

# Spruce Lakes Wilderness Project



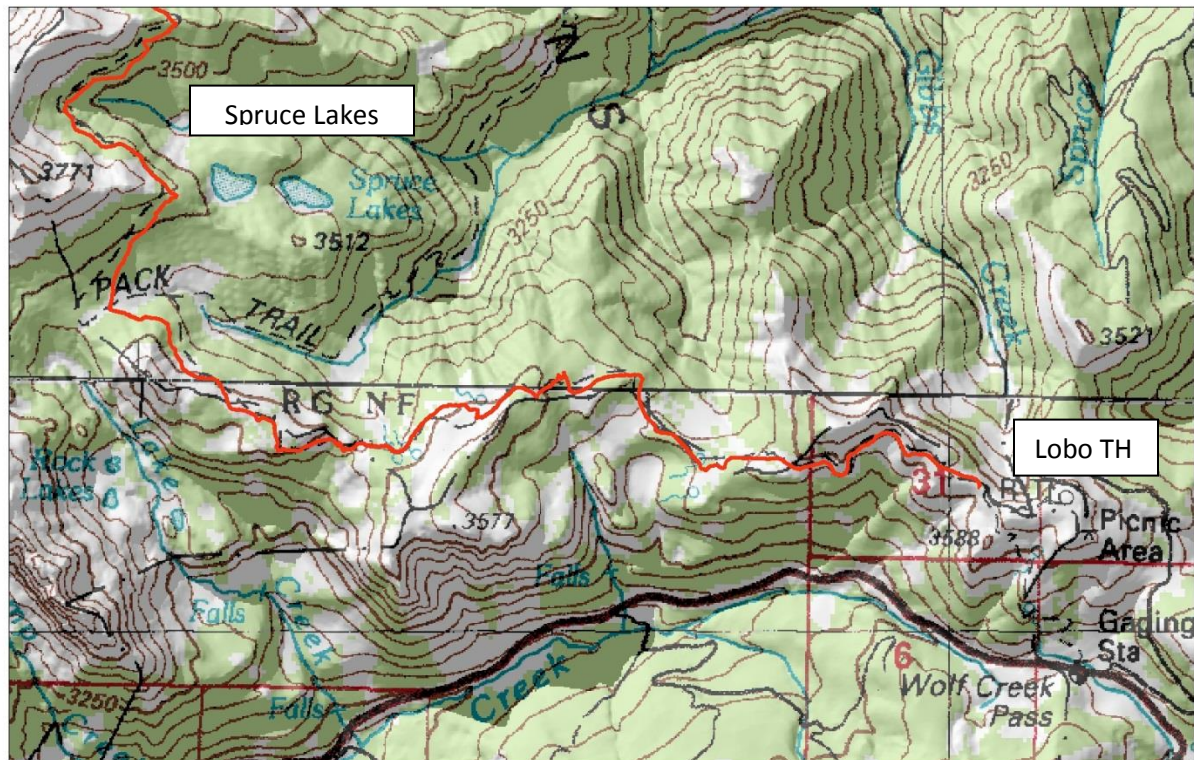
Final Report to the CWCB

Spruce Lakes Wilderness Project ( POGG1-2018-842)

Submitted by: Kevin Terry, on behalf of Trout Unlimited

## Background

Upper and Lower Spruce Lakes are in the Weminuche Wilderness, at 11,300' approximately four miles northwest of Wolf Creek Pass in the headwaters of the South Fork of the Rio Grande river, as shown in the map below:



The water rights to the two lakes are privately held by three San Luis Valley ranchers. The valid storage water rights have an appropriation date of July 19, 1926, which pre-dates the Rio Grande Compact water delivery agreement between Colorado, New Mexico, and Texas. These ranchers have a conservation pool agreement with Colorado Parks and Wildlife (CPW) to store water for recreational fishing in the two Spruce Lakes and draw their irrigation water from a larger and recently updated reservoir lower on the South Fork of the Rio Grande system. Construction on the Spruce Lake reservoirs was completed in 1933 through a Department of Interior special use permit issued on September 10, 1927. The Forest Service determined that these reservoirs qualified for 1891 right-of-way easement. The water rights and easement context is relevant to this project because of the seniority of the water right, the property right conferred by the 1891 easement and the connection to recreational fisheries.

## Problem

The Rio Grande National Forest (RGNF) has seen extensive beetle kill in the Engelmann spruce over the last 10 years, including in the Spruce Lakes area. Although in some areas spruce snags may remain standing for decades, the wind and moisture regimes at the Spruce Lakes have initiated snag fall. Dead

spruce falling in the lakes, floating down to the spillways and clogging them has created significant concern for the dams' structural soundness because of the potential for the dams to overtop and breach. Although the ranchers cleared material from the spillways in 2013, in 2015 the State Dam Safety Engineer determined that "the ongoing issue of deadfall accumulation in the spillway channel is the basis for the Conditionally Satisfactory rating. The beetle kill in and around the reservoir is so extensive that this will be an issue for years and possibly decades to come." A Divide Ranger District and Trout Unlimited (TU) field trip in 2015 counted 550 dead spruce leaning towards the lakes within  $\frac{3}{4}$  of a tree length of the water.

Both dams are rated low hazard, so dam breach was not a concern from a public safety perspective. However, reconstructing the dams should they fail would be sufficiently logistically challenging and cost-prohibitive given the remoteness and administratively challenging given the Wilderness setting that water right abandonment would be a likely outcome. The sensitive nature of water rights on the upper Rio Grande system made this unappealing to both the ranchers and the district ranger as well as Trout Unlimited.

The problem to solve was how to mitigate the potential for dead trees to fall in the lakes, float to the spillways, and clog them.

### Solution

A few options, including not taking any action, were considered and weighed against their ability to address the problem's components and whether prohibited under Section 4c, Prohibitions, of the Wilderness Act of 1964.

Not taking any action was discarded because it failed to address the issues. Focusing only on either the material in the spillways or directionally felling the trees did not address the full scope of the problem so a combination of the two was necessary. Blasting rose to the surface as the most effective and safest option with the additional benefit of not being prohibited under the Wilderness Act. A winch for removing material from the spillways also surfaced as effective while avoiding the secondary resource impacts associated with horse teams working for long periods. Block-and-tackle style winches are not prohibited under the Wilderness Act but motorized ones are.

The district ranger decided to pursue blasting the dead trees most likely to fall into the lakes and float and using a winch to remove material from the spillways and any trees that landed in the water as a result of the blasting. Trees most likely to fall in the lakes and float were identified as those within  $\frac{1}{2}$  a tree length of the water and leaning towards the lakes.

Work with the Rocky Mountain Region Blaster Examiner early in the project determined that approximately 7,500 lbs of explosives would be needed. Using the regional packstring was initially considered for transporting explosives and other project equipment the seven miles into the Spruce Lakes, however this equated to over 40 mule trips. This time sink and logistical burden because of the chain of custody requirements for explosives led to a helicopter and long-line being the logical way to transport equipment to the site. An exception to the prohibition on motorized equipment would be needed for the helicopter so the use of a motorized winch could be included in the exception request.

The fully-fleshed out solution to the identified problem was:



1. Use explosives to blast trees within ½ a tree length of the water and leaning towards the lakes
2. Use a helicopter to transport explosives and other project equipment/supplies to the project site
3. Use a motorized winch to remove trees ending up in the water as a result of the blasting and those accumulated in the spillways.

## Partnership in the solution

This project demonstrates the strength of true partnership at every phase of development and implementation.

The intersection between the ranchers who own the water rights, water storage infrastructure integrity, and native fisheries through the CPW conservation pool agreement brought TU to the table at the earliest stages of project investigation. At the outset, TU worked directly with the RGNF on behalf of the ranchers and the larger water community. Once a solution was identified and costed, the Rio Grande Basin Project Manager for TU submitted a request for a Colorado Water Conservation Board (CWCB) Rio Grande Basin Roundtable grant to fund Forest Service base time, over time, travel, explosives and other blasting supplies, and equipment/supply transportation to the project site. The grant was awarded in full in the amount of \$65,500.

Personnel on hand during project implementation included:

- The three water rights owners
- Their ranch staff
- Water rights owner's family, camp cooks for the project
- Colorado Division of Water Resources Dam Safety Engineer
- CWCB Rio Grande Basin representative
- San Luis Valley Water Conservancy District board of directors member
- TU
- Forest Service (helicopter crew for the cargo mission, four blasters, one incident commander, the regional blaster examiner, one AD hire paramedic, and the district ranger)

This broad partnership resulted in grant funding for the project and partner – including the Forest Service - investment in the project's success because all participated in implementation. Having the water rights owners; state dam safety, the regulatory agency; and the Forest Service, the jurisdictional agency, present during implementation ensured that all relevant parties shared a common operating picture of the project.

## Project timeline

Discussions about the situation at Spruce Lakes began in September of 2014 and the project was implemented in September of 2018. The timeline below spells out the activities during this four year period:

September 2014	Initial field visit to Spruce Lakes with Rio Grande National Forest (RGNF) staff, water rights owners, and Trout Unlimited.
	Problem and potential solutions identified.
August 2015	Field visit with district ranger and Trout Unlimited.

	Rough count of trees to be mitigated completed.
Fall 2015	<p>Blasting identified as best course of action.</p> <p>Initial discussions between district ranger and incoming Regional Blaster Examiner on feasibility.</p> <p>Determination made to table project until transition in regional blasting program finalized.</p>
Fall 2016	Scoping initiated for National Environmental Policy Act analysis of project. One question received, no other comments.
August 2017	<p>Field visit with RGNF interdisciplinary team members, water rights owners, Trout Unlimited, Regional Blaster Examiner.</p> <p>Project feasibility confirmed and project timeline, material quantity and budget drafted.</p> <p>Project planned for September 5-12, 2018 with blasting planned for September 7-11.</p>
September 2017	Regional Blaster Examiner identifies and contacts blasters who will be involved, gets commitment for their time.
November 2017	Trout Unlimited submits pre-proposal to Rio Grande Basin Roundtable, invited to submit a proposal in January. Grant includes base time, over time, and travel for Forest Service blasters, explosives and blasting supplies, transportation to project site for all materials and supplies. Initial request submitted for packstring to transport all.
January 2018	<p>NEPA decision signed: Categorical Exclusion under Category 3, Occupancy and use of less than 5 contiguous acres of National Forest System land. No extraordinary circumstances despite activity occurring within designated Wilderness because impacts to Wilderness would be analyzed and mitigated through the Minimum Resource Decision Guide (MRDG) process.</p> <p>Trout Unlimited presents grant proposal to Rio Grande Basin Roundtable. Project approved in full, pending CWCB final approval in April.</p> <p>Cooperative Funds Act collection agreement initiated between Trout Unlimited and the Rio Grande National Forest for the grant funded activities.</p> <p>Helicopter and long line identified as preferred method for transporting materials and supplies.</p> <p>Project scheduled with Regional Packstring to ensure contingency plan.</p>
February 2018	<p>Collection agreement executed.</p> <p>MRDG for Regional Forester approval of helicopter and motorized winch use in Wilderness initiated.</p>
March 2018	Requisition for explosives submitted, ahead of March 31 purchasing cutoff dates for requisitions over \$25,000.

	<p>MRDG for helicopter cargo transport and motorized winch submitted for Regional Forester approval.</p> <p>OIG audit of Forest Service blasting program initiates internal review. Program viability and longevity is in question.</p> <p>Public information and communication plan developed. Implementation to start immediately because of project timing overlap with archery and muzzleloader seasons in a special draw unit.</p>
April 2018	<p>Monthly calls with Trout Unlimited, Regional Blaster Examiner, project lead blaster, and district ranger start.</p> <p>Initial discussion with RGNF aviation officer and Region 2 Helicopter Operations Specialist to prepare aircraft request.</p> <p>Meeting with Trout Unlimited, district ranger, and water rights owners to flesh out project logistics, including water rights owners' ability to participate in implementation and provide horse packing support to backhaul equipment, materials, and trash from the project.</p>
May 2018	<p>Monthly call with Trout Unlimited, Regional Blaster Examiner, project lead blaster, and district ranger.</p>
June 2018	<p>Monthly call with Trout Unlimited, Regional Blaster Examiner, project lead blaster, and district ranger.</p> <p>Discussions initiated by MRDG reveal that the agreement between Trout Unlimited and the RGNF does not release the RGNF from liability should damage to the dams occur during the project. Modification to the collection agreement initiated using Granger-Thye, adding the water rights owners, and adding a liability release clause.</p>
July 2018	<p>Monthly calls with Trout Unlimited, Regional Blaster Examiner, project lead blaster, and district ranger continue.</p> <p>MRDG approved with condition that only 400 trees felled within ½ tree length of the lakes to limit trammeling to Wilderness character.</p> <p>IC for project implementation identified and brought into project planning.</p>
August 2018	<p>Divide RD timber staff conducts cruise around Spruce Lakes to determine accurate count of trees by dbh and flag the ½ tree length perimeter, providing blasters with a precise count for explosives purchase.</p> <p>Regional blaster examiner and project lead blaster update explosives order.</p> <p>RGNF Aviation Officer finalizes PASP and works to secure helicopter. NMAC in PL5 since xx day, making getting a committed aviation asset a challenge.</p> <p>Modification to agreement executed with TU and the three water rights owners.</p> <p>RGNF Aviation Officer creates incident in ROSS to facilitate helicopter order.</p>

	<p>Cache items – cargo nets etc. – retrieved from Rocky Mountain Cache in case Call When Needed ship is used.</p> <p>Water rights owners and TU finalize base camp logistics.</p> <p>Decision made that helicopter was only option for equipment and supply transportation. August 31 identified as last chance to cancel project and explosives order if no helicopter committed.</p> <p>Packstring released from project.</p> <p>Incident Action Plan developed.</p> <p>Personnel rotation into project finalized.</p> <p>Closure order signed for trailhead during explosives delivery and helicopter cargo mission and for Spruce Lakes area during blasting.</p> <p>AD paramedic identified and ordered for project implementation ordered</p>
September 2018	<p>Exclusive-use helicopter and agency crew committed to project</p> <p>Lobo trailhead closed</p> <p>Explosives delivered to trailhead</p> <p>Helicopter long-line mission ferried explosives and camp equipment to project area.</p> <p>Blasting occurred 9/7-9/9, wrapped up two days ahead of schedule</p> <p>Water rights owners packed out camp</p>

## Results

The problem to solve was to mitigate the potential for dead trees to fall in the lakes, float to the spillways, and clog them. As a result of this project:

- 400 trees within ½ a tree length of the water's edge were directionally felled onto land
- Fewer than 20 trees fell in the lakes as a result of blasting. These, and trees already in the water, were floated to shore and beached via winch
- Trees clogging the spillways before blasting started were removed
- Tree debris resulting from blasting, generally less than 1 cubic foot, was left in the lakes and is anticipated to flush with spring high water
- The lower lake outlet was ditched, per State Dam Safety Engineer recommendation
- Blasting was completed two days ahead of schedule

- The project was reported to the Rio Grande Basin Roundtable via a PPT presentation at the February 2019 meeting

In addition to these concrete results, this project has also created much-harder to measure good will. Showing the water, ranching, Trout Unlimited, and internal Forest Service communities that it is possible to come together and solve a problem while complying with law, regulation, and policy plants the seed that future problems may be solved just as successfully.

## Budget Reporting

The budget was revised during the project to account for the change to utilize the helicopter for equipment and supplies transport. Overall, the project came in under budget as a result of this change in addition to requiring less explosives than originally estimated. The project partner match was met in both in-kind services and through a cash match provided by the water rights owners. The following tables show the proposed budget and the project actuals. The unutilized cash match portion of the project will be allocated to ongoing work at Spruce Lakes to reduce the debris that accumulated in the lakes following blasting through additional field work in 2019, as well as to compensate TU for indirect costs associated with the project.

Proposed Budget					
Category	Sub-category	Total	Grant request	Fed match	Partner match
Personnel USFS					
	Base time	\$ 19,810.38	\$ 13,064.70	\$ 6,745.68	\$ -
	Overtime	\$ 6,761.50	\$ 4,995.00	\$ 1,766.50	\$ -
	Travel	\$ 2,730.00	\$ 2,362.00	\$ 368.00	\$ -
Personnel TU	Base time	\$4,264	\$4,262	\$0	\$
	Travel	\$ 775.00	\$ 775.00		
Explosives	FLE	\$ 38,808.00	\$ 31,308.00	\$ -	\$ 7,500.00
	Caps and det cord	\$ 4,000.00	\$ 2,000.00	\$ 2,000.00	\$ -
Partner					
		\$ 7,500.00			
Transportation	Mules (10 (\$200/day) for 5 days packing, 1 day travel either side if R2 packstring)			\$ 14,000.00	\$ -
	Packers (lead + assistants)	\$ 5,565.28	\$ 5,565.28	\$ -	\$ -
	Packer travel	\$ 1,167.00	\$ 1,167.00	\$ -	\$ -
<b>TOTAL</b>		\$ 91,381.16	\$ 65,499.38	\$ 24,880.18	\$ 7,500.00



Project Actuals

Category	Sub-category	Grant Expenses	Grant request	Fed match	Partner match
Personnel USFS					
(usfs match is salary)	Base time	\$ 11,708.06	\$ 13,064.70	\$ 10,520.00	\$ -
	Overtime	\$ 10,368.69	\$ 4,995.00	\$	\$ -
	Travel	\$ 1,027.29	\$ 2,362.00	\$	\$ -
Personnel TU	Base time	\$ 4,264.00	\$ 4,262.00		\$
	Travel	\$ 775.00	\$ 775.00		
Explosives	FLE	\$ 25,444.40	\$ 31,308.00	\$ -	\$ 7,500.00
	Caps and det cord	\$ 0	\$ 2,000.00	\$	\$ -
Transportation	Helicopter	\$ 8,757.98	\$ 5,565.28	\$ -	\$ -
	Packer travel	\$ 0	\$ 1,167.00	\$ -	\$ -
Transport Horse					
Pack-out					\$ 2,800.00
Volunteer in-kind \$24.24/hr					
					\$ 13,277.00
<b>TOTAL</b>		\$ 62,345.42	\$ 65,499.38	\$ 10,520.00	\$ 23,577.00

## Project Photos

The following photographs document project activities

### Initial field work in 2013 prior to CWCWB project



In 2013 the water rights owners and TU volunteers teamed up to do a bunch of work over three days. It was just the tip of the Spruce-berg.

[www.tu.org](http://www.tu.org)

6

### Getting Ready



We staged the explosives and camp supplies at Lobo Overlook and used a helicopter to fly everything in via sling loads. The 7 mile flight was 45 seconds each way.

[www.tu.org](http://www.tu.org)

7



## Rig it Up



[www.tu.org](http://www.tu.org)

8

## Bang



[www.tu.org](http://www.tu.org)

9

## The other water partner



Spruce Lakes are stocked bi-annually via airplane with Rio Grande Cutthroat Trout for Recreational use by the public