

Annual Progress Report
for
Bonneville Cutthroat Trout
(*Oncorhynchus clarki utah*)
in the
State of Utah

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INTRODUCTION

The Bonneville cutthroat trout (BCT) is a unique subspecies of the cutthroat trout complex native to the Bonneville Basin. During the Pleistocene, Lake Bonneville and its drainage covered parts of Utah, Nevada, Idaho, and Wyoming. Historically, BCT occurred throughout this drainage. With desiccation of ancient Lake Bonneville, BCT became restricted to headwater streams and lakes with suitable trout habitat. Human activities such as water development, agricultural activities, energy development, mining, timber harvesting, grazing, over fishing and the introduction of non-indigenous species have directly impacted BCT populations and altered the Bonneville Basin ecosystem. Because of the tenuous status of remaining BCT populations and habitat, BCT conservation efforts have been directed through federal, state and local agencies.

The Conservation Agreement and Strategy for Bonneville Cutthroat Trout (*Oncorhynchus clarki utah*) in the State of Utah (Lentsch et al., 1997) (Conservation Agreement) was developed to expedite implementation of conservation measures for BCT in Utah as a collaborative and cooperative effort among resource agencies. Threats that warrant BCT listing as a sensitive species by state and federal agencies and as threatened or endangered under the Endangered Species Act of 1973, as amended, should be eliminated through implementation of the Conservation Agreement.

PURPOSE

The success of any conservation or recovery program depends on eliminating or reducing the impact of activities that threaten the species existence. The Conservation Agreement outlines a list of actions, by Geographic Management Unit, that would eliminate or reduce threats to BCT persistence. The purpose of the annual progress report is to summarize implementation of the outlined activities that occurred during 1996 and 1997.

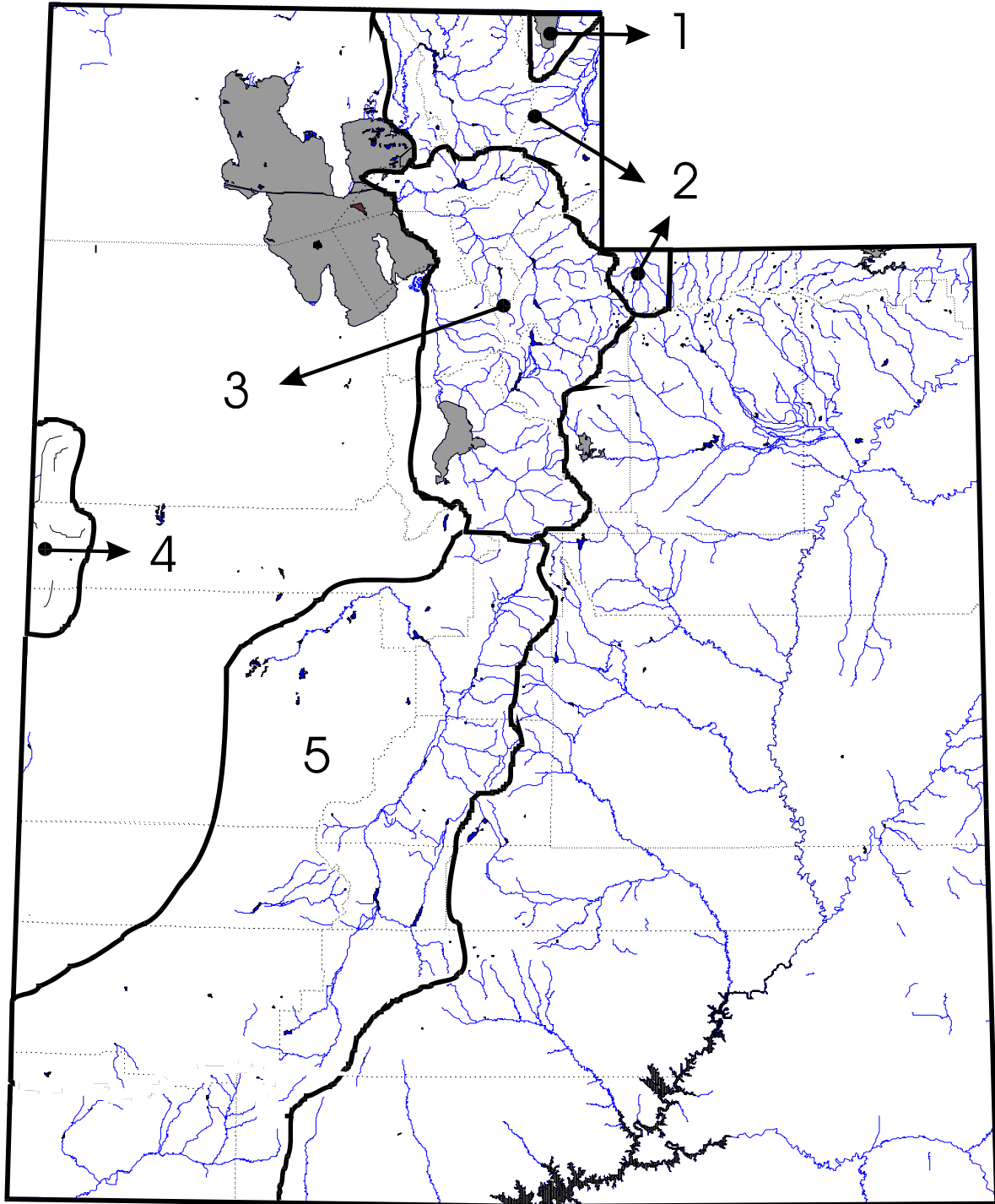


Figure 1. Geographic Management Units designated for BCT conservation within the State of Utah. 1=Bear Lake; 2=Bear River; 3=Northern Bonneville; 4=West Desert; 5=Southern Bonneville.

BEAR LAKE MANAGEMENT UNIT

Unit description:

Bear Lake is a natural lake that is at least 23,000 years old. It covers 70,000 surface acres and averages 80 feet deep. Bear Lake is bisected by the Utah-Idaho state line. Historically, Bear Lake was an oligotrophic, nitrogen limited, terminal lake with a pH exceeding 8.0. However, diversion of the Bear River into Bear Lake for irrigation water storage since 1917 is altering Bear Lake chemistry. Bear Lake's native fish community includes a lacustrine form of BCT that is piscivorous and relatively long lived (Nielson and Lentsch 1988). In addition, the lake contains four endemic species of whitefish, cisco and sculpin.

Table 1. Conservation actions implemented within the Bear Lake GMU.

State Water ID #	Reach	Implemented Conservation Actions
IVAQ405	Bear Lake	The Lake population is monitored annually. Monitoring did occur in 1996 and 1997.
IVAQ120B	Swan Creek	Bear Lake cutthroat population observed spawning in Swan Creek again in 1996 and 1997. 200,000 fry introduced in 1997 from broodstock operations.
IVAQ120C	Big Spring Creek	Population monitoring occurred in 1996 and 1997. Habitat enhancement occurred in 1997 and will occur in 1998.
IVAQ120D	Laketown Creek	14 adults introduced from North Eden Creek during 1997. Population monitoring occurs annually.
IVAQ120F	North Eden Creek	Habitat enhancement planned for 1997 sportfish population did not occur due to resistance by private property owners. Survey to monitor resident stream population is scheduled for 1998.

BEAR RIVER MANAGEMENT UNIT

Unit Description:

This GMU is characterized by aspen and subalpine fir/spruce forests and willow dominated meadows. Lower elevations may be dominated by sagebrush communities. Elevation ranges from 5,000 to 11,000 feet. Stream gradient ranges from high gradient in canyon reaches to low gradient in meadows. Hydrology of streams are characterized by high spring runoff peaks during snowmelt and low to intermittent fall and winter base flows.

For management purposes, the Bear River Management Unit was divided into three geographic subunits: 1) Uinta Mountains and Upper Bear River drainage, 2) Rich County drainage and 3) Cache Valley drainage.

Table 2. Conservation actions implemented within the Uinta Mountains/ Upper Bear River subunit.

State Water ID #	Reach	Implemented Conservation Actions
IVAQ230 IVAQ230C IVAQ230E IVAQ230F IVAQ230B IVAQ230A IVAQ230	Drainage: Mill Creek - main Mill Creek - Carter Creek - McKenzie Creek - North Fork - Deadman Creek - Christmas Tree Creek - Lost Dog Creek	-Surveyed and genetic samples collected in 1994. Habitat enhancement activities occurred during 1996. -Habitat enhancement originally planned for 1998 but no funding is available -Survey and collect genetic sample planned for 1998 (with USFS). -Survey and collect genetic sample planned for 1998 (with USFS).
IVAQ250 IVAQ250A IVAQ250Q IVAQ250P	Drainage: East Fork - main East Fork - Boundary Creek - Left Hand Fork - Right Hand Fork	-Genetic samples collected in 1994. Genetic analysis preformed in 1995 -Genetic samples collected in 1994. Genetic analysis preformed in 1995 -Genetic samples collected in 1994. Genetic analysis preformed in 1995. -Genetic samples collected in 1994. Genetic analysis preformed in 1995.
IVAQ260 IVAQ260A	Drainage: Stillwater Fork - Stillwater Fork - Main Fork	-Surveyed and genetic sample collected in 1994--awaiting genetic analysis. -Surveyed and genetic sample collected in 1994--awaiting genetic analysis.
IVAQ270 IVAQ270A	Drainage: Hayden Fork - main Hayden Fork - Gold Hill Creek	
IVAQ240O1 IVAQ240B IVAQ240C IVAQ240D IVAQ240A	Drainage: West Fork - West Fork (above reservoir) - Mill City Creek - Humpy Creek - Meadow Creek - Deer Creek	-Habitat enhancement planned for 1998 but will not occur due to insufficient funds. -Survey and collect genetic sample planned for 1998.

Table 3. Conservation actions implemented within the Rich County subunit.

State Water ID #	Reach	Implemented Conservation Actions
IVAQ200B IVAQ20002 IVAQ20003 IV407 IVAQ200D 01 IVAQ200C	Woodruff Creek drainage - Sugar Pine - below Woodruff Reservoir - above Woodruff Reservoir - Woodruff Reservoir - Big Spring Fork -Wheeler Creek	-Postpone further survey work until genetic analysis for Woodruff Reservoir sample is complete. -Surveyed and sample collected in 1997 for genetic analysis. -Surveyed in 1996 and evaluated for restoration and broodstock potential, also sample collected for genetic analysis. -Surveyed in 1996 and evaluated for restoration and broodstock potential, also sample collected for genetic analysis.
Private land	Deseret Land/Livestock - Saleratus Reservoir - Dip Reservoir - Mecham Creek	-Fish introduced from Sugar Pine Creek in 1996. Population monitored bi-annually in 1997. -Fish introduced from Sugar Pine Creek in 1996. Population monitored bi-annually in 1997. -Fish introduced from Sugar Pine Creek in 1996. Population monitored bi-annually in 1997.

Table 4. Conservation actions implemented within the Cache Valley subunit.

State Water ID #	Reach	Implemented Conservation Actions
IVAQ040A IVAQ040AO701 IVAQ040AO8	Logan River - main Logan River - Right Hand Fork - Temple Fork	-Surveyed in 1996 to detect presence of BCT, also evaluated for restoration and broodstock potential. Habitat enhancement (\$300,000 road repair/USFS) planned for 1998.
IVAQ040AO802	- Spawn Creek	-Surveyed in 1996 to detect presence of BCT, also evaluated for restoration and broodstock potential.
IVAQ040A0901	- Bear Hollow (Twin Creek)	
IVAQ040A1001 IVAQ040A1201	- West Hodges Creek - Little Bear Creek	-Surveyed in 1996 to detect presence of BCT, also evaluated for restoration and broodstock potential.
IVAQ040A1301 IVAQ040A1401	- Tony Grove Creek - Bunchgrass Creek	-Surveyed in 1996 to detect presence of BCT, also evaluated for restoration and broodstock potential.
IVAQ040A1501 IVAQ040A1601	- White Pine Creek - Beaver Creek - High Creek	-Surveyed in 1997. Survey headwaters to collect genetic sample /USFS planned for 1998.
	-Millville/Summit Creek	-Surveyed in 1997, hybrids observed thus no sample taken.
	-Smithfield Canyon	-Surveyed in 1997, hybrids observed thus no sample taken.
	-Providence Creek	-Surveyed in 1997 but only brown trout observed thus no sample taken.
	- City Creek	-Survey and collect genetic sample/USFS planned for 1998.
	- Cherry Creek	-Survey and collect genetic sample/USFS planned for 1998.

IVAQ040A2A IVAQ040A03A01 IVAQ040D02	Blacksmith and Little Bear drainages - main Blacksmith Fork - Left Hand Fork - headwater tributaries - East Fk. of the Little Bear above Porcupine Reservoir	Left and Right Hand Fork of the Little Bear River were surveyed in 1994 and genetic samples were collected. Suggested to Tech. Committee to drop from needs list due to a poor road crossing. -Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential and genetic samples collected. -Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential and genetic samples collected. -Genetic samples collected in 1997. -Surveyed in 1997, hybrids observed, thus no sample taken.
IVAQ040	-Saddle Creek	
IVAQ040	-Rock Creek	
IVAQ040	-Curtis Creek	
IVAQ040	-Wolf Creek	

NORTHERN BONNEVILLE MANAGEMENT UNIT

Unit Description:

The North Bonneville Management Unit ranges in elevation from 5,000 to approximately 10,000 feet. The vegetational community is characterized by high desert sagebrush at lower elevations, and aspen and subalpine fir/spruce communities at higher elevations. Riparian areas are generally dominated by willows or mountain maples and gamble oak. Stream gradient ranges from extremely high alpine streams to low gradient meadow meanders. Lower elevation areas have extensive agricultural and urban development whereas inaccessible high elevation areas tend to be more pristine. Habitat condition is highly variable among drainages and streams.

For management purposes, the Northern Bonneville Management Unit was divided into four management subunits: 1) the Ogden River drainage; 2) the Weber River drainage; 3) the Jordan River drainage; 4) the Utah Lake/ Provo River drainage.

Table 5. Conservation actions implemented within the Ogden River subunit.

State Water ID #	Reach	Implemented Conservation Actions
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IVAP030D0601	Ogden River	
IVAP030C	- Cutler Creek	
IVAP030B0301	- Cobble Creek	
	- Middle Fork	
	- Wheatgrass Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential and genetic samples collected.
IVAP030B0501	- Left Fork of South Fork Ogden River	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential and genetic samples collected.
IVAP030B0401	- Right Fork Ogden River	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP030A	- Wheeler Creek	

Table 6. Conservation actions implemented within the Weber River subunit.

State Water ID #	Reach	Implemented Conservation Actions
IVAP080A01	Lower Weber River	
IVAP070A01	- Arbuckle Creek	-Surveyed, genetic sample collected-1996.
IVAP100	- Gordon Creek	-Surveyed, genetic sample collected-1996.
IVAP06001	- Dalton Creek	-Surveyed, genetic sample collected-1996.
IVAP090	- Strawberry Creek	-Surveyed, genetic sample collected-1996.
IVAP130	- Peterson Creek	-Surveyed, genetic sample collected-1996.
	- Line Creek	-Surveyed, genetic sample collected-1996.
	- Beus Creek	-Surveyed, only 1 fish encountered (rainbow), no sample taken-1997.
	- Burch Creek	-Surveyed-1997, Resurvey, collect genetic sample /USFS-1998.
	- Holmes Creek	-Survey, collect sample for genetic analysis/USFS-1998.

IVAP150A0201 IVAP150A0401 IVAP330E01 IVAP150A0601 IVAP150L01 IVAP150O01 IVAP150P01 IVAP150Q01 IVAP140 IVAP140	East Canyon Creek - Arthurs Fork - Walton Creek - Shingle Mill Creek - Hardscrabble Creek - Beaver Creek - Toll Creek - Two Mile Creek - Three Mile Creek - N.F. Deep Creek - S.F. Deep Creek	-Surveyed, genetic sample collected-1997. -Surveyed, genetic sample collected-1997. -Surveyed, genetic sample collected-1997. -Surveyed, genetic sample collected-1997. -Surveyed, insufficient flows to maintain trout-1997. -Survey, collect genetic sample-1998. -Survey, collect genetic sample-1998. -Survey, collect genetic sample-1998. -Surveyed, genetic samples collected-1996. -Surveyed, genetic samples collected-1996.
IVAP180G01 IVAP180C01 IVAP180D01 IVAP180F01	Lost Creek - Blue Fork Creek - Guildersleeve Creek - Hell Canyon - Killfoil Creek	-Surveyed, fishless-1994. -Surveyed, insufficient flows to maintain trout-1994. -Surveyed, insufficient flows to maintain trout-1994.
IVAP210A01	Echo Creek - Sawmill Creek	Survey, collect genetic sample-1998.
IVAP23002	Chalk Creek - East Fork Chalk Creek	Survey, collect genetic sample-1998.

IVAP38001 IVAP39001 IVAP41001	Upper Weber River - Bob Young Creek - Stillman Creek - Red Pine Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration/ broodstock potential and genetic sample collected.
IVAP450A01 IVAP35001	- Gardners Creek - South Fork of Weber River - Smith Morehouse Creek	-Surveyed, genetic sample collected-1996 -Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential. -Surveyed, genetic sample collected-1996.
IVAP400	- Moffitt Creek	-Surveyed, genetic sample collected, analyzed-1982.
IVAP430 IVAP330 IVAP35001	- Beaver Creek tribs. - Noblett's Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP350D01	- Pullem Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP350B01	- White Pine Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP	- Welch Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP350C01	- Maxwells Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP	- Erickson Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP	- Box Canyon Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration/broodstock potential and genetic sample collected.
IVAP350	- South Fork (lower) Weber River	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration/broodstock potential and genetic sample collected.
IVAP350	- South Fork (upper) Weber River	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration/broodstock potential and genetic sample collected.
IVAP440	- Dry Fork Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP420	- Larabee Creek	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP350	- Main Fork/Weber River	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.
IVAP350	- Middle Fork/Weber River	-Surveyed in 1996 to detect presence of BCT. Also evaluated for restoration and broodstock potential.

Table 7. Conservation actions implemented within the Jordan River subunit.

State Water ID #	Reach	Implemented Conservation Actions
IVAA010	Jordan River - City Creek	-Surveyed, genetic sample collected in 1996. Habitat enhancement planned for 1998.
IVAA020	- Red Butte Creek	-Ongoing population monitoring. BCT occupy 4.9 stream miles as of 1997.
IV416	- Red Butte Reservoir	-BCT occupy 50 surface acres as of 1997.
IVAA030	- Emigration Canyon Creek	-Surveyed in 1997. Collect genetic sample and habitat analysis occurred in 1998.
IVAA040	- Parley's Creek	-Genetic sample collected in 1997. BCT occupy 2.0 stream miles. Spawn is used for reintroductions. Monitoring and habitat enhancement occurred in 1997.
IVAA040B	- Lamb's Canyon Creek	-Renovated in 1995. 2,500 fry introduced from Mt. Dell spawning activities in 1996. 5,000 fry introduced in 1997. BCT occupy 5.1 stream miles. Ongoing population monitoring. Surveyed and inventoried in 1996.
IV414AA	- Mtn. Dell Reservoir	-Genetic samples collected in 1995, 96, 97.
IVAA040A	- Mtn. Dell Creek	-Ongoing population monitoring, spawning trap activities spawned 32 pairs, genetic analysis in 1997. BCT occupy 6.3 stream miles.
IV414B	- Little Dell Reservoir	-BCT (transplanted from Parleys Creek) occupy 2,000 surface acres. Survey and habitat enhancement on upper Little Dell in 1997.
IVAA050	- Mill Creek (SLC)	-Surveyed in 1997.
IVAA09001	- Bell Canyon Creek	-Survey, collect genetic sample, and habitat analysis planned for 1998.
	- Deaf Smith Creek	BCT occupy 2.4 stream miles, ongoing monitoring

Table 8. Conservation actions implemented within the Utah Lake/ Provo River subunit.

State Water ID #	Reach	Implemented Conservation Actions
VAA VAE010 VAE	Wasatch Front - Dry Creek - Grove Creek - Battle Creek	
VAB020	American Fork River - North Fork	Surveyed, genetic sample collected in 1996. Genetic analysis planned for 1998.
VAF070 VAF020 VAF190 VAF VAF220 VAF210 VAF	Provo River - Bench Creek - Little South Fork - South Fork Provo River - Boulder Creek - Soapstone Creek - Rock Creek - North Fork Provo River	-Collected genetic sample in 1996--sample lost. Resurvey and collect sample planned in 1998.for . -Ongoing population monitoring. Genetic sample collected in 1997. BCT occupy 6.8 stream miles. -Surveyed, genetic sample collected in 1997. -Surveyed, genetic sample collected in 1995. -Surveyed, genetic sample collected in 1995. -Surveyed, genetic sample collected in 1995. -Surveyed, genetic sample collected in 1995.
VAJ020E01 VAJ01001	Hobble Creek - Wardsworth Creek - Right Fork of Hobble Creek	-Surveyed, genetic sample collected-1997. -Surveyed, genetic sample collected in 1995.
VAK020 02 VAK020H0101 VAK020H01 VAK020J01 VAK020J0101 VAK020J01A01 VAK040A VAK040I01 VAK040I0101 VAK040 VAK040F	Spanish Fork - Diamond Fork Creek - Fifth Water - Sixth Water - Hall's Fork Creek - Chases Creek - Shingle Mill Creek - Lake Fork Creek - So. Fk. Soldier Creek - Bennion Creek - Soldier Creek - Tie Fork	-Surveyed and inventoried in 1996. -Surveyed, genetic sample collected-1997. -Surveyed and inventoried in 1996. -Surveyed, genetic sample collected-1997. -Surveyed, genetic sample collected-1997. -Surveyed, genetic sample collected-1997. -Surveyed, genetic sample collected-1997. -Surveyed, genetic sample collected-1997. -Surveyed, genetic sample collected in 1995. -Surveyed, genetic sample collected in 1995. -Surveyed, genetic sample collected in 1995.
VAK030E01 VAK030E04 II783	Thistle Creek - Nebo Creek - Holman Creek - Strawberry Reservoir	-Genetic sample collected-1995, Genetic analysis-1998. -Surveyed, genetic sample collected in 1996.
VAN	Santaquin Creek	-No cutthroat in stream, only rainbow.

WEST DESERT MANAGEMENT UNIT

Unit Description:

The West Desert is comprised of streams in the western part of the Bonneville Basin. These streams flow from mountains to desert valleys where they historically became subterranean or intermittent. Currently, many of the streams are diverted at higher elevations for agricultural use. The only BCT habitat (historic or current) exists in small streams draining the relatively steep, small Deep Creek Mountain range.

The vegetational community in the Deep Creek Mountains is the characteristic high elevation, pinyon-juniper forests and sagebrush prairies. Riparian areas are commonly dominated by river birch and aspen. Elevation ranges from 6,000 to 9,000 feet for most streams. These relatively small, steep streams drain into the Snake River drainage.

Located on the west side of the Deep Creek Mountains is the Goshute Indian Reservation. This area is mineral rich; hence, the potential for future mining activities exists and could threaten BCT recovery efforts in this area. However, the relatively isolated location of these mountains has discouraged extreme human land use and water development.

Table 9. Conservation actions implemented within the West Desert GMU.

State Water ID #	Reach	Implemented Conservation Actions
IVAR370	East slope - Trout Creek	-Spawning activities monitored. Fish moved from Trout into Tom's Creek. BCT occupy 6.1 stream miles. Ongoing monitoring implemented.
IVAR360	- Birch Creek	-BCT occupy 5.6 stream miles, ongoing monitoring.
IVAR380	- Granite Creek	-Nonnative control-1997.
IVAR390	- Cedar Creek	-Nonnative control-1997.
IVAR400	- Indian Farm Creek	-Nonnative control-1997.
IVAR410	- Tom's Creek	-Renovated in 1995. BCT introduced in 1996 and 1997. BCT occupy 6.3 stream miles. Ongoing population monitoring implemented.
IVAR420	- Basin Creek	-Renovate stream, nonnative control planned for 1998.

Not State waters	West slope (Goshute Reservation) - South Fork of Johnson Ck. - Spring Creek - Fifteen Mile Creek - Dad's Creek - Steve's Creek - Sam's Creek - Bird Creek	-Survey, genetic sample collected-1995 & 1997 -Ponds built, habitat enhancement, BCT introduction-1997-no fishing 3-5 years. -Pond construction, habitat enhancement and reintroduction planned for 1998. -Habitat enhancement planned for 1998. -Habitat enhancement planned for 1998. -Ongoing monitoring of resident BCT population. Habitat enhancement planned for 1998.
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SOUTHERN BONNEVILLE MANAGEMENT UNIT

Unit Description:

This GMU encompasses what was once the southwest area of pluvial Lake Bonneville. Today, this area comprises the Sevier River drainage, including the relatively discrete Beaver River drainage. The Southern Bonneville GMU also contains a portion of the Virgin River drainage. Although the Virgin River drains into the Colorado River system, the presence of BCT in some streams on the Pine Valley Mountains (a portion of the Virgin River basin) suggests a recent geologic stream capture event. The elevation of the Southern Bonneville GMU ranges from 5,000 to over 10,000 ft. This area is characterized by a high elevation desert climate with pinyon-juniper forests and sagebrush prairie. Stream hydrology approximates typical high mountain desert systems with spring flooding and low to intermittent fall and winter base flows.

Table 10. Conservation actions implemented within the Southern Bonneville GMU.

State Water ID #	Reach	Implemented Conservation Actions
IAA020C02	Virgin River - Reservoir Canyon	-Habitat enhancement, rotation grazing implemented in 1995-97.
IAA020C01	- Water Canyon	-Habitat enhancement implemented in 1988, 93, 95, 97. Livestock grazing reduced 25% in 1975.
IAA060B	- Leap Creek	-Habitat surveys/USFS completed in 1997 (including tribs Pig, Spirit, & Horse).
IAA060A	- South Ash Creek	-Habitat survey/USFS completed in 1997.
IAA040	- Leeds Creek	-Habitat survey/USFS completed in 1997. Renovation completed 1989. BCT occupy 11 of 12 stream miles.

<p>VIAB050A2</p> <p>VIAB070B2</p> <p>VIAB010B</p> <p>VIAB070A</p>	<p>Beaver River</p> <ul style="list-style-type: none"> - Birch Creek - Briggs Creek - Pine Creek - North Fork of North Creek 	<p>-Sample collected for disease check-1997, transplant 100 BCT from Birch to Sam Stowe Creek-1998</p> <p>-Renovation completed 1992, BCT recruitment observed 1996 and 1997. BCT occupy 7 of 8 stream miles.</p>
<p>VIAA510M01</p> <p>VIAA360A</p> <p>VIAA680</p> <p>VIAA430</p> <p>VIAA430</p> <p>VIAA510G01</p>	<p>Sevier River</p> <ul style="list-style-type: none"> - Ranch Creek - Sam Stowe Creek - Threemile Creek (DeLong and Indian Hollow) - Manning Meadow Reservoir - Manning Creek - Deep Creek 	<p>-Stream enhancement occurred in 1997.</p> <p>-Renovated stream and constructed fish barrier-1997. Reintroduction of BCT from Birch Creek-1998.</p> <p>-Habitat survey in 1997. Enhancement activities occurred in 1989 (USFS/BLM). Renovation completed in 1994. Construct fish migration barrier planned for 1998. BCT occupy 3 of 8 stream miles.</p> <p>-Broodstock development. Egg take procedures occurring 1992-98. Disease certification process (1996-98). Installed new spawning trap in 1997.</p> <p>-Renovated 1995 and 1996. BCT introduced in 1996 and 1997. Instream flow water rights enacted in 1997.</p> <p>-Sample collected for disease check in 1997. Road closures, restrictive grazing practices, and restricted stream access are enforce as habitat enhancement processes. Habitat survey planned for 1998.</p>

LITERATURE CITED

Lentsch, L.D., Y. Converse, and J. Perkins. 1997. Conservation Agreement and Strategy for Bonneville Cutthroat Trout (*Oncorhynchus clarki utah*) in the State of Utah. Publication No. 97-19. Utah Division of Natural Resources, Division of Wildlife Resources, Salt Lake City, Utah.