

# **EAST FORK BOULDER CREEK COLORADO RIVER CUTTHROAT TROUT RESTORATION PROJECT**



# WHAT A LONG STRANGE TRIP IT'S BEEN....

- HISTORY
- CONTROVERSY
- PRESENT
- FUTURE



# HISTORY – CRCT REDISCOVERY IN THE ESCALANTE DRAINAGE: 1980S-1990S

- ANGLERS IDENTIFIED IN THE LATE 1980S
- GENETICS VERIFIED AS PURE COLORADO RIVER CUTTHROAT TROUT (CRCT)
- BASIN WIDE SAMPLING IN 1997-1998 (HEPWORTH ET AL. 2001)
- 5 POPULATIONS OF CRCT IN 8.2 MILES OF STREAM



Western North American Naturalist 61(2), © 2001, pp. 129-138

## OCCURRENCE OF NATIVE COLORADO RIVER CUTTHROAT TROUT (*ONCORHYNCHUS CLARKI PLEURITICUS*) IN THE ESCALANTE RIVER DRAINAGE, UTAH

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**ABSTRACT.**—Field surveys were conducted during 1997 and 1998 documenting the distribution and abundance of Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*) in Escalante River tributaries. This documented occurrence of native trout in the Escalante River drainage of southern Utah represents an expansion of the known historic range of this subspecies as reported before the 1990s. We found 5 populations of native trout ranging in biomass from 3.0 to 104.2 kg ha<sup>-1</sup> and occupying 13.2 km of streams of 130 km of estimated historic habitat. Current distribution and abundance of Colorado River cutthroat trout were compared to early introductions of nonnative trout stocked for sport fishing purposes. Native cutthroat trout have been displaced by nonnative cutthroat trout (*O. c. bowateri*), rainbow trout (*O. mykiss*), brook trout (*Salvelinus fontinalis*), and brown trout (*Salmo trutta*) except where they were isolated by physical or biological barriers. Displacement may have been more extensive except for the remoteness of the drainage and relatively recent introductions of nonnative trout. These conditions limited the overall amount of the drainage stocked, numbers of nonnative trout stocked, and time over which stocking occurred. Discoveries of native trout populations within the Escalante River drainage have allowed expanded conservation of this subspecies by adding new populations to what was known to exist and by increasing the known natural range of this fish.

**Key words:** cutthroat trout, native trout, Colorado River, Escalante River, drainage, occurrence, abundance, distribution, management, nonnative trout, stocking, history.

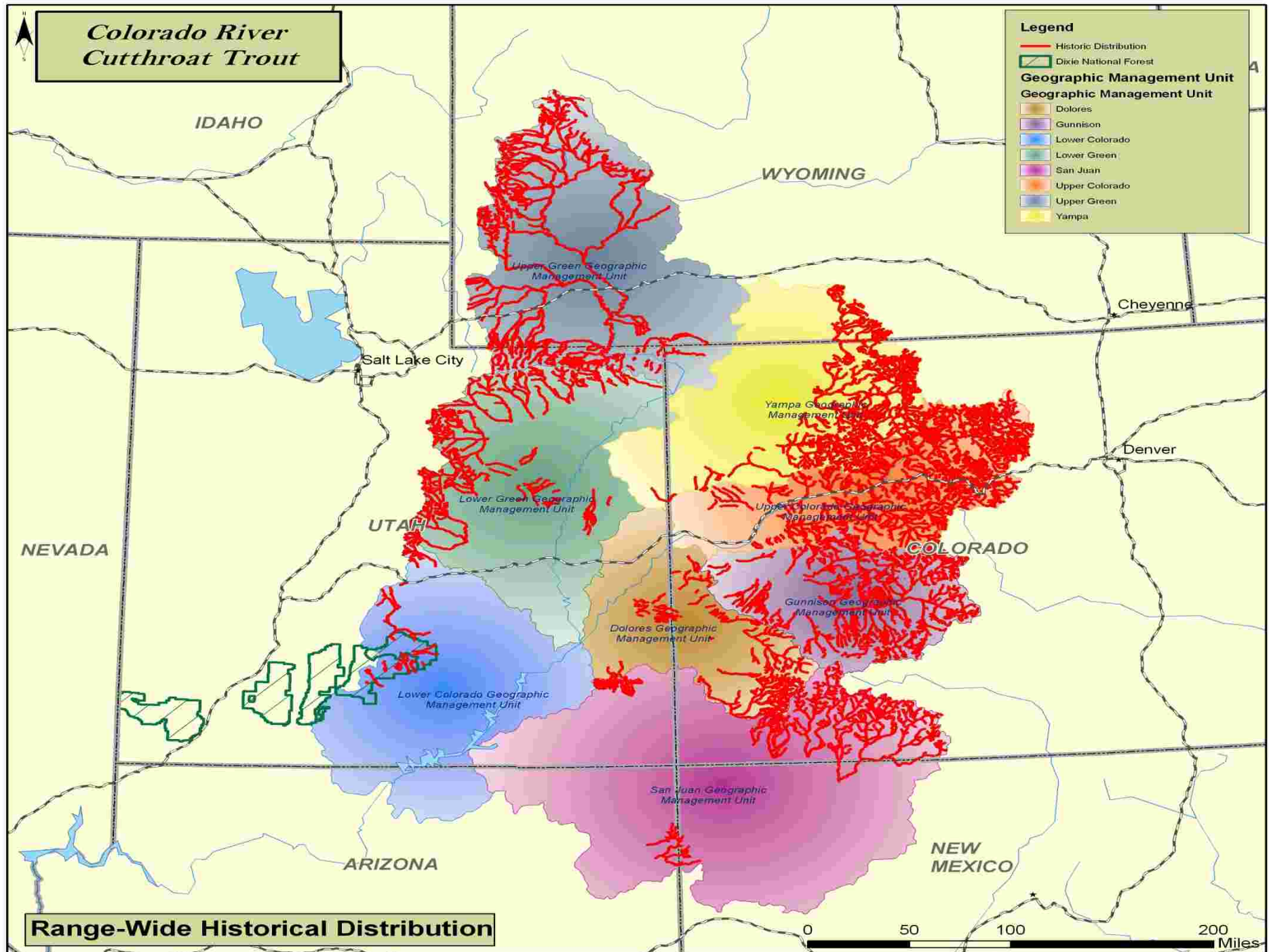
Historically, the Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*; hereafter referred to as CRCT) was found in cold-water habitats of the upper Colorado and Green River basins. Its northern distribution extended into Wyoming, and it was bounded to the east and west in Colorado and Utah, respectively. Within northern Utah, Kershner et al. (1997) described CRCT from streams on the north slope of the Uinta Mountains, and Cope (1955) stated that CRCT were naturally found in numerous streams on the south slope of the Uinta Mountains. Subdrainages of the Colorado River basin containing trout habitat in central and southern Utah are more fragmented than in northern Utah and separated by greater distances. In these areas historic distribution of CRCT is less certain, but CRCT were known to occur naturally in Fish Lake (Hazzard 1935) at the headwaters of the Fremont River (also known in its lower reaches as the Dirty Devil River). Behnke and Benson (1980) considered the Fremont River to be the southernmost distribution of CRCT in Utah. Prior to 1990 no reports of native trout were

made from south of the Fremont River, and systematic surveys were not conducted. The discovery of CRCT in East Boulder Creek (a tributary to the Escalante River, Utah) in 1990 caused speculation that the historic distribution could have extended as far south, on the west side of the Colorado River, as the Escalante River drainage (Behnke 1992). The Escalante River drainage is contiguous with the Fremont River drainage but not located as far south as the San Juan River, Colorado, which is the southern distribution of CRCT on the east side of the basin. If CRCT colonized the San Juan River drainage by moving down the Colorado River, presumably, they also had access to the Escalante River. Nevertheless, it was not known if this single population of fish in East Boulder Creek resulted from an early introduction by man. In 1992 we field identified another isolated population of CRCT in West Boulder Creek that potentially occurs naturally and verified the identification by independent review (Shiozawa and Evans 1994). Young et al. (1996) noted that comprehensive descriptions of the historic range of

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# Colorado River Cutthroat Trout



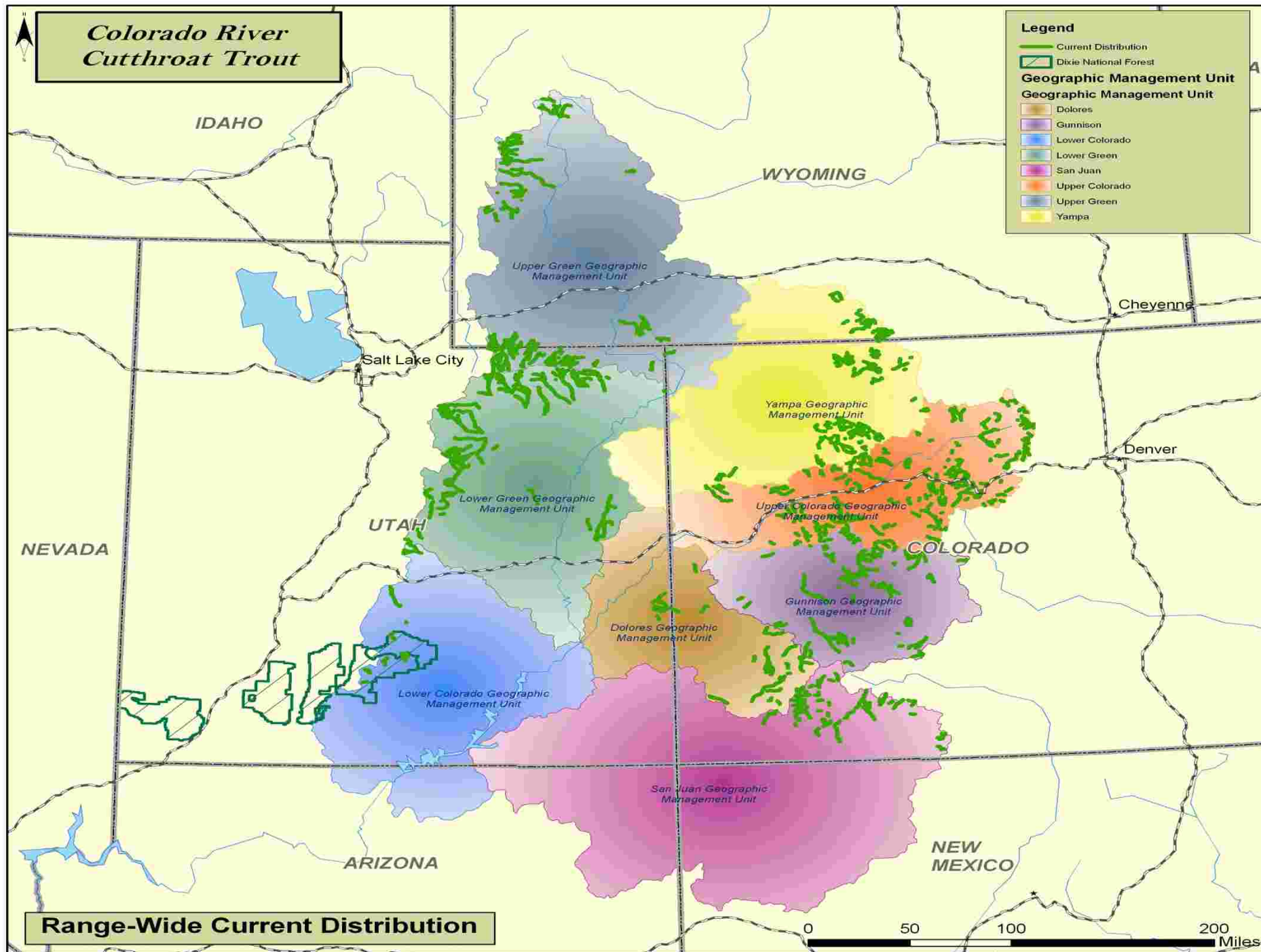
**Legend**

- Historic Distribution
- Dixie National Forest
- Geographic Management Unit**
- Dolores
- Gunnison
- Lower Colorado
- Lower Green
- San Juan
- Upper Colorado
- Upper Green
- Yampa

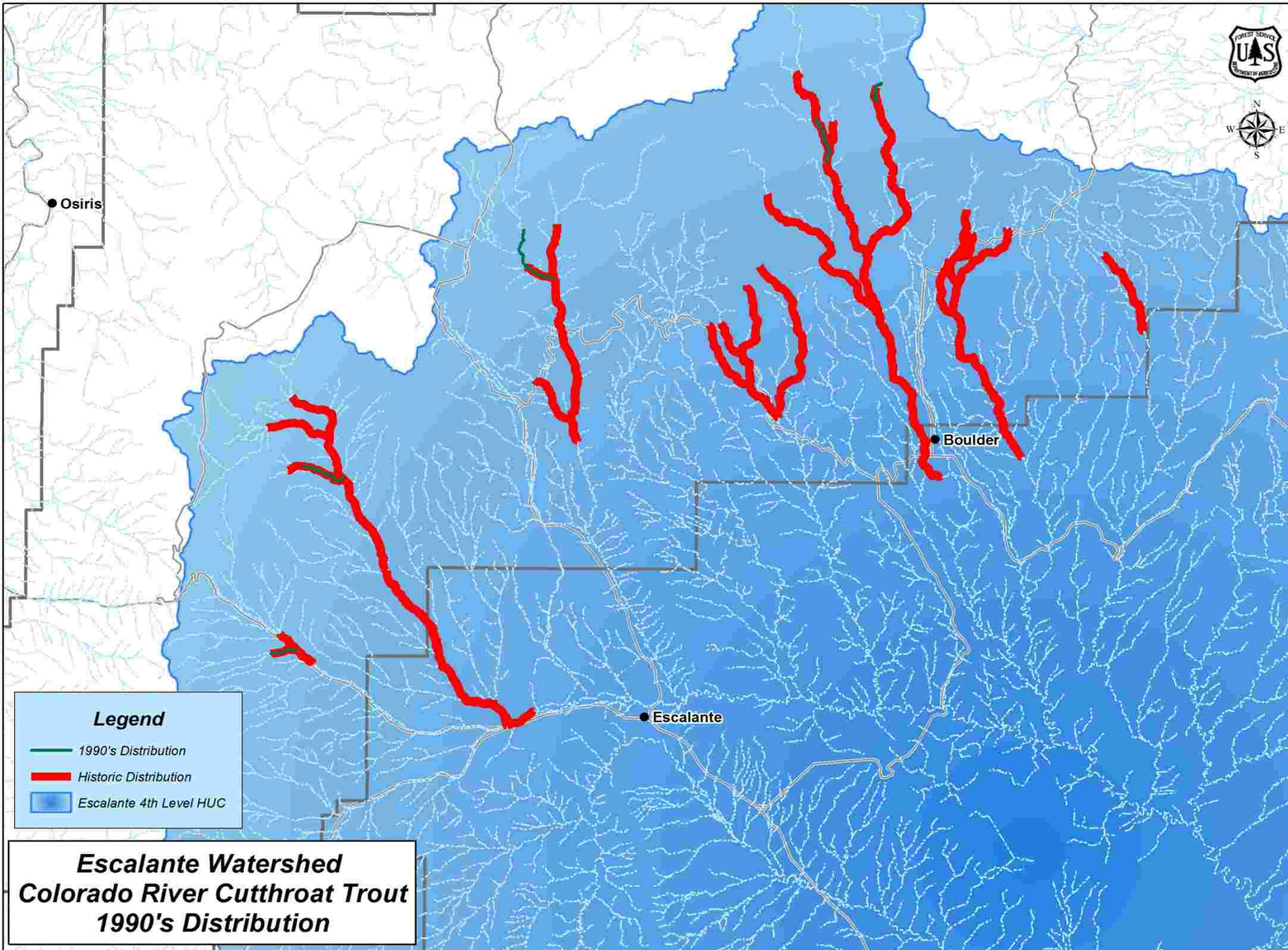
Range-Wide Historical Distribution

0 50 100 200 Miles

# Colorado River Cutthroat Trout







**Legend**

-  1990's Distribution
-  Historic Distribution
-  Escalante 4th Level HUC

**Escalante Watershed  
Colorado River Cutthroat Trout  
1990's Distribution**

# HISTORY – LAW AND POLICY

- 1991 AND 1994 - SPECIES IDENTIFIED AS A “CANDIDATE” SPECIES FOR LISTING UNDER ESA
- 1999 - SPECIES PETITIONED FOR LISTING UNDER ESA
- 2004 - 90 DAY FINDING FOUND 12 MONTH STATUS REVIEW NOT WARRANTED
- LITIGATION
- 2006 - RANGE WIDE CONSERVATION AGREEMENT AND STRATEGY
- 2007 - 12 MONTH FINDING OF NOT WARRANTED

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition To List the Colorado River Cutthroat Trout as Threatened or Endangered

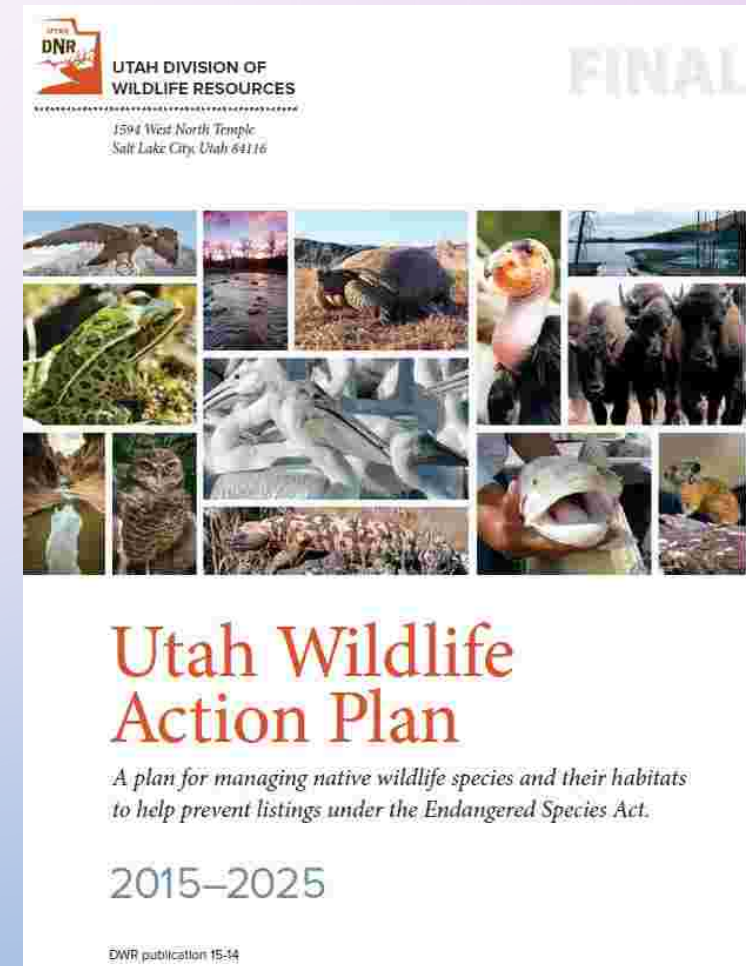
AGENCY: Fish and Wildlife Service, Interior

ACTION: Notice of a 12-month petition finding.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce our 12-month finding for a petition to list the Colorado River cutthroat trout (CRCT) (*Oncorhynchus clarkii pleuriticus*) as a threatened species throughout its range in the United States, pursuant to the Endangered Species Act of 1973, as amended. After a thorough review of all available scientific and commercial information, we find that listing the CRCT as either threatened or endangered is not warranted at this time. We ask the public to continue to submit to us any new information that becomes available

# HISTORY – LAW AND POLICY

- UTAH SPECIES OF GREATEST CONSERVATION NEED
- INTERMOUNTAIN REGION OF THE FOREST SERVICE REGIONAL FORESTER “SENSITIVE” SPECIES

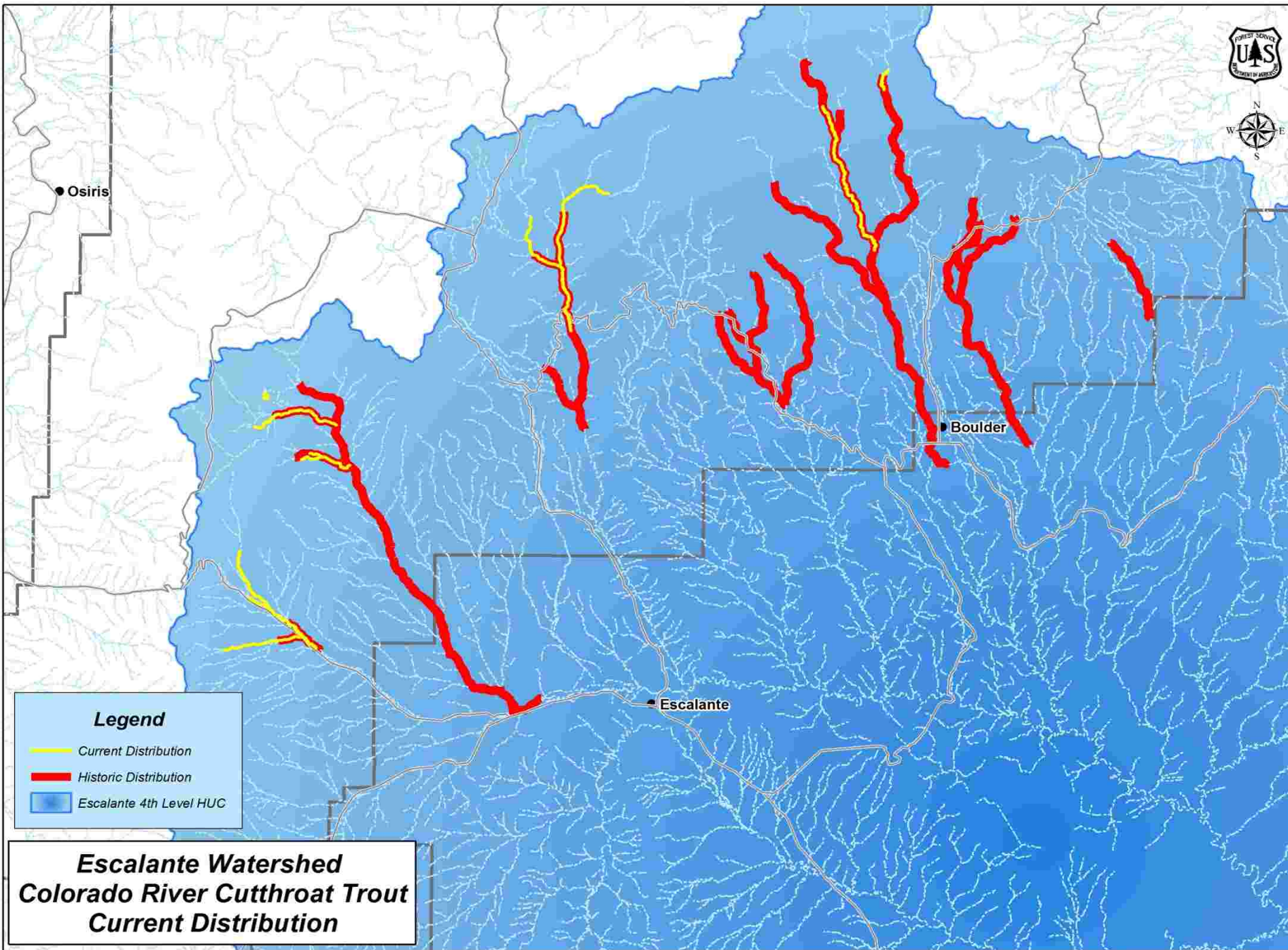






# HISTORY – CONSERVATION ACTIONS

- 1997 - DOUGHERTY BASIN BROOD STOCK DEVELOPED
- 1990S-EARLY 2000S - REMOVAL OF NONNATIVE TROUT WITH ROTENONE FROM MORE THAN 14.9 MILES OF STREAM (WEST FORK BOULDER CREEK, WEST BRANCH PINE CREEK, PINE CREEK, WHITES CREEK, TWITCHELL CREEK) IN THE ESCALANTE RIVER DRAINAGE
- 1990S-EARLY 2000S - REMOVAL OF NONNATIVE TROUT FROM MORE THAN 29.5 MILES OF STREAM IN THE FREMONT RIVER DRAINAGE





**Legend**

-  Current Distribution
-  Historic Distribution
-  Escalante 4th Level HUC

**Escalante Watershed  
Colorado River Cutthroat Trout  
Current Distribution**



# HISTORY – CONSERVATION ACTIONS

- RIPARIAN ENCLOSURES
- RIPARIAN VEGETATION TREATMENTS
- AQUATIC PASSAGE PROJECTS
- ROAD IMPROVEMENT/DECOMMISSIONING





# HISTORY - EAST FORK BOULDER CREEK

- EARLY 2000S -NEXT ON THE LIST TO HAVE NONNATIVE TROUT REMOVED
- 2004ISH – CRCT RESTORATION ON EAST FORK BOULDER CREEK PULLED INTO GARKANE RELICENSING SETTLEMENT AGREEMENT DISCUSSIONS
- 2007 – GARKANE RELICENSING
  - 2 CFS FLOW RELEASE
  - CRCT RESTORATION IN THE EAST FORK BOULDER CREEK



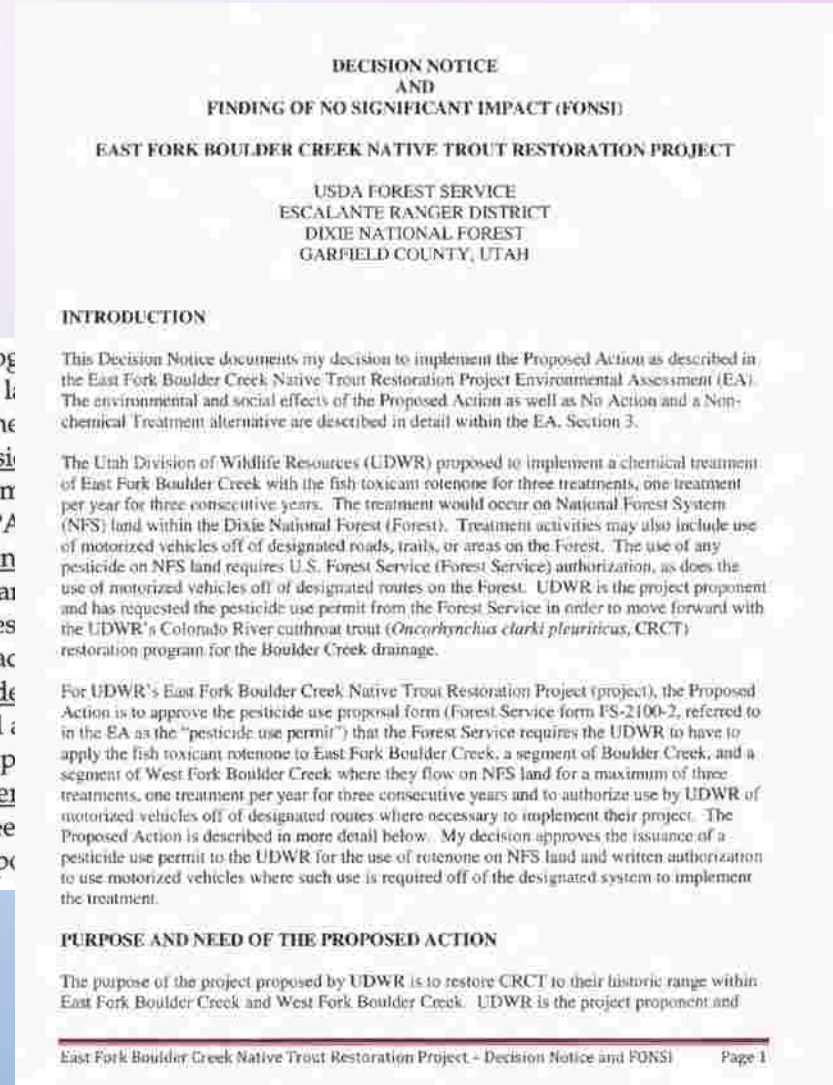
# HISTORY - EAST FORK BOULDER CREEK

- 2009-2011 – FISH BARRIER CONSTRUCTION
- 2009 AOP COMPLETION ON HAW'S PASTURE ROAD OVER EAST FORK BOULDER CREEK
- 2009 – ROTENONE TREATMENT TO REMOVE NONNATIVE TROUT FROM HEADWATER MEADOW TO KING'S PASTURE
- 2010 – INITIATION OF 2 CFS FLOW RELEASE FOR CRCT HABITAT IMPROVEMENT IN THE EAST FORK BOULDER CREEK



# HISTORY - EAST FORK BOULDER CREEK

- 2009 – PUBLIC CONCERN OVER FIRST ROTENONE TREATMENT
  - PUBLIC MEETING WITH BOULDER COMMUNITY
  - MEETING WITH TOWN REPRESENTATIVES – JANUARY 2010
- 2010 – INITIATION OF FOREST SERVICE ENVIRONMENTAL ANALYSIS
  - PUBLIC OPEN HOUSE WITH BOULDER COMMUNITY (APRIL 2010)
  - MEETINGS AND PHONE CONVERSATIONS WITH KING’S PASTURE LANDOWNERS 2010-2011
- 2011 – DECISION AND FONSI FOR EAST FORK BOULDER CREEK CRCT RESTORATION PROJECT
  - 19 APPEAL LETTERS



10. Recognized by the Physiologic Potential Endangered Species Act Wild and Other proposed

ic species on conducted NFS lands to d. That r the valuation or e authorizing : Minimum ities and n mutually with the o be prudent.



# HISTORY - EAST FORK BOULDER CREEK

- 2011 – APPEAL RESOLUTION MEETINGS WITH APPELLANTS IN BOULDER
- 2011 – STANDING APPEAL REVIEW TEAM CONVENED
- 2012 – DECISION REMANDED
- 2012 – IRRIGATORS FILE COMPLAINT REGARDING 2 CFS FLOW RELEASE
- 2013 – INJUNCTION AGAINST 2 CFS FLOW RELEASE AND RELEASE STOPPED
- 2013-2016 – REVISED SETTLEMENT AGREEMENT DISCUSSIONS
  - 2015 INDIVIDUAL MEETINGS WITH INTERESTED (15) BOULDER COMMUNITY MEMBERS



# HISTORY - EAST FORK BOULDER CREEK

- 2016 – AMENDED LICENSE FOR BOULDER HYDROPLANT ISSUED
  - REMOVAL OF 2 CFS
  - ADDITION OF AOP PROJECTS ON WEST FORK BOULDER CREEK
  - ADDITION OF FISH TRAP
  - ALTERNATIVE OFF SITE MITIGATION
- 2017 – DEVELOPMENT OF MODIFIED TREATMENT PLAN
- 2017 – PRESENTATION TO GARFIELD COUNTY
- 2018 – PUBLIC MEETING WITH COMMUNITY OF BOULDER AND INDIVIDUAL MEETINGS WITH INTERESTED COMMUNITY MEMBERS





# INTERIM FOREST SERVICE POLICY CHANGES

## 2013 MOU WITH UTAH


When action is required by the U.S. Forest Service to permit the use of pesticides in water bodies located on NFS land, or ancillary activities, this action will typically fall under the categorical exclusion at 36 CFR 220.6(d)(8) for minor, short-term uses of NFS land, which does not require documentation by the U.S. Forest Service. There may be exceptions where a specific pesticide proposal or ancillary activities will require more than minor, short-term uses of NFS land, or where there are extraordinary circumstances related to the proposal. Such exceptions include, but are not necessarily limited to the following situations:

- Physical disturbance of land: for example, where barriers must be constructed on NFS lands to accomplish treatment objectives.
- Presence of ESA-listed species or designated critical habitat.
- Congressionally designated areas such as Wilderness, Wild and Scenic Rivers, National Recreation Areas; or Research Natural Areas, and Native American Cultural Sites.

Notification of the U.S. Forest Service by the Division will provide the opportunity to assess whether there is any reason that the waiver of permit requirements and application of the categorical exclusion would not apply to specific proposal.

## FOREST SERVICE MANUAL DIRECTION – FSM 2150 AND 2610

2150  
Page 1 of 13



**FOREST SERVICE MANUAL  
INTERMOUNTAIN REGION (REGION 4)  
OGDEN, UT**

**FSM 2100 – ENVIRONMENTAL MANAGEMENT**

**CHAPTER 2150 – PESTICIDE-USE MANAGEMENT AND COORDINATION**

**Supplement No.:** 2100-2012-1

**Effective Date:** August 13, 2012

**Duration:** Effective until superseded or removed

**Approved:** HARV FORSGREN  
Regional Forester

**Date Approved:** 08/01/2012

**Posting Instructions:** Supplements are numbered consecutively by Title and calendar year. Post by document name. Remove entire document and replace with this supplement. Retain this transmittal as the first page of this document. The last supplement to this title was 2100-2004-1 to FSM 2130.

<b>New Document(s):</b>	2150	13 Pages
<b>Superseded Document(s) by Issuance Number and Effective Date</b>	2150 (Supplement 2100-93-1, 8/4/1993)	12 Pages

**Digest:**

**2150** – Language was added to incorporate new permitting requirements issued by the Environmental Protection Agency for National Pollutant Discharge Elimination System (NPDES) permits. Language was also added to reflect recent Memorandums of Understanding (MOU's) between the States and the Intermountain Region of the Forest Service related to State use of pesticides.

**2150.44** – Removes coordination through the Integrated Pest Management Work Group and specifies coordination with the affected staff areas. Adds language related to use of a Pesticide-Use Proposal Form (FS-2100-2) and pesticide data tracking. Adds language related to review of NPDES Notice of Intent (NOI) packages. Adds language that requires participation in the use of pesticides related to invasive species.



# COMMUNITY CONCERNS – PUBLIC HEALTH

## Public Health: Chemical Exposure

### Specialist Report

#### East Fork Boulder Creek Native Trout

#### Restoration Project

#### USDA-Forest Service-Dixie National Forest

Submitted by: /s/ Mike Golden

Mike Golden, Forest Fisheries Biologist  
Dixie National Forest

Date: June 30, 2011



## Rotenone Use in Fish Management and Parkinson's Disease: Another Look

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### INTRODUCTION

Rotenone is a non-specific botanical insecticide with some acaricidal properties. As recently as 6 years ago, it was used in home gardens for insect control and for lice and tick control on pets, and historically it has been used in the agricultural production of leafy and fruity vegetables, stone fruits, and berries. Many fish and wildlife agencies in North America, Europe, Africa, Australia, and New Zealand also use rotenone for fish eradication: as part of eliminating invasive species and diseases, restoring native species, and managing sports fish (Finlayson et al. 2000, 2010).

Ten years ago, the American Fisheries Society's (AFS) Task Force on Fishery Chemicals (2001) reviewed the avail-

able studies on the relationship between Parkinson's disease (PD) and rotenone. This review focused on the implications to fish managers and centered on an Emory University study by Betarbet et al. (2000). We were concerned that the inaccurate and incomplete reporting of this study and others might lead to unfounded fears associated with using rotenone in fish management. These concerns were not unfounded; the PD issue has been brought up by project opponents over the last decade in an attempt to derail and discredit fish management projects involving rotenone, as recently as 2011 in Utah (U.S. Forest Service 2011) and Arizona (Arizona Game and Fish Department 2011).

Since 2001, many other studies have been completed that suggest that we revisit the issue. As was the case in 2001, there is little doubt that rotenone, given excessive and unrealistic exposure, may cause specific damage to nerve cells, inducing symptoms of neurotoxicity similar to those associated with PD. The quandary remains in how to interpret these studies: given that (1) the routes of exposure employed are typically irrelevant to rotenone's use in fish management and (2) the neurological symptoms from rotenone demonstrated in laboratory studies are broader than those typically seen in PD (i.e., cold symptoms can represent many illnesses, including colds). Here we give a broad overview and assessment of the available evidence (detailed information can be found in the referenced studies).

### PARKINSON'S DISEASE AND EFFECTS OF ROTENONE EXPOSURE

The U.S. Library of Medicine (in 2012) defines PD as a progressive degenerative neurological disorder characterized by resting tremor, rigidity, inability to maintain posture, and generally slow movement (see <http://ncbi.nlm.nih.gov/pubmedhealth/PMH0001762>). There are two general types of PD. Familial PD may occur early in life and has a clear genetic (inherited) component. Sporadic PD typically occurs in the elderly and the incidence increases with age. The pathology of PD involves the progressive loss of dopamine-secreting nerve cells in the middle section of the brain (substantia nigra). The loss of the neurotransmitter dopamine in the brain is associated with overt signs of PD.

Most studies have focused on the controversial use of rotenone, using laboratory animal models, largely to understand the pathogenicity of PD for development of effective treatments. These studies began with the work of Betarbet et al. (2000), who, through intravenous injection of rotenone directly into the brain over 5 weeks, produced damage to brain tissue (microscopic deposits of protein referred to as "Lewy bodies") similar in character to that in PD. Other studies have involved high doses or long periods of subcutaneous, intravenous, or direct brain exposures not directly relevant to human health risk.

# COMMUNITY CONCERNS – ECOLOGICAL RAMIFICATIONS

## Aquatic Biota

### Specialist Report

#### East Fork Boulder Creek Native Trout

#### Restoration Project

#### USDA-Forest Service-Dixie National Forest

Submitted by: /s/ Mike Golden

Mike Golden, Forest Fisheries Biologist  
Dixie National Forest

Date: June 30, 2011



## FEATURE: FISHERIES MANAGEMENT

### Piscicides and Invertebrates: After 70 Years, Does Anyone Really Know?

Mark R. Vinson,  
Eric C. Dinger, and  
Deanna K. Vinson

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**ABSTRACT:** The piscicides rotenone and 3-trifluoromethyl-4-nitrophenol (3-trifluoromethyl-4-nitrophenol) have been used for more than 70 years to manage fish populations by eliminating undesirable fish species. The effects of piscicides on aquatic invertebrate assemblages are considered negligible by some and significant by others. This difference of opinion has created contentious situations and delayed native fish restoration projects. We review the scientific evidence and report that short-term (< 3 months) impacts of piscicides to invertebrate assemblages varied from minor to substantial and long-term (> 1 year) impacts are largely unknown. Recovery of invertebrate assemblages following treatments ranged from a few months for abundances of common taxa to several years for rarer taxa. Variation in reported effects was primarily due to natural variation among species and habitats and a lack of adequate pre- and post-treatment sampling which prevents determining the true impacts to invertebrate assemblages. The factors most likely to influence impacts and recovery of aquatic invertebrate assemblages following piscicide treatments are: (1) concentration, duration, and breadth of the piscicide treatment; (2) invertebrate morphology and life history characteristics, including surface area to volume ratios, type of respiration organs, generation time, and propensity to disperse; (3) refugia presence; and (4) distance from colonization sources.

#### INTRODUCTION

The piscicides rotenone and 3-trifluoromethyl-4-nitrophenol (3-trifluoromethyl-4-nitrophenol) have been used for more than 70 years to manage fish populations by eliminating undesirable fish species (McClay 2000). While piscicides are intended to control and eradicate fish, they can also be toxic to non-target aquatic biota, such as invertebrates and amphibians. Impacts on aquatic invertebrates are a concern because of their role in ecosystem processes and their importance as food sources for fish. A popular belief among fisheries professionals has generally been that impacts to invertebrates are minimal and short-term. This view is frequently repeated in both professional society publications (e.g., Finlayson et al. 2005), peer-reviewed scientific publications (e.g., Williams 2002, 2007), and in piscicide project planning documents. Alternatively, others, such as the Center for Biological Diversity (2003), have claimed that piscicides cause irreversible damage. This difference of opinion has led to litigation and caused delays in native fish restoration projects (Finlayson et al. 2005). We suggest that the true impacts of rotenone and 3-trifluoromethyl-4-nitrophenol on invertebrate populations are not well known. The objective of this article is to review published studies on the effects of rotenone and 3-trifluoromethyl-4-nitrophenol on invertebrate assemblages. Lastly, we provide some recommendations on sampling schemes to allow for more robust analyses of piscicide effects.

### Piscicidas e invertebrados: después de 70 años ¿Realmente alguien sabe?

**RESUMEN:** Los piscicidas rotenona y 3-trifluorometil-4-nitrofenol han sido utilizados por más de 70 años para manejar poblaciones de peces, eliminando especies indeseables. Para algunos autores los efectos de los piscicidas en las asociaciones de invertebrados acuáticos son considerados como insignificantes sin embargo, para otros, son importantes. La diferencia entre las opiniones ha creado una situación litigiosa, retrasando así los proyectos de restauración de peces nativos. Revisando la evidencia científica, se encontró que en el corto plazo (<3 meses) los impactos de los piscicidas en las asociaciones de invertebrados varió de menor a sustancial, y en el largo plazo (>1 año) los impactos son básicamente desconocidos. Tras recibir los tratamientos, la recuperación de dichas asociaciones fue de pocos meses para los taxa más abundante hasta varios años para los taxa más raros. La variación en los efectos reportados se debió principalmente a la variación natural entre especies y hábitats y a la falta de un adecuado muestreo pre y post-tratamiento. Los factores que más probablemente determinen el impacto y recuperación de las asociaciones de invertebrados después del tratamiento con piscicidas son: (1) concentración, duración y espectro del tratamiento de piscicida; (2) la morfología de los invertebrados así como las características de su historia de vida, incluyendo la razón superficie-volumen, tipo de órganos respiratorios, tiempo generacional y propensión a la dispersión; (3) presencia de refugios; y (4) distancia hacia las áreas de colonización.

# COMMUNITY CONCERNS – LACK OF ALTERNATIVES

- ANGLING/MECHANICAL REMOVAL
  - ANALYZED IN 2011 ENVIRONMENTAL ANALYSIS
    - EFFECTIVENESS CONCERNS
    - AT LEAST A 10 FOLD COST INCREASE
- SUPER MALE (YY) FISH – **NEW TECHNOLOGY**
  - PROBABLY 5 YEARS OUT FOR UTAH BROOD OF BROOK TROUT
  - REQUIRE SIGNIFICANT POPULATION REDUCTION FOR POTENTIAL SUCCESS
  - MORE DEVELOPMENT NEEDED FOR RAINBOW TROUT AND BROWN TROUT DOWNSTREAM FROM KING'S PASTURE
- ALCOHOL BASED ROTENONE FORMULATION – **NEW TECHNOLOGY**
  - DEVELOPED AND REGISTERED
  - CURRENTLY UNAVAILABLE

## Effectiveness and Cost Comparison

### Specialist Report

#### East Fork Boulder Creek Native Trout Restoration Project

#### USDA-Forest Service-Dixie National Forest

Submitted by: /s/ Mike Golden

MIKE GOLDEN, FOREST FISHERIES BIOLOGIST

Date: June 30, 2011

Dixie National Forest





# REDUCING RISK IN DRAFT 2018 EAST FORK BOULDER CREEK ROTENONE TREATMENT PLAN

- COMMUNITY NOTIFICATION
- USE OF CFT LEGUMINE ROTNEONE FORMULATION
- POTENTIAL TIMING ADJUSTMENTS TO WORK WITH IRRIGATORS
- PROJECT AREA CLOSURE
- PROJECT AREA PLACARDING
- APPLICATION BY STATE CERTIFIED APPLICATORS
- NEUTRALIZATION WITH POTASSIUM PERMANGANATE
- SENTINEL FISH BIOASSAYS
- PRE- AND POST- AQUATIC INVERTEBRATE MONITORING
- WATER QUALITY MONITORING

## East Fork Boulder Creek Native Trout Restoration Project Utah Division of Wildlife Resources January 2018

The Utah Division of Wildlife Resources (UDWR) proposes the implementation of a chemical treatment of East Fork Boulder Creek with the piscicide rotenone during the period 2018-2019. The project activities addressed by the Proposed Action will completely eradicate nonnative trout from the East Fork Boulder Creek from the headwater meadow, approximately 3 miles upstream from King's Pasture Reservoir, to barrier site approximately 0.25 miles downstream of the confluence with West Boulder Creek (Figure 1). All fish would be temporarily eliminated from target waters. If all nonnative fish are not removed by 2019 additional spot treatments may be necessary.

Following fish removal, UDWR would reintroduce the native trout, Colorado River cutthroat trout (*Oncorhynchus clarki pleuenticus*; CRCT), into the treated stream segments via colonization from the remnant population in the headwaters of East Fork Boulder Creek and active translocation of fish from the West Fork Boulder Creek remnant population in order to establish a self-sustaining population in East Fork Boulder Creek. 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.

### **Purpose & Need:**

The purpose of the proposed project is to maintain the representation of the remnant population genetics of CRCT in East Fork Boulder Creek and to increase the resilience of CRCT in the Lower Colorado Geographic Management Unit (GMU) by restoring CRCT to their historic range within the East Fork of Boulder Creek.

The need for the project is three-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. 2219-046), and stipulations of the associated Settlement Agreement between Garkane Energy, UDWR and the U.S. Forest Service; (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), and 3) to adhere with the guidance and strategies outlined in the Utah Wildlife Action Plan (2015).

**Garkane Energy FERC license:** On April 6, 2016, FERC issued Garkane Energy its new order amending their 2007 issued license for the Boulder Creek Hydroelectric Project (Project No. 2219-046). As required under Article 402 of the 2007 license amendment, Garkane Energy developed a Non-native Fish Eradication and Cutthroat Trout Stocking Plan for the purpose of re-establishing Colorado River cutthroat trout in the streams affected by the license. Article 402 in the 2007 license also requires Garkane Energy to implement the plan. The 2016 license amendment requires that

# MOVING FORWARD – WORKING GROUP IDEA

- PROFESSIONALLY FACILITATED
- SMALL GROUP OF DIVERSE STAKEHOLDERS
- EXAMINE ISSUES AND ALTERNATIVES
- CREATE SIDEBOARDS
- COME TO A CONCLUSION



# CHALLENGES

- DETERMINING STAKEHOLDER GROUP
- MEETING NEEDS OF ALL STAKEHOLDERS
  - NEEDS OF THE COMMUNITY
    - “HILL CREEK”
    - BC
- AGREEING ON A COMMON GOAL
  - WILL THERE EVER BE SUPPORT FOR MOVING CHEMICAL RESTORATION ACTIVITIES ELSEWHERE?

***“As I turn back towards home I feel a deep resolve to never let anyone poison this creek or the watershed as a whole. Water is Life. Life is sacred.***

***For more information on efforts to stop the Department of Natural Resources poisoning of East Fork Boulder Creek and other creeks on Boulder Mountain please visit: [www.utwaterguardians.org](http://www.utwaterguardians.org)”***

***Garfield County Insider Letter to the editor May 30, 2018***

THE COURAGE TO IGNORE THE OBVIOUS WISDOM OF TURNING BACK.





07/15/2013 15:09