require District Ranger approval, and be consistent with the Dixie National Forest Motorized Travel Plan (ROD, April 2009).
5. Neutralizing sites will be placed to maximize their effectiveness at preventing downstream escapement of rotenone.
6. Treated waters will remain open to fishing.

Actions not directly part of the decision. The following parts of the project, as described above, are not under Forest Service jurisdiction but are considered connected actions and thus included in the environmental analysis:

1. The treatment area includes private property owned by Garkane Energy; thus, this area is not under Forest Service jurisdiction. This includes approximately 1.4 miles of East Fork Boulder Creek, King’s Pasture Reservoir, and the pond in Kings Pasture. To meet the purpose and need of the project, these areas as well as the water in the transmission pipeline and penstock must be treated. As such, although not a part of the decision, Forest Service approval of the chemical treatment of the Forest Service waters is contingent upon the treatment of these non-Forest Service areas.

Expectation is that the entire project treatment area would receive chemical treatment as described. FERC license order Section 4(e), item 16, condition 4, requires Garkane Energy to use its reasonable efforts to cooperate in the work of

UDWR and other agencies to remove non-native fish and re-establish CRCT in the above stream sections. This cooperation has already been demonstrated through construction of the fish barriers and through the first chemical treatment of Kings Pasture Reservoir in 2009.

2. Stocking of fish is under the jurisdiction of UDWR; thus, the CRCT stocking is not under Forest Service jurisdiction. To meet the purpose and need of the project, the stream will need to be stocked with CRCT from core populations or UDWR brood stock post-treatment.

Expectation is that the post-treatment stocking of CRCT would occur as described. As described in the Purpose and Need, the project, including stocking with CRCT, is to implement conservation actions under the CRCT Conservation Agreement and Strategy, to which UDWR is a signatory. In addition, the Forest Service conditions regarding the non-native fish eradication and fish restocking were included in a 2006 settlement agreement relating to the FERC license conditions and signed by Garkane Energy, Forest Service, and UDWR.

3. Fishing regulations, including whether or not treated waters will remain open to fishing, is under the jurisdiction of UDWR. Expectation is that UDWR will manage the fishing regulations to meet the conservation actions under the CRCT Conservation Agreement and Strategy. This is not related to the purpose and need of the project; however, UDWR recognizes the importance of the area to recreation users. It is why UDWR may also stock sterile hybrids of species of nonnative trout at some locations following the treatments while native trout become established.

Purpose & Need:

The purpose of the proposed project is to restore CRCT to their historic range within the East and West Forks of Boulder Creek.

The need for the project is two-fold: (1) to comply with Article 402 and 4(e) conditions of the Federal Energy Regulatory Commission (FERC) License for the Boulder Creek Hydroelectric Project (Project No. 2219-020), and stipulations of the associated Settlement Agreement between Garkane Energy, UDWR, and the U.S. Forest Service and (2) to fulfill obligations of UDWR and the Intermountain Region of the Forest Service to implement conservation actions for CRCT, as signatories to the Colorado River Cutthroat Trout Conservation Agreement and Strategy (CRCT Coordination Team 2006a, 2006b).

Garkane Energy FERC license: On August 31, 2007 FERC issued Garkane Energy its new license for the Boulder Creek Hydroelectric Project (Project No. 2219-020). As required under Article 402 of the license, Garkane Energy developed a Non-native Fish Eradication and Cutthroat Trout Stocking Plan for the purpose of re-establishing CRCT in the streams affected by the license. Article 402 also requires Garkane Energy to implement the plan. The plan includes:

(1) specific measures to be undertaken to eradicate non-native fish by chemical treatment and to re-stock CRCT at the following locations:

(a) East Fork Boulder Creek: from the natural barrier (below headwater meadow) to the confluence with the West Fork of Boulder Creek;

(b) Boulder Creek: from the confluence of the East and West Forks of Boulder Creek to approximately 0.5 miles downstream.

The license, Section 4(e), item 16, condition 14 also includes construction of fish migration barriers at the downstream end of the treatment area. These barriers were completed in 2009. A natural barrier occurs at the upstream end of the treatment area. Upon completion of the treatment, CRCT are to be reintroduced to the treatment area.

Conservation actions for CRCT:

The U.S. Fish and Wildlife Service (FWS) identified CRCT as a “Category 2” candidate in 1985 (Federal Register 50(181):37958-37967). Category 2 “comprises taxa for which information now in possession of the [U.S. Fish and Wildlife] Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat are not currently available to support proposed rules” (ibid.). The species remained a Category 2 candidate with status “declining” in 1991 (Federal Register 56(225):58804-58836) and 1994 (Federal Register 59(219):58982-59028).

The FWS Category 2 Candidate Status was removed when a conservation agreement and strategy for the management of CRCT in Utah was developed in 1997 (UDWR1997). The agreement and strategy provided a list of guidelines and actions for implementation in order to protect and enhance populations of the native trout. Soon after, a range-wide conservation strategy was initiated by the wildlife agencies in Colorado, Utah and Wyoming to reduce threats to CRCT, stabilize or enhance its populations, and maintain its ecosystems (CRCT Task Force 2001). The range-wide strategy was revised in 2006 (CRCT Coordination Team 2006a, 2006b). Conservation efforts to preserve or expand CRCT in the Escalante River drainage are also outlined in the *Escalante River Drainage Management Plan Hydrologic Unit 14070005, Addendum* (Ottenbacher and Hepworth 2003).

A petition to list CRCT trout was reviewed by the FWS in 2004. They concluded in a “90-day finding” that the petition did not present sufficient information to warrant listing or further consideration (Federal Register 69:21151-21158). The FWS concurred with the petitioner that the current range of CRCT has been greatly reduced from their historic distribution but noted that “State management efforts...continue to improve the outlook for the CRCT.” Later, in 2007, the FWS, in a “12-month finding” concluded that listing of CRCT was not warranted at that time; however, they did determine that the distribution of CRCT had been reduced from historic levels to about 13 percent of historic habitat and that existing populations continue to face adverse impacts,

specifically hybridization with and competition from non-native trout, in most of the historic range (Federal Register 72 (113): 32589 – 32605).

Implementation of conservation actions through the *Conservation Agreement and Strategy* have been the major management efforts the FWS felt had improved the outlook for the species in both their 2004 and 2007 findings of not warranted for listing for the species (Federal Register 69(76):21151-21158 and 72(113):32589-32605). Reintroduction efforts within the CRCT's historic range have been the most important conservation actions for ensuring persistence of the species and preventing federal listing under the Endangered Species Act. Reintroduction projects typically involve construction or enhancement of fish-migration barriers, the removal of non-native trout, and transfer of native trout from "core" source populations. These techniques have been instrumental in increasing the number of known CRCT populations in southwestern Utah (Lower Colorado Geographic Management Unit) from 5 populations in about 8.2 miles (13.2 km) of stream in 1998 to 13 populations in over 59.8 miles (96.2km) of stream in 2007 (Hepworth et al. 2001, Hadley et al. 2008). These past treatments and reintroductions have made the status of CRCT more secure.

Expanding the population of CRCT in the Boulder Creek drainage is an important step in securing the persistence of the subspecies within its historic range. CRCT are managed within eight geographical management units (GMUs), as outlined in the range-wide conservation strategy. Boulder Creek is one of the major drainages within the Lower Colorado GMU and represents some of the best potential habitat remaining for renovation within the unit. Three of the other four remnant populations have already been expanded within their respective drainages, and the one that has not (Water Canyon Creek) has little, if any, additional suitable habitat for population expansion within the drainage. Additionally the East Fork and West Fork of Boulder Creek both contain remnant populations of CRCT that were isolated from nonnative trout above barriers prior to their discovery (Hepworth et al. 2001). The remnant population in East Fork Boulder Creek is currently only secure in a 0.5 mile (0.8 km) section of stream above a waterfall barrier (Hepworth et al. 2001). A similar, secure remnant population existed in the 2.0 miles (3.2 km) of West Fork Boulder Creek above the West Fork Reservoir dam in the late 1990s. In 2000 and 2001, this population was expanded to repopulate the stream from below the West Fork Reservoir to just above its confluence with East Fork Boulder Creek, through barrier construction, nonnative trout removal, and CRCT reintroduction (Native Trout Enhancement Projects in Southwestern Utah Waters, Finding of No Significant Impact, August 30, 1999).

The proposed expansion of the population of CRCT in East Fork Boulder Creek will improve population persistence, health, and security in two major ways. First, the current population faces a high probability of extinction, because it is isolated in an extremely small section of stream, which increases the risk of negative demographic or stochastic events causing extirpation (Hildebrand and Kershner 2000). Increasing size and distribution of the secured remnant population will help mitigate the threat of extirpation associated with small populations that are restricted to fragmented habitats. Second, expanding the current population of CRCT in East Fork Boulder Creek

downstream from the confluence with West Fork Boulder Creek would connect the two populations, creating a metapopulation in the drainage. The connection would provide additional protection against catastrophic events, as well as facilitate gene flow between CRCT within the drainage, thereby preventing the loss of genetic diversity (Allendorf 1983; Lacy and Lindenmayer 1995). Connecting the populations in the two forks of Boulder Creek would create the largest (over 15.7 miles [25.3 km] of stream) connected population of CRCT in the Escalante River drainage.

CRCT is also a Forest Service Region 4 sensitive species. FSM 2670.32(1) policy is that for sensitive species Forests will “Assist states in achieving their goals for conservation of endemic species.” This project would do that.

Issues:

Under the 2009 MOU, the Forest Service recognizes that registered piscicide application to remove unwanted aquatic species on Forest Service lands in Utah is a State action and that the Forest Service need not prepare environmental analyses under NEPA for actions undertaken solely by the State. The 2009 treatment was conducted under this provision. The MOU also provides that the Forest Service may require NEPA analysis where the “level of controversy” with the proposal suggests authorization and NEPA analysis to be prudent. Subsequent to the 2009 treatment, members of the community of Boulder, Utah, raised the issue of public health and safety with the use of rotenone in waters that are upstream of the town. Additional issues raised were the potential effects to stream biodiversity and to non-target organisms. The Forest Supervisor, Dixie National Forest, felt the discussion with the community demonstrated a level of controversy such that, in response to them and in accordance with the MOU, he initiated this NEPA analysis. The issues that were raised will be addressed in the environmental analysis, and a non-chemical treatment alternative will be considered.

Alternatives to Be Considered:

At least two alternatives to the Proposed Action will be considered during environmental analysis: the No Action alternative, as required by law for a basis of comparison, and a non-chemical treatment alternative.

Responsible Official:

The Responsible Official for this analysis and decision is the Forest Supervisor, Dixie National Forest, 1789 N. Wedgewood Lane, Cedar City, UT 84721.

Decision to Be Made:

The Responsible Official will decide whether to implement the Proposed Action as described, a modification thereof, another alternative, or no action. The decision will be subject to review under Forest Service Appeal regulations.

Comments Period:

The opportunity to comment ends 30 calendar days following the date of publication of the legal notice for this project in *The Spectrum*, St. George, UT. It is the responsibility

of all individuals and organizations to ensure that their comments are received in a timely manner. Individuals and organizations wishing to be eligible for appeal must provide name, address, and comments on the proposed action along with supporting reasons that the Responsible Official should consider in reaching a decision. A signature or other verification of identity must be provided upon request (36 CFR 215.6). Comments received, including names and addresses of those who comment, will be considered part of the public record for this project and will be available to the public upon request. Comments should include the information required pursuant to 36 CFR 215.6(a)(3).

Address:

Written comments must be hand-delivered, postmarked by the Postal Service, faxed, or e-mailed by 11:59 pm on the 30th calendar day following publication of the legal notice for this project. Comments should be submitted to: Gina Lampman, East Fork Boulder Creek Native Trout Restoration Project ID Team Lead, 1789 North Wedgewood Lane, Cedar City, UT, 84721(Office Hours are 8:00a to 4:30p, M - F). If submitting comments via FAX send to (FAX: 435-865-3791) or electronically send to comments-intermtn-dixie@fs.fed.us. Electronic comments should be in Word (.doc), Rich Text (.rtf) or PDF (.pdf) format.

Additional Information:

For additional information regarding this project, contact Gina Lampman at the Dixie National Forest Supervisor's Office at (435) 865-3794.