



# Executive Summary

The aquatic and watershed programs manage over 3 million acres across the Caribou-Targhee National Forest (C-TNF) which includes 47,600 acres of the Curlew National Grasslands and about 8,800 miles of perennial and intermittent streams that are located in 299 sub watersheds. The Forest participated in a number of projects that are directly tied to the resource priorities of the Intermountain Region Business Plan, the Caribou-Targhee National Forest Revised Forest Plans and the Curlew National Grassland Land and Resource Management Plan.

One emphasis is to improve watershed and aquatic stream conditions. Through strong internal program integration and external partnership collaboration the Caribou-Targhee NF was able to direct \$429,381 in various program funding (cash and in-kind contributions) to leverage about \$1,655,800. Emphasis on collaborating improvements on adjacent private land that provides critical connections to stream corridor habitat and a holistic watershed restoration approaches is a focus to make a difference. The 79% of outside partnership funding is an essential component at improving water resource conditions in and around the C-TNF. These efforts and funding

allows us to address and complete more complex projects that really make a difference. In FY2015 over 79 projects were completed ranging from spring exclosures, trail relocations, road and trail stream crossing improvements to more complex stream restoration projects. These projects have improved over 482 acres of watershed conditions and 35.8 miles stream habitat conditions.

Below you will find examples of the projects that occurred across the Caribou-Targhee NF on the seven Ranger Districts improving water resources and aquatic wildlife for the public and future generations to enjoy.



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# Aquatics Program Message

The year 2015 saw a wide variety of projects accomplished in the aquatics arena improving over 35 miles of streams. In this annual report you will find projects whose purpose mainly is to protect or restore ecological functions that have been affected by our use of the natural environment in which we live. Examples of this might be trail crossings being converted from fords to bridges, re-meandering of streams that were previously moved or straightened, or

replacements of culverts with bridges to provide passage for fish and other organisms with a side benefit that these structures are now more flood resistant.

One constant year to year is the importance of the work that all our partners in conservation do in concert with us. This past year is no exception, close to 80% of the funding of projects that gets accomplished comes from sources outside the Forest Service. This does not take into account all the many good things our partners are doing that we are not involved with.

Another important aspect of our work is our monitoring, how would we manage to improve cutthroat populations if we did not know where they occurred, what the trends are in

their populations or what was impeding their expression of life history patterns such as migration, spawning and rearing. This year one of our partners, Friends of the Teton River completed the third revisit to tributaries of the Teton River to assess the health of Yellowstone cutthroat populations within the Teton River basin since 2005. They will be analyzing this now treasure trove of information to see what can be learned of trends and population changes. The Forest has also recently compiled over 4,000 sampling events from two distinct sampling periods stretching from 1997-2012 to get our data from the file cabinet to a computer database where it can also be analyzed as a whole to better guide our management and monitoring into the future.

# Watershed Program Message

The Caribou-Targhee National Forest Watershed Program is making progress related to the National Watershed Condition Framework ([http://www.fs.fed.us/biology/watershed/condition\\_framework.html](http://www.fs.fed.us/biology/watershed/condition_framework.html)) which was established in 2010. The Framework was to rank watershed conditions, identify priorities watersheds, develop and implement Watershed Restoration Action Plans (WRAP) for priority watersheds. The Caribou-Targhee National Forest had established two priority watershed areas. These areas are the Jackknife subwatershed and the Upper Blackfoot Watershed containing four subwatersheds; Lower Lanes Creek, Upper Lanes Creek, Diamond Creek, and Headwaters Diamond Creek. In 2014 the last essential watershed

restoration projects were completed within the Jackknife subwatershed as identified in the WRAP on National Forest lands that resulted in an improved watershed condition. The 2014 Jackknife Watershed Accomplishment Report is available at: [http://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd490200.pdf](http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd490200.pdf)

In FY2015 the Upper Blackfoot subwatersheds were a focus to work with our partners to continue the implementation of essential projects.

The Upper Lanes Creek - Stream, Riparian and Recreational Trail Improvements project was completed in FY2015 accomplishing 23 acres of watershed improvement and 4.0 miles of stream habitat improvement. Details of this project can be found below under the Soda Spring Ranger District accomplishments. The forest is now embarking on an effort to identify additional priority

watersheds to focus restoration efforts to continue supporting the National Watershed Condition Framework.

The National Watershed Condition Framework does focus some priority restoration efforts but does not exclude the remainder of the 294 subwatershed and the various active partners that want to make a difference. In FY2015 the forest accomplished 459 (95%) watershed improvement acres that fell outside of designed priority watersheds.



Forest Service Tour in the Jackknife Watershed showing the priority watershed accomplishments



# Forest Wide

## Continued Focus on improving Fish Passage at Stream/Road Crossings, How did the Fish pass under the Road?

It used to be as we designed roads we were mainly concerned with getting the water under the road. The most efficient and cheapest way to do that was in a round pipe. A round pipe in essence creates a fire hose effect with high velocities that a fish can't swim through and the power of the water downstream erodes a big hole and can also create a vertical barrier as the level of the stream drops. The most common solution used now to remedy this is a bridge or an open bottomed arched pipe sized at 1.5 times bank full.

Over the past 17 years we have focused on improving passage for our native cutthroat species. A recent review of the past 17 years of effort to provide fish passage has revealed that a total of 70 crossings have been upgraded improving or providing passage for the first time in many years to 140 miles of stream. For the FY2016 Aquatic Organism Passage Update see link below:

[http://www.fs.usda.gov/detail/ctnf/landmanagement/resourcemanagement/?cid=fsm8\\_047857](http://www.fs.usda.gov/detail/ctnf/landmanagement/resourcemanagement/?cid=fsm8_047857). The forest has an estimated 1,080 stream crossings about 600 have been evaluated. The priority streams for evaluation have been stronghold cutthroat streams and those streams with a water quality issue or 303(d) listing.

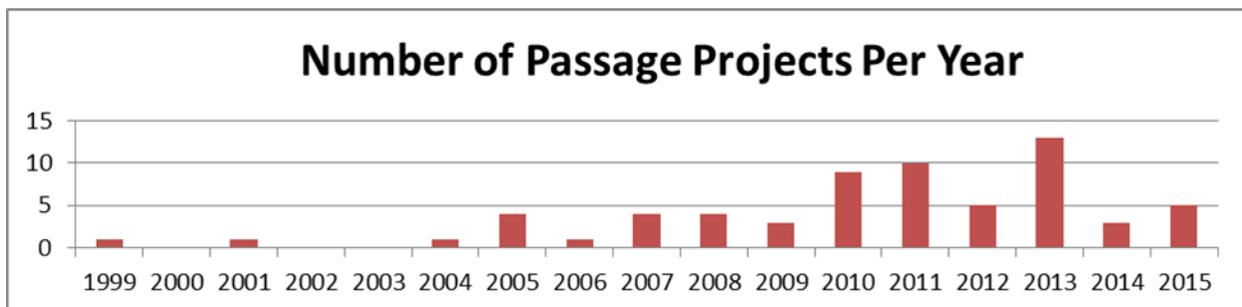
The review has identified that there are still cutthroat stronghold streams where passage is still lacking at 19 sites. However not all sites are good candidates for passage, for example due to competing non-native fish below or within several sites we may elect not to improve passage to impede movement of undesired trout, such is the case on Tincup Creek .



Targhee Creek Before, Highway 87, note width of stream compared to width of culverts



Targhee Creek After, as a result of this and other projects around Henrys Lake annual stocking of cutthroat has been reduced by about 500,000 fish. Indicating more natural production of wild Fish.

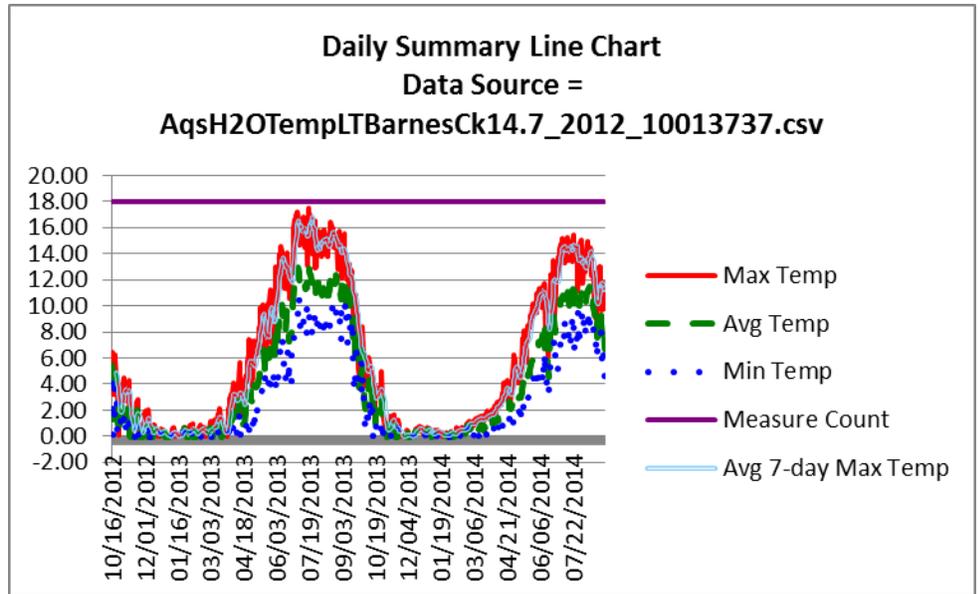




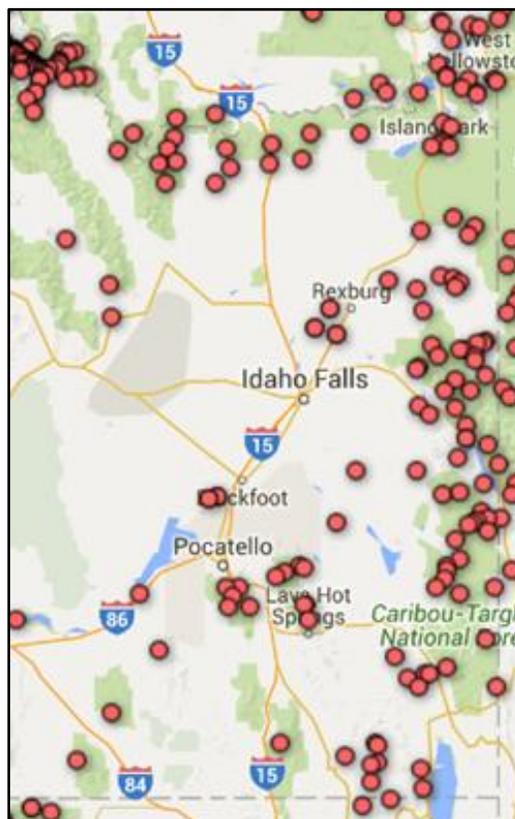
### Stream Temperature Monitoring Network – Are the streams on national forest lands warming?

Given the concern of the effects a changing climate may have on native trout that are dependent upon cold clean water we have undertaken a project to see long-term if the modeled predictions of a warming climate are occurring and what those effects to stream temperature and trout might be.

Working with the Rocky Mountain Research Station the Forest has deployed a total of 75 year-round stream monitoring stations since 2012, of which the majorities are within cutthroat waters. Temperature loggers will be revisited within a 5 year period (life of logger battery). The data downloaded and analyzed to develop more accurate predictions and to also assess current effects, with new loggers redeployed.



Water Temperature in Celsius Barnes Creek 2013-14.



Temperature Monitoring Sites by various groups in Southeast Idaho

[http://www.fs.fed.us/rm/boise/AWAE/projects/stream\\_temp/maps.html](http://www.fs.fed.us/rm/boise/AWAE/projects/stream_temp/maps.html)

## What's Living in all that Water on Forest Lands?

In order to better understand what species of fish occur where and how that has changed through time the forest has made two rounds of sampling of Forest streams from 1997 to 2012. During our first round of surveys we sampled nearly every stream on the forest thought to contain enough water and habitat to support fish. During our second round of sampling we concentrated our efforts only on those streams where 50% or more of the trout present were Yellowstone cutthroat. We are given the responsibility of improving

conditions for native fishes to ensure they are around for future generations to enjoy.

Now that all this data has been collected it has been compiled into a database of over 4,000 sampling events that cover all our fisheries surveys completed by us and our partners. Now that we have this data compiled it will be analyzed to determine overall trends to identify what the trajectories of Yellowstone populations are on Forest. It will also help us better define sampling strategies and methodologies going forward, hopefully helping us to get better data with less effort or cost.



Field Crews Sampling for Fish on the Cub River in 2001

## Are there more than trout swimming in the waters of the Caribou –Targhee?

The obvious answer of course is yes, there are many smaller species of fish that are in our lakes and streams that you most likely won't catch while fishing with a rod and reel. In many places these smaller fish outnumber the trout. If you like to catch really large fish chances are you fish with plugs or streamers that imitate these smaller fish.

One of these small fishes that we manage for is the northern leatherside chub, a long name for a small 4 inch fish. These fish are only located in a few streams on the National Forest. They were petitioned for listing under the Endangered Species Act, but due to proactive management plans formulated by the states and land management agencies the petition was found to not be warranted at this time because of the commitment demonstrated to do the right thing to recover this species.

Part of what we have been doing for this species is taking steps to enhance beaver habitat where leatherside occur, this has included moving or elevating roads. This

species benefits from the debris and hiding cover associated with the dams. It is also thought the slow water areas associated with mature beaver complexes give refuge to young leathersides during run-off and flood events. We have recently conducted mark recapture surveys to determine population estimates in two streams. Mark recapture surveys involve an initial capture run where all fish caught are marked then a separate recapture event where the ratio of caught and previously marked to unmarked fish is then used to calculate a population estimate. One stream has an estimated population of 600 adults and the other about 300. These estimates will allow us to monitor these populations through time to detect trends.



Example of a trap set using a large minnow trap



Top fish is a redbreasted sunfish  
Bottom fish is a leatherside chub



An example of good leatherside habitat

# South East Idaho Beaver Cooperative

In cooperation with an effort led by Idaho Fish and Game the Forest is developing a GIS layer that depicts historic and currently occupied habitat based upon GIS modeling of veg types, slopes and perennial water. We are also identifying sites where they can be reintroduced and source sites from where we have an abundance of beaver or nuisance issues. The drive behind this is to better make use of nuisance beaver and to use beaver to restore/maintain wetlands and riparian conditions as well as to improve stream flow and resiliency in the face of a changing climate.

Beaver are a keystone species providing many important functions within the ecosystem such as water storage prolonging stream flows, capture sediment by slowing down the water, raise the water table flooding the nearby riparian lands increasing growth rates and spread of willows, provide habitat for waterfowl and other birds, in healthy systems they help the streams withstand flood energy and spread out the flood flows, and they also provide overwintering habitat for fishes within their deep pools and provide rearing habitat in the margins of their slow waters.



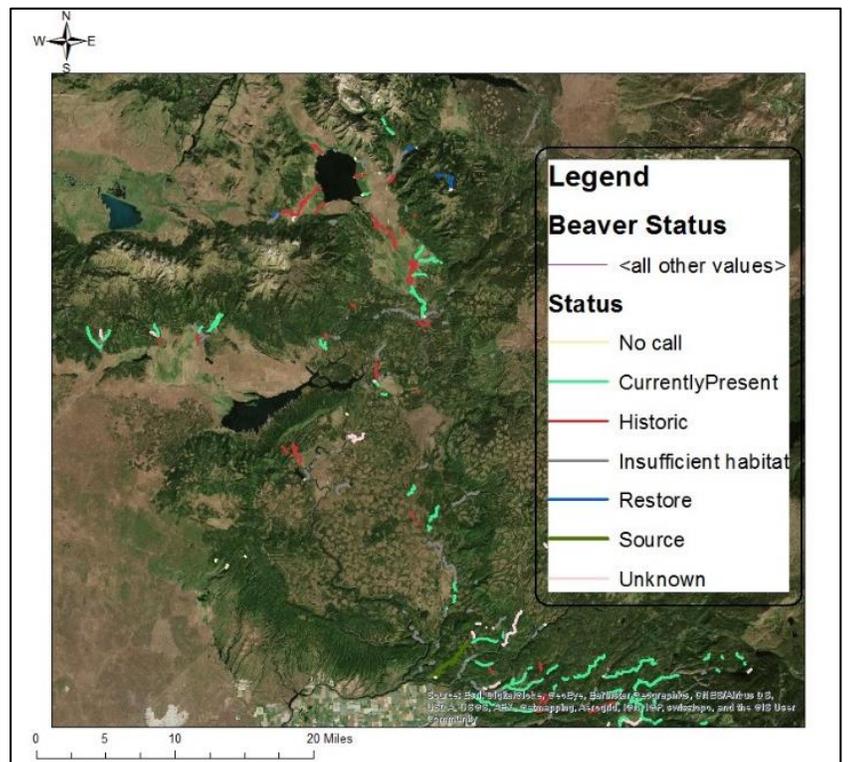
New beaver lodge within a forested lodgepole pine stand



Conversion from lodgepole forest to wetland plants



Juvenile beaver



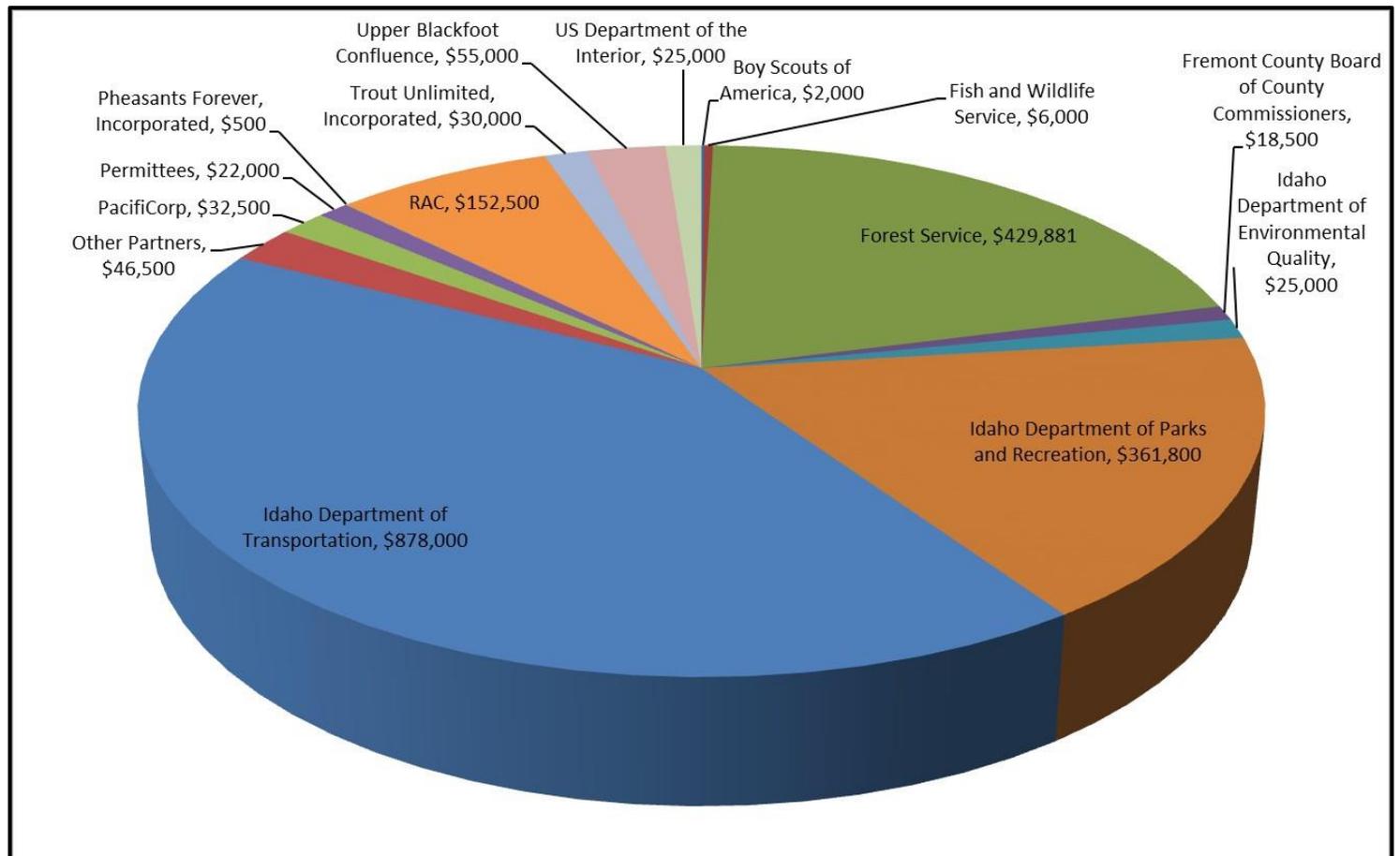
An example of the database taken from Island Park



# Fiscal Year 2015 Watershed and Aquatic Restoration Accomplishments

In FY2015 numerous projects have been implemented improving over 482 acres of watershed conditions and 35.8 miles stream habitat conditions. Through a strong internal program integration and external partnership collaboration the Caribou-Targhee NF was able to direct \$429,381 in various program funding (cash and in-kind contributions) to leverage about \$1,655,800. Various external partners have contributed toward the many projects that were implement in 2015 and without them these project would not have be possible.

Below is a table showing the complete list of projects that have been completed in FY2015 improving water resources and aquatic stream conditions on the seven Ranger Districts that make-up the Caribou-Targhee NF.



Fiscal Year 2015 Watershed and Aquatic Restoration Accomplishments



<b>FY2015 Aquatics and Watershed Accomplishments</b>			
<b>Ranger District</b>	<b>Projects</b>	<b>Improvements</b>	
		<b>Watershed (Acres)</b>	<b>Stream Habitat (Miles)</b>
<b>Dubois</b>	Big Springs Willow Planting	2	
	Continental Divide Trail Relocation	2	
	Eightmile ATV Trail Improvement	11	
	Fritz Cr Riparian Protection	114	1.5
	Modac Rd 005 Improvements	2	
<b>Total</b>		<b>131</b>	<b>1.5</b>
<b>Ashton-Island Park</b>	ChickCrFlat Rd292 Improve	4	
	Tygee Creek-Riparian Improvement	2	1.0
	Ashton-Flagg Ranch Rd261	23	
	Buffalo Chick Spr Rd219 Improvement	6	3.0
	Camp Loll Rd 027 Improvement	7	
	Continental Divide Trail Improvement	6	
	Howard Cr Rivparian Improvements	2	0.5
	Railroad Trail 001 Improvement	3	
Warm R Bridge Replacement	2		
<b>Total</b>		<b>55</b>	<b>4.5</b>
<b>Montpelier</b>	Archery Range Trail Improvement	1	
	Co-op Creek Trail Bridge Installation	1	0.6
	Co-op Trail 308 Improvements	14	
	Elbow Ridge Spring Exclosure	1	
	Elephant Corral Seeding	2	
	Emigration Wetland Rehab	1	
	Emphraim Valley Cabin Spg Exclosure	1	
	Franklin Basin Seeding	1	
	Highline Trail 316 Improvement	24	
	Illegal Route Closure Green	1	
	Lower Aegetter Spg Exclosure	1	
	Paris Cr Rd406 Improvements	7	
	Peterson Hollow Seeding	2	
	Powerline Rd445 Improvement	12	
	Powerline Route Closure	3	
	SFDeer Cr Restoration & Protection	2	
Sheep Cr & Spring Exclosure	2		
Whiskey Flat Rd 114 Culvert Upgrade	1	0.5	
<b>Total</b>		<b>77</b>	<b>1.1</b>



<b>FY2015 Aquatics and Watershed Accomplishments</b>			
<b>Ranger District</b>	<b>Projects</b>	<b>Improvements</b>	
		<b>Watershed (Acres)</b>	<b>Stream Habitat (Miles)</b>
<b>Palisades</b>	West Pine Cr Hwy31 Replacement	1	5.9
	West Pine Creek Restoration	7	0.3
	Fall Cr ATV trail bridge	1	1.5
	Fish Cr FSR 318 Culvert	1	
	Fish Cr Water Gap Hardening 1 & 2	2	
	Fish Cr. Willow Planting	2	0.7
	June Cr Rd 376 Improvements	15	
	McCoy Cr Wetland-Stream Protection	6	
	N-Moody Cr Rd Crossing Improvement	1	0.5
	Rainey Creek- Fish Screen Installation		11.0
	SF Fall ATV Trail Improvement	11	
	Tex Cr ATV Trail Bridge	1	0.3
	Trout Cr User Trail Decom	2	
	VanNoy Farm Rehabilitation	15	
	Willow Cr User Created Trail Removal	1	
<b>Total</b>		<b>66</b>	<b>20.1</b>
<b>Soda Springs</b>	Lanes Creek Restoration	1	
	Trail022-Bridges 1, 2 & 3 Installations	3	1.6
	Trail022-Improvements	10	
	Trail088 -Bridges 1, 2 & 3 Installations	3	2.4
	Trail088 Reconstruction	6	
	Bear Cyn Rd 258 Improvement	2	
	Flat Valley Rd Seeding	1	
	JensenCr Seeding	1	
<b>Total</b>		<b>27</b>	<b>4.0</b>
<b>Teton Basin</b>	DryRidge Rd013 Improvements	13	
	Moose Creek Trail Reroute	2	
	Murphy Cr Crossing Oblit	1	0.6
	Murphy Cr Rd Obliteration	2	1.2
	Relay Ridge Rd219 Improve	20	
	Trail077 SheepDriveway Impr	14	
<b>Total</b>		<b>52</b>	<b>1.8</b>
<b>Westside</b>	Bell Marsh Trail Relocation	3	
	Cherry Cr Trail Closure	7	
	Cherry Springs Trail Bridges 3 & 4	2	2.8
	Curlew Campgr Cleanup-trail	2	
	East Bob Smith Trail Relocation	1	
	Elk Meadow Spr Protection	4	
	Husacker Rd009 Improvement	2	
	Inman illegal trail closure	2	
	Kurtz Spring Exclosure	26	
	Oxford Mtn Area Trail Reconstruction	15	
	West Hunsaker Seeding	8	
Wood Canyon Rd 008 Improvement	2		
<b>Total</b>		<b>74</b>	<b>2.8</b>
<b>Forest Total</b>		<b>482</b>	<b>35.8</b>



### North Fritz Creek Riparian Pasture – Perfecting Multiple Use

Balancing competing uses of National Forest Lands under our direction as a multiple use agency can be a tricky proposal. In the spring of 2013, during one of our periodic reviews of grazing allotments, unacceptable conditions in the upper portions of North Fritz Creek were discovered as it related to Yellowstone cutthroat habitat. That following winter in an effort to develop an acceptable solution, a meeting with the range permittees was arranged where the issues were presented and solutions were developed by the permittees. The solution reached to improve stream habitat and riparian conditions in this small stream with Yellowstone cutthroat was to extend 1.5 miles of fencing up the opposing ridge from the other fence line to allow better management and control of livestock use along North Fritz Creek. Solutions supported by all have the greatest opportunities for success. The fence was fully completed in 2015. A multiple indicator monitoring (MIM) site was established to more effectively track conditions and trend within this allotment. Improvements in the creek were noted as compared to previous conditions. Continuous fine tuning and emphasis here will improve conditions.



Photo looking downstream at upstream end of the MIM site 9/15/15 post grazing.

**“Balancing competing uses of National Forest Lands under our direction as a multiple use agency can be a tricky proposal.”**

Willow with flagging in other photo is the willow on the right in this photo, 5/17/13 pre grazing.



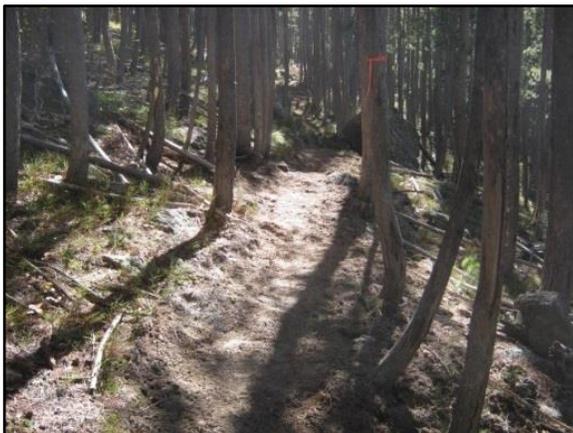
# Ashton – Island Park Ranger District

## Ashton Island Park Trail and Watershed Improvements:

The district recreational staff and partners have performed improvements on trail #001 Railroad Grade and trial #004 Continental Divide Trail (CDT). These trail projects contained multiple benefits with the emphasis falling on improved recreation infrastructure. However, at the same time watershed improvement also occur via relocating trails away from stream and improving trail drainage which reduces erosion and runoff protecting the water quality of nearby streams. These projects improved 9 acre of watershed conditions and were completed by the Caribou-Targhee Road Crew/Staff, District Staff/Seasonals, YCC Crew, and the inmates from St. Anthony Work Camp. Partnership funding included Caribou-Targhee Funds, Idaho Parks and Recreation grants and Secure Rural Schools Public Law 110-343 (Title II Funds) distributed by the Resource Advisory Committee (RAC).



Improving trail drainage on the Railroad Grade Trail (#001)



Continental Divide Trail Improvements #004

### Ashton Island Park Road & Watershed Improvements:

Forest Service Roads are a major means of access for the public to enjoy federally managed lands. Forest roads can also negatively impact water resource conditions through excessive erosion and poor location such as next to streams. Efforts are annually taken to improve road conditions and locations to reduce the water resources impacts while improving traveler's safety and experience. In 2015 several roads on the Ashton Island Park Ranger District had undergone heavy reconstruction to restore a proper road template to improve road drainage. This included the Chick Cr. Flat Rd292, Ashton-Flagg Ranch Rd261, and Camp Loll Rd 027. The FS Road Crew teamed with Regional Office utilizing a mobile rock crusher to address extremely rocky roads. This helped improve the road drainage, reduce erosion and improve watershed conditions on a total of 34 acres.



Heavy road reconstruction of a portion of the Ashton-Flagg Ranch Road FSR 261 utilizing the Mobile Rock Crushing and Rotomilling



## Buffalo River Road Realignment - Roads and Fish

What does a road and fish have to do with each other, well not much unless the road is located in the drainage bottom and acts as the stream channel during storm or run-off events with. This had long been the case with the access road into the head of the Buffalo River Springhead a popular canoe float in Island Park. The very road being used to access this pristine spring creek was also a source of sediment at the very same floater put in. This project undertaken in 2015 moved over a half mile of road out of the drainage bottom and provided drainage on the rest of the road decreasing water and sediment runoff from the road. The parking lot was also regraded so it no longer drains into the spring head. These efforts were undertaken to preserve water quality in the Buffalo River. Buffalo Road improved 6 watershed acres.



Buffalo River spring head with the entrance of Chick Creek on the left. Parking area above springhead.

Old road bed in bottom of drainage was dug up and mulched with trees. New road moved to the side out of the drainage bottom



Before, Trail to canoe launch that had turned into an eroding road with a turnaround between Chick Creek and Buffalo Springhead



After, looking up the trail from Chick Creek towards the parking area awaiting green up.

## Warm River Campground Bridge Replacement

The Warm River Bridge has been a vital link to the recreation program on the Ashton/Island Park Ranger District. The poor condition substructure rating of the bridge contained load restrictions on a 58 year old failing timber bridge. The District had partnered with Fremont County, Idaho Parks and Recreation and the Concessionaire that operates the campground this bridge accessed to generate over \$177,000 to replace this structure. The existing structure contained 4 – 20 foot spans and 4 pilings into the river spanning a total length of 101 feet. The old timber structure was replaced with a single span steel bridge allowing the River to function more naturally.



Before: Looking upstream from River right bank.



After: Looking upstream from River left bank.



Removal of the old timber bridge as it happened. The pilings were sitting on mud sills and made removal clean and easy. The bed material was a gravel/cobble mix creating an underwater road for a track excavator to remove the structure with very little impact

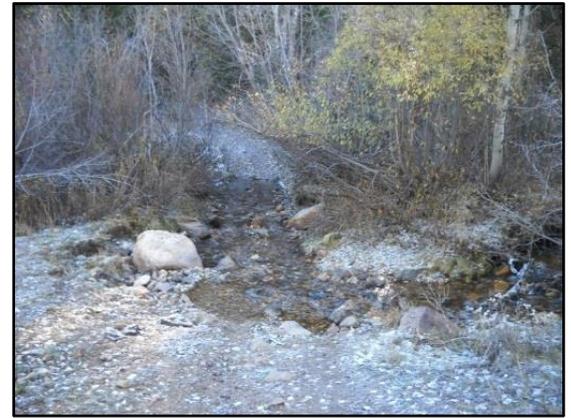


# Montpelier Ranger District

## Montpelier Trail & Watershed Improvements:

The Montpelier Ranger District addresses trail improvements on an annual basis with a main focus of improving recreational infrastructure however at the same trail improvements also have protect and improved 36 acres of watershed condition. This included improvements to Archery Range Trail, and Highline Trail 316.

while the Forest Service secures internal and external fund for materials and provides oversight and additional labor. The district has also seeded historical distributed grazing grounds such as sheep bedding area with a natural seed mixture to promote vegetative recovery to reduce erosion and restore watershed conditions. Seeding has occurred near the Elephant Corral, Franklin Basin Seeding, and Peterson Hollow Seeding improving 5 acres of watershed conditions.



Before: Ford and Co-op Creek



New Trail Bridge – located 200 ft. upstream. 35 ft. span.

## Range Improvements have occurred across the district to protect and improve range and watershed conditions:

The District range conservationists have worked cooperatively with the permittees in 2015 to repair and protect about 5 spring/seep areas that are used as livestock water developments. These include Elbow Ridge Spring, Ephraim Valley Cabin Spring, Lower Aegetter Springs and Sheep Creek Spring. These springheads provide important wetland and riparian vegetation and water for wildlife and other aquatic dependent organisms while providing livestock watering. Dilapidated exclosure fencing has been replaced to provide springhead protection that are associated with a spring-box that collects water and delivers water via a pipeline to an offsite trough. Permittees invest time and take ownership to install fencing

This also included the Co-op Creek Motorized Trail 308 improvements whereby the Forest partnered with Idaho Parks and Recreation and Pacific Corp to get this project completed. This included a new trail bridge replacing a ford that crossed Co-op Creek, several sections of the trail were re-routed around wet boggy areas, and trail drainage was improved. The project is expected to decrease sediment to waterways and improve aquatic habitat for Bonneville cutthroat trout.



Elbow Ridge Spring Exclosure fencing has been re-established to provide springhead protection and continue providing



### Montpelier Road Improvements:

The Caribou-Targhee NF Road Crew completed numerous heavy road reconstruction projects on the Montpelier District utilizing internal and external partnership funding to improve more than 24 acres of watershed impacts and addressing over 7 miles of FS roads.

One project in particular to highlight is the Whiskey Creek Culvert Replacement & Restoration Project improved the stream and the stream crossing conditions on Forest Road 114. The original 2 foot round culvert in Whiskey Creek was drastically undersized causing channel filling upstream and scour of sediment from road when overtopped during spring flows. The 2 foot culvert was replaced with a 57"X37" arch culvert which matched active channel width and helped restore stream function. The 40 feet of the south bank was restored and channel narrowed above the inlet, using sedge mats salvaged from the excavation of the new culvert alignment and rooted material from uplands. The original "submerged" culvert was left in place to ensure aquatic passage at low flow. The newer, larger and longer culvert was placed about 18" higher and at a 2.5% slope to ensure it does not fill with sediment and to align it with the channel and floodplain at high flows. The fill around the inlet and outlet of new culvert was rocked to minimize sediment.



**Pre-Project: Poor road conditions at crossing that frequently overtop reducing water quality in Whiskey Creek and caused travels at times to ford the stream.**



**Pre-Project: Undersized 2 foot diameter culvert that is completely submerged and frequently overtop during runoff events.**



**Post Project: Newly installed large culvert to match width and function of Whiskey Creek.**

**Post Project: Elevated and armored road way improved road conditions and reduced erosion.**



# Palisades Ranger District

## West Pine Creek Bridge and Stream Channel Restoration ([http://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd490197.pdf](http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd490197.pdf)) - Helping Fish and Water Overcome Past History

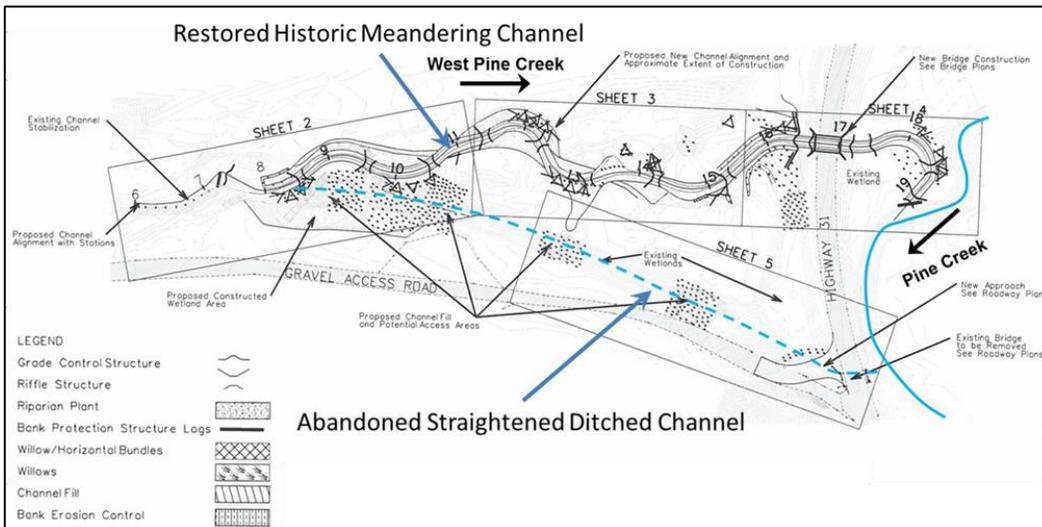
It's certain that the original road and bridge that was constructed over West Pine Creek in 1936 by the Forest Service was a far cry from what exists there now. The next bridge over West Pine Creek was constructed in the mid

– 1950's also with widening of the road. At this time the stream was also moved and straightened being made ditch like for over a distance of 800 feet.

Sixty years later the bridge was in need of replacement again. This time the partners involved (Idaho Transportation Department and Forest Service) were not only interested in passing traffic through the environment but also in how the road and bridge interacted with the environment. There were also safety concerns with old crossing and the entrance to the West Pine Camp. A win-win solution was developed whereby the new bridge was moved 300 feet east away from the intersection and back to the original stream crossing. This new location was ideal as it allowed the past

straightening and down-cutting of the channel to be corrected as the stream was restored to its original meandering floodplain elevation with a channel form full of pools and riffles and varying habitat to meet the needs of Yellowstone cutthroat trout. The new bridge was also upsized from 14 feet to 20 feet giving the proper size to past most flood flows without issue and allow Yellowstone cutthroat from the Snake River to make their spawning migrations of over 20 miles to their spawning grounds.

**“We have come to value not only being able to drive through the beautiful canyon but also on being able to let the water and fish move naturally.”**



Restoration Design Prepared by Forsgren Associates Inc. with review by Caribou-Targhee National Forest

Photo showing new bridge and mostly complete stream restoration, previous channel was along farside of valley.



### Rainey Creek Fish Screen Fish – Getting Fish past Irrigation Diversions

In 2015 Trout Unlimited in cooperation with the water users, BOR, IDEQ, and Forest Service installed a new fish screen and bypass at the upper most irrigation diversion on Rainey Creek. Rainey Creek is an important spawning tributary to the South Fork of the Snake River. This stream is also one of a handful of streams where Idaho Fish and Game operates electric weirs in the spring time to remove rainbows during the cutthroat spawning runs to protect the purity of the cutthroat gene pool. This project will prevent the loss of cutthroat due to irrigation withdrawals. There are 11 miles of potential spawning area above this diversion. This is one example of the many steps that are being taken to ensure the persistence of native Yellowstone cutthroat in the Snake River Drainage.



Youtube link explaining the operation of a similar screen on Avintaquin Creek.



Putting the Final Touches on the Fish Screen



Site during construction, water intake to the right and return pipe for fish and debris middle to left.

### Fish Creek Bank Stabilization – Where does clean water come from?

As water makes its journey from the headwaters to the valleys it has to be protected all along the way. Fish Creek in the upper reaches of the Moody Creek drainage is one of the areas the Forest has recognized a need to take special measures to protect water quality. This was an area where years ago our range program saw the need to protect a dry meadow with a trickle of a stream. The area was fenced but the raw vertical banks were not healing and had been noted by Idaho department of Environmental Quality as a chronic source of sediment. In 2015 a project was undertaken to re-slope, and seed the vertical eroding banks. Two water gaps used for cattle watering were also hardened and an undersized culvert that was causing channel erosion below the road was also up-sized. Willows were also planted to restore woody species back into this meadow. This

project will benefit not only water quality but aquatic and wildlife habitat. Protecting water all along the way keeps our water clean.



IDEQ photo showing vertical banks that were not protected with growing grasses.

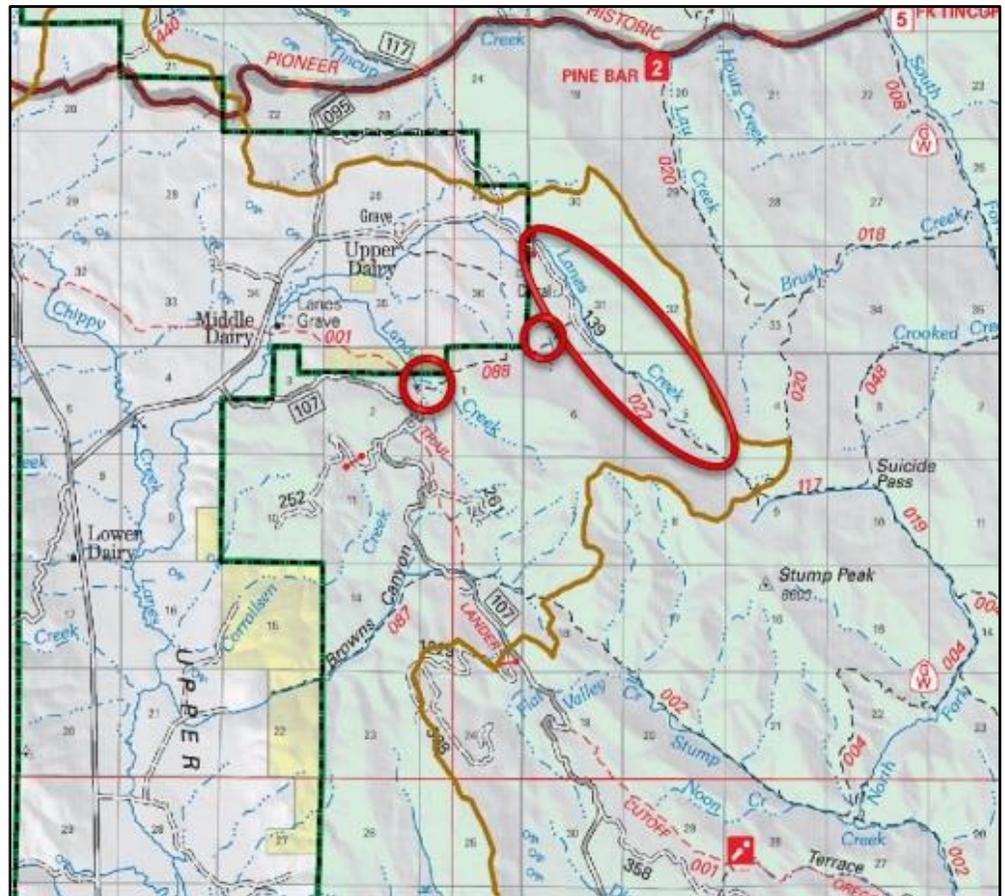


Banks have been reshaped with sod matts placed near the channel and uplands re-seeded awaiting the green up of spring.

# Soda Springs Ranger District

## Upper Lanes Creek - Stream, Riparian and Recreational Trail Improvements

Caribou-Targhee NF developed a strong partnership with Upper Blackfoot Confluence (UBC) (<http://upperblackfootconfluence.org/>) and the Idaho Park and Recreation (IDPR) to improve watershed condition in the Upper Blackfoot Priority Watershed. This specific project focused on improving stream and water quality conditions through the improvement of 4 miles of recreational ATV trails, trail relocation, & upgrading of 6 ATV stream crossings. The improvements are located in the headwaters of Lanes Creek aimed at making watershed improvement on FS lands while ensuring the protection of downstream improvement investments make by UBC partnership on private lands. These Upper Blackfoot Watersheds priority project improved 23 acres of watershed condition and 4.0 miles of stream habitat. Through this partnership and leveraging of funds it has created opportunities to address more areas making progress happen. For this project the UBC has contributed \$52,200 and IDPR has contributed \$41,600 in cash. The FS has contributed \$23,900 and TU has contributed \$5,000 in salary for project oversight and coordination.



Project locations are shown by the red circle along trail 088 and 022.

**“These Upper Blackfoot Watersheds priority project improved 23 acres of watershed condition and 4.0 miles of stream habitat.”**

**Project Details:**

- Improve 1.8 miles of the #088 ATV trail that is steep, unsafe, eroding trail by relocating a majority of the trail and adding drainage.
- Improve 3 eroding ATV stream crossings on trial #88 with timbered bridges (2- 20ft & 1-25ft bridge) on upper Lanes Creek.
- Improve 2.5 miles of the #022 ATV trail with proper drainage.
- Improve 3 eroding ATV stream crossing on trail #22 with timbered bridges (2-10ft & 1-20ft bridge)with timbered bridges on Lander and no name tributaries to Lanes Creek.
- Improve 300ft of eroding stream bank along Lanes Creek/Trail #022.
- Re-routed 2 sections of the Lane Cr. Trail #022 eliminating wetland and spring channel crossing. (Completed)
- Install barrier log-worm fence at the end of trail #022 for watershed protection.



**Before: Trail #088 - Over widened and eroding ATV ford stream crossing on Lander Creek tributary to Lanes Creek.**



**After: Trail #088 - 20 ft. Timber Bridge installed to replace an eroding ford stream crossing on Lander Creek tributary to Lanes Creek. Work by the FS trail and road crews with funding from IDPR & UBC**



**Before: Trail #022 Existing undersized 3 foot diameter old road culvert now utilized on the ATV trail in upper Lanes Creek. The culvert outlet contained a 3-5 foot drop causing a fish barrier for the native Yellowstone cutthroat trout and negatively impacted stream function and water quality. , and undersized old road culvert on upper Lanes Creek.**



**After: Trail #022 -20 ft. Timber bridge installed to replace eroding, fish barrier, and undersized old road culvert on upper Lanes Creek. Work by the FS trail and road crews with funding from IDPR & UBC.**

# Teton Basin Ranger District

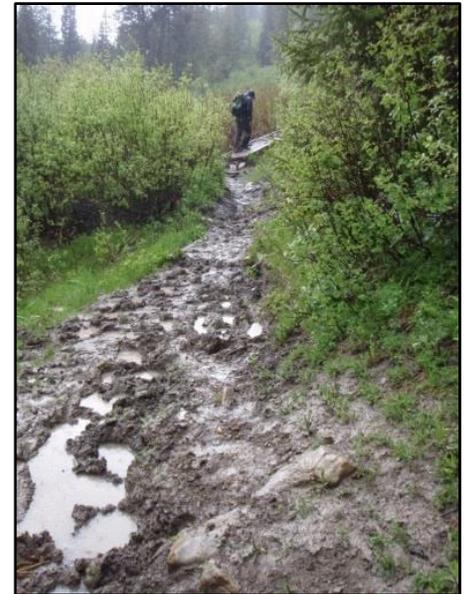
## Teton Basin Trail Improvements:

The Teton Basin Ranger District fosters an exceptional partnership with various recreational groups to improve trail infrastructure. Trail re-routes moving trail away from stream and wetlands and heavy reconstruction to improve trail drainage also accounts for watershed improvements. Of the numerous trail improvements on the district, portions of two trail systems (Moose Creek Trail and Sheep Driveway Trail 077) were either re-routed or heavily reconstructed corresponding to 5 miles of trail improvement and 16 acres of watershed improvement. Various partners and volunteers have been used to accomplish this work and includes: Wilderness Volunteers: 440 hours of volunteer labor, National Outdoor Leadership School (NOLS): 88 hours of volunteer labor, Teton Valley Trails Teton Valley Trails and Pathways (TVTAP): 240 hours of volunteer labor, Wyoming Recreational Trail Program (RTP) grant: \$21,238, Montana Conservation Corps: 500 hours labor and Idaho Parks and

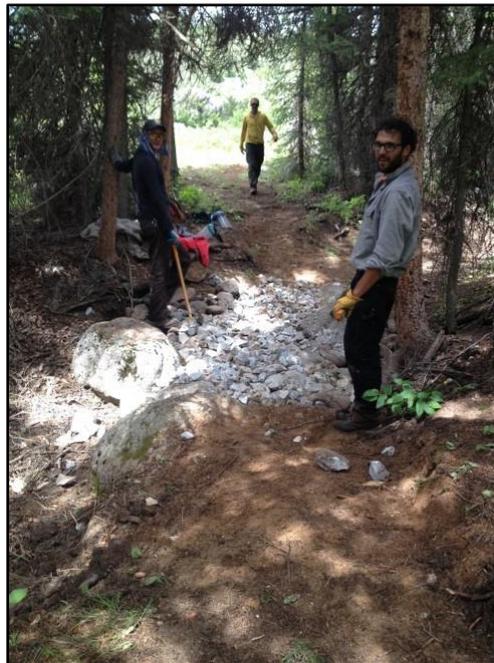
Recreation: 80 hours operation Trail Dozer and Federal Lands Recreation Enhancement Act collection funds: \$7,000.

## Teton Basin Road Improvements:

Heavy road reconstruction performed by the Caribou-Targhee NF Road Crew occurred on the Dry Ridge Road (FSR013) and the Relay Ridge Road (FSR 219) improving road drainage greatly reducing erosion and sediment delivery to streams and waterways. These heavy road reconstruction projects also can be accounted for as watershed improvement and correspond to 33 acres of watershed improvements.



Trail before reroute to avoid wet bottoms



Installing French drain at crossing



South Leigh Chain Lake due east of Targhee Ski Resort

### Timber Sale Result in Fiber Removal, Fuels Reduction and Watershed Restoration:

The Smith Canyon Fuels Reduction Timber Sale contained watershed restoration work which was completed in 2015. This restoration work pertained to a non-system road and trail that was temporarily used during the timber sale then obliterated. The obliteration removed and restored hydrologic function to over 1,200 feet non-system trail/road. It also removed and rehabilitated the Murphy Creek stream crossing with restored natural stream function and improved water quality. The project improved 3 acres of watershed condition. Timber Sale generated funding (KV funds) were used to pay a contractor to perform the work with oversight by Forest Service Hydrologists and the Timber Sale Administrator.

The Smith Canyon Fuels Reduction Timber sale was awarded to Willmore Lumber of St. Anthony, Idaho in September 2010.

- Sawtimber and non-sawtimber volume removed was 1447 CCF (151 log truck loads).
- Trees posing hazards to the Bonneville powerline providing electricity to Teton Valley Idaho and Jackson Wyoming were removed along approximately 8.1miles on 59 acres.
- Aspen was regenerated and enhanced on approximately 48 acres within the Wildland Urban interface between the powerline and urban development. The potential hazard of high intensity wildfire was reduced by removing biomass for the short-term and replacing conifer trees with less flammable (fire volatility) species of quaking aspen.
- Approximately \$40,363 dollars were collected from timber sale

receipts from active management and placed into Knutson-Vandenberg funds to help fund projects to include:

- restoration of Murphy Creek (\$2230)
- approximately 1 mile each of trail reconstruction on Forest Trails: 031 (BPA access road) at Woods Canyon creek crossing, 047, 047-Woods Canyon Ridge Trail reroute and 014 Blanchard Ridge trail reroute (\$12,990)
- 3 years of noxious weed treatment (\$7,520)
- Soil productivity improvement for burn pile restoration (\$1,080)
- Post-harvest weed & release (\$590)
- regeneration surveys (\$3,290)



**Photo of the obliterated the temporarily used non-system road/trail and the Murphy Creek road crossing restoring riparian and stream function and improving water quality.**

# Westside Ranger District

## Cherry Spring bridges

The last two of the four bridges were installed in FY2015 with the previous two bridge installed in FY2014. The district recreational staff partnered with RAC to secure \$34,000 and utilized the Caribou-Targhee NF Road Crew to install two timber bridges. This replaced existing metal culvert pedestrian crossing at Cherry Springs Nature Area. The timbered bridge structures were designed and constructed to span ordinary high water to help restore stream function. The over widened channel on both the outlets were narrowed using neighboring riparian vegetation to help recover lost stream function and aquatic habitat.



Before photo looking at the undersized culvert outlet the constricted flows and negatively impacted stream function and aquatic organism passage.

After photo take of the upper stream crossing location (above) with a new bridge installed that spanned the active channel restoring natural stream function.



## Elk Meadows Spring Protection

The Westside District watershed and range program collaboratively worked with the City of Pocatello to improve watershed condition in the City of Pocatello watershed. In 2015 Elk Meadows Spring and pond were fenced out to reduce the draw to livestock to allow natural vegetation recovery and leaving it accessible to wildlife. This improved 4 acres of watershed condition.



Pond in the City of Pocatello watershed



## Partnerships Make the Work on the Ground Possible.



Idaho  
Conservation  
League

