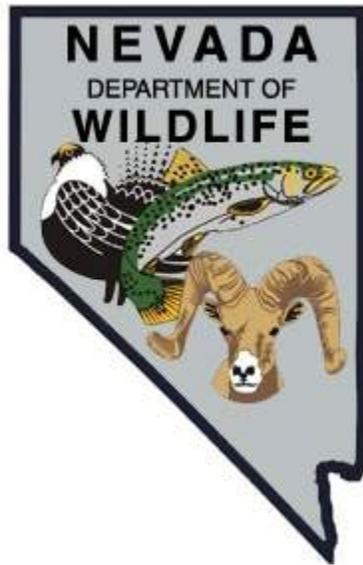


NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

F-20-54
2018

REDBAND TROUT
EASTERN REGION



**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL JOB PROGRESS REPORT**

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**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL JOB PROGRESS REPORT**

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *redband trout*
Period Covered: *January 1, 2018 through December 31, 2018*

SUMMARY

The Inland Redband Trout Conservation Agreement with Conservation Strategies, in conjunction with the Nevada Department of Wildlife Redband Trout Species Management Plan, provided guidance for activities completed during 2018.

Caudal and Raker creeks in the East Fork Bruneau River drainage were surveyed to determine the status of the redband trout populations. Large and healthy redband trout populations were documented with several age classes in both creeks. A single brook trout was located in the furthest downstream reaches of Caudal Creek.

Frost Creek in the South Fork Owyhee River drainage was surveyed and a small isolated population of redband trout was documented. Additionally, portions of the stream were degraded from ongoing and intensive cattle grazing.

A small, restricted redband trout population was documented in Beaver Creek within the East Fork Owyhee River drainage and evidence of intensive cattle grazing and over-utilization was present in the upper reaches. Future expansion of redband trout distribution within this drainage is currently limited by poor riparian and aquatic habitat conditions caused by damaging grazing practices. The entire Beaver Creek and a significant portion of the East Fork and the South Fork Owyhee River drainages were burned by the South Sugarloaf Fire. Additionally, Silver, Breakneck, and Cap Winn creeks were completely burned in the South Sugarloaf Fire, but were not surveyed in 2018.

A single pass electroshocking survey was conducted along the upper reaches of Seventy-Six Creek and 46 redband trout were caught and relocated to Dolly Creek in 2018. Dolly Creek is an historic redband tributary on private property that was void of fish. Last year, 106 redband trout from the Bruneau River were planted.

In the fall of 2017, a volunteer angler drop-box was installed at the Bruneau River. Data will provide a better understanding on the amount of angling pressure that is occurring along this portion of river. Twenty-four questionnaires were completed in 2018 and anglers reported catching 222 redband trout and harvesting 44.

The Nevada Department of Wildlife Redband Trout Species Management Plan was being revised and a draft copy for review will be available in spring of 2019.

OBJECTIVES and APPROACHES

Objective: Native Sport Fish Management

Approaches:

- Survey Caudal Creek in the East Fork Bruneau River drainage to determine redband trout status and document the extent of brook trout invasion.
- Survey Silver, Breakneck, Cap Winn, and Frost creeks in the South Fork Owyhee River drainage to determine redband trout status and current fish assemblage.
- Survey Beaver Creek in the East Fork Owyhee River drainage to determine redband trout status and current fish assemblage.
- Continue to reintroduce redband trout into Dolly Creek in the Bruneau River drainage.
- Survey Van Duzer Creek in the East Fork Owyhee River drainage to determine redband trout status and current fish assemblage.
- Revise the Nevada Department of Wildlife Redband Trout Species Management Plan.

PROCEDURES

A Smith Root LR-20B backpack electroshocker was used to collect fish during all surveys. Table 1 is a summary of 2018 redband trout surveys. Fish surveys included multiple passes moving upstream through the sample area. Sport fish were identified and measured, and the presence of endemic non-game fish was recorded.

Table 1. Redband trout survey, 2018.

Stream	Number of Sample Sites	Length of Sample Sites (m)
Caudal and Raker Creek	10	50
Beaver Creek	12	50
Frost Creek	7	50

FINDINGS

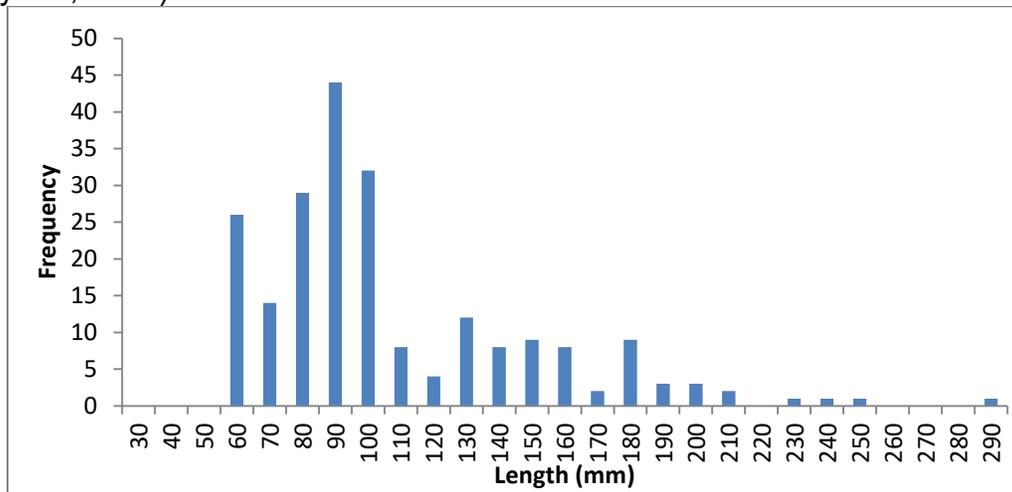
Caudal and Raker Creeks

During the survey, 217 redband trout were sampled and found at six out of ten sampling stations on Caudal and Raker Creeks (Table 2, Map 1). Table 2 shows the results of the survey. Approximately five age classes were found, with the younger two age classes making up the majority of the population (Figure 1). The smallest redband trout sampled was 51 mm in length, with the largest being 285 mm in length. Figure 1 illustrates the length frequency of the redband trout sampled from Caudal and Raker Creek.

Table 2. Date, UTM, water temperature, and number of redband trout present at each station on Caudal and Raker creeks (June 19-20, 2018 and July 2-3, 2018).

Station	Date	# RB	# BK	UTM E	UTM N	H ₂ O Temp
Caudal 1	6/20/2018	29	0	649449	4646420	46
Caudal 2	6/20/2018	67	1	649743	4644925	53
Caudal 3	6/20/2018	25	0	650384	4643579	56
Caudal 4	7/2/2018	47	0	650454	4642144	49
Caudal 5	6/19/2018	0	0	6505322	4640486	49
Caudal 6	6/19/2018	0	0	649558	4641301	51
Raker 1	7/3/2018	0	0	649686	4644039	49
Raker 2	6/19/2018	43	0	649734	4643184	51
Raker 3	6/19/2018	6	0	649478	4642640	52
Raker 4	6/19/2018	0	0	648236	4641643	62

Figure 1. Length frequency of redband trout from Caudal and Raker creeks (June 19-20 and July 2-3, 2018).



Only a single pass was completed at stations Caudal 5, Caudal 6, Raker 1, and Raker 4 since no fish were contacted. A second pass with depletion was conducted at the remainder of the stations. Table 3 shows the catch results at each station.

Table 3. Caudal and Raker Creeks redband trout Population Summary (June 19-20 and July 2-3, 2018).

Station	Length (m)	# RB First Pass	# RB Second Pass	N	Fish/Mile
Caudal 1	50	24	5	30	976
Caudal 2	50	46	21	85	2725
Caudal 3	50	18	7	29	948
Caudal 4	50	39	8	49	1580
Caudal 5	50	0	N/A	0	0
Caudal 6	50	0	N/A	0	0
Raker 1	50	0	N/A	0	0
Raker 2	50	34	9	0	1489
Raker 3	50	4	2	8	258
Raker 4	50	0	N/A	0	0

Caudal #2 had the highest relative abundance of redband trout at 85 and an estimated density of 2,725 per mile. A single brook trout measured 213 TL. Caudal #5 and Caudal #6 appear to be above the upstream distribution limit of redband trout.

Intermittent flow occurred above the confluence of these tributary forks and permanent flow occurred below this point. Fin clips were also collected from 40 redband trout for examining if there is introgression with hatchery rainbow trout.

Riparian conditions were in fair to good condition throughout the drainage. Evidence of past cattle use was present, but not substantial.

Silver, Breakneck, Cap Winn and Van Duzer Creeks

These streams were burned in the 2018 South Sugarloaf Fire and were only open to firefighting traffic. The 233,462 acres fire was started by lightning on August 17, and it is unknown what affects there are on the redband trout populations in these streams.

Beaver Creek

The survey found 34 redband trout were at four of the twelve survey stations on Beaver Creek (Table 4, Map 2). There were approximately two age classes, with younger age class making up the bulk of the population. The smallest redband trout sampled was 78 mm, with the largest being 139 mm. Figure 2 illustrates the length frequency of redband trout sampled from Beaver Creek.

Table 4. Date, UTM, water temperature and number of redband trout present at each station on Beaver Creek (June 11-14 and July 16–18, 2018).

Station	Date	# RB	UTM E	UTM N	H ₂ O Temp
Beaver 1	6/11/2018	7	596067	4615961	59
Beaver 2	7/18/2018	0	595215	4616171	Dry
Beaver 3	6/14/2018	0	594442	4616179	53
Beaver 4	6/14/2018	20	594458	4615775	50
Beaver 5	6/12/2018	2	594159	4614874	62
Beaver 6	6/12/2018	5	593322	4614787	60
Beaver 7	6/12/2018	0	592466	4614808	57
Beaver 8	7/17/2018	0	591743	4614142	62
Beaver 9	7/18/2018	0	589600	4613477	65
Beaver 10	7/16/2018	0	588827	4611109	N/A
Beaver 11	7/17/2018	0	589557	4612723	78
Beaver 12	7/17/2018	0	589558	4611913	68

Only a single pass was completed at Beaver 2, Beaver 3 and Beaver 7 through 12 since no fish were sampled. A second pass with depletion was conducted at the remainder of the stations. Table 5 shows a survey summary and Beaver 4 had the highest relative abundance of redband trout at 20 and an estimated density of 652 fish per mile. Other endemic fish species included Paiute sculpin, speckled dace, redband shiner, and mountain sucker (Table 6).

Figure 2. Length frequency of redband trout from Beaver Creek (June 11-14 and July 16–18, 2018).

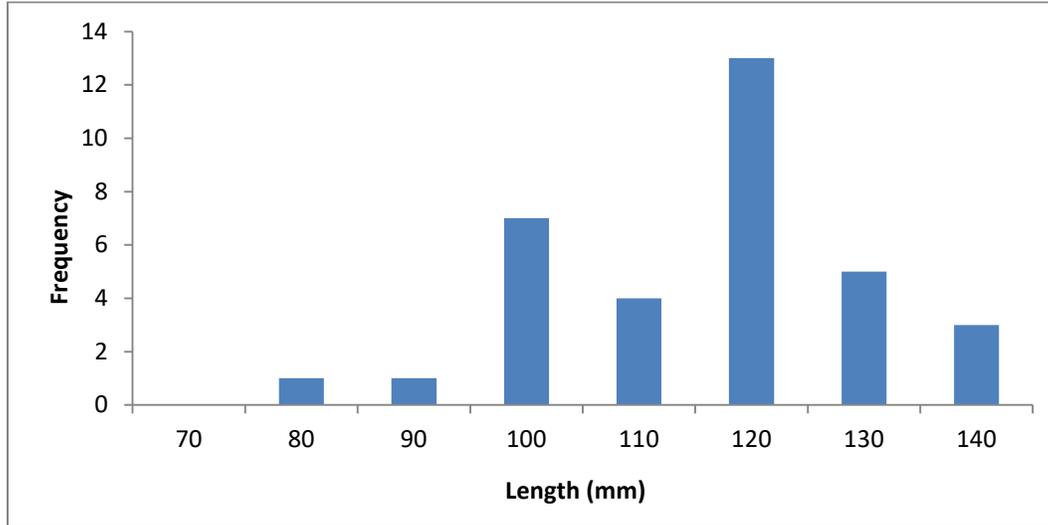


Table 5. Beaver Creek redband trout Population Summary (June 11-14 and July 16–18, 2018).

Station	Length (m)	# RB First	# RB Second	N	Fish/Mile
		Pass	Pass		
Beaver 1	50	5	2	8	268
Beaver 2	50	0	N/A	0	0
Beaver 3	50	0	N/A	0	0
Beaver 4	50	18	2	20	652
Beaver 5	50	2	1	4	129
Beaver 6	50	3	2	9	290
Beaver 7	50	0	N/A	0	0
Beaver 8	50	0	N/A	0	0
Beaver 9	50	0	N/A	0	0
Beaver 10	50	0	N/A	0	0
Beaver 11	50	0	N/A	0	0
Beaver 12	50	0	N/A	0	0

Table 6. Endemic fish species in Beaver Creek (June 11-14 and July 16-18, 2018).

Station	Paiute Sculpin	Speckled Dace	Redside Shiner	Mountain Sucker
Beaver 1	X	X		X
Beaver 2				
Beaver 3				
Beaver 4		X		
Beaver 5		X	X	X
Beaver 6			X	X
Beaver 7		X	X	X
Beaver 8		X		
Beaver 9				
Beaver 10				
Beaver 11		X	X	X
Beaver 12				

Overall, riparian conditions were in poor to fair condition throughout the drainage. Evidence of intensive cattle grazing and over utilization was present in the upper reaches,

primarily at Beaver 9 through 12 (Photos 1 and 2). Extensive bank trampling and over utilization of grasses and woody herbaceous plants were key factors in increased turbidity and higher water temperatures documented at all stations. Beaver 6 appeared to be the upper distribution limit of redband trout resulting from poor riparian and aquatic habitat conditions caused by damaging grazing practices.

The entire Beaver Creek and a significant portion of the East Fork and South Fork Owyhee River drainages were burned in the South Sugarloaf Fire and it is unknown what affects the fire had on redband trout populations.

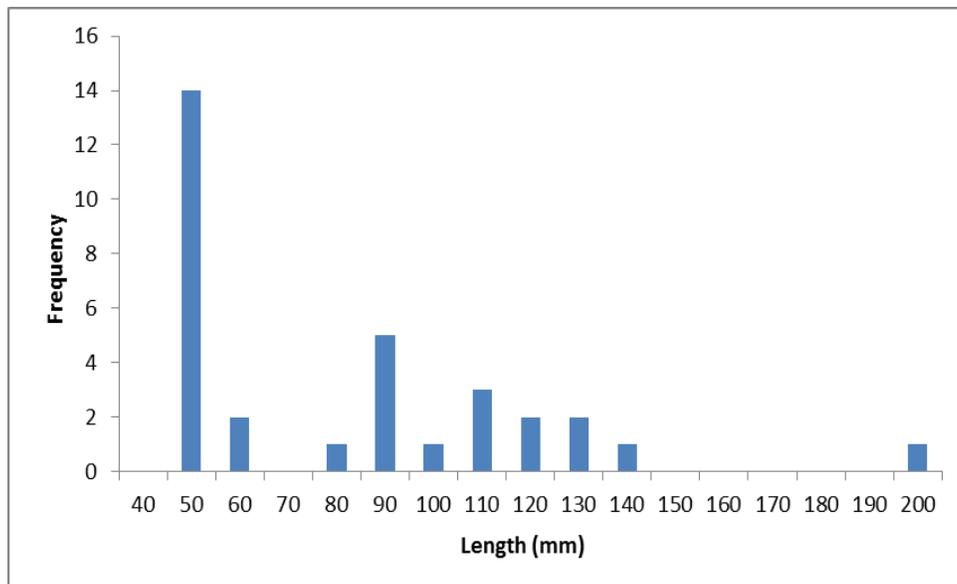
Frost Creek

The survey contacted 40 redband trout at Frost Creek, only being found at two of the seven sampling stations (Table 7, Map 3). There were approximately three age classes, with the younger two making up the majority of the population (Figure 3). The smallest redband trout was 42 mm in length, with the largest being 191 mm.

Table 7. Date, UTM, water temperature and number of redband trout present at each station on Frost Creek on August 8 and October 17, 2018.

Station	Date	# RB	UTM E	UTM N	H ₂ O Temp
Frost 1	8/8/2018	0	577682	4605878	55
Frost 2	8/8/2018	Dry	578244	4605414	Dry
Frost 3	8/8/2018	33	579226	4605157	56
Frost 4	10/17/2018	Pond	579858	4604927	49
Frost 5	10/17/2018	7	580365	4604149	48
Frost 6	10/17/2018	Dry	580688	4603700	Dry
Frost 7	10/17/2018	0	581555	4603666	38

Figure 3. Length frequency of redband trout from Frost Creek on August 8 and October 17, 2018.



Only a single pass survey was completed at Frost 1 and Frost 7 since no fish were sampled. Frost 2 and Frost 6 were dry at the time of survey. Additionally, Frost 4 was located in a heavily beaver ponded area and was not able to be surveyed. A second pass with depletion was conducted at the remainder of the stations. Table 8 shows the results of the redband trout survey.

Table 8. Frost Creek redband trout Population Summary (August 8 and October 17, 2018).

Station	Length (m)	# RB First Pass	# RB Second Pass	N	Fish/Mile
Frost 1	50 m	0	N/A	0	0
Frost 2	50 m	dry	N/A	0	0
Frost 3	50 m	19	6	28	894
Frost 4	50 m	dry	N/A	0	0
Frost 5	50 m	6	1	7	232
Frost 6	50 m	N/A	N/A	N/A	N/A
Frost 7	50 m	0	N/A	0	0

Redband trout were the only species sampled during the survey. Frost 3 had the highest relative abundance at 28 and estimate density was 894 fish per mile. Frost 7 appeared to be above the upper distribution limit for redband trout since the springs contributing to permanent flow began downstream of the station.

During the survey, fin clips were collected from five redband trout. Additional clips are necessary from Frost Creek and the South Fork Owyhee River to determine if there is introgression with hatchery rainbow trout.

The riparian was in poor to fair condition throughout the drainage. Evidence of intensive cattle grazing and over utilization of grasses and woody herbaceous was present in the upper reaches, primarily from Frost 4 through 7 (Photos 3 through 5). Frost 5 appeared to be the upper distribution limit of redband trout due to the damaging grazing practices.

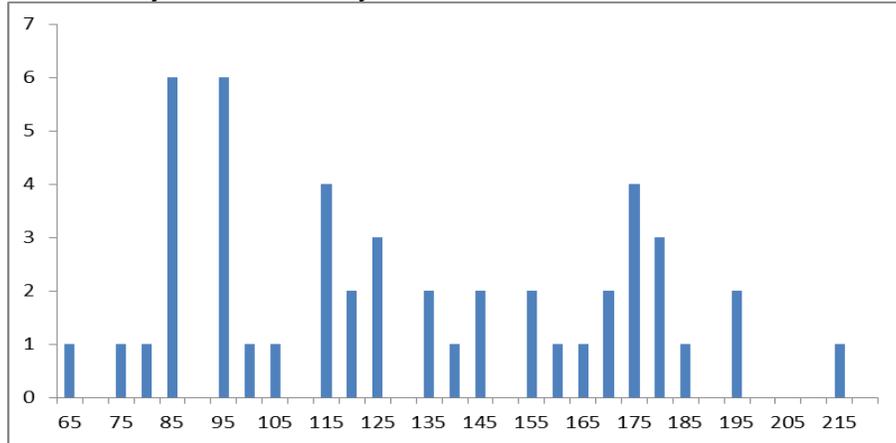
Species Management Plan

The Nevada Department of Wildlife Redband Trout Species Management Plan was revised with the hopes of a draft being available in the spring of 2019.

Dolly Creek

A single pass electroshocking survey was conducted on the upper reaches of Seventy-Six Creek. A total of 46 redband trout were caught and moved to Corona Pond on Dolly Creek and portions of Dolly Creek directly upstream of the pond. Fish were comprised of four age classes (Figure 4). Dolly Creek upstream of Corona Pond showed the best available trout habitat in the entire drainage. The stream emerges from a large spring complex that runs cold and clear and has appropriate substrate for natural reproduction. Corona Pond, in conjunction with the creek, is therefore expected to support a naturally reproducing population of redband trout. At this time, the creek downstream of Corona Pond has unsuitable habitat for trout.

Figure 4. Length frequency of redband trout from Seventy Six Creek moved into the Corona Pond and Dolly Creek on May 23 - 24, 2018.



Bruneau River Angler Drop-Box Survey

A single angler questionnaire drop-box was installed in the fall of 2017 at the main Bruneau River crossing located at what is commonly referred to as the Mink Ranch. The Mink Ranch is owned by the Nevada Department of Wildlife and is part of the Bruneau River Wildlife Management Area. The box was installed examine the amount of angling pressure.

Twenty-four angler questionnaires were received, with 18 fly anglers and the remainder bait anglers. Anglers reported catching 222 redband trout of which 44 were harvested. In addition, seven mountain whitefish were reported and all were released. The average catch rate for all anglers came to 2.87 fish per hour, but varied with individual anglers from 0.5 to as high as 9.33 fish per hour. This variation was likely attributed to fishing conditions and the skill level of anglers.

Anglers rated their satisfaction on a scale of 0 to 4, with 0 being unsatisfied and 4 representing satisfaction. The average angling experience was 2.67, with the size of trout being the most common reported grievance. Of the 222-redband trout caught, 117 were 8.0-inches or greater and only four were larger than 14 inches. The Bruneau River in Nevada is a relatively small water body with low summer flows and limited habitat, which in turn attributes to slow growth and a relatively small-sized fish. Trout greater than 16 inches have been documented, but are not common.

Questionnaires were primarily completed by resident anglers, five from Reno, four from Elko, and three from Las Vegas. The remaining in-state anglers were from Winnemucca, Dayton, and Spring Creek. The seven out-of-state anglers came from California, South Dakota, Oregon, and Utah.

MANAGEMENT REVIEW

Northern Nevada experienced average to below average stream flows in 2018. A stable population of redband trout was documented in Caudal and Raker creeks, with all available habitat currently being occupied. Additionally, a single brook trout was

documented from lower Caudal Creek. A sizeable brook trout population is known to occur in Flat Creek, of which Caudal Creek is a tributary. The incursion of brook trout into Caudal Creek will continue to be monitored due to the interspecific competition that typically occurs with redband trout.

Smaller and less stable populations of redband trout were documented in Beaver and Frost creeks. Riparian conditions were in poor to fair condition due to intensive cattle grazing and over utilization throughout both drainages. The resiliency and expansion of redband trout are currently limited by the poor riparian and stream habitat conditions caused by the damaging grazing practices.

Silver, Breakneck, Cap Winn, and Van Duzer creeks, and a significant portion of the East Fork and South Fork Owyhee River drainages, were burned during the South Sugarloaf Fire. The South Sugarloaf Fire was started by lightning on August 17, which burned 233,462 acres. Fire damage and impacts to the fishery will continue to be assessed at selected sites along the South Fork and East Fork Owyhee River Drainages.

The Nevada Department of Wildlife Redband Trout Species Management Plan is being revised with a draft scheduled for review in 2019. The revised Species Management Plan, in conjunction with The Inland Redband trout Conservation Agreement with Conservation Strategies will provide guidance for management of redband trout in Nevada.

Corona Pond, located along Dolly Creek, and Dolly Creek upstream of the pond received 46 redband trout from Seventy-Six Creek. With stocking in 2017 and 2018, Dolly Creek should be able to support a sustaining population of redband trout. Future augmentations of redband trout into Dolly Creek are warranted to establish a redband trout population higher in the drainage.

In the fall of 2017, a single angler questionnaire drop-box was installed at the Bruneau River. The drop-box was installed to increase the amount of information about angling pressure. Very little information is currently known. Anglers completed 24 questionnaires and caught 222 redband trout.

Forty-five redband trout fin clips were collected in 2018 to examine if there is introgression with hatchery rainbow trout.

RECOMMENDATIONS

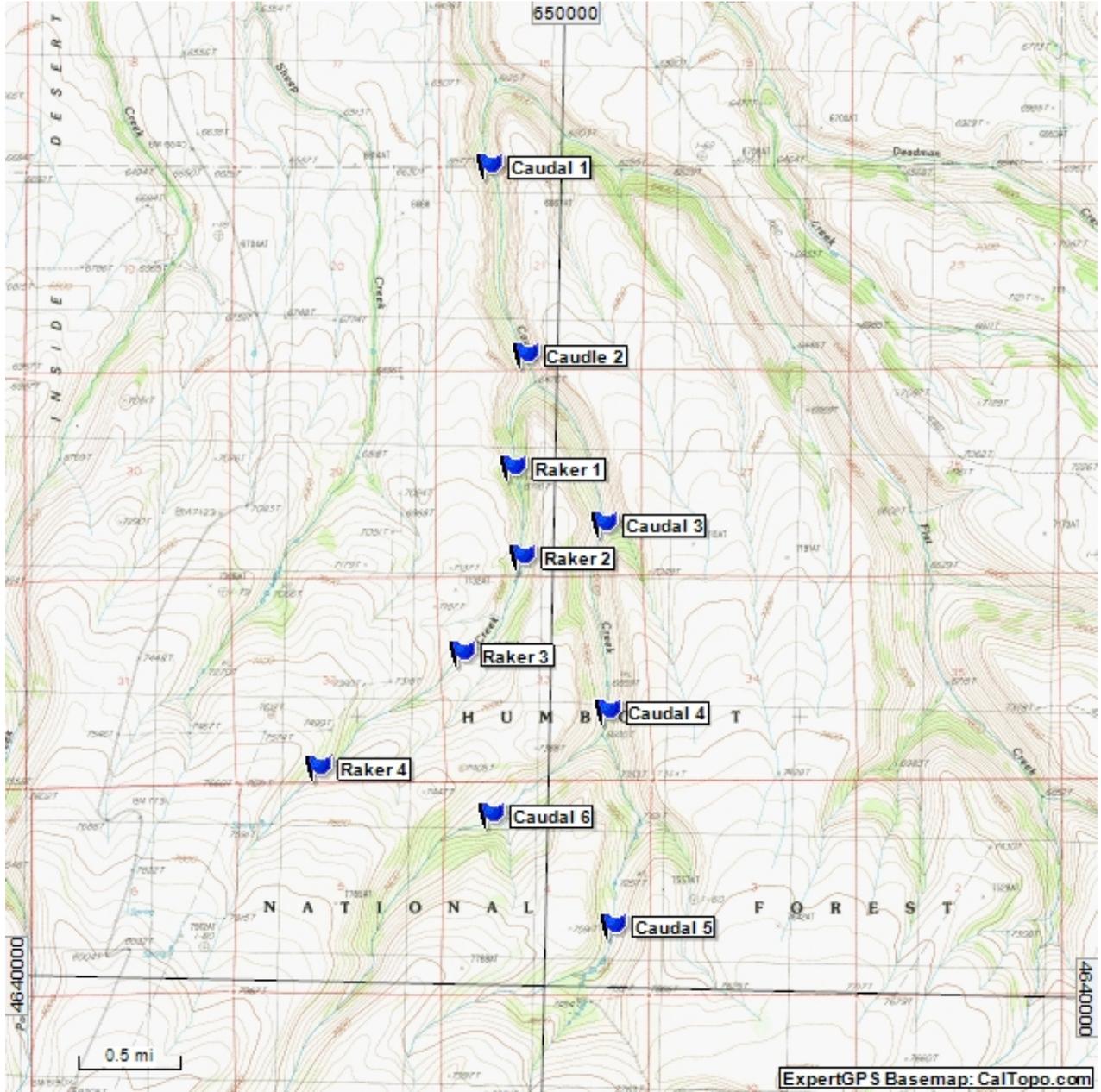
- Continue surveying redband trout streams that have not been surveyed in recent years.
- Finalize the Nevada Department of Wildlife Redband Trout Species Management Plan.

- Continue engaging with private landowners and federal land management agencies to improve riparian and habitat conditions for improving and expanding populations of redband trout in Nevada.

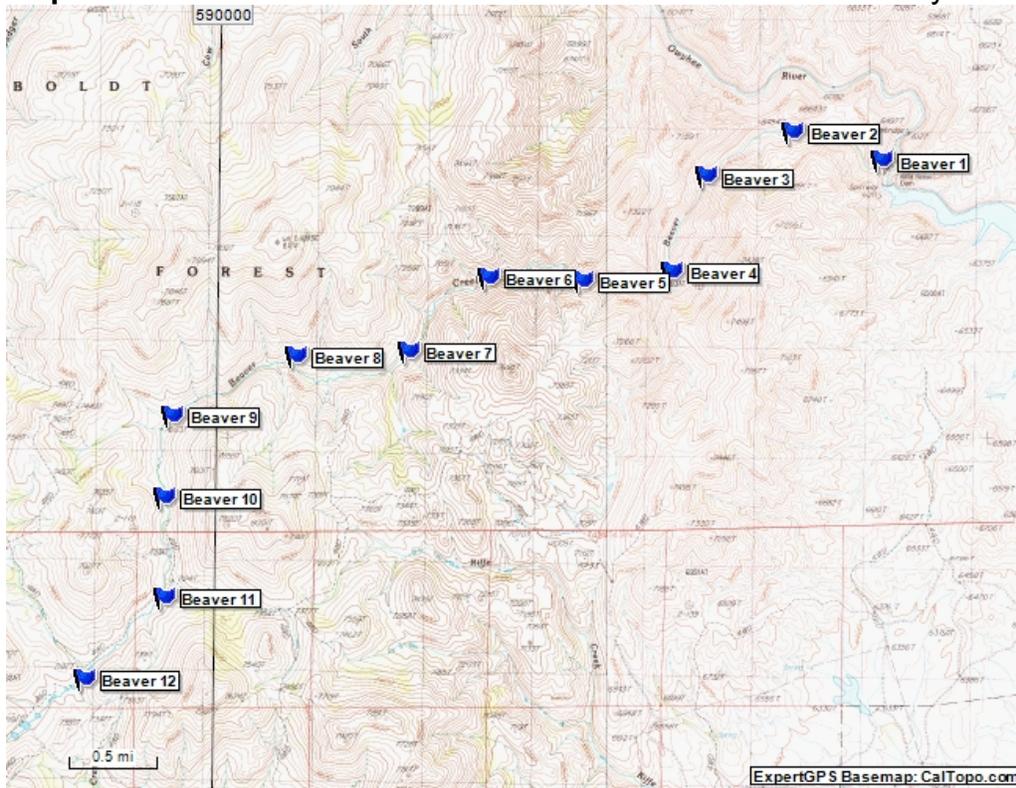
Prepared by: Kevin Netcher
Fisheries Biologist III

Date: January 24, 2018

Map 1. Station location on Caudal and Raker Creek on June 19 - 20 and July 2-3, 2018.



Map 2. Station location on Beaver Creek on June 11 - 14 and July 16 – 18, 2018.



Map 3. Station location on Frost Creek on August 8 and October 17, 2018.

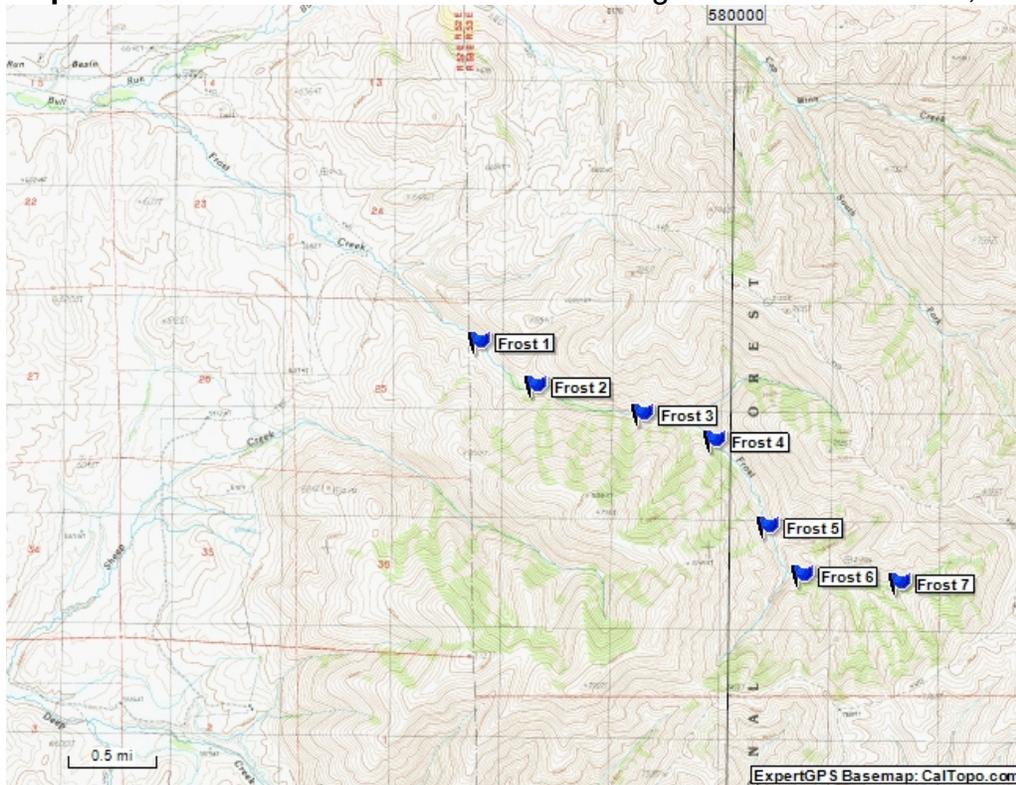


Photo 1. Riparian condition at Beaver 10 on July 16, 2018.



Photo 2. Riparian condition at Beaver 11 on July 17, 2018.



Photo 3. Riparian conditions on Frost Creek upstream of Frost 4 on October 17, 2018.



Photo 4. Riparian conditions on Frost Creek upstream of Frost 4 on October 17, 2018.



Photo 5. Deteriorated spring due to excessive cattle grazing adjacent to Frost Creek on October 17, 2018.

