

STATE OF NEVADA  
DEPARTMENT OF WILDLIFE

BULL TROUT SPECIES  
MANAGEMENT PLAN

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## INTRODUCTION

The bull trout, Salvelinus confluentus (Suckley) has the distinction of being Nevada's only native char. Due to this anomaly and its limited distribution in Nevada, the species has been given the status of a unique game species in Nevada. The Nevada Department of Wildlife's Policy Plan requires that a fisheries management plan be prepared for the bull trout. This plan will provide the basis for decision making concerning the bull trout through evaluation of management alternatives to achieve Department objectives. This plan also identifies projects needing evaluation in future surveys.

## TAXONOMY

The bull trout was recognized as a distinct species following the presentation of morphological and distributional evidence favoring its separation from the Dolly Varden, Salvelinus malma (Walbaum). Until 1978, the Nevada population of bull trout was believed to be Dolly Varden. Morphometric characteristics which are most useful in separating S. confluentus from S. malma are the shape and size of the head wherein, the head of the bull trout is broader and longer. Cavender (1978), provides a detailed account of the taxonomic history and morphometric description of the bull trout. The earliest published account of the Dolly Varden (considered to be bull trout as of 1978) in Nevada was made in 1952 (Miller and Morton, 1952)

## DESCRIPTION

The bull trout is olive-green to grayish along the back and sides and appears somewhat washed out; the back has pale yellow spots and the sides have small but conspicuous whitish to reddish spots; fins are fringed with yellow orange; and white leading edges on margins of lower fins. The jaws are well developed, with strong teeth (Moyle, 1976). The trunk tends to be slender and rounded with only slight lateral compression (Cavender, 1978). This trunk shape tends to give the species a skinny appearance as compared to the shape of other trout species. The lack of wavy vermiculations on the back of the bull trout differentiates it from the brook trout (Salvelinus fontinalis), and the absence of any black spotting clearly distinguishes it as not being a rainbow trout (Oncorhynchus gairdneri) or brown trout (Oncorhynchus trutta).

Taxonomists find coloration and spotting patterns of little value in identifying a species, hence, they make use of describing,

measuring and/or counting body parts most of which are of no value to the average angler who wants to know what kind of fish it is. Meristic details identifying the bull trout as a separate species are found in Cavender, (1978).

## DISTRIBUTION

### HISTORIC RANGE

The bull trout is distributed in a north-south belt along both sides of the continental divide along the northern Rocky Mountain and Cascade ranges of northwestern North America from lat'41'N to lat 60'N or slightly beyond (Cavender, 1978). In Nevada, the bull trout has never been known to occur outside the Jarbidge River system. However, it is conceivable that the species may have historically been found throughout the major rivers draining into the Snake River system. Cavender (1978) speculates that the southern range of bull trout is retreating as it had in the historic past due to the gradual change in climate and subsequent loss of mountain glaciers and snowfields. The bull trout has been extirpated from California where it was found only in the McCloud River drainage (Rode, 1988).

### CURRENT RANGE AND STATUS

Bull trout have been collected during Departmental fish population surveys from areas of the West Fork Jarbidge River, Jack Creek and the East Fork Jarbidge River (Figure 2). Angler caught bull trout were reported from upper Dave Creek in 1979. The presence or absence of bull trout in other Jarbidge River tributaries has not been documented satisfactorily through the very limited electrofishing and/or creel census surveys that have been conducted to date (Table 1). Certain tributary streams can be presumed not to be inhabited by bull trout because of their extremely steep gradient. Removing from the list of streams those with an overall/lowest reach having a 12% or greater gradient, there remains the chance that the remaining permanent flow streams harbor bull trout (Table 2).

Where bull trout have been found in the two forks of the Jarbidge River, their densities were generally low (Table 3). Highest densities of bull trout in the West Fork were sampled near the upper limit of fish distribution. Limited sampling in the East Fork indicates low densities of bull trout throughout its length. The average bull trout density for three areas sampled on the west Fork within the 1.5 mile section of stream below the two headwater forks was 4.8 bull trout per 100m<sup>2</sup>. This density figure compares with average densities of 0.5 (range of 0.4-2.0.6) and 0.4 bull trout per 100m<sup>2</sup> at stations in the East Fork and a station in the middle reach of the west Fork, respectively.

## LIFE HISTORY

No information is available on the biology of the Nevada populations of bull trout. Over its North American range, bull trout populations are characterized as being fluvial (fish spend their life in streams) or adfluvial (mature fish migrate from lakes into streams...to spawn and resultant progeny rear for varying amounts of time in streams prior to moving to a lake or reservoir). Even fluvial trout may make spawning migrations into tributary streams if conditions for spawning are not available where an adult trout resides in a main river. Whether or not bull trout found in the two forks of the Jarbidge River make use of adjacent tributaries for spawning is not known. Bull trout found in tributary streams such as Jack and Dave creeks, may represent isolated resident populations or rearing populations of fluvial spawners from the main rivers. A combination of fluvial/migratory and fluvial/resident fish might best describe populations within the Jarbidge River system.

### REPRODUCTION

The bull trout is a fall spawner as are all species of the genus Salvelinus. A combination of a shortening photoperiod and decreasing stream temperatures are likely cues for fall spawning trout. Time of year for bull trout spawning varies from July through November but more importantly, spawning commences when maximum water temperatures drop below 48.2°F and occurs at water temperatures between 41°F and 48.2°F (Shepherd, et.al., 1984 in Rode, 1988). Adult bull trout spawn in their fourth or fifth year (Moyle, 1976). Due to the low spawning temperature criteria, bull trout preferred spawning sites would most likely be in cold headwater streams to which they have access. An angler was said to have caught the Nevada State record 22 in. bull trout near Sawmill Creek on the West Fork after he observed it unsuccessfully trying to ascend a natural barrier on July 9, 1985. No mention of mature, ripe bull trout has been recorded during any of the surveys conducted in the Jarbidge rivers, thus, only generalities can be discussed as to the period spawning occurs. Suitable water temperatures in the upper West Fork are known to exist in early October.

Bull trout exhibit a strong homing instinct as do most salmonids. Selected spawning areas in the Flathead River-drainage occurred in low gradient (1.6 - 1.7%), low velocity (less than 2.0 ft/sec) reaches of larger, higher order tributaries (Fraley et.al., 1981). The above observations, taken with knowledge of the distribution of spawning substrate along the West Fork, may indicate that bull trout utilize the middle reach of the West Fork for spawning. Bull trout spawning and redd construction is not

unlike that of other trout. In fact, bull trout are known to hybridize naturally with brook trout (Cavender, 1978).

Egg incubation occurs over the fall and winter period and bull trout fry emerge from redds during the spring period. As is true for other trout, a silt-free redd promotes optimum egg to fry survival. Low water temperatures during incubation are also a requirement for optimum egg survival.

Water temperature is also important in determining juvenile bull trout distribution and densities. In the Flathead River drainage, bull trout juveniles were not found in reaches where maximum readings exceeded 64.2°P and highest densities were found in reaches where maximum temperatures were 56.6·F or less (Shepherd, et.al., 1984 in Rode, 1988). Recorded water temperature data in the West Fork indicates a maximum reading of 67.1·F and temperatures above 56.6·F beginning in late June, through late October at various locations of the middle reach. A temperature reading of 69.8·F was recorded 7/30/70 at a point above Murphy's Hot springs located a few miles into Idaho.

Bull trout were found to be closely associated with cover in Flathead River tributary reaches but because bull trout densities were generally low, a good model for predicting their abundance could not be developed (Fraley, et.al., 1981). Moyle (1976) states that bull trout prefer to live on the bottom in deep pools of rivers and their larger tributary streams.

#### AGE AND GROWTH

While bull trout commonly grow to trophy proportions in northern lakes having an ample supply of forage fish, stream dwelling individuals grow at a slower rate and attain smaller sizes. Age and growth data for stream dwelling bull trout are provided by Carlander (1969) and Fraley, et.al. (1981) (North and Middle Forks of the Flathead River tributaries).

<u>LOCATION</u>	<u>NO.</u>	<u>TL at each annulus (mm)</u>						
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
Montana streams	360	81	145	224	333	401	366	424
Priest Lake, 10 streams	38	66	104	142				
North Fork tribs, MT	93	80	116	143				
Middle Fork tribs, MT	103	64	104	138				

Interior, high elevation and northern bull trout populations are often stunted and do not exceed 305 mm (12 inches) in length (Rode, 1988). Adfluvial populations generally attain the largest size and their life span is normally 6 to 7 years, though older fish are not uncommon (Simpson and Wallace, 1978). The largest known bull trout was caught in Pend Oreille Lake in 1949 and weighed 32 pounds.

Fork length measurements of 12 bull trout captured from the West Fork in fall, 1985" ranged from 1.4 inches (36mm) to 10.5 inches (266mm) and averaged 4.9 inches (124mm). An angler caught bull trout in the East Fork was 12 in. long while bull trout harvested by others were from 5 to 7 in. Angler creel bull trout in the West Fork indicate fish from 6 to 12 in. were harvested.

### FOOD HABITS

Examination of 35 juvenile bull trout stomachs from the Flathead River drainage indicated that mayflies were by far the most important insect order in stomachs of both small (<110mm) and large (>110mm) bull trout. Also important in the diet were the orders of Diptera, Tricoptera and Plecoptera (Fraley et.al., 1981). Kokanee Salmon (Oncorhynchus Kisutch) were the main food of lake dwelling bull trout (Bjornn, 1957). The diet of bull trout over 10 inches (254mm) (TL) is primarily fish, including salmonid species and their own (Moyle, 1976).

### INTERRELATIONSHIPS WITH OTHER SPECIES

Bull trout populations in the Jarbidge River system are known to cohabitat with rainbow trout, mountain whitefish, mountain sucker (Catostomus platyrhynchus), and Paiute sculpin (Cottus beldingi). Rainbow trout are, by far the dominant and most widespread game fish in the drainage. In addition to the wild rainbow trout in the West Fork, an annual supplement of 3,000 catchable rainbow trout are stocked. During a 1985 survey, bull trout dominated the fish catch in the West Fork only at the uppermost s [il] whe 6 [il] collected. Limited survey data in the East Fork suggests that rainbow, rou are also the dominant gamefish.

Boag (1987) found little feeding competition between bull trout and rainbow trout in Alberta streams. Juvenile bull trout and westslope cutthroat trout (Oncorhynchus clarki) diets of aquatic insects were similar in the Flathead River drainage (Fraley, 1981). The fact that the diet of cohabitating species is similar or near identical indicates that, however else they may be competing, they are not competing for food (Hynes, 1970). Both mayflies and caddis larvae were noted as being common or abundant throughout the West Fork during the late summer period in 1985.

## HABITAT CHARACTERISTICS

As already mentioned, bull trout do best in cold waters (less than 53.6° F) and have a low tolerance for warmer waters. This fact alone may explain the current distribution of bull trout in Nevada. No other Nevada drainages to the Snake River are as aptly temperature suited for the bull trout than are the Jarbidge Rivers. Highest densities of bull trout in the West Fork were associated with a near 1:1 pool-riffle ratio with high quality pools, well vegetated and stable streambanks providing a good stream canopy, and rocky substrate with minimal sedimentation. Many of the unsurveyed tributary streams may provide adequate habitat to support bull trout (Appendix 1).

## SOCIOLOGICAL CONSIDERATIONS

### IMPORTANCE OF THE BULL TROUT RESOURCE

with the extirpation of California's only bull trout population, Nevada's populations now represent the southern most bull trout distribution in the world. As a general rule, populations living at the extremes of a species range are existing in conditions that are less than optimal and are most vulnerable for extinction by environmental changes or some competitive pressure (Behnke, 1979). It is important that Nevada's populations of bull trout are provided a secure environment so they may provide the public with the opportunity to catch or observe a unique native species that is considered a glacial relict. The very presence of bull trout in a water reflects on the near pristine nature of the surrounding lands from which the cold, clear waters emanate.

### ANGLER HARVEST

9328  
4722  
13 5.2

Both forks of the Jarbidge River are popular fishing waters as destinations for Nevada and California anglers. Results of the Nevada Department of Wildlife's 10% annual questionnaire for the years 1985-87 (inclusive) show the East Fork to be the 4th or 5th most fished stream in Elko County and the West Fork the 5th or 6th most popular. On a statewide basis both waters are among the 100 most popular waters fished (lakes and reservoirs included). The 1985-87, three-year average number of angler days expended on the East Fork and West Fork was 1645 and 1181, respectively. Harvest estimates for the same period on the East Fork and West Fork were 9328 fish and 4216 fish, respectively. "Random creel check data on the East Fork during the 1970's and 1980's indicates that rainbow trout, bull trout and mountain whitefish comprised 94.7%, 3.5% and 1.8% of the fish harvested, respectively. Likewise, in the West Fork the creel was comprised of 96% rainbow trout, 2% bull trout" 1% mountain Whitefish and 1% brook trout during the 1960.5 thru the

80's. The higher percentage of bull trout in the creel of East Fork anglers compared to that of West Fork anglers is probably most likely a result of the catches of hatchery rainbow and brook trout in addition to catches of wild fish in the West Fork. Eighty percent of the bull trout examined in the creel were J to 9 inches, (see below). *thru*

STREAM	SAMPLE #	Harvest Length								
		5"	6"	7"	8"	9"	10"	11"	12"	
West Fork	29		1	8	6	9	3	1	1	
East Fork	6		1	5						

It is unknown at what length the bull trout in the Jarbidge River system first spawn, thus, the harvested size linked with the current angling pressure presents a scenario of concern for the bull trout in Nevada. In streams having mixed salmonid populations, angling is highly selective for bull trout (Allan, 1980 in Rode, 1988) and in many waters they are over-harvested. In a fluvial population of the Muskeg River, Alberta, Boag (1987) in Rode (1988), found that the majority of bull trout harvested by anglers were immature fish less than five years old. *highly*

### MANAGEMENT PROGRAM

#### STATUS SUMMARY

The native bull trout of Nevada is relegated to the Jarbidge River system and represents the southern most occupied habitat of the species. Department of Wildlife stream survey data collected on the West Fork of the Jarbidge River beginning in the 1950's until 1985 indicates little change in status of the bull trout. critical bull trout habitat in the West Fork is located near the headwaters. Incomplete creel and electrofishing survey data have also identified bull trout inhabiting the headwaters of Dave Creek (EF drainage) and Jack Creek (WF drainage). There are an additional 23 unsurveyed perennial tributaries encompassing 76.15 miles within the drainage that may contain more bull trout populations.)

"", As a glacial relict, the bull trout requires cold, clear water within a stream containing good trout habitat. Just as there is a specific lack of knowledge of the life history requirements of isolated bull trout headwater populations throughout its known range, there is also a lack of knowledge on Nevada's populations. Angler harvest of bull trout may be a primary factor in the low *thru*

densities of bull trout in the East and West forks of the Jarbidge River.

## OBJECTIVE

The primary objective of this management plan is to provide direction for the future management of the bull trout within the Jarbidge River system of Nevada so the species future is never in jeopardy from man's actions.

## MANAGEMENT ALTERNATIVES

1. No Action: If no further actions to delineate bull trout distribution and status, protect their environment, regulate their harvest and understand their life history are taken, then a gradual loss of both numbers and populations of bull trout can be anticipated. Eventually, the species could become extirpated from Nevada.
2. Regulatory Protection: Until further identification of existing bull trout populations occurs, the species should be given "sensitive species" status to bring attention to its very limited known distribution. As additional information is gathered the species could be classified as a protected gamefish species or remain as a game species with or without special regulations governing its take.
3. Expansion of Populations Back Into Historic Range: This option could be utilized to reintroduce bull trout into barren stream areas within their historic drainage. Priority for introductions would be streams barren of trout and having suitable habitat for bull trout. stream reaches with natural barriers would be given priority consideration.
4. Reintroduction of Populations After Eradication Projects for Brook Trout Within Its Historic Range: Streams within the Jarbidge River drainage would be treated to remove brook trout, followed by a reintroduction of bull trout from within the same Jarbidge River fork drainage. These streams should have good habitat for bull trout propagation.
5. Stream Fish Population and Habitat Inventory: Streams within the Jarbidge River system would be inventoried through the ongoing Nevada Interagency Stream survey effort. A completed survey of each water is needed to identify additional bull trout populations and any stream/riparian habitat concerns.
6. Bull Trout Age, Growth and Maturation Studies: An understanding of these basic aspects of the bull trout's life

history are needed to determine the impact of angler harvest on the number of spawners within the East and West Forks of the Jarbidge River.

7. Intensified Habitat Management: Intensified watershed/riparian management may be needed to improve water quality and stream habitat to improve bull trout population levels in individual waters. Cooperative efforts by land agencies, private landowners and the Department of Wildlife to reestablish and maintain watersheds in good ecological condition is tantamount to protecting bull trout.

#### SELECTED ALTERNATIVE

An evaluation of the management options indicates that the only option not recommended is that of the "No Action" Alternative, all other options are needed to insure that man's activities will not jeopardize the future of the bull trout in Nevada.

#### PROGRAM IMPLEMENTATION

##### I. Maintenance and Enhancement of Existing Bull Trout Populations and Habitats.

I-1. Existing populations and habitats will be inventoried through continuing efforts of the Interagency Cooperative Stream Survey Program. The direction of the Region II Cooperative Stream Survey Team since 1988 is to complete stream survey in areas that are scheduled for USFS grazing allotment plan revisions while methodically completing the Original Comprehensive survey. Annual stream survey accomplishments per team amount to about 100 miles of stream, and there are 137 miles of perennial stream in the Jarbidge River system yet to be surveyed (the west Fork was surveyed in 1985). Considering the remoteness of many of the streams, the time required to survey the entire system will be about two field seasons. In the event that survey commitments by allotment needs are fulfilled, survey effort should be prematurely directed to the Jarbidge River system.

I-2. Emphasis will be given <sup>to</sup> management of riparian and stream habitats within the Federally administered lands of the Jarbidge River system through the land management processes of each agency. Each land plan document will be developed with watershed, aquatic, and riparian habitat improvement and maintenance objectives stated.

J. Impact of angler harvest of bull trout will be evaluated

after age, growth and maturation studies are completed.  
A study proposal will be written. Results of the study will be used to assess angler impacts to the bull trout fishery. Specific regulations may be recommended following impact assessment. Periodic fish population inventories and/or angler creel studies may be required to determine impacts of recreational angling.

1-4. Non-native species introductions will not be allowed in streams within the Jarbidge River system. The future of the current practice of stocking catchable rainbow trout into the West Fork should be evaluated with due consideration given for the impacts planters and-angling pressure maybe having on the bull trout population.

1-5. The bull trout should be given the official designation of a State sensitive species. The sensitive status would stand until which time a better understanding of the species distribution and status is known.

## II. Reestablish the Bull Trout Within Suitable Waters of Its Historic Range in the Snake River Basin.

II-LThe interagency cooperative stream survey effort may find that bull trout reside in other Snake River drainage river basins besides the Jarbidge River system. This discovery could potentially open the door for establishment of bull trout populations in suitable barren streams in other basins as well as in the Jarbidge River system. Barren streams may be precluded from establishing a viable population until land managers address watershed and/or riparian improvements necessary for stream enhancement.

**PROGRAM IMPLEMENTATION SCHEDULE**

	1991	1992	J.993	J.994	J.995	J.996	J.997	J.998	J.999	2000
1-1 population Delineation		X	X	X						
1-2 Land Planning Process	X	X	X	X	X	X	X	X	X	X
1-3 Life History study			X	X	X					
1-4 Stocking Prohibition										
Evaluation/Recommendation				X	X					
Implement (if feasible)					X	X	X	X	X	X
1-5 Designate Bull Trout as State sensitive Species		X								
II-1 Barren Stream Introductions						X	X	X	X	X
Eradication/Reintroductions								X	X	X

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COMPOSITE INFORMATION SUMMARY OF JARBIDGE RIVER TRIBUTARIES IN NEVADA

TABLE 1.

DRAIN-AGE <sup>2</sup>	STREAM	LENGTH <sup>1</sup> (MI.) PER. INT.	ELECTRO-FISHING <sup>3</sup> DATA	CREEL SURVEY <sup>4</sup> DATA	TROUT PRESENTS	COMMENTS
WF	Bonanza' Gulch	1.4 /	N.D.	N. D.	N. D. -	27% gradient
WF	Bournet Gulch	1.5 /	N.D.	N.D.	N.D.	28% gradient
WF	Bear Cr.	4.2 /	1964	1962	BK	Meadow area
WF	Buck Cr.	7.4 / 3.3	1974	1969	Rb BK	Brook in creel
JR	Columbet Cr.	2.6 / 4.0	1974	1973	Rb	1 mi. above ID-NV border
WF	Corral Cr.	8.3 /	1974	1978-N.C.	Rb	Near headwaters
EF	Cougar Cr.	4.8 /	N.D.	1962-N.C.	N.D.	lower 2.8 mi. has 8% gradient
WF	Cow Cr.	5.5 /	1974	N.D.	none	1/2 mi. onto USFS prop.
EF	Dave cr.,'	8.4 /	1958	1975	Rb, Bt	Bt creeled i n headwaters
WF	Deer Cr.	6.7 /	N.D.	N.C.'s	N.D.	
WF	Dorsea' Cr.	/ 5.3	N.D.	N.C.'s	N.D.	
WF	Dry Gulch	1.3 /	N.D.	N. D.	N.D.	26% gradient
EF	Fall Cr.	4.3 /	N.D.	N. D.	N.D.	
WF	Fawn Cr.	/ 3.8	N.D.	1978-N.C.	N.D.	5.5% gradient
WF	Fox Cr.	2.7 /	N.D.	1972	Rb	
EF	Gods Pocket Cr	2.3 / 1.4	N.D.	N.D.	N.D.	15% gradient
WF	Gorge Gulch	1.4 /	N.D.	N.D.	N.D.	31% gradient
WF	Jack Cr.	5.2 /	1957,74	1976	Rb Bt	No fish sampled in 1957
WF	Jenny Cr.	2.5 /	1974	N.D.	Rb	15.5% gradient
EF	Jim Bob Cr.	1.0 /	N.D.	N. D.	N.D.	11% gradient
WF	L. Jack Cr.	0.6 /	N.D.	N. D.	N.D.	22% gradient
WF	Moore Gulch	/ 1.3	N.D.	N.D.	N.D.	23% gradient
WF	Pine Cr.	5.3 /	N.D.	1979	RbBtMw	questionable Bt presence
JR	Poison Cr.	/ 3.0	N.D.	N.D.	N.D.	9.6% gradient.

COMPOSITE INFORMATION SUMMARY OF JARBIDGE RIVER TRIBUTARIES IN NEVADA

TABLE 1. (continued)

DRAIN- AGE <sup>2</sup>	STREAM	LENGTH <sup>2</sup> (MI. ) PER / INT.	ELECTRO- FISHING <sup>3</sup> DATA	CREEL SURVEY <sup>4</sup> DATA	TROUT PRESENTS	COMMENTS
JR	Rattlesnake Cr	/ 4.3	1974	N.D.	N.D.	station was dry
EF	Robinson Cr.	6.0 /	1984	1970	Rb	Upstream natural barrier present?
WF	sanovia Cr.	5.3 / 1.0	1974,79	N.C. '5	Rb	
WF	Sawmill Cr.	0.8 /	1954	N.D.	Rb	17% gradient
EF	Slide Cr.	5.5 /	N. D.	1962	Rb	7% gradient-

1. JR=Jarbidge R: WF=West Fork Jarbidge River: EF=East Fork Jarbidge River
2. Stream length and water status as shown on USGS 15' topo-maps.
3. N.D.="No Data"
4. N.C.="No Contact" or "No Contacts" if checked more than one time.
5. Bk=Brook trout: Bt=Bull trout: Rb=Rainbow trout: MW=Mountain whitefish.

POTENTIAL BULL TROUT INHABITED STREAM REACHES WITHIN THE JARBIDGE RIVER SYSTEM  
WITHOUT CURRENT INVENTORIES

TABLE 2.

<u>BULL TROUT STATUS</u>	<u>'STREAM'</u>	<u>DRAINAGE SYSTEM</u>	<u>REACH LENGTH (MI.)</u>	<u>REACH GRADIENT (%)</u>	<u>KNOWN SPECIES PRESENT</u>
uncertain	Bear	west Fork	4.2	9.1	Bk
Probable	Buck	West Fork, 10	7.4	2.9	Rb, Bk
Unlikely	Columbet	Jarbridge River, 10	2.6	2.2	Rb
Uncertain	Corral	Buck Creek	8.3	3.5	Rb
Probable	Cougar	East Fork	2.8	8.1	N. D.
Uncertain	Cow	Buck Creek	5.5	4.2	N.D.
<u>Known</u>	<u>Dave</u>	East Fork	8.4	5.4	Rb, Bt
<u>Probable</u>	<u>Deer</u>	west Fork	4.5	5.7	N.D.
Unlikely	" Dorsea	Jarbridge River, 10	5.3	4.0	N.D.
Probable	, Fall	East Fork	1.8,	6.3	N.D.
Unlikely	Fawn	Columbet Creek	3.8	5.5	N.D.
Probable	Fox	West Fork	1.8	9.5	Rb
Probable	Gods Pocket	Slide Creek	1.65	10.9	N.D.
<u>Known</u>	<u>Jack</u>	West Fork	5.2	11.3	Rb, Bt
<u>Potential</u>	<u>Jenny</u>	Jack Creek	0.4	11.8	Rb -
Potential	Jim Bob	Robinson Creek	2.0	11.1	N.D.
Probable	Pine	West Fork	5.3	7.1	Rb
Unlikely	Poison	Jarbridge River, ID	3.0	9.6	N.D.
Unlikely	Rattlesnake	west Fork, ID	4.3	6.2	N.D.
Potential,	Robinson	East Fork	6.0	7.3	Rb
Uncertain	Sanovia	Buck Creek	5.3	3.6	Rb
Probable	Sawmill	West Fork	0.15	6.3	Rb
Probable	Slide	East Fork	5.5	7.1	Rb

SUMMARY OF WEST FORK AND EAST FORK JARBIDGE RIVER  
ELECTROFISHING SURVEYS

TABLE 3.

SURVEY DATE MO.YR	STREAM	NO. OF SAMPLE SITES	NO. OF SAMPLE SITES W/BT	NO. OF BT COLLECTED	BT PER MILE	PERCENT BY COMPOSITION OF GAME FISH SAMPLED'
10/85	west Fork	17	3	13	41-106-115	0-3-29-67
10/79	West Fork	7	2	2	21-36	0-6-100
9/75	west Fork	7	0	0	0	0
11/74	West Fork	6	0	0	0	0
8/72	West.-Fork	4	1	1	35	0-8
10/61.	West,Fork	7	1	7	370	0-70
8/54	West Fork	5	1	2	104	0-14
10/84	East Fork	1	1	1	15	0-14
8/57	East Fork	4	2	2	26-42	0-6-7
		<u>50</u>	<u>8</u>	<u>25</u>		

1. Other gamefish may include mountain whitefish, wild and/or hatchery rainbow trout/hatchery cutthroat trout and/or hatchery brook trout.