FISHERY AND HABITAT MONITORING OF PARIS CREEK, IDAHO (2001 and 2012) TO DETERMINE EFFECTS OF HYDROPOWER OPERATIONS ON INSTREAM FLOWS AND AQUATIC ECOSYSTEMS

April 20, 2015

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Data Collected By:

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INTRODUCTION

Paris Creek in Southeastern Idaho is impacted by the diversion of water for a PacifiCorp hydroelectric generating station approximately 3 miles west of the town of Paris, Idaho. Approximately 3 miles of the headwaters of Paris Creek is flow regulated by an upstream diversion located on USDA Forest Service lands. The diversion sends a majority of the streamflow into a canal which bypasses Paris Creek and delivers the water to the power plant approximately 3 miles downstream. Streamflow diversion in this regulated reach of Paris Creek occurs yearlong with only minimal fluctuations in stream discharge within the natural channel. Below the power plant the diverted water is returned to the Paris Creek stream channel. During the summer months, a portion of the water remains diverted at this location and is delivered via irrigation canals to downstream users. The reach below the power plant is somewhat flow regulated during the irrigation season. A map of the project area is provided in Figure 1.

In 2001 representatives of the USDA Forest Service, Idaho Fish and Game, and Western Watersheds Project teamed up to conduct fisheries and aquatic habitat monitoring in Paris Creek. The objective of the monitoring was to compare fisheries and aquatic habitat conditions above and below the powerhouse to determine how hydropower operations affect the aquatic resources. The hydropower flow regulated reach represented the headwaters of Paris Creek from the Paris Spring diversion downstream to the PacifiCorp Hydropower facility. This reach is located on USDA Forest Service and private lands. The Lot 8 sampling site was designated on private lands in the middle of the reach (Figure 2). Immediately downstream of the power plant where return flows increase stream flow, the Newberry sampling site was established on private lands (Figure 3). At these sites fish sampling, habitat surveys, stream temperature monitoring, discharge measurements, and sediment sampling was completed in 2001. The results from this monitoring effort were summarized in a report completed by Western Watersheds Project.[3] (Attachment 1).

In 2012, a second sampling effort was conducted by the Forest Service, Idaho Fish and Game, and Yellowstone to Uintas Connection. Efforts in 2012 included fish sampling, stream temperature monitoring and discharge measurements. All efforts were made to make the data comparable between sampling years and events. In the 2012 survey, the fish sampling effort was increased from the single pass electro-fishing surveys in 2001 to multiple pass depletion surveys in 2012 to allow for population estimates to be developed. The stream temperature monitoring was also extended to capture a longer duration of stream temperatures.

RESULTS

Monitoring results from this survey were used to contrast both physical and biological variables between two sampling sites and between two sampling periods. Sampling sites were located above and below the PacifiCorp hydropower facility with the Lot 8 site located above and the Newberry site located below the facility. The sampling periods were in 2001 and 2012 and results were compared between years when applicable.

Stream discharge between the sites was captured on 6/28/2012 (Table 1) using a Marsh-McBirney flow meter. Stream discharge was significantly higher at the Newberry site than at the Lot 8 site. Discharge at these sites was measured at 6.4 cfs (Newberry) and 0.6 cfs (Lot 8).

[3] Western Watersheds Project. 2001. Fishery and habitat survey of Paris Creek, Idaho to determine effects of water diversion and dewatering. Unpublished Report dated October 15, 2001.

Similar results were found on 6/13/2001 with 9 cfs at the Newberry site and 0.5 cfs at the Lot 8 site (Attachment 1).

Monitoring of stream temperatures was done at three locations including the diversion canal, Lot 8 and Newberry. The canal sampling site was located uphill of the Lot 8 sampling site. Daily average and daily maximum stream temperatures are provided in Figures 4 and 5. The daily maximum and daily average temperature trends did not overlap between sites within the three month monitoring period. Stream temperatures were highest in the reach above the power house which contained the Lot 8 sampling site. Average stream temperatures in this reach were between 9.09° - 16.23°C and the highest daily maximum temperature of 19.22°C was recorded on 8/9/2012. Stream temperatures were lowest in the canal where daily average temperature varied by less than one degree Celsius (5.89° - 6.65°C) and the highest daily maximum temperature of 7.37°C was recorded on 8/9/2012. The canal is fed by cold spring water and during the summer periods likely carries more water than the reach below the power plant. The Newberry reach below the hydropower facility has intermediate temperatures due to a mixing effect. Average daily temperatures ranged from 7.07° - 10.97°C and the highest daily maximum temperature of 15.11°C was recorded on 7/31/2012.

Stream temperature monitoring in 2001, was conducted on a much shorter duration but showed similar findings with the canal maintaining a range of 4.57° - 10.60°C, while the dewatered reach at Lot 8 ranged between 10.60° - 24.01°C and the Newberry reach with return flow ranged between 5.81° - 14.08°C (Figure 6). The daily maximum temperature of 22° - 24°C recorded on 7/16 – 7/17/2001 in the Lot 8 reach is of concern, but these higher temperatures were not encountered in 2012.

Other habitat variables including R1R4 Habitat surveys and substrate cores collected in 2001 were not repeated in 2012. (Attachment 1).

Multiple pass depletion fish distribution surveys were conducted at the Newberry and Lot 8 sites in 2012 and the data is provided in Tables 2 and 3. This method allows for population estimates to be developed for each site. All fish captured were identified and enumerated. In the Lot 8 dewatered reach of Paris Creek, 26 brook trout and 37 mottled sculpin were captured in three passes. The brook trout averaged 130 mm in length. The sampling unit had a stream length of 100 meters with an average width of 2.74 meters. The total catch of brook trout greater than 100mm in length was 25 and the population estimate was 28. Brook trout density was calculated as10.2 trout/100m^2. In the Newberry reach with return flows, 42 salmonids were caught including 38 brook trout and 4 Bonneville cutthroat trout (BCT). Six mottled sculpin were also captured. Only two sampling passes were completed. Brook trout averaged 190 mm in length and resident BCT averaged 201 mm in length. One fluvial size BCT was also captured and measured 433mm in length. The sampling unit had a stream length of 100 meters with an average width of 3.26 meters. The total catch of salmonids was 42 and the population estimate was 42. Trout density was calculated as 12.9 trout/100m^2.

Length frequency histograms were developed for the 2012 fish distribution sampling sites (Figures 7 and 8). When comparing the Newberry site to the Lot 8 site it is evident that the Newberry site supports more size classes (age classes) of trout, higher fish densities, and greater species diversity than at the Lot 8 site.

In 2001, Fish Distribution monitoring yielded similar results for species diversity. Brook trout

had replaced native BCT in the dewatered Lot 8 reach and were also abundant in the Newberry Reach. Also low numbers of BCT were found in both years only in the Newberry Reach (n = 5 in 2001, n= 4 in 2012). In 2012 a large BCT was captured and was likely a fluvial fish from the Bear River. This observation indicates that Paris Creek may still support a fluvial life history of BCT and stream connectivity in the lower reaches of Paris Creek may be intact.[4] Low numbers of rainbow trout and hybrids were sampled in 2001, but were not resampled in 2012. It is assumed that this component of the trout population has not disappeared and that hybridization is still a concern for the BCT population in Paris Creek.

Population estimates could not be developed and compared between sampling years due to the single pass sampling method used in 2001. Minimum trout density estimates derived from the 2001 data (based on total catch) were similar between sites (4.3 trout/100m^2 at Lot 8 and 4.7 trout/100m^2 at the Newberry site). However average lengths of fish captured were similar to findings in 2012. In the Lot 8 dewatered reach Paris Creek, brook trout averaged 138 mm in length (average length was130 mm in 2012). In the Newberry reach with return flows, brook trout averaged 173.3 mm in length (average length was 190 mm in 2012), and BCT averaged 193 mm (average length was 201 mm in 2012). Counts of trout smaller than 100 mm in length were not included in the population estimates, trout densities, and average length metrics presented above.

DISCUSSION

The dewatering of three miles of Paris Creek inhibits both the physical and biological attributes of the aquatic ecosystem. These impacts are evident when comparing hydrology, stream temperatures, and fish populations above the below the PacifiCorp hydropower facility. The diversion of up to 99% of the stream flow within three miles of Paris Creek directly impacts the dewatered reach and likely the entire length of Paris Creek.

The dewatered reach of Paris Creek occurs due to multiple points-of-diversion (PODs) located on the National Forest. Six water rights for irrigation (four water rights with a total of 22.08 cfs), municipal (2.38 cfs), and power generation (70 cfs) use exist at the Paris Spring source. These water rights are delivered by a pipeline and a canal, therefore leaving the stream channel severely dewatered. The majority of the irrigation water is delivered via the canal and is further diverted below the power house during irrigation season. During the irrigation season the power house runs at peak capacity between 38-40 cfs and after irrigation diversion (22 cfs) there could be a maximum of 16 cfs left in channel below the power house.

The Tennant Method[5] provides a simple method of determining and rating in-stream flow levels to protect aquatic resources based on the systems' average flow. This method rates in-stream flows from Outstanding to Severe Degradation based on the percent of average flow. In the dewatered reach it is difficult to estimate average flows for Paris Creek due to the active diversions and the spring dominated hydrology. With that said it is known that up to 40 cfs reaches the power plant at maximum operating capacity so a lower range could be used to depict seasonal changes in spring output. If 30 cfs was used as an average discharge for Paris Creek,

[4] Trout Unlimited and the PacifiCorp ECC have partnered with downstream water users to implement diversion screening and fish passage measures below the town of Paris to provide connectivity to the Bear River.

[5] Tennant, L. 1976. Instream flow regimes for fish, wildlife, recreation and related environmental resources. Fisheries Volume l, No. 4.

stream discharge measured in 2001 and 2012 in the dewatered reach (Lot 8) would be rated as Severe Degradation using the Tennant Method. This rating would hold true if the average discharge in Paris Creek was depicted within the range of 5 – 70 cfs.

Within the dewatered reach physical impacts have been observed to water quality, stream function, and the availability of in-stream habitat. The diversion of instream flow results in a reduction of in-stream habitat due to the reduced flows and remnant channel morphology that is similar to the reach found below the power plant. The channel width and depth is maintained in the dewatered reach due to sporadic restored flow conditions during canal or infrastructure maintenance periods, and during spring snowmelt periods when some flow is bypassed around the diversion at Paris Spring. During most of the year this dewatered reach provides less in-stream habitat due to reduced depth and a narrower wetted surface. This reduction of flows has resulted in exposed streambed substrate and dry stream margins. For example in 2001, 380 feet of stream with 9 cfs provided nearly the same wetted surface area as 620 feet in the dewatered reach which had 0.5 cfs. It is important to note that wetted surface area comparison does not represent the quantity of available in-stream habitat. Additional monitoring of stream habitat is needed to contrast the changes in stream habitat between the two sampling reaches. Pool frequency and pool habitat quality could be used as metrics and the length of sampling should be extended.

Water quality has also been impacted in the dewatered reach of Paris Creek. Stream temperature monitoring during the summer of 2012 showed that the average stream temperatures in the canal, dewatered reach, and below the power plant did not overlap. The canal with water sourced from Paris Spring contained the coldest water, and the reach below the power plant had intermediate stream temperatures, and the dewatered reach had the highest stream temperatures. The variations in summer time stream temperature per reach were a result of water diversion from Paris Creek. In the dewatered reach a maximum stream temperature of 19.22°C was recorded in 2012 while in 2001 maximum stream temperatures were documented at 22 - 24°C during a two day period. When stream temperatures exceed 22°C for one day trout typically show signs of stress.[6] In 2012 the maximum stream temperature was 11.85°C less in the canal when compared to the dewatered reach. This drastic difference in daily maximum temperature was likely caused by a combination of stream dewatering and solar warming. These fluctuations in stream temperatures may impact fish populations and stream productivity and warrant additional monitoring.

This reduction of in-stream flows may also limit stream function including the maintenance of in-stream habitat and spawning areas. Both reaches contained low amounts of pool habitat with only one pool documented in 382 ft (Newberry) and 620 ft (Lot 8) in each reach. In addition, sediment size fractions showed both reaches to have significant percentages of fines in the stream substrate (Attachment 1). These fines can imbed larger substrates and limit cover for larval and juvenile fish as well as impair reproductive success for spawning fish. The 2001 sediment data was collected in the interstitial space between larger cobbles and boulders. In 2006, WWP used the McNeil Sediment Core method[7] to assess sediment fines in Paris Creek at the Forest Boundary at the tail of

[6] Johnstone, H. C., and F. J. Rahel. 2003. Assessing temperature tolerance of Bonneville cutthroat trout based on constant and cycling thermal regimes. Transactions of the American Fisheries Society 132:92-99.

[7] Bunte, Kristin; Abt, Steven R. 2001. Sampling surface and subsurface particle-size distributions in wadable gravel- and cobble-bed streams for analyses in sediment transport, hydraulics, and streambed monitoring. Gen. Tech. Rep. RMRS-GTR-74. Fort Collins,CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 428 p.

a pool. The location is shown in Figure 9 with the data shown in Table 4. Spawning substrate sediment fines (<6.35mm) were 38.7 percent, which exceeds the Idaho standard of 27%. At 38.7%, the survival from egg to emergence is estimated at only 17%.[8] This corresponds to mortality from sediment impacts alone of 83%. The monitoring data from both reaches in Paris Creek indicates that reduced flows may limit aquatic habitat diversity, quality, and productivity. Increased stream flows in Paris Creek are needed to flush and maintain clean substrates and maintain channel scouring for pool development.

Fish distribution surveys provided data that were used to compare fisheries populations between the dewatered reach to below the hydropower facility. Overall trout density and diversity were higher in the Newberry sampling location than at the Lot 8 location. In addition more diverse and larger size classes of trout were captured at the Newberry sampling location. The Lot 8 location supported a stunted brook trout population while the Newberry reach supported a brook trout population with diverse size classes and a remnant BCT population. It is apparent that non-native brook trout have and continue to displace BCT in Paris Creek. In addition, the presence of rainbow and hybrid trout in 2001 indicates that genetic introgression is also a threat to this declining BCT population. The decline in species diversity above the power plant may be a result of reduced stream connectivity from stream diversion or may be related to water quality issues mentioned above.

Overall, dewatering of three miles of Paris Creek currently inhibits both the physical and biological attributes of the aquatic ecosystem. These changes have led to a significant reduction in aquatic habitat quantity, quality, and productivity. The presence of higher water temperatures in the dewatered reach coupled with reduced habitat and siltation of substrate are problems for salmonid species. Paris Creek could potentially provide habitat for a significant population of reproducing Bonneville cutthroat trout. Increasing instream flow and removal of competing species from Paris Creek would be an essential element of restoring Bonneville cutthroat trout.

One factor contributing to dewatering of the stream reach (Lot 8 Reach) is a fractured limestone outcrop on adjacent private land that captures some of the streamflow. Past sediment inputs from eroding slopes adjacent to Paris Creek are being reduced over time as the area has been excluded from livestock grazing and the steep, erodible slope is revegetating with more ground cover and less soil erosion. The Forest Service has recently released plans to do habitat restoration in this reach of Paris Creek. See Figure 9 for these features and Attachment 2 for the Forest Service plan.

RECOMMENDATIONS

1. Expand monitoring program in out-years. Collect additional stream temperature, flow and habitat data for the Lot 8 and Newberry reaches.
2. Continue recovery of the Paris Creek riparian area on the Caribou NF by continuing to exclude livestock and implementing proposed stream restoration work. This is accomplished by ensuring that the fences around this area are regularly maintained by the Forest Service working with the Bloomington C&H Grazing Association, permittees on the allotment.
3. Work with partners to develop minimum in-stream flows to support riparian function, stream stability, and aquatic habitat for BCT in the currently dewatered reach.

[8] Irving, J.S. and T.C. Bjornn. 1984. Effects of substrate size composition on survival of kokanee salmon and cutthroat and rainbow trout. Idaho Cooperative Fisheries Research Unit. Technical Report 84-6, University of Moscow, Idaho.

4. PacifiCorp and other partners work with private property owner adjacent to the Forest Boundary to restore the streambank and stop the loss of stream flow into a fractured limestone outcrop.

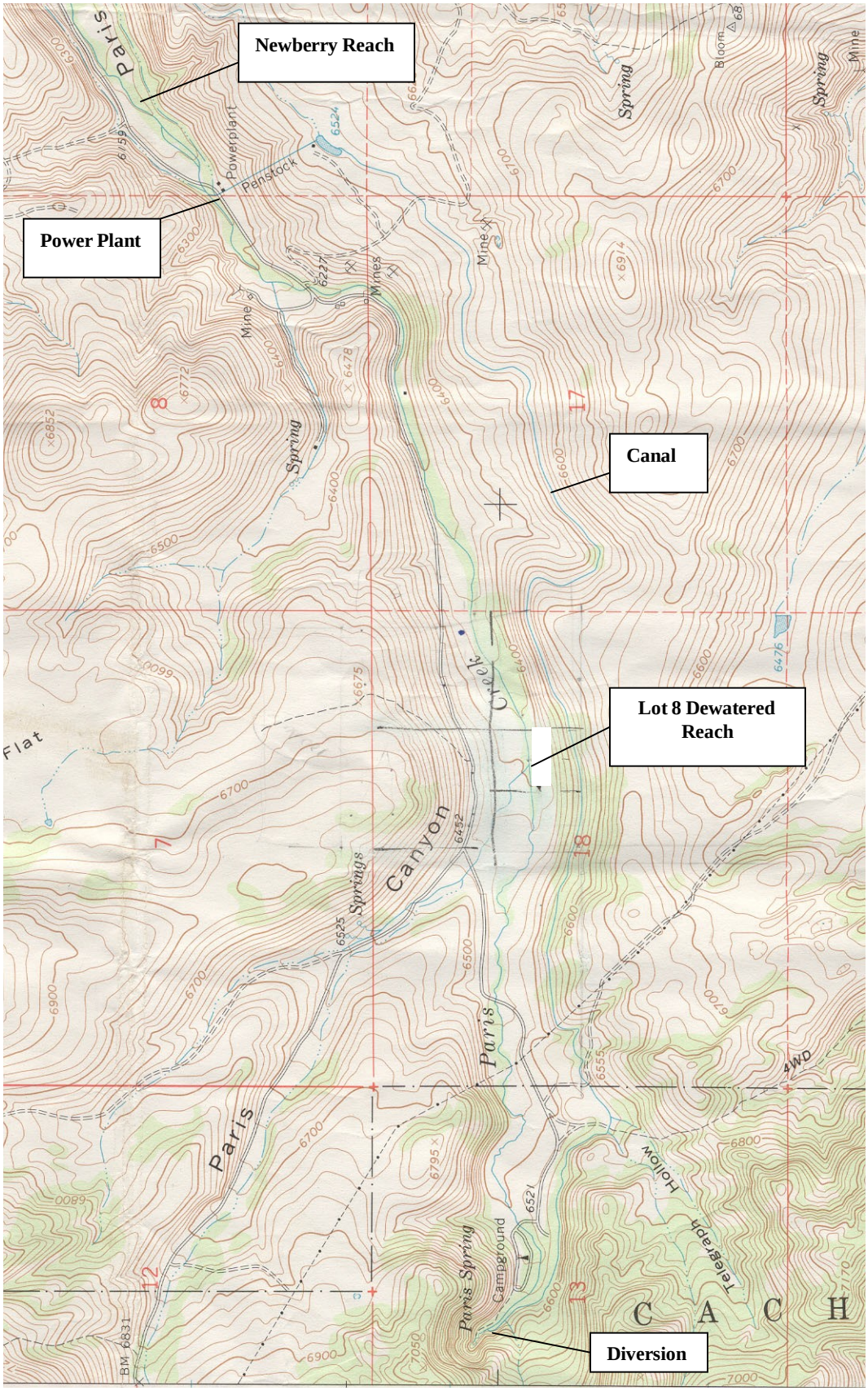


Figure 1. Study Area

Figure 2. Lot 8 dewatered reach in 2001. Upper photos of riffle habitat, lower of run. Note silt covering substrate. This reach had higher temperatures and less than half the in-stream habitat of the reach downstream of the Power Plant where return flows increased discharge to 9 cfs from the 0.5 cfs in the Lot 8 reach.

Figure 3. Newberry Reach downstream of Power Plant with higher flow in 2001. Riffle and riffle/run complexes. Note stream shading, overhanging cover. More habitat and surface of substrate free of silt, lower temperatures as compared to Lot 8.

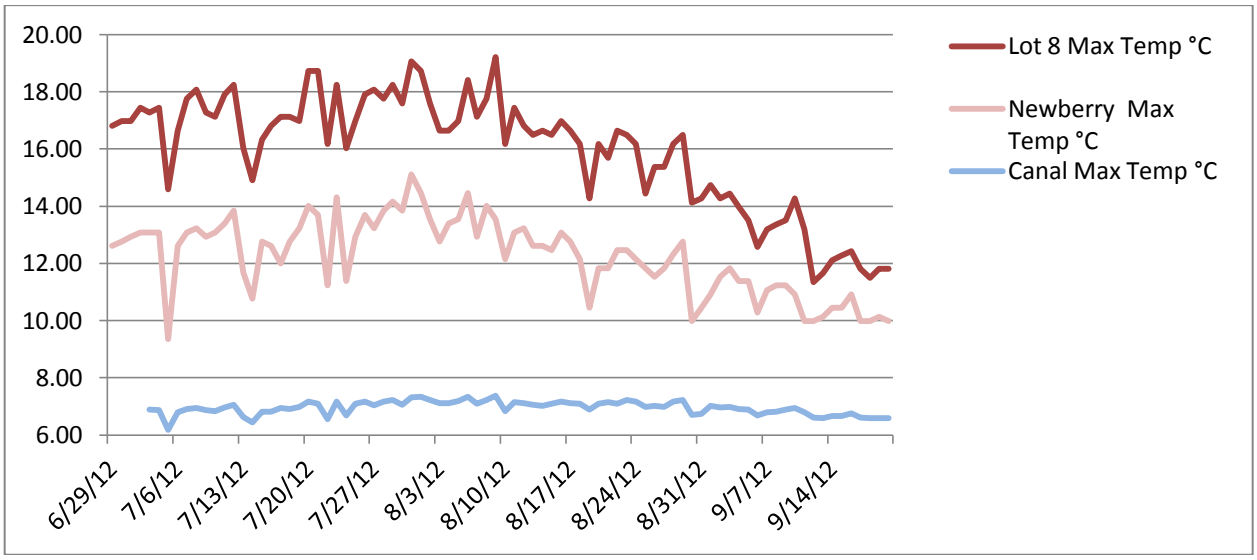


Figure 4. Paris Creek daily maximum stream temperature data for Lot 8, Newberry, and PacifiCorp canal collected in 2012. Data was collected from 6/29 – 9/20/2012 on an hourly basis.

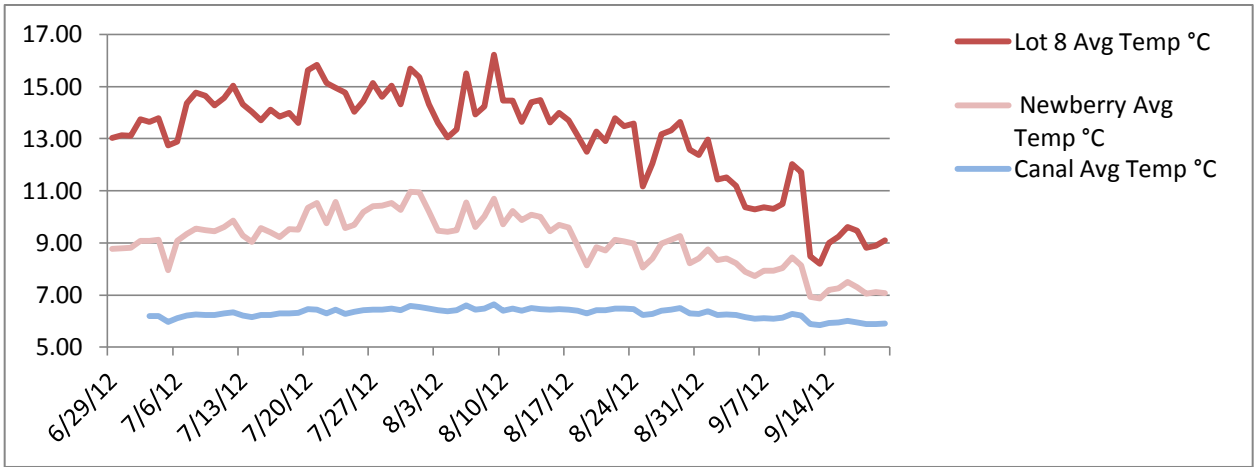


Figure 5. Paris Creek daily average stream temperature data for Lot 8, Newberry, and PacifiCorp canal collected in 2012. Data was collected from 6/29 – 9/20/2012 on an hourly basis.

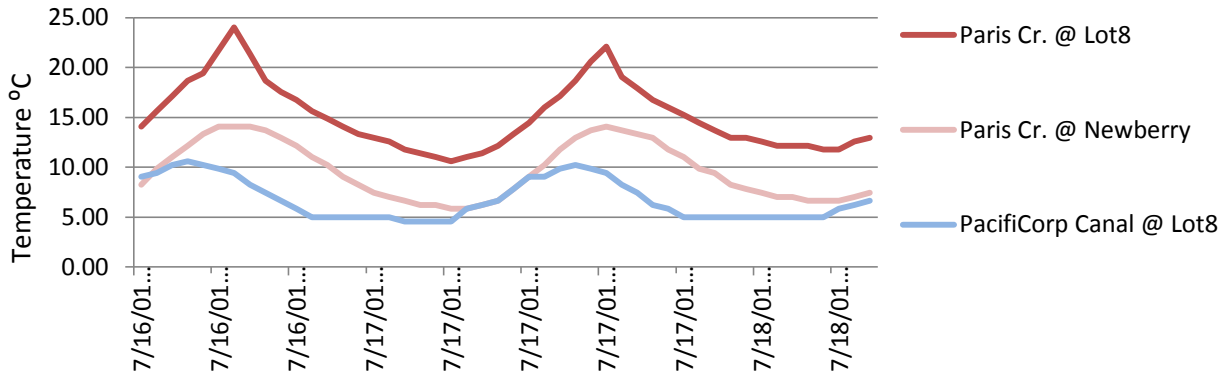


Figure 6. Paris Creek stream temperature data for Lot 8, Newberry, and PacifiCorp canal collected in 2001. Data was collected from 7/16 – 7/18/2001 and represents a 46 hour time span.

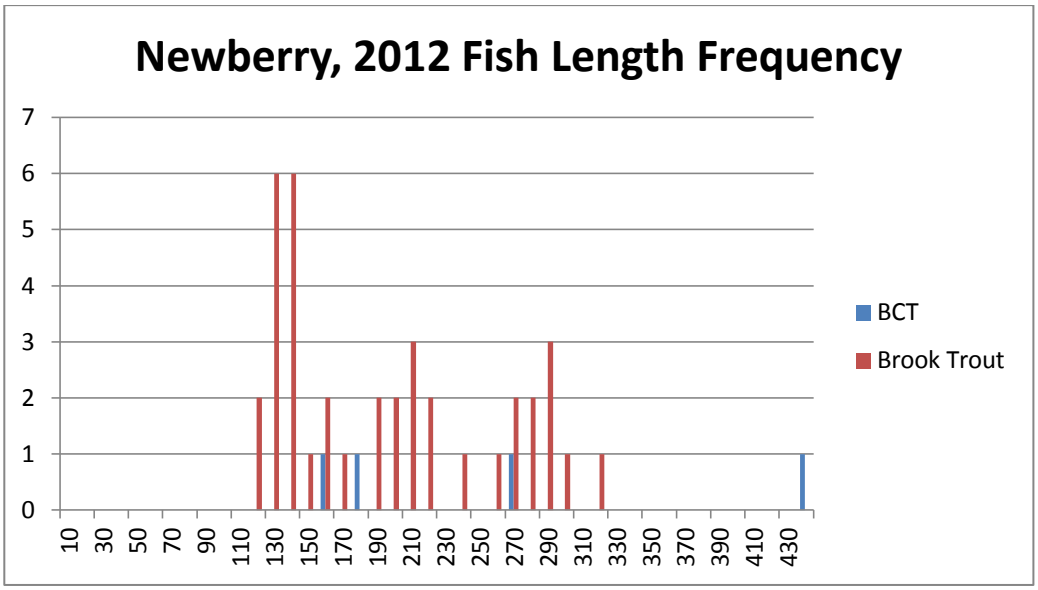


Figure 7. Newberry site fish distribution data, from Table 2, displayed as a length frequency histogram. Histogram includes all trout captured in all electro-fishing passes. Bonneville cutthroat trout abbreviated as BCT.

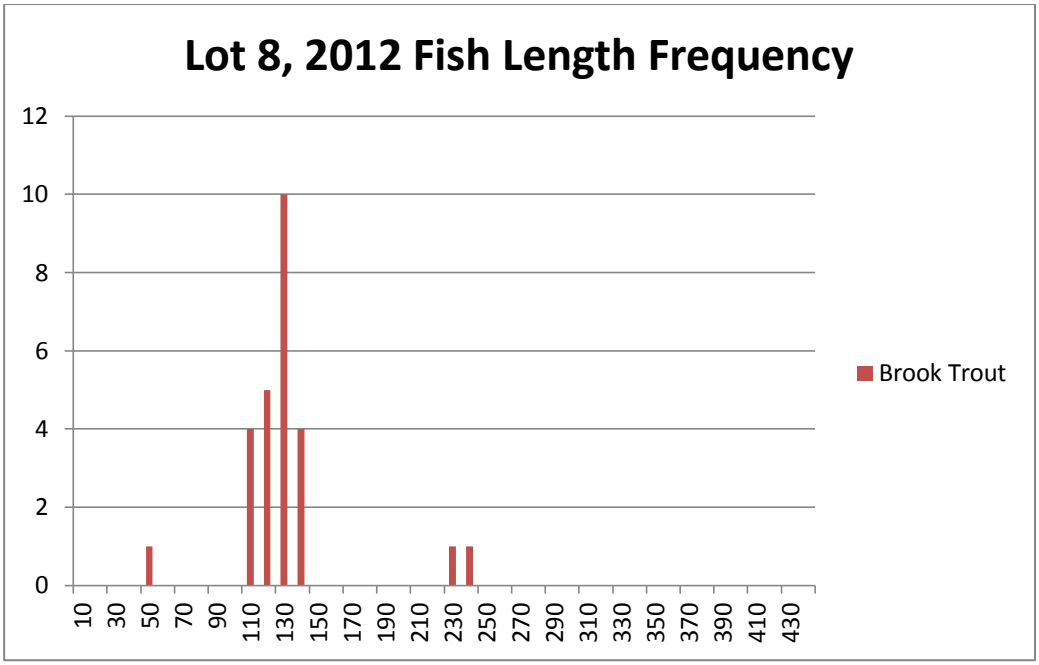


Figure 8. Lot 8 site fish distribution data, from Table 3, displayed as a length frequency histogram. Histogram includes all trout captured in all electro-fishing passes

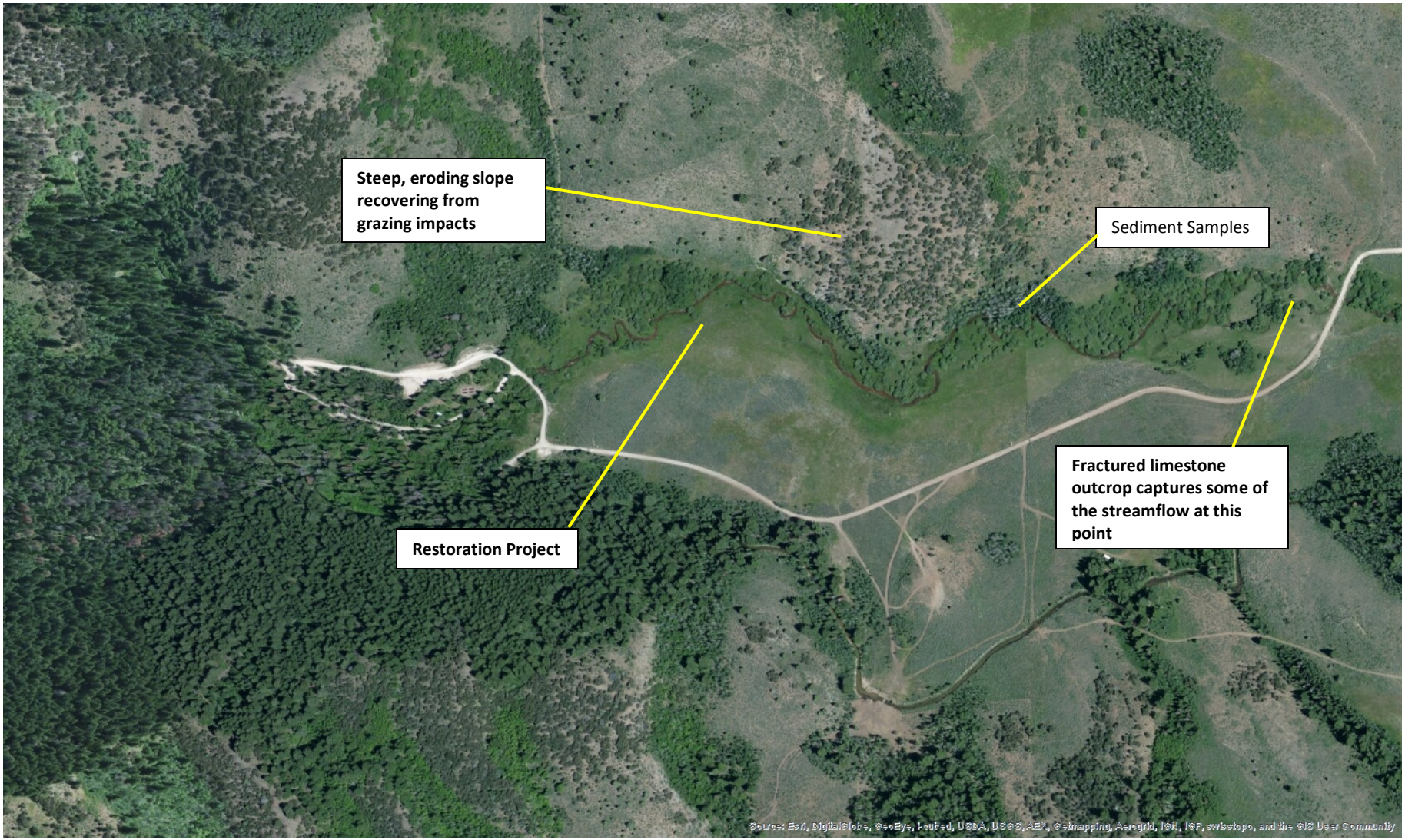


Figure 9. Paris Creek on the Caribou NF and adjacent private lands. The location of sediment core sampling is shown. Also, an eroding slope subjected to livestock grazing prior to the mid-2000's has been recovering after livestock grazing was eliminated. The Caribou NF released a plan in February, 2015 to restore stream habitat in the reach shown. That plan is attached as Attachment 3.

Caribou-Targhee NF & Curlew NG: Stream Discharge Calucation Spreadsheet

	Site:	Paris Creek - Newberry Proper				Meter:	Marsh McBirney	
	Date:			6/28/2012		Time:		
	Method:	Six-tenths (d < 2.5 ft)				Stage:		ft
Notes	**Horizontal Distance (ft)**	**Width of Interval (ft)**	**Depth (ft)**	**Area (ft^2)**	**Velocity (ft/s)**	**Q Interval (ft^3/s)**	**% Total Flow**	
LEW	2	0.25	0.2	0.05	0	0.0	0.0%	
	2.5	0.5	0.2	0.1	0.1	0.0	0.2%	
	3	0.5	0.2	0.1	0.37	0.0	0.6%	
	3.5	0.5	0.35	0.175	0.42	0.1	1.1%	
	4	0.5	0.4	0.2	0.94	0.2	2.9%	
	4.5	0.5	0.4	0.2	0.92	0.2	2.9%	
	5	0.5	0.4	0.2	0.27	0.1	0.8%	
	5.5	0.5	0.5	0.25	0.81	0.2	3.2%	
	6	0.5	0.6	0.3	0.88	0.3	4.1%	
	6.5	0.5	0.8	0.4	1.01	0.4	6.3%	
	7	0.5	0.8	0.4	1.32	0.5	8.3%	
	7.5	0.5	0.7	0.35	1.02	0.4	5.6%	
	8	0.5	0.9	0.45	0.97	0.4	6.8%	
	8.5	0.5	0.8	0.4	1.48	0.6	9.3%	
	9	0.5	0.9	0.45	1.55	0.7	10.9%	
	9.5	0.5	0.5	0.25	1.76	0.4	6.9%	
	10	0.5	0.5	0.25	1.61	0.4	6.3%	
	10.5	0.5	0.9	0.45	1.26	0.6	8.9%	
	11	0.5	0.8	0.4	0.8	0.3	5.0%	
	11.5	0.5	0.8	0.4	0.45	0.2	2.8%	
	12	0.5	0.6	0.3	1.1	0.3	5.2%	
	12.5	0.35	0.6	0.21	0.59	0.1	1.9%	
REW	12.7	0.1	0.6	0.06	0	0.0	0.0%	
	Totals =	10.7		6.345		6.4		

Caribou-Targhee NF & Curlew NG: Stream Discharge Calucation Spreadsheet

	Site:	Paris Creek - Lot 8 (Carter)				Meter:	Marsh McBirney	
	Date:			6/28/2012		Time:		
	Method:	Six-tenths (d < 2.5 ft)				Stage:		ft
Notes	**Horizontal Distance (ft)**	**Width of Interval (ft)**	**Depth (ft)**	**Area (ft^2)**	**Velocity (ft/s)**	**Q Interval (ft^3/s)**	**% Total Flow**	
LEW	0.7	0.1	0.3	0.03	0	0.0	0.0%	
	0.9	0.3	0.3	0.09	0.37	0.0	5.9%	
	1.3	0.45	0.35	0.1575	0.4	0.1	11.2%	
	1.8	0.5	0.35	0.175	0.43	0.1	13.4%	
	2.3	0.5	0.5	0.25	0.25	0.1	11.1%	
	2.8	0.5	0.4	0.2	0.17	0.0	6.1%	
	3.3	0.5	0.2	0.1	0.33	0.0	5.9%	
	3.8	0.5	0.35	0.175	0.1	0.0	3.1%	
	4.3	0.5	0.3	0.15	0.02	0.0	0.5%	
	4.8	0.5	0.3	0.15	0.02	0.0	0.5%	
	5.3	0.5	0.35	0.175	0.06	0.0	1.9%	
	5.8	0.5	0.5	0.25	0.21	0.1	9.4%	
	6.3	0.5	0.2	0.1	0.23	0.0	4.1%	
	6.8	0.5	0.45	0.225	0.11	0.0	4.4%	
	7.3	0.5	0.45	0.225	0.33	0.1	13.2%	
	7.8	0.5	0.25	0.125	0.13	0.0	2.9%	
	8.3	0.5	0.25	0.125	0.28	0.0	6.2%	
	8.8	0.5	0.1	0.05	0	0.0	0.0%	
	9.3	0.45	0.05	0.0225	0	0.0	0.0%	
REW	9.7	0.2	0.05	0.01	0	0.0	0.0%	
	Totals =	9		2.785		0.6		

Table 1. Paris Creek stream discharge measurements taken above and below the PacifiCorp hydropower plant on 6/28/2012.

Stream name:	Paris Creek			Date:	6/28/2012			
Reach:	Lower Private		Unit:	Newberry (Palmer)				
GPS Coordinates: UTM NAD27			12T		463923	4674360		
Unit length (m)		100	Unit width (m)		3.26	Unit Area (m²)		326
1st PassTime-		932 (s)	2nd Pass Time-		710 (s)	3rd Pass Time-		no pass 3 (s)
Species:	*Total Length:(mm)*	*Weight: (g)*	*Species:*	*Total Length:(mm)*	*Weight: (g)*	*Species:*	*Total Length:(mm)*	*Weight: (g)*
BRK	148	30	MSC	135				
BRK	215	118	MSC	130				
BRK	272	194	BRK	185	66			
BRK	294	286	BRK	163	42			
BRK	318	310	BRK	153	36			
BRK	194	80						
BRK	285	232						
BRK	261	172						
BRK	284	228						
BCT	268	194						
BRK	277	188						
BRK	255	164						
BRK	206	96						
BRK	155	36						
BRK	286	218						
BRK	214	102						
BRK	265	178						
BRK	135	22						
BCT	178	54						
BRK	115	16						
BRK	201	80						
BRK	123	19						
MSC	108							
BRK	130	20						
BRK	122	18						
BRK	118	12						
BRK	123	20						
BRK	131	22						
BRK	130	22						
BCT	433	600						
BCT	157	32						
BRK	235	146						
MSC	146							
BRK	140	24						
BRK	201	92						
BRK	182	66						
BRK	124	18						
BRK	197	78						
BRK	132	16						
MSC	135							
BRK	132	22						
BRK	132	20						
MSC	65							

Table 2. Fish distribution survey data for the Newberry site collected on 6/28/2012. Data includes fish species, total length (mm), and weight (g). A multiple pass depletion survey was completed which included two or three electrofishing passes. Fish species abbreviations: BRK – brook trout, MSC – mottled sculpin.

Stream name:	Paris Creek			Date:	6/28/2012			
Reach:	LOT 8		Unit:	Carter Property				
GPS Coordinates: UTM NAD27			12T		461311	4672692		
Unit length (m)		100	Unit width (m)		2.74	Unit Area (m²)		274
1st PassTime-		1547 (s)	2nd Pass Time-		1248 (s)	3rd Pass Time-		1041 (s)
Species:	*Total Length:*	*Weight: (g)*	*Species:*	*Total Length:*	*Weight: (g)*	*Species:*	*Total Length:*	*Weight: (g)*
BRK	229	148	BRK	129	20	BRK	125	34
BRK	124	20	BRK	126	22	BRK	118	20
BRK	136	25	BRK	102	12	BRK	240	158
BRK	122	16	MSC	127		BRK	115	18
BRK	126	20	MSC	78		BRK	132	35
BRK	116	16	BRK	108	12	BRK	122	18
BRK	122	12	MSC	65		MSC	138	
MSC	136		MSC	110		MSC	121	
BRK	136	20	MSC	79		MSC	117	
MSC	120		MSC	73		MSC	103	
MSC	78		MSC	144				
MSC	115		MSC	72				
BRK	115	16	BRK	48				
BRK	115	18						
BRK	108	16						
MSC	108							
BRK	126	22						
MSC	116							
BRK	133	34						
MSC	84							
BRK	126	22						
MSC	83							
MSC	67							
MSC	73							
MSC	86							
BRK	108	16						
MSC	74							
MSC	91							
MSC	69							
MSC	93							
MSC	111							
MSC	75							
MSC	77							
MSC	66							
MSC	101							
MSC	75							
MSC	68							
MSC	73							
MSC	75							
MSC	76							

Table 3. Fish distribution survey data for the Lot 8 site collected on 6/28/2012. Data includes fish species, total length (mm), and weight (g). A multiple pass depletion survey was completed which included two or three electrofishing passes. Fish species abbreviations: BRK – brook trout, MSC – mottled sculpin.

Date	Stream	State	Mean % <6.35 mm	Mean % <0.85 mm	Idaho DEQ Std <6.35 mm	Bridger Teton Std <6.35 mm	Idaho DEQ Std <0.85 mm	Survival % - Egg to Emergence
9/30/04	Lower Spawn Creek	Utah	49.9 ± 12.86	15.04 ± 1.57	27	20	10	6.23
9/30/04	Upper Spawn Creek	Utah	42.53 ± 6.48	8.68 ± 1.33	27	20	10	12.26
9/30/04	Upper Temple Fork	Utah	42.91 ± 2.98	14.18 ± 1.95	27	20	10	11.84
9/30/04	Lower Temple Fork	Utah	55.88 ± 12.74	15.95 ± 6.22	27	20	10	3.52
9/2/05	Beaver Creek	Idaho	52.10 ± 14.61	23.31 ± 4.87	27	20	10	5.06
9/2/05	St. Charles Creek	Idaho	54.32 ± 27.00	30.42 ± 22.56	27	20	10	4.09
9/3/05	Bloomington Creek	Idaho	70.44 ± 10.80	36.06 ± 7.17	27	20	10	0.84
9/2/05	Cub River	Idaho	31.02 ± 12.15	9.71 ± 4.42	27	20	10	31.08
9/26/06	St. Charles Creek	Idaho	39.23 ± 7.01	17.29 ± 3.47	27	20	10	16.32
9/26/06	Paris Creek	Idaho	38.71 ± 10.43	17.39 ± 5.32	27	20	10	17.04
9/26/06	Eight Mile Creek	Idaho	30.69 ± 4.89	8.51 ± 2.06	27	20	10	31.82
9/26/06	Beaver Creek Upper	Utah	44.03 ± 9.68	13.47 ± 3.42	27	20	10	10.71
9/26/06	Beaver Creek Lower	Utah	32.38 ± 5.25	11.90 ± 1.91	27	20	10	28.17
9/27/06	Logan River Lower	Utah	45.98 ± 11.93	11.69 ± 1.75	27	20	10	8.98
9/27/06	Right Hand Fork Logan River Lower	Utah	35.66 ± 2.05	10.13 ± 1.49	27	20	10	21.9
9/27/06	Right Hand Fork Logan River Upper	Utah	36.40 ± 4.65	11.64 ± 3.45	27	20	10	20.62
9/27/06	Logan River Upper	Utah	53.96 ± 6.38	29.57 ± 1.97	27	20	10	4.23

Table 4. Spawning Habitat sediment results in Bear River Tributaries, 2004 – 2006. Shaded cells indicate exceedance of criteria.

ATTACHMENT 1

FISHERY AND HABITAT SURVEY OF PARIS CREEK, IDAHO TO DETERMINE EFFECTS OF WATER DIVERSION AND DEWATERING

October 15, 2001

Western Watersheds Project
P.O. Box 280
Mendon, Utah 84325

Data Collected By:

U.S. Forest Service
Idaho Fish and Game
Western Watersheds Project

INTRODUCTION

Paris Creek in Southeastern Idaho is impacted by the diversion of water for a Utah Power & Light hydroelectric generating station approximately 3 miles west of the town of Paris, Idaho. An approximately 3 mile section of Paris Creek is dewatered by an upstream diversion on Caribou National Forest land. The diversion sends 100% of the streamflow into a canal which bypasses Paris Creek and delivers the water to the power plant approximately 3 miles downstream. Below the power plant, a portion of the water is returned to Paris Creek during the summer months and the remainder diverted into irrigation canals for downstream users. Paris Creek between the diversion structure and the power plant return flow is severely dewatered during the summer, fall and winter by this diversion. The entire flow of Paris Creek during this time is from ground water accrual. A map of the project area is provided in Figure 1.

On June 13, 2001 representatives of the U.S. Forest Service, Idaho Fish and Game and Western Watersheds Project conducted a survey of fish species present in Paris Creek. This goal of this survey was to determine the fish species present in Paris Creek in the dewatered section upstream of the power plant (Lot 8) and immediately downstream of the power plant where return flows increase stream flow (Newberry). These designations reflect private property ownership for the study reaches. A backpack electrofishing unit was used to capture fish. All fish captured were identified, measured and returned to the stream. Stream flow was measured with a GeoProbe velocity meter. Habitat assessments were completed using paced distances and estimated areas for habitat parameters. These assessments followed guidance in the *R1/R4 Northern/Intermountain Regions Fish and Fish Habitat Standard Inventory Procedures Handbook*[1]. Hobo temperature loggers were placed in both reaches and in addition, in the canal adjacent to Lot 8 to determine the effects of stream flow on temperature. Spawning gravels were sampled with a coring device and sieved to determine particle size distributions. Figures 2 and 3 provide photographs of the respective reaches.

RESULTS

Tables 1 and 2 provide a summary of the fish caught, their lengths and flow measurement data. Tables 3 and 4 provide a summary of the habitat data for both reaches. In the Lot 8 dewatered reach Paris Creek, 22 brook trout and 5 mottled sculpin were found. The brook trout averaged 138 mm in length. Stream flow in this reach was approximately 0.5 cfs and total stream length 620 feet with an average width of 8.8 feet, average depth of 0.4 feet and a surface area of 5185 square feet. In the Newberry reach with return flows, 20 salmonids were caught including brook trout, rainbow trout, Boneville cutthroat trout and hybrids between rainbow and cutthroat. Brook trout averaged 173.3 mm in length, rainbow trout 112.5 mm, cutthroat trout 143 mm and hybrids 155 mm. Stream flow measured approximately 9 cfs and total stream length was 380 feet with average width of 12.7 feet, average depth of 0.8 feet and a total surface area of 5014 square feet.

The reaches occurred in semi-confined conditions (Type "B") and within riparian vegetation dominated by willow, birch and dogwood. The dominant substrate in the Lot 8 dewatered reach was boulder (33.5%), followed by cobble (26%), sand/silt (20.3%), rubble (9.3%), coarse fines (4.9%) and gravel (3.5%). In the Newberry reach with increased flow from power plant returns, substrate was dominated by cobble (26.5%), followed by rubble (22.3%), boulder (20.2%), gravel (12.3%), sand/silt (11.7%) and coarse fines (6.5%). Instream cover in Lot 8 was provided by overhanging shrubs (606 sq. ft.), woody debris (493 sq. ft.) , overhanging grasses (190 sq. ft.), and boulders (144 sq. ft.). Instream cover in Lot 8 totaled 1433 sq. ft. or 27% of the wetted area. In the Newberry reach, instream cover was provided by woody debris (523 sq. ft.), surface turbulence (475 sq. ft.), overhanging shrubs (280 sq. ft), boulders (264

[1] USDA. 1997. R1/R4 (Northern/Intermountain Regions) Fish and Fish Habitat Standard Inventory Procedures Handbook. USDA Forest Service Intermountain Research Station General Technical Report INT-GTR-346.

sq. ft.), undercut banks (183 sq. ft.) and overhanging grasses (165 sq. ft.). Total instream cover was 1890 sq. ft. or 37.6% of the wetted area. Instream habitat based on length of stream reach was 2.3 sq. ft. per linear foot for Lot 8 and 4.9 sq. ft per linear foot for the Newberry reach, or over double the habitat area per linear foot of stream. Bank condition in both study reaches was good with bank 100% stable. Canopy cover over the stream in both reaches was approximately 40%. Both reaches were Substrate cores in potential spawning gravels are summarized in Table 5. These show similar results with fines smaller than 6.35 mm comprising about 40% of all samples.

Monitoring of water temperature in the diversion canal, Lot 8 dewatered reach of Paris Creek and Newberry reach with return flow from the power plant was revealing. The canal, with its higher flow to the power plant maintained a range of 40 ºF to 50 ºF, while the dewatered reach at Lot 8 ranged between 52 ºF to 75 ºF and the Newberry reach with return flow ranged between 45 ºF and 57 ºF.

DISCUSSION

Dewatering of 3 miles of Paris Creek through a Utah Power & Light water diversion has reduced habitat significantly as evidenced by the data presented. A 380 foot reach with a flow of 9 cfs provided the same surface area as a dewatered reach of 620 feet at 0.5 cfs. The dewatered reach provided less habitat due to reduced depth and a narrower wetted surface. This resulted in that portion of the stream with potential bank cover being dry along large stretches. In fact, 380 feet of stream with 9 cfs provided the nearly the same surface area as 620 feet in the dewatered reach, although less than half the habitat was available in the dewatered reach. The dewatered reach suffered higher water temperatures than the reach with the higher stream flow.

Sediment size fractions showed both reaches to have significant percentages of fines in their potential spawning sites. These fines can imbed larger substrates and limit cover for larval and juvenile fish as well as impair reproductive success for spawning fish. Studies on salmonid egg and fry emergence from spawning gravels have shown that survival and emergence success decline with increasing concentrations of fine sediments (Hall and Lantz, ca 1969)[2]. Their study showed that as the percent of fines (<0.83 mm) in spawning gravels increased above approximately 12%, the percent survival of Coho Salmon from egg deposition to emergence from redds declined. At 12% fines, survival was 80%, while at 33% fines, survival was zero. In their studies of Yellowstone Cutthroat Trout spawning redds in Pine Creek, Idaho, Thurow and King (1994)[3] found that most trout spawned in redds with particles smaller than 32 mm in diameter and an average of 20% of the substrate was less than 6.35 mm in diameter, with less than 5% smaller than 0.85 mm. The samples from both reaches in Paris Creek indicate high substrate concentrations of fines that require higher flows to flush and maintain clean substrates.

Fish caught in the Newberry reach were of larger size and greater species diversity than those caught in the dewatered reach. Five species were found as opposed to only two in the dewatered reach. No Bonneville cutthroat trout were found in the dewatered reach. The presence of higher water temperatures in the dewatered reach coupled with reduced habitat and siltation of substrate are problems for salmonid species. The apparent presence of hybrids between Bonneville cutthroat trout and rainbow trout indicates the current practice of stocking rainbow trout at the Paris Campground may be an additional problem for the cutthroat population. Brook trout are present in large numbers compared to cutthroats and pose a significant problem through competition for food and habitat.

[2] Hall, James D. and Richard L. Lantz. Ca 1969. Effects of Logging on the Habitat of Coho Salmon and Cutthroat Trout in Coastal Streams. Technical Paper 2570, Oregon Agricultural Experiment Station.

[3] Thurow, Russell F. and John G. King. 1994. Attributes of Yellowstone Cutthroat Trout Redds in a Tributary of the Snake River, Idaho. Transactions of the American Fisheries Society 123:37-50.

Overall, dewatering of three miles of Paris Creek has lead to a significant reduction in potential for Bonneville cutthroat trout and an absence of BCT in the dewatered reach. Paris Creek could potentially provide habitat for a significant population of reproducing Bonneville cutthroat trout. Increasing stream flow and removal of competing species from Paris Creek would be an essential element of restoring Bonneville cutthroat trout.

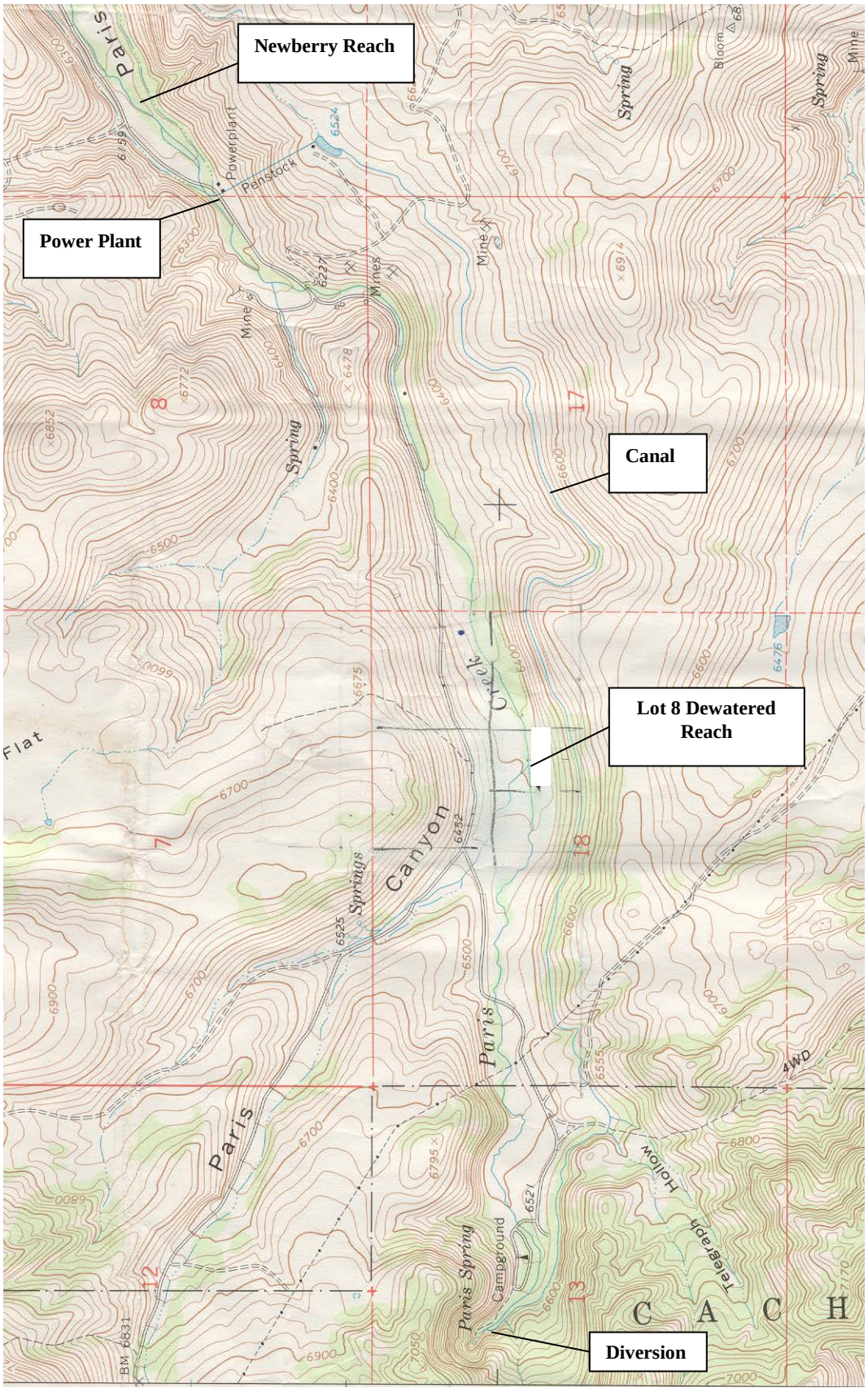


Figure 1. Map of Study Area

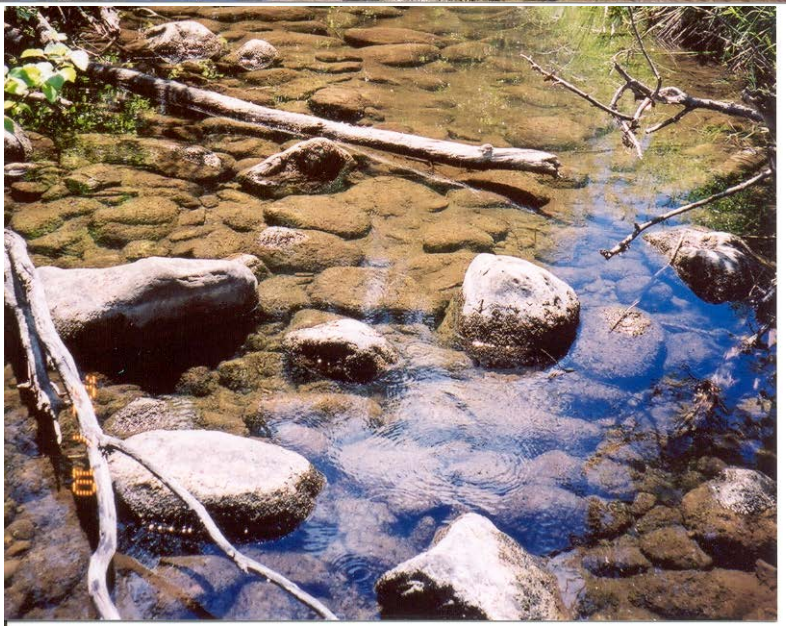


Figure 2. Lot 8 dewatered reach. Upper photos of riffle habitat, lower of run. Note silt covering substrate. This reach had higher temperatures and less than half the in-stream habitat of the reach downstream of the Power Plant where return flows increased discaharge to 9 cfs from the 0.5 cfs in the Lot 8 reach.

Figure 3. Newberry Reach downstream of Power Plan with higher flow. Riffle and riffle/run complexes. Note stream shading, overhanging cover. More habitat and surface of substrate free of silt, lower temperatures as compared to Lot 8.

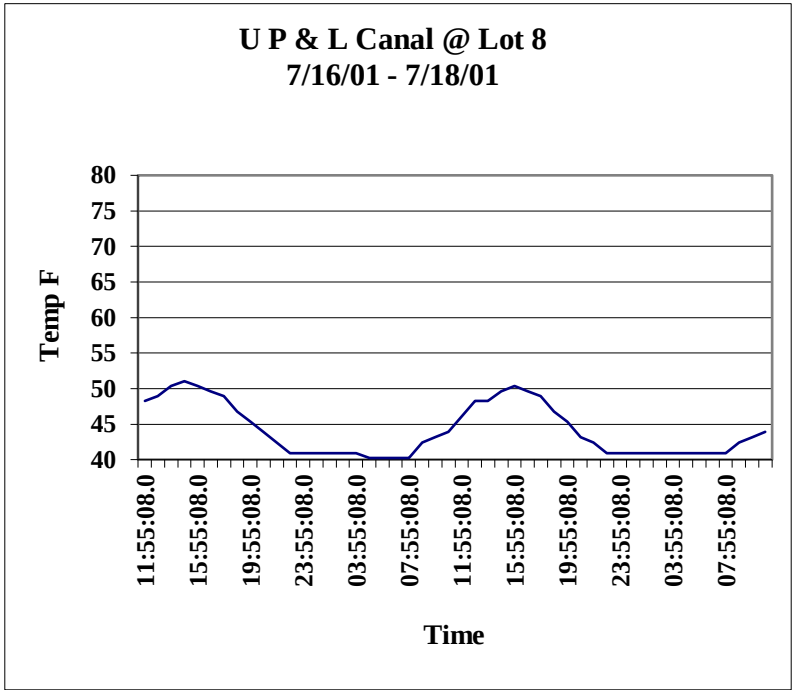


Figure 4. Water Temperature in Diversion Canal

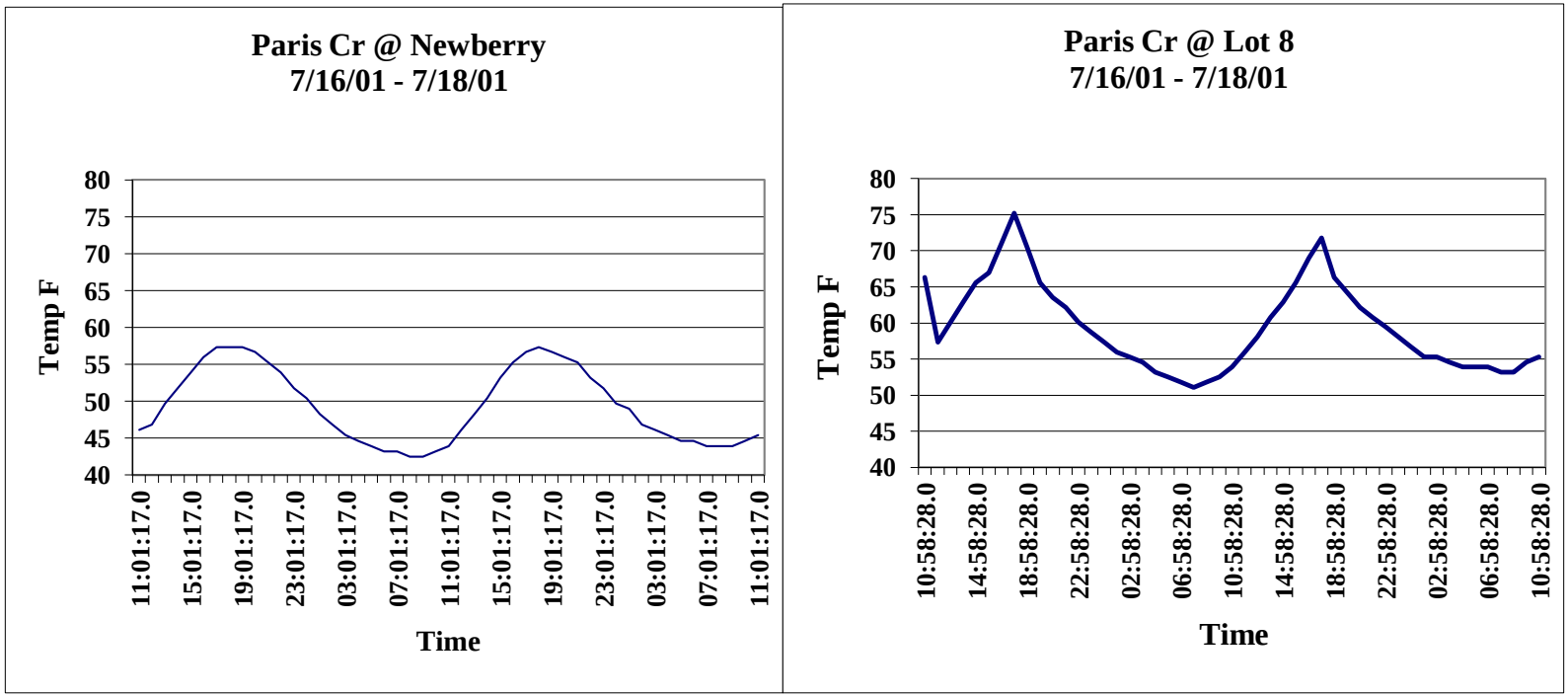


Figure 5. Water Temperature in Paris Creek at Lot 8 and Newberry Reaches

Table 1. Paris Creek, Carter Lot 8 Upstream of UP&L Plant June 13, 2001

Habitat Notes: Dewatered, below diversion, mostly riffle with some run/pool habitat, substrate dominated by cobble and boulder, good canopy cover, little overhanging vegetation or undercuts bank cover due to water surface receding from banks, some woody debris. Obvious siltation although cobble/boulder provided small amounts of hiding cover.							**Flow Measurement**			
	Brook Trout Length, mm	Rainbow Trout Length, mm	Cutthroat Trout Length, mm	Hybrid RxCt Length, mm	Mottled Sculpin Length, mm		Distance ft	Depth ft	Velocity fps	Flow cfs
	151				138		0	0	0	0.00
	120				140		1	0.2	0	0.00
	130				87		2	0.5	0.4	0.07
	162				90		3	0.3	0.4	0.16
	180				77		4	0.6	0.3	0.16
	155						5	0.4	0	0.08
	130						6	0.4	0.1	0.02
	136						7	0.2	0	0.02
	165						8	0.4	0.1	0.02
	120						9	0.1	0	0.01
	137						10	0	0	0.00
	142								0.12	0.53
	180									
	140									
	151									
	142									
	145									
	120									
	120									
	180									
	141									
	123									
Total No.	22				5					
Mean	138.8				106.4					
S.D.	31.2				30.2					

Table 2. Paris Creek on Newberry Property downstream from UP&L Plant, June 13, 2001

Habitat Notes: Below power plant with return flow, dominated by pool/run with some riffle habitat. Mixed substrate, spawning gravels present, clean of silt, good canopy and bank cover, some woody debris.							**Flow Measurement**			
	Brook Trout Length, mm	Rainbow Trout Length, mm	Cutthroat Trout Length, mm	Hybrid RxCt Length, mm	Mottled Sculpin Length, mm		Distance ft	Depth ft	Velocity fps	Flow cfs
	215	115	265	210	55		1	0.25	0	0.00
	195	110	60	100	60		2	0.5	0	0.00
	200		165		90		3	0.8	0.9	0.29
	175		150		110		4	0.5	0.7	0.52
	140		75		90		5	0.8	1.1	0.59
	230				90		6	0.8	1.7	1.12
	255				80		7	0.9	1.6	1.40
	150				55		8	1	1.1	1.28
	200				50		9	0.9	1.1	1.05
	200						10	0.9	0.9	0.90
	170						11	1.1	0.7	0.80
	190						12	0.9	0.5	0.60
	125						13	0.75	0.4	0.37
	140						14	0.5	0	0.13
Total No.	14	2	5	2	9		14.7	0.2	0	0.00
Mean	173.3	112.5	143.0	155.0	75.6				0.71	9.04
S.D.	56.7	3.5	82.1	77.8	21.1					

Table 3. Lot 8 Habitat Summary

	Riffle	Run	Riffle	Run	Riffle	Run	Riffle	Run/Pool	Run	Run	Summary	
Length, ft	125	15	60	40	100	20	100	50	60	50	620	Total length
Width, ft	8	7	6	10	7	15	10	8	7	10	8.8	Mean width
Area sq. ft.	1000	105	360	400	700	300	1000	400	420	500	5185	Total area
Depth, ft	0.3	0.5	0.3	0.5	0.3	0.5	0.3	0.75	0.4	0.4	0.4	Mean depth
Velocity, ft/s	0.3	0.1	0.5	0.1	0.5	0.1	0.3	0.1	0.2	0.2	0.2	Mean velocity
Substrate %												
Boulder	50	25	55	50	55	20	40	10	10	20	33.5	Mean % boulder
Cobble	30	25	25	25	30	20	40	0	25	40	26	Mean % cobble
Rubble	5	10	10	3	5	15	5	0	20	20	9.3	Mean % rubble
Gravel	2	0	2	2	2	5	2	10	5	5	3.5	Mean % gravel
Coarse Fines	3	0	3	0	0	5	3	25	5	5	4.9	Mean % fines
Sand/Silt	10	40	5	20	8	15	5	55	35	10	20.3	Mean % sand/silt
Instream Cover %												
Boulder	0	5	7	8	35	6	50	20	8	5	144	Boulder Cover sq. ft.
Woody Debris	50	63	7	20	70	0	0	100	168	15	493	Woody Debris Cover sq. ft.
Overhanging Grass	10	0	0	8	35	3	50	0	84	0	190	Grass Cover sq. ft.
Overhanging Shrub	100	0	0	12	0	0	250	160	84	0	606	Shrub Cover sq. ft.
Undercut Banks	0	0	0	0	0	0	0	0	0	0	0	Undercut Banks sq. ft.
Surface Turbulence	0	0	0	0	0	0	0	0	0	0	0	Turbulence sq. ft.
Bank Condition %												
Veg/Stable	100	100	100	100	100	100	100	100	100	50	95	Mean % Veg stable
Veg/Unstable												
Unveg/Stable	0	0	0	0	0	0	0	0	0	50	5	Mean % Unveg stable
Unveg/Unstable												

Table 4. Newberry Habitat Summary

Reach	**Riffle**	**Riffle**	**Run**	**Riffle**	**Run**	**Riffle**	**Run/Pool**	**Riffle**	**Run**	**Riffle**	**Run**	**Riffle**	**Run**	**Summary**	
Length, ft	30	20	20	25	25	15	30	100	12	15	20	25	45	382	Total length
Width, ft	14	10	10	15	15	10	15	12	12	10	12	12	18	12.7	Mean width
Area sq. ft	420	200	200	375	375	150	450	1200	144	150	240	300	810	5014	Total area
Depth, ft	0.75	0.5	1	0.5	1	0.75	1.5	0.5	1	0.5	0.75	0.75	1.25	0.8	Mean depth
Velocity, ft/s	0.75	2	1.5	2	1	1.5	1	2	1	2	1.5	1.75	1	1.5	Mean velocity
Substrate %															
Boulder	5	15	5	25	15	7.5	30	5	25	70	5	40	15	20.2	Mean % boulder
Cobble	25	40	25	40	30	10	25	20	35	15	35	30	15	26.5	Mean % cobble
Rubble	30	35	25	25	15	30	10	50	15	5	25	15	10	22.3	Mean % rubble
Gravel	10	10	20	10	15	30	5	15	10	5	15	5	10	12.3	Mean % gravel
Coarse Fines	5	0	0	0	5	10	5	5	5	5	10	5	30	6.5	Mean % fines
Sand/Silt	25	0	25	0	20	12.5	20	5	10	0	10	5	20	11.7	Mean % sand/silt
Instream Cover %															
Boulder	21	20	10	11	8	8	45	60	14	8	12	6	41	264.0	Boulder Cover sq. ft.
Woody Debris	29	20	4	75	28	8	90	120	14	8	5	0	122	523.0	Woody Debris Cover sq. ft.
Overhanging Grass	21	4	30	19	0	0	0	60	7	8	0	0	16	165.0	Grass Cover sq. ft.
Overhanging Shrub	0	0	0	19	8	0	23	60	0	8	36	45	81	280.0	Shrub Cover sq. ft.
Undercut Banks	0	4	20	19	19	0	45	60	3	8	5	0	0	183.0	Undercut Banks sq. ft.
Surface Turbulence	105	120	20	75	19	0	23	60	0	8	0	45	0	475.0	Turbulence sq. ft.
Bank Condition %															
Veg/Stable	95	100	100	100	75	100	75	90	70	100	90	90	90	90.4	Mean % Veg stable
Veg/Unstable															
Unveg/Stable	5	0	0	0	25	0	25	10	30	0	10	10	10	9.6	Mean % Unveg stable
Unveg/Unstable															

Table 5. Substrate Samples Percent

Location	>6.35 mm	<6.35 mm and >1 mm	<1 mm
Lot 8 No. 1	61.7	29.4	8.8
Lot 8 No. 2	58.7	29.9	11.3
Newberry No. 1	55.9	20.8	23.2
Newberry No. 2	52.1	27.2	20.4

ATTACHMENT 2

United States Department of Agriculture | Forest Service | Caribou-Targhee National Forest | 1405 Holipark Drive Idaho Fall, ID 83401

File Code: 1950
Date: February 17, 2015

INVITATION FOR COMMENTS
PARIS CREEK STREAM RESTORATION PROJECT

Dear Interested Citizen,

The Caribou-Targhee National Forest (C-TNF) is seeking comments on a proposal to enhance and restore key functions to the half-mile of Paris Creek down-stream of the Paris Springs campground. The proposed treatment areas are within the boundaries of the C-TNF on the Montpelier Ranger District in Bear Lake County, Idaho.

The Purpose and Need for this proposal is discussed below, followed by a detailed description of the Proposed Action.

Figure 1 Paris Creek

Purpose and Need

The purpose of the proposed action is to move the project stream reach towards the desired future conditions identified in the Forest Plan by increasing woody riparian shrub cover, stabilizing eroding stream banks, and re-building pool habitat for fish and aquatic species. This area has been rested from livestock grazing for about 14 years, during which time some natural recovery has occurred. Active restoration is needed to speed recovery of key riparian ecosystem functions in this altered stream (about 80% of the stream flow is diverted upstream of this reach for power generation; no change of this use is proposed). The project area is adjacent to a popular Forest Service campground, and is used for recreational fishing.

Proposed Action

Objectives

1. Increase woody riparian shrub cover by 30% within the flood-prone width, with a focus along the stream channel. This would increase stream shading, bank stability, and improve wildlife and aquatic habitat.

2. Stabilize eroding stream banks with riparian vegetation. This would decrease sedimentation into the stream and improve wildlife and aquatic habitat.

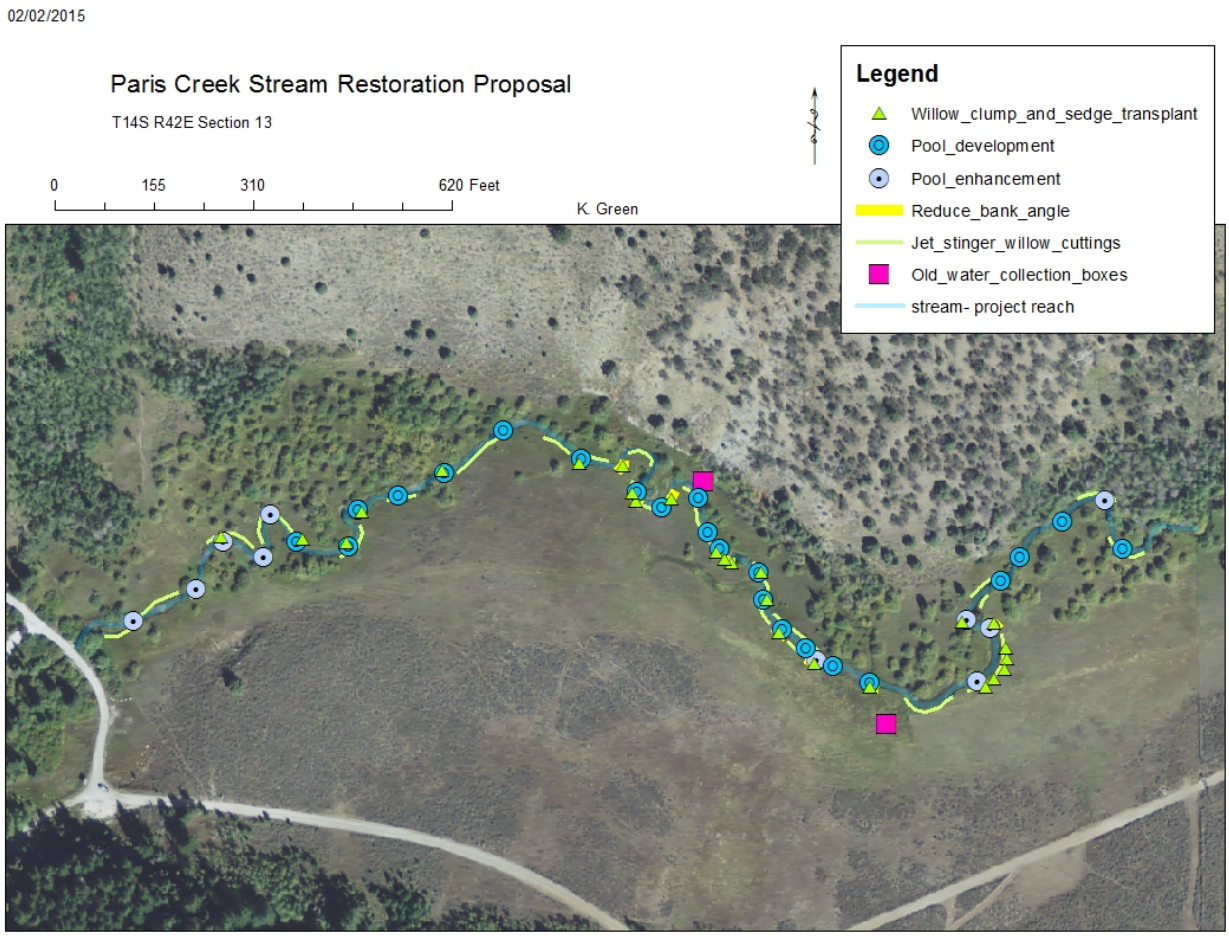
3. Increase aquatic habitat and stream complexity by adding/enhancing pool habitat for fish and other aquatic species.

Treatments

Proposed treatments include the following:

- Plant willow cuttings with a jet stinger along banks and within the flood-prone width.
- Relocate sedge mats and willow clumps from areas away from the stream channel to eroding banks on the outside of meander bends. This promotes natural vegetation revetment to achieve bank stability though riparian vegetation root strength. .
- Reduce the angle of eroding banks and stabilize with transplanted willow clumps.
- Increase pool depth and frequency by enhancing some of the existing pools and creating new pools to reflect the size and depth of pools in the "reference" reach. The goal for pool spacing would be approximately 5-7 times the channel width.
- Deconstruct two abandoned water system headboxes and restore associated wetlands.

Timeline	Action	Description	Approx. number
Year 1	Pool enhancement/development	Use an excavator to dig pools to about 18-24" at August-September low flows. Drag cobble substrate about 25ft downstream to augment riffle.	32 sites
Year 1	Reduce bank angle	Use an excavator to reduce near vertical bank angle to a 0.5:1 slope.	10 sites
Year 1	Transplant willow clumps and sedges	Use an excavator to dig up nearby willow clumps and large pieces of sedge sod and transplant them, primarily where the bank angle has been reduced, to improve bank stability.	25 sites
Year 1	Jet stinger willow cuttings	Plant willow cuttings in the late fall, focusing on areas where no mechanical bank alterations or willow clump transplants were done, but more willows are needed.	750 linear feet
Year2	Jet stinger willow cuttings	Plant willow cuttings in the late fall, focusing on reinforcing areas where mechanical bank alterations or willow clump transplants were done the previous year.	750 linear feet
Year 3	Jet stinger willow cuttings	Plant willow cuttings in the late fall; focusing on areas of poor establishment of willows planted in years 1 and 2.	unknown



References

Hoag, C. and J. Fripp. 2002. Streambank Soil Bioengineering Field Guide for Low Precipitation Areas.

Leopold, L. B., Wolman, M. G. and Miller, J. P. 1964. Fluvial Processes in Geomorphology.

Implementation Timing

Should this project be approved and funding secured, the mechanical work would be completed in the late summer months of 2015 when water flow is low. That same year, willow cuttings should be planted by hand in the late fall. Late fall planting of willow cuttings would also be planned for late fall 2016 and 2017.

Categorical Exclusion

The Council of Environmental Quality (CEQ) regulations provide for categorical exclusions (CE) to allow Federal agencies to exclude from documentation in an environmental assessment (EA) or environmental impact statement (EIS) certain categories of actions that do not individually or cumulatively have a significant effect on the human environment. Due to the minimal amount of disturbance and associated effects of this proposal, the Forest Service is considering analyzing this proposed project under a CE.

> This proposal is consistent with the types of actions described within the Forest Service's National Environmental Policy Act Handbook (FSH 1909.15 Chapter 30) contained in Sec. 32.2 *(18) Restoring wetlands, streams, riparian areas or other water bodies by removing, replacing, or modifying water control structures such as, but not limited to, dams, levees, dikes, ditches, culverts, pipes, drainage tiles, valves, gates, and fencing, to allow waters to flow into natural channels and floodplains and restore natural flow regimes to the extent practicable where valid existing rights or special use authorizations are not unilaterally altered or canceled* 36 CFR 220.6(e)(18).

Forest Service resource specialists have reviewed the proposed action and do not anticipated the investigations to lead to any significant impacts or extraordinary circumstances, as described by Forest Service NEPA procedures at 36 CFR 220.6(b)(i-vii).

The C-TNF Montpelier District Ranger will be the deciding officer on this project, and should the proposed stream restoration actions be approved, the District Ranger's decision will be documented in a Decision Memo. Pursuant to the Consolidated Appropriations Act of 2014 (Pub. L. No. 113-76) and the Agricultural Act of 2014 (Farm Bill) (Pub. L. No. 113-79), this decision is not subject to pre-decisional administrative review or administrative appeal.

We are interested in your comments on this proposed action. Please mail, email, or fax your comments to:

Email: dduehren@fs.fed.us

Dennis Duehren, District Ranger
Montpelier Ranger District
Caribou-Targhee National Forest
322 N. 4th St.
Montpelier, ID 83254

Phone: (208) 847-0375
Fax: (208) 847-3426

Please feel free to pass this letter on to others you think may have an interest or concern with this project. Comments must be received within 30 days of the date of this letter.

Sincerely,

DENNIS DUEHREN
Montpelier District Ranger

Comments received in response to this solicitation, including names and addresses of those who comment, will be considered part of the public record on this proposed action and will be available for public inspection. Comments submitted anonymously will be accepted and considered. Additionally, pursuant to 7 CFR 1.279(d), any person may request the agency to withhold a submission from the public record by showing how the Freedom of Information Act (FOIA) permits such confidentiality. Persons requesting such confidentiality should be aware that, under the FOIA, confidentiality may be granted in only very limited circumstances, such as to protect trade secrets. The Forest Service will inform the requester of the agency's decision regarding the request for confidentiality, and where the request is denied, the agency will return the submission and notify the requester that the comments may be resubmitted with or without name and address within (5) days.