COLORADO RIVER CUTTHROAT TROUT MANAGEMENT IN THE SOUTHEASTERN GEOGRAPHIC MANAGEMENT UNIT DURING 2000

Colorado River Cutthroat Trout, Taylor Creek

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INTRODUCTION

In March 1997, a Conservation Agreement for preservation and enhancement of native Colorado River cutthroat trout (CRCT) *Oncorhynchus clarki pleuriticus* within Utah was finalized. Parties to the agreement are the Utah Division of Wildlife Resources (UDWR) and other agencies including the U.S. Fish and Wildlife Service, U.S. Forest Service (USFS), and U.S. Bureau of Land Management (BLM) (Lentsch and Converse 1997). The Conservation Agreement has an appendage called the Conservation Strategy, which is an annually-updated plan outlining actions to be taken by the multi-agency Colorado River Cutthroat Trout Conservation Team over the next 10-15 years. Activities during the early part of the period covered by the Conservation Strategy focus primarily on identifying populations of CRCT, determining their purity, and searching for potential reintroduction locations. Later work involves habitat enhancement, nonnative fish control, reintroductions, and monitoring. The document you are reading presents accomplishments and results of activities performed by UDWR in their Southeastern Region during 2000. Some work accomplished by USFS is also presented. Recommendations are given for revising the Conservation Strategy.

ACTIVITIES AND ACCOMPLISHMENTS

All work during 2000 was conducted within the Southeastern Geographic Management Unit (GMU) for CRCT (Figure 1). Activities occurred in these areas of the Southeastern GMU:

(1) South Tavaputs Plateau (in the Green River Desolation Canyon, Price River, and Upper Colorado River drainages),
(2) East Manti Mountain (in the San Rafael River drainage),
(3) La Sal Mountains (in the Upper Dolores River and Lower Dolores River drainages),
(4) Dolores Triangle (in the Lower Dolores River drainage), and
(5) Abajo Mountains (in the Montezuma Canyon Creek and Upper San Juan River drainages).

Some accomplishments occurred ahead of the Conservation Strategy schedule, and others were in addition to the Conservation Strategy. A wide variety of activities were performed including:

(1) electrofishing to:
    (a) find possible populations of CRCT (7 streams),
    (b) collect cutthroat trout samples for meristic and genetic testing (8 streams),
    (c) monitor CRCT populations (8 streams),
    (d) collect fish for whirling disease testing (3 streams), and

(e) estimate fish population abundance (18 streams);

(2) conducting visual surveys to:
   (a) find possible populations of CRCT (9 streams) and
   (b) inspect fishless streams to determine if they could be used for range expansion (9 streams);

(3) angling to collect cutthroat trout samples for meristic and genetic testing (1 stream);

(4) evaluating habitat suitability of waters for CRCT (26 streams);

(5) enhancing habitat for CRCT by:
   (a) moving a sheep corral away from a riparian area (1 stream) and
   (b) beginning a major stream restoration project (1 stream); and

(6) controlling the distribution and abundance of nonnative fish by:
   (a) removing nonnative trout collected during electrofishing surveys (6 streams),
   (b) ceasing all stocking of Yellowstone cutthroat trout (5 lakes and 2 streams),
   (c) designing and getting approval/clearances to construct fish migration barriers (5 streams),
   (d) constructing fish migration barriers (4 streams),
   (e) inspecting existing fish migration barriers (2 streams), and
   (f) performing maintenance on a fish migration barrier (1 stream).

General methods

Electrofishing survey dates ranged from 5 July to 27 September, 2000. In all but one case (La Sal Creek, Section 1), electrofishing occurred when water flows and clarity were considered adequate for effective sampling. The number of sampling stations per stream ranged from one to four, passes from one to four, and segment lengths from 300 ft to 0.8 mile. Trout collected were enumerated and in most cases measured in total length to the nearest millimeter. Fish were not measured in some situations when the purpose of sampling was removal or simply determining where they were present. Estimates of fish population size were made for all streams. In cases where only a single pass was made with sampling gear, estimates were considered minimums. The Zippen depletion estimation technique described in Van Den Avyle (1993) was used to make population estimates with 95% confidence intervals where there were multiple passes.

Visual surveys generally occurred in small streams and under conditions where fish could be easily observed if present. In the case of the largest visually surveyed stream, angling was also conducted. Visual survey dates ranged from 5 July to 22 September, 2000. The length of stream searched ranged from 100 ft to 1.4 miles. Streams where electrofishing and/or visual searches occurred are shown in Table 1.

At most streams where electrofishing resulted in the capture of cutthroat trout, samples were collected for meristic and genetic testing. Samples were not taken from streams where adequate sampling for such testing had been previously performed, nor from streams where nonnative cutthroat trout were known to occur. Samples consisted of whole fish and/or fin clips. After samples were collected, they were held on dry ice in the field, stored in a freezer, and subsequently transported on dry ice to UDWRs Salt Lake Office for distribution to meristic and genetic testing labs.

Limited habitat suitability information was gathered in conjunction with all surveys. Water temperature was taken on most streams, and in many cases mean stream width, mean depth, and water flows were estimated. Subjective ratings of substrate and cover conditions were made for most streams using standard criteria of UDWRs stream classification system. Cover ratings involved estimating the percentage of the stream with bank cover and shade, whereas substrate ratings were based on the percentage of the visible stream bottom comprised of gravel, rubble, and boulders. Streams with estimates of 75-100% were given an excellent rating, 50-75% good, 25-50% fair, and 0-25% poor.

South Tavaputs Plateau

Electrofishing surveys in the South Tavaputs Plateau were performed in one stream of the Green River Desolation Canyon drainage (Hydrologic Unit #14060005), four streams of the Price River drainage (Hydrologic Unit #14060007), and one stream of the Upper Colorado River drainage (Hydrologic Unit #14030001). Visual surveys occurred in two streams of the Green River Desolation Canyon drainage and two streams of the Upper Colorado River drainage. Samples were collected for meristic and genetic testing from three streams of the Price River drainage. Habitat suitability was evaluated in three streams of the Green River Desolation Canyon drainage, four streams of the Price River Drainage, and two streams of the Upper Colorado River drainage.

A major stream restoration project was initiated on the Right Fork of the White River to reduce erosion and sedimentation problems at a point where they begin in the headwaters of the Price River drainage. The project involves creating about 0.5 mile of new channel to replace a portion which is severely degraded and downcut. Cooperators include UDWR, USFS, Utah Department of Transportation, Trout Unlimited, and a private landowner. The Right Fork of the White River and its tributaries contain conservation populations of CRCT which will benefit from the project.

Stocking of Yellowstone cutthroat trout (YCT) was terminated in waters of the Price River drainage, including Sections 4 and 5 of the Price River, and Scofield Reservoir. The YCT is a subspecies of cutthroat trout which may hybridize with CRCT and reduce the purity of CRCT populations. Sterile tiger trout were stocked as a replacement for YCT in Sections 4 and 5 of the Price River.

East Manti Mountain

In the East Manti Mountain area, all work was performed in the San Rafael River drainage (Hydrologic Unit #14060009). Electrofishing was conducted in three streams, and a visual/angling survey occurred in one stream. Samples were collected for meristic and genetic testing from two streams. Habitat suitability was evaluated in four streams.

The USFS took the lead in two habitat enhancement projects benefitting CRCT. First, a sheep corral was moved away from the Scad Valley Creek riparian area. Second, a project to install fish habitat structures, and increase the mileage of trout habitat, in Section 2 of Crandall Creek was designed and the necessary permit and clearances were obtained. The USFS anticipates completing the Crandall Creek, Section 2 project by the end of the year.

Projects to construct fish migration barriers on five streams were designed by the USFS and the necessary permits and clearances were obtained. Barriers were constructed on Scad Valley, Lake Canyon, Nuck Woodward Canyon, and Tie Fork creeks. Plans to build a barrier on Spring Creek, Section 2 were dropped when evidence was obtained that most adult cutthroat trout annually migrate between that stream and Huntington Reservoir downstream.

Stocking of YCT was terminated at four lakes: Duck Fork Reservoir, Electric Lake, Petes Hole, and Soup Bowl Reservoir. Sterile tiger trout were stocked as a replacement for YCT in Duck Fork Reservoir, a water intended as a future brood lake for CRCT.

Nonnative trout collected during electrofishing were removed from two streams: Scad Valley Creek (brown trout migrating from the Left Fork of Huntington Creek) and Spring Creek, Section 2 (tiger trout migrating from Huntington Reservoir). Tiger trout were considered a threat in the latter stream because of their high numbers compared to a very limited cutthroat trout population.

La Sal Mountains

Electrofishing in the La Sal Mountains was performed in three streams of the Upper Dolores River drainage (Hydrologic Unit #14030002) and four streams of the Lower Dolores River drainage (Hydrologic Unit #14030004). Visual surveys were conducted in four streams of the Upper Dolores River drainage and one stream of the Lower Dolores River drainage. Samples were collected for meristic and genetic testing from two streams in the Upper Dolores River drainage and two streams in the Lower Dolores River drainage. Samples were collected for whirling disease testing from one stream in the Lower Dolores River drainage. Habitat suitability was evaluated in seven

streams of the Upper Dolores River drainage and three streams of the Lower Dolores River drainage.

Fish migration barriers were inspected on two streams of the Upper Dolores River drainage: Section 3 of La Sal Creek, and Deer Creek. Minor maintenance work was performed on the La Sal Creek, Section 3 barrier. Plans to construct a barrier to prevent fish infected with whirling disease from entering Geyser Creek, Section 2 in the Lower Dolores River drainage were dropped when evidence was obtained that the disease had already spread into that stream.

Brook trout collected during electrofishing were removed from two streams of the Upper Dolores River drainage: Section 3 of La Sal Creek, and La Sal Creek Ditch Main Diversion. Brook trout were similarly removed from Taylor Creek of the Lower Dolores River drainage.

Dolores Triangle

Electrofishing and visual surveys in the Dolores Triangle were performed on one stream of the Lower Dolores River drainage: Granite Creek. Habitat suitability was evaluated in that stream. Samples were collected for whirling disease testing, which provided an opportunity to remove brook trout.

Abajo Mountains

Electrofishing and visual surveys in the Abajo Mountains were performed on one stream of the Montezuma Canyon Creek drainage (Hydrologic Unit #14080203) and one stream of the Upper San Juan River drainage (Hydrologic Unit #14080201). Habitat suitability was evaluated in these streams.

FINDINGS AND DISCUSSION

South Tavaputs Plateau - <u>Green River Desolation Canyon drainage</u>

No fish were discovered during a visual survey in Argyle Creek of the Green River Desolation Canyon drainage (Table 2). Habitat characteristics of this stream at the sampling location appeared suitable for a trout population. Argyle Creek had midsummer water temperatures of 54-66 F, adequate flow, a mean width of 8.8 ft, a mean depth of 0.4 ft, an excellent substrate rating, and a good cover rating (Table 5). Above the sampling location, habitat conditions are reportedly less favorable for trout. Historically, CRCT probably occurred in this stream. Additional surveys are needed to determine whether there is enough suitable habitat to support a population of CRCT. This stream should be added to the Conservation Strategy.

Fish were not found during a visual survey in Minnie Maud Creek (Table 2). Some habitat characteristics of this stream were not suitable for a trout population. Minnie Maud Creek had midsummer water temperatures reaching 76 F, adequate flow, a mean width of 5.5 ft, a mean depth of 0.3 ft, a good substrate rating, and a poor cover rating (Table 5). Plans will not be made to introduce/reintroduce CRCT unless temperature and cover conditions improve.

Nine Mile Creek, Section 3 did not contain trout, but did contain speckled dace *Rhinichthys osculus* (Table 2). Some habitat characteristics of this stream were not suitable for a trout population. Nine Mile Creek, Section 3 had midsummer water temperatures reaching 70 F, estimated flows of 0.7-6.0 cfs, mean widths of 5.5-17.5 ft, mean depths of 0.1-0.5 ft, a poor substrate rating, and poor to good cover ratings (Table 5). Historically, CRCT probably occurred in this stream. Plans will not be made to reintroduce CRCT unless temperature and substrate conditions improve.

South Tavaputs Plateau - <u>Price River drainage</u>

No fish were collected in Kyune Creek of the Price River drainage (Table 2). This result is surprizing because juvenile cutthroat trout were collected during a 1997 survey (Berg and Slater 1998). Both surveys indicated that some habitat characteristics of Kyune Creek were not favorable for a trout population. In 2000, the stream had a midsummer water temperature of 72 F, marginal flow, a mean width of 3.0 ft, a mean depth of 0.1 ft, a fair substrate rating, and a poor cover rating (Table 5). It appears that Kyune Creek has value as an occasional spawning/nursery area for cutthroat trout. Enough cutthroat trout were collected from tributaries to Kyune Creek for meristic and genetic testing from this subdrainage.

Cutthroat trout was the only fish species found in Kyune Reservoir Creek (Table 2). The same finding occurred during a 1999 survey (Berg et al. 2000), whereas a mixture of cutthroat and rainbow trout was collected in 1997 (Berg and Slater 1998). It appears that multiple years of electrofishing may have had an unfavorable impact on fish abundance. The trout population estimate was 10 fish per mile in 2000, compared to 53 fish per mile in 1999 and 219 fish per mile in 1997. Average total length of cutthroat trout was 220 mm (range 137-267 mm) in 2000 (Table 3), compared to 138 mm (range 16-284 mm) in 1999 and 145 mm (range 63-280 mm) in 1997. Samples were collected from five fish in 2000 for meristic and genetic testing (Table 4) which, when added to 16 samples collected in 1999, brings the sample size to 21. Samples from Kyune Reservoir Creek and the Right Fork of Kyune Creek combined are enough for full analysis of fish from the Kyune Creek subdrainage. Habitat characteristics of Kyune Reservoir Creek, other than a low mean depth, appeared suitable for trout in 2000. Kyune Reservoir Creek had a midsummer water temperature of 65 F, estimated flow of 0.8 cfs, a mean width of 5.1 ft, a mean depth of 0.2 ft, a good substrate rating, and a fair cover rating (Table 5).

Cutthroat trout and mottled sculpin *Cottus bairdi* were found in the Right Fork of Kyune Creek (Table 2). The population estimate for this stream was 90 trout per mile. Average total length was 150 mm (range 89-216 mm) (Table 3). Samples were collected from 14 fish for genetic testing (Table 4). Samples from the Right Fork of Kyune Creek and Kyune Reservoir Creek combined are enough for full meristic and genetic analysis of fish from the Kyune Creek subdrainage. Habitat characteristics of the Right Fork of Kyune Creek appeared suitable for trout. It had a midsummer water temperature of 66 F, estimated flow of 1.5 cfs, a mean width of 6.0 ft, a mean depth of 0.4 ft, and good substrate and cover ratings (Table 5). This stream should be added to the Conservation Strategy.

Cutthroat trout and mottled sculpin were collected in the Middle Fork of the White River (Table 2). The population estimate for this stream was 317 trout per mile. Average total length was 189 mm (range 64-395) (Table 3). Samples were collected from 30 fish for meristic and genetic testing (Table 4). Habitat characteristics of the Middle Fork of the White River appeared suitable for trout. It had a late-summer water temperature of 54 F, adequate flow, a mean width of 6.0 ft, a mean depth of 0.9 ft, a fair substrate rating, and a good cover rating (Table 5).

South Tavaputs Plateau - <u>Upper Colorado River drainage</u>

Fish were not found in Cottonwood Wash, Sections 2 and 3 of the Upper Colorado River drainage (Table 2). Habitat characteristics of these stream sections, other than a naturally high level of fine sediment, appeared suitable to support a population of CRCT. Section 2 had an early fall water temperature of 56 F, an estimated flow of 1.4 cfs, a mean width of 4.6 ft, a mean depth of 0.3 ft, a poor substrate rating, and a good cover rating (Table 5). Section 3 had adequate flow, a poor substrate rating, and a good cover rating. No plans will be made to introduce CRCT into these stream sections because sedimentation problems cannot be solved and they probably do not represent historic habitat. These stream sections should be removed from the Conservation Strategy. Making a one-time plant of brook trout, which can successfully reproduce where substrate conditions are poor, would probably result in a self-sustaining fishery not posing a threat to any CRCT populations.

East Manti Mountain - <u>San Rafael River drainage</u>

Cutthroat trout was the only fish species found during visual and angling surveys in Big Bear Creek of the San Rafael River drainage (Table 2). This result is consistent with findings of surveys in 1999 (Berg et al. 2000). Cutthroat trout in 2000 had an average total length of 264 mm (range 202-341) (Table 3). Samples were collected from five fish for meristic and genetic testing (Table 4). When these samples are added to 25 samples collected in 1999, the total is 30 samples. Thus, meristic and genetic analysis can proceed. Big Bear Creek had a mid-summer water temperature of 53 F, an adequate

flow, a mean width of 15.7 ft, a mean depth of 0.4 ft, an excellent substrate rating, and a poor cover rating (Table 5).

Boulger Creek, Section 1 contained cutthroat trout, rainbow trout, hybrid rainbow/cutthroat trout, and mottled sculpin (Table 2). Cutthroat trout comprised 98% of the trout catch. These results are similar to findings for Boulger Creek, Section 2 in 1999 (Berg et al. 2000). The population estimate for Boulger Creek Section 1 in 2000 was 2,294 trout per mile. Average total length of cutthroat trout was 100 mm (range 39-218 mm) (Table 3). Boulger Creek, Section 1 had early fall water temperatures of 51-57 F, an estimated flow of 2.7 cfs, a mean width of 6.9 ft, a mean depth of 0.4 ft, a good substrate rating, and a fair cover rating. This stream is not listed in the Conservation Strategy because it is known to contain YCT and a decision to reintroduce CRCT would require major management changes in the area and eradication of all trout in the Electric Lake drainage.

Cutthroat and brown trout were found in Scad Valley Creek (Table 2). Cutthroat trout comprised 96% of the trout catch. These results are similar to findings in 1999 (Berg et al. 2000). It appears that multiple years of electrofishing may have had an unfavorable impact on fish abundance. The population estimate was 275 trout per mile in 2000, compared to 350 trout per mile in 1999 (Berg et al. 2000) and 400 trout per mile in 1998 (Berg and Slater 1999). Average total length of cutthroat trout in 2000 was 135 mm (range 31-266 mm) (Table 3), compared to 145 mm (range 22-312) in 1999 and 152 mm (range 61-329) in 1998. Scad Valley Creek in 2000 had mid-summer water temperatures of 56-58 F, estimated flows of 0.5-2.0 cfs, mean widths of 3.3-6.0, mean depths of 0.5-0.7 ft, poor to fair substrate ratings, and fair to excellent cover ratings (Table 5).

Spring Creek, Section 2 contained cutthroat and tiger trout (Table 2). Cutthroat trout comprised 14% of the trout catch. The trout population estimate was 279 fish per mile. Average total length of cutthroat trout was 146 mm (range 100-340 mm) (Table 3). Samples were collected from 30 fish for genetic testing (Table 4). No fish could be sacrificed for meristic analysis because the density of cutthroat trout in the stream was too low. A small number (n = 11) of fish collected from Spring Creek, Section 2 in 1992 and tested using mitochondrial DNA were classified as a pure form of Bonneville cutthroat trout (Shiozawa and Evans 1994). However, Shiozawa (1997, personal communication) later indicated that he thought the fish were actually an archaic Colorado River form. Due to the location of the stream, its fish should presently be treated as a population of Colorado River cutthroat trout. Spring Creek, Section 2 in 2000 had mid-summer water temperatures of 49-60 F, adequate flow, a mean width of 6.0 ft, a mean depth of 0.4 ft, an excellent substrate rating, and a good cover rating (Table 5). This stream should be added to the Conservation Strategy.

La Sal Mountains - Upper Dolores River drainage

No fish were found during visual surveys of Coyote Spring Creek, Sections 1 and 2 of the Upper Dolores River drainage (Table 2). These streams had no water flow (Table 5). They should be deleted from the Conservation Strategy.

Fish were not discovered during a visual survey of Coyote Spring Creek, Section 3 (Table 2). Some habitat characteristics of this stream were not adequate to support a trout population. Coyote Spring Creek, Section 3 had an early summer water temperature of 62 F, inadequate flow, a mean width of 1.0 ft, a mean depth of <0.1 ft, a poor substrate rating, and a good cover rating (Table 5). This stream should be deleted from the Conservation Strategy.

La Sal Creek, Section 1 contained no trout, but speckled dace, mottled sculpin, and unidentified cyprinids (unknown genus) and suckers *Catostomus* were found (Table 2). Habitat characteristics other than a high level of fine sediment appeared suitable for trout. La Sal Creek, Section 1 had a mid-summer water temperature of 69 F, adequate flow, a mean width of 8.0 ft, a mean depth of 0.6 ft, a poor substrate rating, and a good cover rating (Table 5). Plans will not be made to reintroduce CRCT unless substrate conditions improve. This stream, and upstream Section 2 which is dry, should be deleted from the Conservation Strategy.

Cutthroat and brook trout were found in portions of La Sal Creek, Section 3 below a natural waterfall discovered this year, whereas only cutthroat trout were present above the waterfall (Table 2). The waterfall is located about 1.8 miles above USFS Road 073 and a man-made fish migration barrier. Below the waterfall, cutthroat trout comprised 52-53% of the trout catch. Population estimates were 187-272 trout per mile below the waterfall and 69 trout per mile above the waterfall. Average total length of cutthroat trout was 205 mm (range 142-252 mm) below the waterfall (Table 3) and fish above the waterfall were of similar size. The appearance of cutthroat trout was similar above and below the waterfall. Samples were collected from 17 fish below the waterfall for meristic and genetic testing (Table 4). Adding these samples to 9 collected in 1999 (Berg et al. 2000) and 5 collected in 1998 (Berg and Slater 1999) brings the total to 31, enough for full meristic and genetic analysis. La Sal Creek, Section 3 in 2000 had a mid-summer water temperature of 46 F, adequate flow, a mean width of 9.6 ft, a mean depth of 0.4 ft, an excellent substrate rating, and good to excellent cover ratings (Table 5).

No fish were found during a visual survey of La Sal Creek Ditch near its confluence with Coyote Spring Creek (Table 2). La Sal Creek Ditch had no water flow at this location (Table 5). Fish have been observed at locations on La Sal Creek Ditch which have perennial flow (Berg et al. 2000).

La Sal Creek Ditch Main Diversion is a stream discovered by UDWR in 1999 (Berg et al. 2000). Cutthroat trout and brook trout were found in this stream during 2000 (Table 2). Cutthroat trout comprised 10-40% of the trout catch. Populations estimates were 194-480 trout per mile. Average total lengths of cutthroat trout ranged from 147 mm to 183 mm (individual lengths ranged from 50 mm to 230 mm) (Table 3). Samples were collected from 30 fish for meristic and genetic testing (Table 4). La Sal Creek Ditch Main Diversion had water temperatures ranging from 61 F in the lowest reach sampled to 77 F at the top of the stream (Table 5). It had adequate flows, mean widths of 5.8-7.0 ft, mean depths of 0.4-0.6 ft, good to excellent substrate ratings, and an excellent cover rating.

La Sal Mountains - <u>Lower Dolores River drainage</u>

Cutthroat trout was the only fish species found in Geyser Creek, Section 2 (Table 2), similar to results in 1998 (Berg and Slater 1999). The population estimate was 229 trout per mile in 2000, compared to 704 trout per mile at a different location on the stream in 1998. Average total length of cutthroat trout was 181 mm (range 70-301 mm) in 2000 (Table 3), compared to 195 mm (range 111-248 mm) in 1999. Analysis of samples collected in 2000 showed that whirling disease had spread into Geyser Creek, Section 2. In 1999 the disease had not yet reached this stream. Geyser Creek, Section 2 in 2000 had an early summer water temperature of 66 F, adequate flow, a mean width of 6.5 ft, a mean depth of 0.6 ft, poor to good substrate ratings, and a good cover rating (Table 5).

Roc Creek contained only cutthroat trout (Table 2), similar to results in 1999 (Berg et al. 2000). The population estimate was 88 trout per mile in 2000, whereas estimates at locations sampled in 1999 ranged from 28 to 493 trout per mile. Average total length of cutthroat trout was 167 mm (range 125-202 mm) in 2000 (Table 3), compared to average total lengths of 62 to 148 mm at locations sampled in 1999. Samples were collected in 2000 from two fish for meristic and genetic analysis (Table 4). Adding these samples to 36 collected in 1999 brings the total to 38, more than enough for full analysis. Roc Creek in 2000 had an early summer water temperature of 62 F, adequate flow, a mean width of 8.5 ft, a mean depth of 0.5 ft, and excellent substrate and cover ratings (Table 5).

Cutthroat and brook trout were found in Taylor Creek (Table 2), similar to results in 1999 (Berg et al. 2000). The population estimate was 287 trout per mile in 2000, compared to 704 trout per mile at a different location on the stream in 1999. Cutthroat trout comprised 29% of the trout catch at the location surveyed in 2000, and 5% at the location surveyed in 1999. Average total length of cutthroat trout was 258 mm (range 137-313 mm) in 2000 (Table 3), compared to 213 mm (range 205-220 mm) in 1999. Samples were collected in 2000 from 28 fish for meristic and genetic analysis (Table 4). Adding these samples to two collected in 1999 brings the total to 30, the amount needed

for full analysis. Taylor Creek had an early summer water temperature of 65 F, adequate flow, a mean width of 5.0 ft, a mean depth of 0.5 ft, a fair substrate rating, and a poor cover rating (Table 5).

Dolores Triangle - Lower Dolores River drainage

Granite Creek contained brook trout at an upper location near the Colorado state line, and no fish at a lower station near the confluence with the Dolores River (Table 2). The population estimate at the upper site was 546 fish per mile. Differences in habitat characteristics between areas indicated why fish were present in at one location and not at the other. At the upper station, Granite Creek had an early fall water temperature of 63 F, estimated flow of 0.4 cfs, a mean width of 4.9 ft, a mean depth of 0.2 ft, and fair-good substrate and cover ratings (Table 5). The lower station had an early fall water temperature of 71 F, flow <0.1 cfs, a mean width of 3.3 ft, a mean depth of 0.4 ft, a fair substrate rating, and a fair to good cover rating. The stream channel was dry throughout almost all of the several-mile portion between the sampling locations. Results of testing samples for presence of whirling disease are not available yet. No plans will be made to introduce CRCT into Granite Creek because water flows are marginal and the mileage which is perennial is very limited. This stream should be removed from the Conservation Strategy.

Abajo Mountains - Montezuma Canyon Creek drainage

No fish were found in Verdure Creek, Section 2 (Table 2). Water flows were not suitable for a trout population. At the highest location surveyed, the stream consisted of isolated pools between dry reaches (Table 5). At other stations, there was just a trickle of water. No plans will be made to use Verdure Creek, Section 2 for CRCT, so this stream should be deleted from the Conservation Strategy.

Abajo Mountains - Upper San Juan River drainage

South Cottonwood Wash contained no trout, but did have a population of speckled dace (Table 2). Some habitat characteristics of this stream were not suitable for a trout population. South Cottonwood Wash had mid-summer water temperatures of 55-76 F, inadequate to marginal water flows, mean widths of 2.0-4.4 ft, a mean depth of 0.2 ft, a fair substrate rating, and poor to good cover ratings (Table 5). This stream should be removed from the Conservation Strategy.

RECOMMENDATIONS

The Southeastern Region is several years ahead of the original conservation strategy schedule with regard to surveys. Finding populations of CRCT pure enough to use for range expansion remains a bottleneck to completing other work. During years

2001-2002, surveys are recommended on several streams in order to gather more information and continue searching for highly pure populations. This work will, in part, provide samples for genetic testing of fish from a larger number of potential source streams for transplant purposes. The proposed 2001 Conservation Strategy (Table 6) and Conservation Population Status Report (Table 7) show work recommended, add new streams for CRCT management, and delete some streams with insufficient habitat to support fish.

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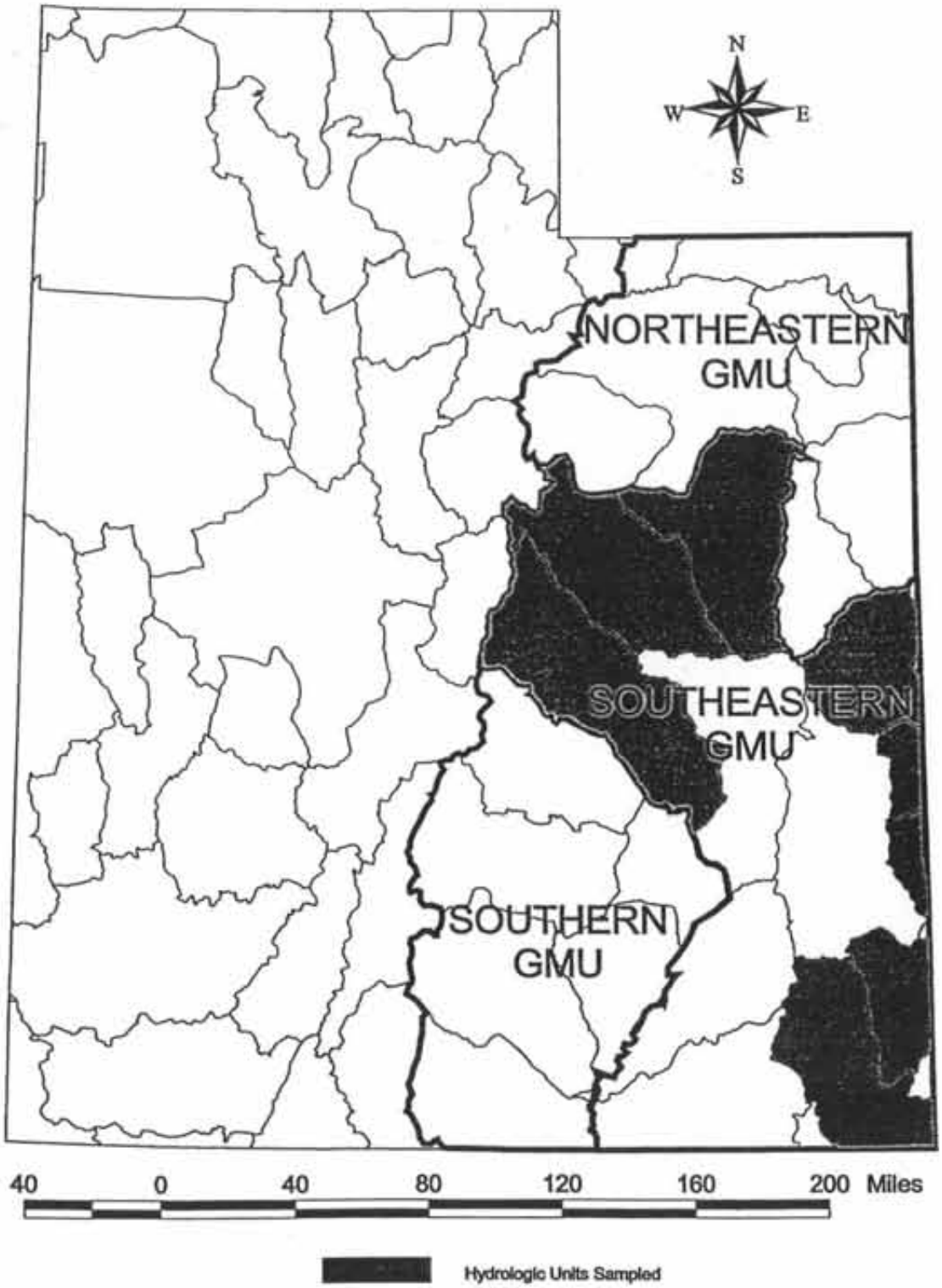

Figure 1. Areas where Colorado River cutthroat trout investigations occurred during 2000.

Table 1. Streams surveyed by electrofishing and visual observations during 2000.

Area	Drainage	Stream name	Water I. D. number	Survey date	Station location	Electro-fishing area	Visual search area
South Tavaputs Plateau	Green River Desolation Canyon (14060005)	Argyle Creek	II BA 030 01	08/08/00	Beginning at road culvert near confluence with Nine Mile Creek Section 3	None	300 ft
		Minnie Maud Creek	II BA 040 01	08/08/00	Beginning 300 ft below road culvert near confluence with Nine Mine Creek Section 3	None	300 ft
		Nine Mile Creek Section 3	II BA 03	08/08/00	Beginning at Cottonwood Canyon bridge	300 ft*	None
					Beginning about 1.0 mi above confluence with Minnie Maud Creek	300 ft*	None
	Price River (14060007)	Kyune Creek	II AK 170 01	08/07/00	Beginning about 0.2 mi above confluence with the Right Fork of Kyune Creek	1,150 ft*	None
		Kyune Reservoir Creek	II AK 170A 01 01	08/07/00	Beginning at confluence with Right Fork of Kyune Creek	0.5 mi*	None
		Right Fork of Kyune Creek	II AK 170A 01	08/07/00	Beginning at confluence with Kyune Creek	820 ft*	None
		Middle Fork of White River	II AK 190B 01 01	09/11/00	Beginning 500 ft below Watch Canyon	500 ft*	None
	Upper Colorado River (14030001)	Cottonwood Wash Section 2	I BV 02	09/21/00	Beginning about 0.2 mi below Tepee Canyon	400 ft*	None
					Beginning at spring 0.5 mi above Tepee Canyon	None	1.4 mi

Table 1. Continued.

Area	Drainage	Stream name	Water I. D. number	Survey date	Station location	Electro-fishing area	Visual search area
South Tavaputs Plateau	Upper Colorado River (14030001)	Cottonwood Wash Section 3	I BV 03	09/21/00	Beginning about 1.0 mi above Bear Canyon	None	300 ft
East Manti Mountain	San Rafael River (14060009)	Big Bear Creek	II AI 120G 01	07/26/00	Beginning about 3.8 mi above confluence with Little Bear Creek	None	500 ft**
		Boulger Creek Section 1	II AI 130U 01	09/27/00	Beginning at Electric Lake high water mark	528 ft	None
		Scad Valley Creek	II AI 130M 01 01	08/17/00	Beginning 260 ft below confluence with Paradise Creek	528 ft	None
		Spring Creek Section 2	II AI 130M 06 02	08/03/00	Beginning at Huntington Reservoir	0.8 mi*	None
La Sal Mountains	Upper Dolores River (14030002)	Coyote Spring Creek Section 1	I BQ 080 01	07/12/00	Beginning at Hwy 46 road crossing	None	300 ft
		Coyote Spring Creek Section 2	I BQ 080 02	07/05/00	Beginning about 0.6 mi above confluence with Chicken Creek Ditch	None	1,000 ft
		Coyote Spring Creek Section 3	I BQ 080 03	07/05/00	Beginning about 1.0 mi above confluence with La Sal Creek Ditch	None	300 ft

Table 1. Continued.

Area	Drainage	Stream name	Water I. D. number	Survey date	Station location	Electro-fishing area	Visual search area
La Sal Mountains	Upper Dolores River (14030002)	La Sal Creek Section 1	I BQ 070 01	08/15/00	Beginning at UT-CO state line	720 ft*	None
		La Sal Creek Section 3	I BQ 070 03	08/16/00	Beginning about 800 ft above access area/about 1.6 mi above USFS Road 073	640 ft*	None
					Beginning about 1,440 ft above access area/about 1.7 mi above USFS Road 073	900 ft*	None
					Beginning at waterfall about 2,340 ft above access area/about 1.8 mi above USFS Road 073	1,300 ft*	None
		La Sal Creek Ditch	I BQ 080B 01	07/05/00	Beginning about 0.25 mi above confluence with Coyote Spring Creek Sections 2 and 3	None	300 ft
		La Sal Creek Ditch Main Diversion	Unassigned	07/05/00	Beginning about 100 ft above diversion/2.3 mi below top of stream	528 ft*	None
				07/19/00	Beginning about 900 ft above diversion/2.1 mi below top of stream	900 ft*	None
				08/15/00	Beginning about 1,800 ft above diversion/2.0 mi below top of stream	660 ft*	None
				07/05/00	Beginning 528 ft below top of stream	528 ft*	None
	Lower Dolores River (14030004)	Geyser Creek Section 2	I BQ 050B 02	07/12/00	Beginning about 600 ft above pond at bottom of stream section	1,800 ft*	None

Table 1. Continued.

Area	Drainage	Stream name	Water I. D. number	Survey date	Station location	Electro-fishing area	Visual search area
La Sal Mountains	Lower Dolores River (14030004)	Roc Creek	I BQ 050 01	07/19/00	Beginning 900 ft below confluence with Geyser Creek Section 1	900 ft*	None
		Taylor Creek	I BQ 050A 01	07/12/00	Beginning at Sallys Hollow/about 1.8 mi below road crossing to UDWR cabin	1,800 ft*	None
Dolores Triangle	Lower Dolores River (14030004)	Granite Creek	I BQ 010 01	09/22/00	Beginning about 1.1 mi above confluence with Dolores River	None	300 ft
					Beginning about 0.4 mi west of Colorado state line	300 ft*	None
Abajo Mountains	Montezuma Canyon Creek (14080203)	Verdure Creek Section 2	I AI 180BH 02	07/26/00	Beginning just above confluence with North Fork of Verdure Creek	None	100 ft
					Beginning about 1.3 mi above confluence with North Fork of Verdure Creek	None	100 ft
					Beginning about 2.5 mi above confluence with North Fork of Verdure Creek	900 ft*	None
	Upper San Juan River (14080201)	South Cottonwood Wash	I AI 150 01	07/26/00	Beginning about 2.5 mi above USFS boundary	300 ft*	None
					Beginning about 8.0 mi above USFS boundary	None	300 ft

*Single pass with electrofishing gear.
**Angling.

Table 2. Population estimates and visual observations of trout at streams surveyed during 2000. Confidence intervals (95%) for multiple-pass estimates are in parentheses. CTT = cutthroat trout, RBT = rainbow trout, BNT = brown trout, BKT = brook trout, TGT = tiger trout, CTH = cutthroat/rainbow trout hybrid, MSC = mottled sculpin, SPD = speckled dace, UCP = unidentified cyprinid, and USK = unidentified sucker.

Area	Drainage	Stream name	Survey date	Station location	Electrofishing			Visual observations
					Number of trout per mile	Trout species composition	Other species	
South Tavaputs Plateau	Green River Desolation Canyon (14060005)	Argyle Creek	08/08/00	Beginning at road culvert near confluence with Nine Mile Creek Section 3	-	-	-	No fish
		Minnie Maud Creek	08/08/00	Beginning 300 ft below road culvert near confluence with Nine Mine Creek Section 3	-	-	-	No fish
		Nine Mile Creek Section 3	08/08/00	Beginning at Cottonwood Canyon bridge	0*	-	SPD	-
				Beginning about 1.0 mi above confluence with Minnie Maud Creek	0*	-	None	-
	Price River (14060007)	Kyune Creek	08/07/00	Beginning about 0.2 mi above confluence with the Right Fork of Kyune Creek	0*	-	None	-
		Kyune Reservoir Creek	08/07/00	Beginning at confluence with Right Fork of Kyune Creek	10*	100% CTT	None	-
		Right Fork of Kyune Creek	08/07/00	Beginning at confluence with Kyune Creek	90*	100% CTT	MSC	-

Table 2. Continued.

Area	Drainage	Stream name	Survey date	Station location	Electrofishing			Visual observations
					Number of trout per mile	Trout species composition	Other species	
South Tavaputs Plateau	Price River (14060007)	Middle Fork of White River	09/11/00	Beginning 500 ft below Watch Canyon	317*	100% CTT	MSC	-
	Upper Colorado River (14030001)	Cottonwood Wash Section 2	09/21/00	Beginning about 0.2 mi below Tepee Canyon	0*	-	None	-
				Beginning at spring 0.5 mi above Tepee Canyon	-	-	-	No fish
		Cottonwood Wash Section 3	09/21/00	Beginning about 1.0 mi above Bear Canyon	-	-	-	No fish
East Manti Mountain	San Rafael River (14060009)	Big Bear Creek	07/26/00	Beginning about 3.8 mi above confluence with Little Bear Creek	-	-	-	CTT**
		Boulger Creek Section 1	09/27/00	Beginning at Electric Lake high water mark	2,294 (±224)	98% CTT 2% RBT <1% CTH	MSC	-
		Scad Valley Creek	08/17/00	Beginning 260 ft below confluence with Paradise Creek	275 (±17)	96% CTT 4% BNT	None	-
		Spring Creek Section 2	08/03/00	Beginning at Huntington Reservoir	279*	14% CTT 86% TGT	None	-
La Sal Mountains	Upper Dolores River (14030002)	Coyote Spring Creek Section 1	07/12/00	Beginning at Hwy 46 road crossing	-	-	-	No fish

Table 2. Continued.

Area	Drainage	Stream name	Survey date	Station location	Electrofishing			Visual observations
					Number of trout per mile	Trout species composition	Other species	
La Sal Mountains	Upper Dolores River (14030002)	Coyote Spring Creek Section 2	07/05/00	Beginning about 0.6 mi above confluence with Chicken Creek Ditch	-	-	-	No fish
		Coyote Spring Creek Section 3	07/05/00	Beginning about 1.0 mi above confluence with La Sal Creek Ditch	-	-	-	No fish
		La Sal Creek Section 1	08/15/00	Beginning at UT-CO state line	0*	-	SPD MSC UCP USK	-
		La Sal Creek Section 3	08/16/00	Beginning about 800 ft above access area/about 1.6 mi above USFS Road 073	272*	52% CTT 48% BKT	None	-
				Beginning about 1,440 ft above access area/about 1.7 mi above USFS Road 073	187*	53% CTT 47% BKT	None	-
				Beginning at waterfall about 2,340 ft above access area/about 1.8 mi above USFS Road 073	69*	100% CTT	None	-
		La Sal Creek Ditch	07/05/00	Beginning about 0.25 mi above confluence with Coyote Spring Creek Sections 2 and 3	-	-	-	No fish

Table 2. Continued.

Area	Drainage	Stream name	Survey date	Station location	Electrofishing			Visual observations
					Number of trout per mile	Trout species composition	Other species	
La Sal Mountains	Upper Dolores River (14030002)	La Sal Creek Ditch Main Diversion	07/05/00	Beginning about 100 ft above diversion/2.3 mi below top of stream	200*	40% CTT 60% BKT	None	-
			07/19/00	Beginning about 900 ft above diversion/2.1 mi below top of stream	194*	33% CTT 67% BKT	None	-
			08/15/00	Beginning about 1,800 ft above diversion/2.0 mi below top of stream	480*	15% CTT 85% BKT	None	-
			07/05/00	Beginning 528 ft below top of stream	200*	10% CTT 90% BKT	None	-
	Lower Dolores River (14030004)	Geyser Creek Section 2	07/12/00	Beginning about 600 ft above pond at bottom of stream section	229*	100% CTT	None	-
		Roc Creek	07/19/00	Beginning 900 ft below confluence with Geyser Creek Section 1	88*	100% CTT	None	-
		Taylor Creek	07/12/00	Beginning at Sallys Hollow/about 1.8 mi below road crossing to UDWR cabin	287*	29% CTT 71% BKT	None	-
Dolores Triangle	Lower Dolores River (14030004)	Granite Creek	09/22/00	Beginning about 1.1 mi above confluence with Dolores River	-	-	-	No fish
				Beginning about 0.4 mi west of Colorado state line	546*	100% BKT	None	-

Table 2. Continued.

Area	Drainage	Stream name	Survey date	Station location	Electrofishing			Visual observations
					Number of trout per mile	Species composition	Other species	
Abajo Mountains	Montezuma Canyon Creek (14080203)	Verdure Creek Section 2	07/26/00	Beginning just above confluence with North Fork of Verdure Creek	-	-	-	No fish
				Beginning about 1.3 mi above confluence with North Fork of Verdure Creek	-	-	-	No fish
				Beginning about 2.5 mi above confluence with North Fork of Verdure Creek	0*	-	None	-
	Upper San Juan River (14080201)	South Cottonwood Wash	07/26/00	Beginning about 2.5 mi above USFS boundary	0*	-	SPD	-
				Beginning about 8.0 mi above USFS boundary	-	-	-	No fish

*Minimum estimate based on single pass with electrofishing gear.
**Angling.

Table 3. Average and range in total length of trout sampled from streams during 2000. CTT = cutthroat trout, BNT = brown trout, BKT = brook trout, RBT = rainbow trout, and CTH = cutthroat/rainbow trout hybrid.

Area	Drainage	Stream name	Survey date	Station location	Species	Sample size (n)	Mean total length (and range) in millimeters
South Tavaputs Plateau	Price River (14060007)	Kyune Reservoir Creek	08/07/00	Beginning at confluence with Right Fork of Kyune Creek	CTT	5	220 (137-267)
		Right Fork of Kyune Creek	08/07/00	Beginning at confluence with Kyune Creek	CTT	14	150 (89-216)
		Middle Fork of White River	09/11/00	Beginning 500 ft below Watch Canyon	CTT	30	189 (64-395)
East Manti Mountain	San Rafael River (14060009)	Big Bear Creek	07/26/00	Beginning about 3.8 mi above confluence with Little Bear Creek	CTT	5	264 (202-341)
		Boulger Creek Section 1	09/27/00	Beginning at Electric Lake high water mark	CTT RBT CTH	74 4 1	100 (39-218) 272 (143-378) 253
		Scad Valley Creek	08/17/00	Beginning 260 ft below confluence with Paradise Creek	CTT BNT	26 1	135 (31-266) 182
		Spring Creek Section 2	08/03/00	Beginning at Huntington Reservoir	CTT	31	146 (100-340)

Table 3. Continued.

Area	Drainage	Stream name	Survey date	Station location	Species	Sample size (n)	Mean total length (and range) in millimeters
La Sal Mountains	Upper Dolores River (14030002)	La Sal Creek Section 3	08/16/00	Beginning about 800 ft above access area/about 1.6 mi above USFS Road 073	CTT	17	205 (142-252)
		La Sal Creek Ditch Main Diversion	07/05/00	Beginning about 100 ft above diversion/2.3 mi below top of stream	CTT BKT	8 12	164 (125-222) 123 (53-176)
			07/19/00	Beginning about 900 ft above diversion/2.1 mi below top of stream	CTT BKT	11 22	173 (128-230) 158 (76-274)
			08/15/00	Beginning about 1,800 ft above diversion/2.0 mi below top of stream	CTT BKT	9 51	147 (50-203) 124 (62-239)
			07/05/00	Beginning 528 ft below top of stream	CTT BKT	2 18	183 (147-218) 195 (132-232)
	Lower Dolores River (14030004)	Geyser Creek Section 2	07/12/00	Beginning about 600 ft above pond at bottom of stream section	CTT	78	181 (70-301)
		Roc Creek	07/19/00	Beginning 900 ft below confluence with Geyser Creek Section 1	CTT	15	167 (125-202)
		Taylor Creek	07/12/00	Beginning at Sallys Hollow/about 1.8 mi below road crossing to UDWR cabin	CTT	28	258 (137-313)

Table 3. Continued.

Area	Drainage	Stream name	Survey date	Station location	Species	Sample size (n)	Mean total length (and range) in millimeters
Dolores Triangle	Lower Dolores River (14030004)	Granite Creek	09/22/00	Beginning about 0.4 mi west of Colorado state line	BKT	31	153 (84-210)

Table 4. Cutthroat trout samples collected from streams during 2000 for meristic and genetic testing.

Area	Drainage	Stream name	Survey date	Station location	Number of			Preservation method
					Large whole fish	Fin clips or fingerlings	Fish represented	
South Tavaputs Plateau	Price River (14060007)	Kyune Reservoir Creek	08/07/00	Beginning at confluence with Right Fork of Kyune Creek	4	1	5	Freezing
		Right Fork of Kyune Creek	08/07/00	Beginning at confluence with Kyune Creek	0	14	14	Freezing
		Middle Fork of White River	09/11/00	Beginning 500 ft below Watch Canyon	10	20	30	Freezing
East Manti Mountain	San Rafael River (14060009)	Big Bear Creek	07/26/00	Beginning about 3.8 mi above confluence with Little Bear Creek	5	0	5	Freezing
		Spring Creek Section 2	08/03/00	Beginning at Huntington Reservoir	0	30	30	Freezing
La Sal Mountains	Upper Dolores River (14030002)	La Sal Creek Section 3	08/16/00	Beginning about 800 ft above access area/about 1.6 mi above USFS Road 073	5	12	17	Freezing

Table 4. Continued.

Area	Drainage	Stream name	Survey date	Station location	Number of			Preservation method
					Large whole fish	Fin clips or fingerlings	Fish represented	
La Sal Mountains	Upper Dolores River (14030002)	La Sal Creek Ditch Main Diversion	07/05/00	Beginning about 100 ft above diversion/2.3 mi below top of stream	4	4	8	Freezing
			07/19/00	Beginning about 900 ft above diversion/2.1 mi below top of stream	5	6	11	Freezing
			08/15/00	Beginning about 1,800 ft above diversion/2.0 mi below top of stream	0	9	9	Freezing
			07/05/00	Beginning 528 ft below top of stream	1	1	2	Freezing
	Lower Dolores River (14030004)	Roc Creek	07/19/00	Beginning 900 ft below confluence with Geyser Creek Section 1	2	0	2	Freezing
		Taylor Creek	07/12/00	Beginning at Sallys Hollow/about 1.8 mi below road crossing to UDWR cabin	10	18	28	Freezing

Table 5. Habitat characteristics of streams surveyed during 2000.

Area	Drainage	Stream name	Survey date	Station location	Water temperature (°F)	Water flow (cfs)	Mean width (ft)	Mean depth (ft)	Substrate rating	Cover rating
South Tavaputs Plateau	Green River Desolation Canyon (14060005)	Argyle Creek	08/08/00	Beginning at road culvert near confluence with Nine Mile Creek Section 3	54-66 (10 a.m.-2 p.m.)	Adequate	8.8	0.4	Excellent	Good
		Minnie Maud Creek	08/08/00	Beginning 300 ft below road culvert near confluence with Nine Mine Creek Section 3	51-76 (8 a.m.-3 p.m.)	Adequate	5.5	0.3	Good	Poor
		Nine Mile Creek Section 3	08/08/00	Beginning at Cottonwood Canyon bridge	61-70 (11 a.m.-1 p.m.)	6.0	17.5	0.5	Poor	Good
				Beginning about 1.0 mi above confluence with Minnie Maud Creek	51 (9 a.m.)	0.7	5.5	0.1	Poor	Poor
	Price River (14060007)	Kyune Creek	08/07/00	Beginning about 0.2 mi above confluence with the Right Fork of Kyune Creek	72 (noon)	Marginal	3.0	0.1	Fair	Good

Table 5. Continued.

Area	Drainage	Stream name	Survey date	Station location	Water temperature (°F)	Water flow (cfs)	Mean width (ft)	Mean depth (ft)	Substrate rating	Cover rating
South Tavaputs Plateau	Price River (14060007)	Kyune Reservoir Creek	08/07/00	Beginning at confluence with Right Fork of Kyune Creek	65 (11 a.m.)	0.8	5.1	0.2	Good	Fair
		Right Fork of Kyune Creek	08/07/00	Beginning at confluence with Kyune Creek	66 (1 p.m.)	1.5	6.0	0.4	Good	Good
		Middle Fork of White River	09/11/00	Beginning 500 ft below Watch Canyon	54 (3-4 p.m.)	Adequate	6.0	0.9	Fair	Good
	Upper Colorado River (14030001)	Cottonwood Wash Section 2	09/21/00	Beginning about 0.2 mi below Tepee Canyon	56 (3 p.m.)	1.4	4.6	0.3	Poor	Good
				Beginning at spring 0.5 mi above Tepee Canyon	-	Dry	-	-	-	-
		Cottonwood Wash Section 3	09/21/00	Beginning about 1.0 mi above Bear Canyon	-	Adequate	-	-	Poor	Good
East Manti Mountain	San Rafael River (14060009)	Big Bear Creek	07/26/00	Beginning about 3.8 mi above confluence with Little Bear Creek	53 (3 p.m.)	Adequate	15.7	0.4	Excellent	Poor

Table 5. Continued.

Area	Drainage	Stream name	Survey date	Station location	Water temperature (°F)	Water flow (cfs)	Mean width (ft)	Mean depth (ft)	Substrate rating	Cover rating
East Manti Mountain	San Rafael River (14060009)	Boulger Creek Section 1	09/27/00	Beginning at Electric Lake high water mark	51-57 (10 a.m.-5 p.m.)	2.7	6.9	0.4	Good	Fair
		Scad Valley Creek	08/17/00	Beginning 260 ft below confluence with Paradise Creek	56-58 (1-5 p.m.)	0.5-2.0	3.3-6.0	0.5-0.7	Poor-fair	Fair-excellent
		Spring Creek Section 2	08/03/00	Beginning at Huntington Reservoir	49-60 (8 a.m.-4 p.m.)	Adequate	6.0	0.4	Excellent	Good
La Sal Mountains	Upper Dolores River (14030002)	Coyote Spring Creek Section 1	07/12/00	Beginning at Hwy 46 road crossing	-	Dry	-	-	-	-
		Coyote Spring Creek Section 2	07/05/00	Beginning about 0.6 mi above confluence with Chicken Creek Ditch	-	Dry	-	-	-	-
		Coyote Spring Creek Section 3	07/05/00	Beginning about 1.0 mi above confluence with La Sal Creek Ditch	62 (10 a.m.)	Inadequate	1.0	<0.1	Poor	Good

Table 5. Continued.

Area	Drainage	Stream name	Survey date	Station location	Water temperature (°F)	Water flow (cfs)	Mean width (ft)	Mean depth (ft)	Substrate rating	Cover rating
La Sal Mountains	Upper Dolores River (14030002)	La Sal Creek Section 1	08/15/00	Beginning at UT-CO state line	69 (5 p.m.)	Adequate	8.0	0.6	Poor	Good
		La Sal Creek Section 3	08/16/00	Beginning about 800 ft above access area/about 1.6 mi above USFS Road 073	46 (10 a.m.)	Adequate	9.6	0.4	Excellent	Good-excellent
				Beginning about 1,440 ft above access area/about 1.7 mi above USFS Road 073	-	Adequate	-	-	Excellent	Good-excellent
				Beginning at waterfall about 2,340 ft above access area/about 1.8 mi above USFS Road 073	-	Adequate	-	-	Excellent	Good-excellent

Table 5. Continued.

Area	Drainage	Stream name	Survey date	Station location	Water temperature (°F)	Water flow (cfs)	Mean width (ft)	Mean depth (ft)	Substrate rating	Cover rating
La Sal Mountains	Upper Dolores River (14030002)	La Sal Creek Ditch	07/05/00	Beginning about 0.25 mi above confluence with Coyote Spring Creek Sections 2 and 3	-	Dry	-	-	-	-
		La Sal Creek Ditch Main Diversion	07/05/00	Beginning about 100 ft above diversion/2.3 mi below top of stream	61 (noon)	Adequate	6.4	0.6	Excellent	Excellent
			07/19/00	Beginning about 900 ft above diversion/2.1 mi below top of stream	65 (1 p.m.)	Adequate	6.5	0.6	Good	Excellent
			08/15/00	Beginning about 1,800 ft above diversion/2.0 mi below top of stream	65-67 (noon-2 p.m.)	3.0	5.8	0.4	Good	Excellent
			07/05/00	Beginning 528 ft below top of stream	77 (4 p.m.)	Adequate	7.0	0.4	Excellent	Excellent

Table 5. Continued.

Area	Drainage	Stream name	Survey date	Station location	Water temperature (°F)	Water flow (cfs)	Mean width (ft)	Mean depth (ft)	Substrate rating	Cover rating
La Sal Mountains	Lower Dolores River (14030004)	Geyser Creek Section 2	07/12/00	Beginning about 600 ft above pond at bottom of stream section	66 (noon)	Adequate	6.5	0.6	Poor-good	Good
		Roc Creek	07/19/00	Beginning 900 ft below confluence with Geyser Creek Section 1	62 (6 p.m.)	Adequate	8.5	0.5	Excellent	Excellent
		Taylor Creek	07/12/00	Beginning at Sallys Hollow/about 1.8 mi below road crossing to UDWR cabin	65 (3 p.m.)	Adequate	5.0	0.5	Fair	Poor
Dolores Triangle	Lower Dolores River (14030004)	Granite Creek	09/22/00	Beginning about 1.1 mi above confluence with Dolores River	71 (noon)	<0.1	3.3	0.4	Fair	Fair-good
				Beginning about 0.4 mi west of Colorado state line	63 (2 p.m.)	0.4	4.9	0.2	Fair-good	Fair-good

Table 5. Continued.

Area	Drainage	Stream name	Survey date	Station location	Water temperature (°F)	Water flow (cfs)	Mean width (ft)	Mean depth (ft)	Substrate rating	Cover rating
Abajo Mountains	Montezuma Canyon Creek (14080203)	Verdure Creek Section 2	07/26/00	Beginning just above confluence with North Fork of Verdure Creek	-	Trickle	-	-	Good	Excellent
				Beginning about 1.3 mi above confluence with North Fork of Verdure Creek	-	Trickle	-	-	Good	Excellent
				Beginning about 2.5 mi above confluence with North Fork of Verdure Creek	66 (2 p.m.)	Dry w/some isolated pools	-	-	Good	Excellent
	Upper San Juan River (14080201)	South Cottonwood Wash	07/26/00	Beginning about 2.5 mi above USFS boundary	76 (11 a.m.)	Marginal	4.4	0.2	Fair	Poor
				Beginning about 8.0 mi above USFS boundary	55 (9 a.m.)	Inadequate	2.0	0.2	Fair	Good

Table 6. Proposed year 2001 Southeastern Region Colorado River Cutthroat Trout Conservation Strategy.

Drainage Stream Tributary	State Water ID #	Fish surveys	Genetic analysis	Habitat surveys	Habitat enhancement	Constructed barrier	Nonative control	Introduction/ reintroduction	Monitoring
Green River Desolation Canyon (14060005)									
Argyle Creek	II BA 050 01	Completed	NA	More 2003	? (BLM)	Unnecessary	Unnecessary	No plans	No plans
Flat Canyon Creek Sections 1 and 2	II AX 01-02	Completed	NA	Completed	? (BLM)	Unnecessary	Unnecessary	2003	2005
Summerhouse Canyon Creek	II AX 040 01-02	Completed	NA	Completed	? (BLM)	Unnecessary	Unnecessary	2004	2006
Range Creek Section 4	II AQ 04	Completed	2001	Completed	No plans	No plans	No plans	No plans	No plans
Rock Creek Section 2	II AW 02	Completed	NA	Completed	? (BLM)	Unnecessary	Unnecessary	2002	2004
Bear Canyon Creek	II AW 040 01	Completed	NA	Completed	? (BLM)	Unnecessary	Unnecessary	2002	2004
Buckskin Canyon Creek	II AW 030 01	Completed	NA	Completed	? (BLM)	Unnecessary	Unnecessary	2003	2005
Price River (14060007)									
Beaver Creek Sections 1 and 2	II AK 180 01-02	More 2002	2002	Completed	No plans	No plans	No plans	No plans	No plans
Kyune Creek	II AK 170 01	Completed	NA	Completed	No plans	No plans	No plans	No plans	No plans
Right Fork Kyune Creek	II AK 170A 01	Completed	2001	Completed	No plans	No plans	No plans	No plans	No plans
Kyune Reservoir Creek	II AK 170A 01 01	Completed	2001	Completed	No plans	No plans	No plans	No plans	No plans
North Fork Gordon Creek	II AK 100A 01	More 2003	2001	Completed	Completed	Unnecessary	2004	2005	2006
Mud Water Canyon Creek	II AK 100B 03 01	2001	NA	2001	No plans	Unnecessary	Unnecessary	No plans	No plans
Right Fork Grassy Trail Creek	II AK 020A 01	Completed	NA	Completed	No plans	No plans	No plans	No plans	No plans
White River	II AK 190 01-02	More 2002	2003	Completed	2002 (NRCS/ FV)	2002	No plans	No plans	No plans
Left Fork White River	II AK 190B 01	Completed	2001	Completed	? (FS)	No plans	No plans	No plans	No plans
Middle Fork White River	II AK 190B 01 01	Completed	2001	Completed	? (FS)	No plans	No plans	No plans	No plans
Right Fork White River	II AK 190A 01	Completed	2001	Completed	2000 (FS/DWR)	No plans	No plans	No plans	No plans
Johnson Fork Creek	II AK 190A 01 01	Completed	2001	Completed	? (FS)	No plans	No plans	No plans	No plans

Table 6. Continued.

Drainage Stream Tributary	State Water ID #	Fish surveys	Genetic analysis	Habitat surveys	Habitat enhancement	Constructed barrier	Nonative control	Introduction/ reintroduction	Monitoring
Price River (14060007)									
White River									
Right Fork White River									
Trail Hollow Creek	II AK 190A 02 01	More 2001	2002	Completed	? (FS)	No plans	No plans	No plans	No plans
Tabbyune Creek	II AK 190C 01-02	Completed	2001	Completed	No plans	No plans	No plans	No plans	No plans
Upper Colorado River (14030001)									
Nash Wash Section 2	I BR 02	Completed	NA	Completed	Completed	Unnecessary	No plans	2006	2007
San Rafael River (14060009)									
Big Bear Creek	II AI 120G 01	Completed	2001	Completed	? (FS)	No plans	No plans	No plans	No plans
Boulger Creek Section 2	II AI 130U 02	Completed	2001	Completed	? (FS)	No plans	No plans	No plans	No plans
Crandall Creek Section 2	II AI 130I 01	Completed	Completed	Completed	Completed???	Unnecessary	No plans	No plans	2004
Duck Fork Creek Section 2	II AI 120I 02	Completed	NA	Completed	2001 (FS)	Unnecessary	2006	2007	2008
Duck Fork Reservoir	II 447	Completed	NA	Completed	No plans	Unnecessary	2006	2007	2008
Indian Creek	II AI 150E 02 01	Completed	NA	Completed	? (FS)	2008	2009-2010	2010	2012
Lake Canyon Creek Sections 1 and 2	II AI 130M 05 01-02	Completed	2001	Completed	? (FS)	Completed	No plans	No plans	No plans
Little Horse Creek	II AI 120I 01 01	More 2003	NA	Completed	? (FS)	Unnecessary	Unnecessary	2001	2003
Nuck Woodward Creek	II AI 130N 01	Completed	2001	Completed	? (FS)	Completed	No plans	No plans	No plans
Sawmill Canyon Creek	Unassigned	More 2002	2003	Completed	? (FS)	No plans	No plans	No plans	No plans
Scad Valley Creek	II AI 130M 01 01	More 2002	2001	More 2002	2000 (FS)	Completed	No plans	No plans	No plans
Spring Creek Section 2	II AI 130M 06 02	Completed	2001	Completed	? (FS)	Unnecessary	No plans	No plans	No plans
Tie Fork Creek	II AI 130I 01	Completed	More 2001	Completed	? (FS)	Completed	No plans	No plans	No plans

Table 6. Continued.

Drainage Stream Tributary	State Water ID #	Fish surveys	Genetic analysis	Habitat surveys	Habitat enhancement	Constructed barrier	Nonnative control	Introduction/ reintroduction	Monitoring
Muddy Creek (14070002)									
Fish Creek	I AZ 120J 02 01	2004	2005	2004	? (FS)	No plans	No plans	No plans	No plans
North Fork of Quitchupah Creek	I AZ 120G 06 01	2001	NA	2001	? (BLM/FS)	Unnecessary	No plans	No plans	No plans
Upper Dolores River (14030002)									
Geyser Creek Ditch (Buckeye Creek)	I BQ 050B 02 01	Completed	2001	Completed	No plans	No plans	No plans	No plans	No plans
La Sal Creek Ditch	I BQ 080B 01	Completed	NA	Completed	No plans	Unnecessary	2003-2004	2005	2006
Beaver Creek	I BQ 070D 01	Completed	More 2001	Completed	? (FS)	No plans	No plans	No plans	No plans
Deer Creek Section 2	I BQ 070BB01 02	Completed	NA	Completed	? (FS)	Fixed 1998	2003-2004	2005	2006
La Sal Creek Section 3	I BQ 070 03	Completed	2001	Completed	? (FS)	Fixed 2000	2003-2004	2005	2006
La Sal Creek Ditch Main Diversion	Unassigned	Completed	2001	Completed	No plans	2002	2003-2004	2005	2006
Lower Dolores River (14030004)									
Beaver Creek Section 1	I BQ 030 01	More 2001	2002	Completed	? (BLM)	No plans	No plans	No plans	No plans
Roc Creek	I BQ 050 01	Completed	2001	Completed	? (FS)	No plans	No plans	No plans	No plans
Deep Creek Section 2	I BQ 050A 01 02	Completed	NA	More 2002	? (FS)	No plans	No plans	No plans	No plans
Deep Creek Section 3	I BQ 050A 01 03	Completed	NA	More 2002	? (FS)	No plans	No plans	No plans	No plans
Geyser Creek Section 1	I BQ 050B 01	More 2001	2002	Completed	No plans	No plans	No plans	No plans	No plans
Geyser Creek Section 2	I BQ 050B 02	Completed	2001	Completed	No plans	No plans	No plans	No plans	No plans
Taylor Creek	I BQ 050A 01	Completed	2001	Completed	No plans	No plans	No plans	No plans	No plans
Middle Colorado River (14030005)									
Indian Creek Section 3	I BG 01-04	Completed	2001	Completed	? (BLM/FS)	Unnecessary	No plans	No plans	No plans
North Cottonwood Creek	Unassigned	More 2002	NA	More 2002	? (USFS)	No plans	No plans	No plans	No plans

Table 6. Continued.

Drainage Stream Tributary	State Water ID #	Fish surveys	Genetic analysis	Habitat surveys	Habitat enhancement	Constructed barrier	Nonative control	Introduction/ reintroduction	Monitoring
Middle Colorado River (14030005)									
North Fork Mill Creek	I BI 020 01	Completed	NA	More 2002	? (BLM/FS)	Unnecessary	Unnecessary	No plans	No plans
Tuerto Canyon Creek	Unassigned	2001	NA	? (FS)	? (FS)	No plans	No plans	No plans	No plans

Table 7. Current status of streams containing, or which may receive, Colorado River cutthroat trout in the Southeastern Region. Barrier codes: 0 = none apparent; 1 = constructed barrier, road culvert, or water diversion; 2 = chemical/ temperature/biological barrier; 3 = gradient/velocity barrier; 4 = natural, single-point barrier; 5 = natural, multiple-site barrier; and 6 = no information.

Drainage Stream Tributary	State Water ID #	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
Green River Desolation Canyon (14060005)							
Argyle Creek	II BA 030 01	Carbon, Duchesne	To be determined in 2003		0.0 / 0.0		2
Flat Canyon Creek Sections 1 and 2	II AX 01-02	Carbon	Fishless, Planned introduction		0.0 / 0.0	3.0	4
Summerhouse Canyon Creek	II AX 040 01-02	Carbon	Fishless, Planned introduction		0.0 / 0.0	2.0	4*
Range Creek Section 4	II AQ 01-04	Carbon, Emery	Genetic analysis needed		Unknown	11.0	0
Rock Creek Section 2	II AW 02	Carbon	Fishless, Planned introduction		0.0 / 0.0	5.0	5
Bear Canyon Creek	II AW 040 01	Carbon	Fishless, Planned introduction		0.0 / 0.0	4.0	5
Buckskin Canyon Creek	II AW 030 01	Carbon	Fishless, Planned introduction		0.0 / 0.0	3.0	5
Price River (14060007)							
Beaver Creek Sections 1 and 2	II AK 180 01-02	Carbon, Utah	Genetic analysis needed		Unknown	15.7	0
Kyune Creek	II AK 170 01	Utah	Genetic analysis needed		Unknown	4.1	0
Kyune Reservoir Creek	II AK 170A 01 01	Utah	Genetic analysis needed		Unknown	2.2	0
Mud Water Canyon Creek	II AK 100B 03 01	Carbon	To be determined in 2001		0.0 / 0.0		5*
North Fork Gordon Creek	II AK 100A 01	Carbon	Planned introduction, Genetic analysis needed to confirm that fish present are not CRCT		Unknown	1.0+	4
Right Fork Grassy Trail Creek	II AK 020A 01	Carbon	Possible reintroduction, Currently inactive due to political considerations		0.0 / 0.0	3.8	0
White River	II AK 190 01-02	Utah, Wasatch	Genetic analysis needed		Unkown	8.2	0

Table 7. Continued.

Drainage Stream Tributary	State Water ID #	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
Price River (14060007)							
White River							
Left Fork White River	II AK 190B 01	Wasatch	Genetic analysis needed		Unknown	5.8	0
Middle Fork White River	II AK 190B 01 01	Wasatch	Genetic analysis needed		Unknown	4.8	0
Right Fork White River	II AK 190A 01	Wasatch	Conservation population (possibly hybridized), Genetic analysis needed	Identified 1999	6.0 / 6.0	6.0	0
Johnson Fork Creek	II AK 190A 01 01	Wasatch	Conservation population (possibly hybridized), Genetic analysis needed	Identified 1999	2.4 / 2.4	2.4	0
Trail Hollow Creek	II AK 190A 02 01	Wasatch	Conservation population (possibly hybridized), Genetic analysis needed	Identified 1999	2.0 / 2.0	2.0	0
Tabbyune Creek	II AK 190C 01-02	Utah, Wasatch	Genetic analysis needed		Unknown	4.4	0
Upper Colorado River (14030001)							
Nash Wash Section 2	I BR 01-02	Grand	Fishless, Planned introduction		0.0 / 0.0	2.5	2
San Rafael River (14060009)							
Big Bear Creek	II AI 120G 01	Sanpete	Genetic analysis needed		Unknown	8.0	0
Boulger Creek Section 2	II AI 130U 02	Sanpete	Genetic analysis needed		Unknown	Unknown	0
Crandall Creek	II AI 130J 01	Emery	Highly hybridized population, Possible replacement with pure fish		0.3 / 0.3	0.3	1
Duck Fork Creek Section 2	II AI 120J 02	Sanpete	Planned reintroduction		0.0 / 0.0	0.5	1
Duck Fork Reservoir	II 447	Sanpete	Planned introduction		NA	NA	1
Indian Creek	II AI 150E 02 01	Emery	Planned reintroduction		0.0 / 0.0	10.0	0

Table 7. Continued.

Drainage Stream Tributary	State Water ID #	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
San Rafael River (14060009)							
Lake Canyon Creek Sections 1 and 2	II AI 130M 05 01-02	Emery, Sanpete	Genetic analysis needed		Unknown	4.0	1
Little Horse Creek	II AI 120I 01 01	Sanpete	Fishless, Planned introduction		0.0 / 0.0	1.2	1, 4
Nuck Woodward Creek	II AI 130N 01	Emery	Genetic analysis needed		Unknown	5.0	1**
Sawmill Canyon Creek	Unassigned	Emery	Genetic analysis needed		Unknown	Unknown	0
Scad Valley Creek	II AI 130M 01 01	Emery	Genetic analysis needed		Unknown	4.0	1
Spring Creek Section 2	II AI 130M 06 02	Sanpete	Genetic analysis needed		Unknown	1.7	1*
Tie Fork Creek	II AI 130I 01	Carbon, Emery	Conservation population (slight hybridization), Genetic analysis needs to be completed	Identified 1999	2.0 / 2.0	2.0	1**
Upper Dolores River (14030002)							
Geyser Creek Ditch (Buckeye Creek)	I BQ 050B 02 01	San Juan	Genetic analysis needed		Unknown	Unknown	0
La Sal Creek Ditch	I BQ 080B 01	San Juan	Possible introduction		0.0 / 0.0	5.0	4
Beaver Creek	I BQ 070D 01	San Juan	Moderate to highly hybridized population, Genetic analysis needs to be completed		1.5 / 1/5	1.5	6
Deer Creek Section 2	I BQ 070BB01 02	San Juan	Planned reintroduction		0.0 / 0.0	0.8	1
La Sal Creek Section 3	I BQ 070 03	San Juan	Planned reintroduction, Genetic analysis needed to confirm that fish present are not CRCT		Unknown	3.2	1
La Sal Creek Ditch Main Diversion	Unassigned	San Juan	Genetic analysis needed		Unknown	2.3	0
Lower Dolores River (14030004)							
Beaver Creek Section 1	I BQ 030 01	Grand	Genetic analysis needed		Unknown	14.0	0

Table 7. Continued.

Drainage Stream Tributary	State Water ID #	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
Lower Dolores River (14030004)							
Roc Creek	I BQ 050 01	San Juan	Genetic analysis needed		Unknown	2.6	0
Deep Creek Section 2	I BQ 050A 01 01	San Juan	To be determined in 2002		Unknown	Unknown	6
Deep Creek Section 3	I BQ 050A 01 03	Grand	To be determined in 2002		Unknown	Unknown	6
Geyser Creek Section 1	I BQ 050B 01	San Juan	Genetic analysis needed		Unknown	Unknown	0
Geyser Creek Section2	I BQ 050B 02	San Juan	Hybridized population, Genetic analysis needs to be completed		4.6 / 4.6	4.6	0
Taylor Creek	I BQ 050A 01	Grand	Genetic analysis needed		Unknown	Unknown	0
Middle Colorado River (14030005)							
Indian Creek Section 3	I BG 02-04	San Juan	Genetic analysis needed		Unknown	13.0	2
North Cottonwood Creek	Unassigned	San Juan	To be determined in 2002		Unknown	Unknown	6
North Fork of Mill Creek	I BI 020 01	Grand	To be determined in 2002		0.0 / 0.0	3.0+	4
Tuerto Canyon Creek	Unassigned	San Juan	To be determined in 2001		Unknown	Unknown	6

*The barrier(s) are on a downstream water and eliminate the need for a barrier on the listed stream.
**A barrier is scheduled for construction this year.