STREAM: Robinson Creek

DRAINAGE: East Fork Jarbidge River

WATER CODE: 1319

GAWS COMPUTER NO.: 170501,05,155,035,025,010

SURVEY DATE: July 20,21,22 and September 7 and 8, 1993

REPORT DATE: June 23, 1995

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SURVEY METHODOLOGY: The United States Forest Service Region 4, Level III Fisheries Habitat Survey Method (March, 1989) was utilized at eight Sample Sites (SS's) spread somewhat equidistant along the length of stream. Each SS was preplotted on the United States Geological Survey, 7½ minute topographic maps of the area.

The first 100 feet at each SS was sampled for fish using a one pass effort with a Dirigo backpack electroshocker. A ¼-inch mesh block net was placed at the downstream end of each fish population sample area. Captured trout were measured (fork length), weighed and returned to the stream following electrofishing. Young-of-year trout captures were only measured. Fish seen but missed were recorded and used in calculating density estimates. Aquatic macro-invertebrate type and relative abundance was assessed following random substrate inspection at each SS. The first of five habitat transects began at the end of each fish survey area. Habitat transects were 50 feet apart. Stream discharge at each SS was calculated by using timed float velocity measurements and water width and depth measurements over a uniform length of stream. Both air and water temperatures were recorded at all but two SS's with the use of a hand held thermometer.

LAND STATUS AND ACCESS: Management of the entire Robinson Creek drainage is administered by the Jarbidge District of the Humboldt National Forest. Only the lower approximate 0.15 miles of the creek are on unfenced private land. Robinson Creek is accessible via about 68 miles of dirt road north of Wells, Nevada through the Oneil Basin. The road into Robinson Hole is recommended for 4x4 rigs although, 2x2 trucks could make it when the road is dry.

WATERSHED DESCRIPTION: Robinson Creek is a northwesterly flowing stream within a 7.1 mi^2 volcanic geologic basin (Million-scale Geologic Map of Nevada - 1977). The lower 3.6 miles of Robinson Creek (Reach 1) lies in a narrow, V-shaped canyon above which the upper 2.6 mile of Robinson Creek (Reach 2) drains a moderate, V-shaped canyon that opens up to a more gentle gradient uplands area. The valley bottom width ranged from just 16 ft at R1S2 to 164 ft at R2S1 and averaged 52 ft. Drainage elevation ranges from 7033 feet to 9031 feet. The Inside Desert borders the north rim of the drainage of Reach 1 and the tributary (Jim Bob Creek) of Robinson

Creek. Bieroth Ridge borders the opposite side of Robinson Creek. The ridge between Reach 2 of Robinson Creek and Jim Bob Creek elevates to 8726 feet.

Upland vegetation on the slopes above Reach 1 consisted of aspen, juniper, mountain mahogany, mountain shrubs including sagebrush, currant, rockspray and chokecherry and, grass and forbs. Fir stands were common in Reach 2.

WATER STATUS: Robinson Creek is a first order stream above the confluence of Jim Bob Creek and a second order tributary of the East Fork of the Jarbidge River. Streamflow commenced from the two forks above R2S4. A spring entered the creek at R2S3 and at R1S2. During the July 20-21 survey of Reach 2 the stream discharge above the confluence of Jim Bob Creek averaged 1.65 cfs. The discharge on July 22 at R1S4 located below the confluence of Jim Bob Creek was 2.90 cfs. Discharge at the lower three SS's during the September 7-8 survey averaged 1.24 cfs. Flow was greatest at R1S1 where, discharge was 1.91 cfs. Flow stage in July and September was medium and low, respectively.

Riffles comprised an average of 80.4 % of the habitat transect width in Reach 2, 83.5 % at the upper two SS's in Reach 1, and only an average of 45.3 % at the lower two SS's in Reach 1. Exposed substrate encompassed an average of 5.1 % of the riffle width at SS's surveyed in September and only 1.1 % at SS's surveyed in July.

Mean water width and depth in Reach 1 were 6.8 ft and 0.21 ft, respectively. Maximum recorded depth across transects in Reach 1 was 1.15 ft. Reach 2 average water width and depth was 5.7 ft and 0.17 ft, respectively. The maximum recorded depth in Reach 2 was 0.59 ft.

Stream temperatures ranged from a high of 59°F at R2S3 to a low of 45°F at R1S3. Water clarity was clear at all SS's.

STREAM HABITAT CONDITION INDEX (HCI): The average HCI for the lowest two SS's was 73.1 % of optimum or "good". The HCI at all remaining SS's ranged from 50.5 (R2S4) to 64.0 (R1S4) and averaged 58.4 % of optimum or "fair". The most limiting HCI parameters were percent optimum pool structure and pool measure. Bank soil and vegetative stability ratings rated "good" to "excellent". Percent of optimum bank cover rated "excellent in Reach 1 and mostly "good" in Reach 2. Forbs dominated the streambank vegetation at the uppermost SS hence the bank cover rating was only 52.5 % of optimum. The percent of optimum streambottom ratings averaged 90.1 % and 70.4 % in Reach 1 and Reach 2, respectively.

STREAM CHANNEL TYPE AND STABILITY: Reach 1 had a moderate channel gradient averaging 2.8 % (excludes the gradient at R1S2) and Rosgen's B-1, B-2, and B-3 type channels were all represented. Reach 2 had a mean gradient of 7.4 % and a gravel dominated streambottom thus, an A-3 type channel best characterizes the entire Reach.

Stream channel stability (SCS) scores averaged 76.75 or barely "good" in Reach 1 and 60.75 or "good" in Reach 2. The fact that the landform slopes above the upperbanks were moderately to steeply inclined, caused the SCS rated item entitled landform slope to be

rated "poor" at four SS's and "fair" at three SS's. The other SCS indicator that rated mostly "poor" was streambottom brightness. Five SS's had predominantly scoured substrate surfaces and three SS's rated "fair" by showing about a 50-50 mixture of scoured and stained surfaces. Substrate composition across transects was comprised of gravel (52%); rubble (28%); boulder (15%); sand/silt (4%) and bedrock (<1%). Substrate consolidation ranged from being tightly packed to mostly a moderately packed assortment of substrates. Streambottom embededness was "light" to "moderate".

RIPARIAN DESCRIPTION: Various willows and forbs were found throughout Robinson Creek. A dominant forb at the upper three SS's was Veratrum californicum. Fireweed was noted at R1S2. Various grasses and aspen were present drainage wide. Fir trees were occasionally found in the riparian zone upstream of R1S3. Alder was codominant with willow through R1S3. From R1S3 and downstream there were rose, currant, Ribes spp., and/or dogwood present. Sedge was common to abundant (R2S2) in Reach 2.

Riparian condition ratings rated "good" to mostly "excellent" in Reach 1. The lower two SS's in Reach 2 rated "good" while the upper two SS's only rated "fair". Low rated riparian criteria included moderate to heavy utilization of understory plants by livestock at R1S1, R2S3, R2S3 and R2S4. In addition, less than 80% ground cover was estimated at the same SS's. Some soil compaction and/or isolated areas of sheet erosion were also noted at the same SS's. Sites having trees and corresponding low (< 30 %) shrub densities included R1S4, R2S1, R2S2, and R2S4. Riparian area width closely matched the valley bottom width except, at the two widest areas. Mean stream canopy density was 86 % in Reach 1 and 53 % in Reach 2.

HABITAT VULNERBILITY: The Index of Habitat Vulnerbility (HVI) to management activities was "high" at R2S1 and R2S4 and "moderate" at the remaining six SS's. Streambank sensitivity ratings as determined from the combined SCS scores for upperbank vegetative bank protection and lowerbank rock content averaged a score of 9.1 (5-12). All SS's had "good" to "excellent" lowerbank rock content. Upperbank vegetative protection was only "fair" to "good" for an overall average score equating to "good" . A score of >13 indicates that one season of moderate livestock grazing can result in damaged streambanks. Ungulate damage to willows was noted at R1S1 and at R2S4. A "moderate" amount of ungulate damage was noted at R1S1, R1S3, R2S3 and R2S4. Heavy ungulate trampling was noted on the leftside slope above R1S2 which was in an old burned area. Only a "light" amount of ungulate streambank damage was noted at other SS's. Frequency of undercut streambanks having water beneath them averaged 26 %. The three stations without noticeable ungulate streambank damage had an undercut streambank frequency of 37 %.

FISH POPULATION: Electrofishing efficiency was deemed good to excellent in Robinson Creek. Only native rainbow/redband trout Oncorynchus mykiss ssp. were found inhabiting approximately 4.9 miles of stream at an average density of 475.2 fish per mile. Of the estimated 2328 rainbow/redband trout (RBT) in the stream only

6.3 % of the population were >6 inches (fork length). The average size of 43 RBT was 88.4 mm. There were five age classes of fish collected. The young-of-year fish collected only at R1S1 on September 7, averaged 36.6 mm in total length. Trout appeared to be in good condition. Late season streamflows probably limit the upstream distribution of fish in Reach 2.

PREVIOUS FISH POPULATION SURVEYS: No fish were spot shocked in the vicinity of the road xing Robinson Creek on October 16, 1984. It was suggested that the stream could support trout but, further investigation was warranted.

FISH BARRIERS: About a 5 foot high waterfall located between habitat transect 2 and 3, creates an upstream barrier to fish movement during low water periods. The stream gradient as a result of the waterfall was measured to be 26 %.

AQUATIC MACROINVERTEBRATES: A variety of caddisfly larvae were found in abundance at every SS. Mayfly and stonefly larvae while not as numerous, were also found throughout the stream. Planaria were abundant at the two uppermost SS's and occasionally noticed at R1S3 and R2S1. Water mites were rare to common at R2S3 and R2S4, respectively. The only other aquatic invertebrates noted were earthworms and fly larvae both of which were seen at two SS's each in Reach 1. Overall densities of macroinvertebrates appeared good.

BEAVER STATUS: No indications of beaver past or present use of Robinson Creek was noted. It would seem that the presence of both willow and aspen and a moderate stream gradient in Reach 1 would provide a suitable but yet limited opportunity for beaver occupancy. The formation of beaver ponds would provide fish with quality rearing areas.

CONCLUSIONS

STREAM'S IMPORTANCE: Robinson Creek provides suitable habitat for a native trout. Bull trout are found in the East Fork of the Jarbidge River and have actually been collected in the Robinson Hole area (10/16/84) thus, Robinson Creek may be important for the species in the river as a cold water inflow to the river.

ISSUES AND CONCERNS:

1) The streambanks and riparian vegetation in the upper half of Reach 2 is receiving moderate to heavy use from cattle.

RECOMMENDATION: Grazing management along Robinson Creek should be monitored to prevent observed problem conditions.