

Whiskey Creek Stream Restoration

Project ID: 3453
Status: Pending Completed
Fiscal Year: 2016
Submitted By: N/A
Total Acres: 3

Project Manager: Justin Hart
PM Agency: Utah Division of Wildlife Resources
PM Office: Southeastern Region
Lead: Utah Division of Wildlife Resources
WRI Region: Southeastern

Description:

This project will remove a blocked culvert and create an armored swale in Whiskey Creek. Installed water bars along a 0.25 mile steep length of logging road and drop structures above and below the swale will capture sediment and reduce stream velocity.

Location:

The Mud Creek Watershed Phase II project is on private land owned by the Oman Trust. The project site is in T 13 S, R 7 E Sec. 19, adjacent to Hwy 264, approximately 4 miles SW of Scofield Reservoir, near the confluence of Whiskey Creek and Eccles Creek.

PROJECT NEED

Need For Project:

Whiskey Creek (an ephemeral stream) drains a watershed area of 960 acres. Whiskey canyon is 1.5 miles long with an elevation change of 8,200 ft to 9,500 ft. During snow melt, and summer precipitation events, the headwaters of the channel handled peak flows of 448 gpm (approximately 1 cfs), according to information reported on the Utah Coal Program water monitoring data website for the White Oak Mine sample location VC4 (<http://linux1.ogm.utah.gov/WebStuff/wwwroot/wqdb.html>).

The Whiskey Creek drainage affects water quality in Eccles Creek, which is the receiving stream, and Mud Creek and Scofield Reservoir further downstream. Eccles Creek is protected as a drinking water source and a cold water fishery. Scofield Reservoir has been listed as an impaired water body for phosphorus and dissolved oxygen. Phosphorus may adhere to soil particles in suspension or be in solution in the water. Total phosphorus was measured in Whiskey Creek during a single summer precipitation event at 8.3 mg/L (Mine Name: White Oak, Year 2010, document location: Internal File, document date: 20101101 in <http://linux1.ogm.utah.gov/WebStuff/wwwroot/coal/filesbypermit.php?C0070001>).

The upper reaches of Whiskey Creek and surrounding slopes were surface coal mined in 2001-2003. Canyon slopes were logged in 2008 - 2010. Excessive sediment being contributed to Eccles Creek from erosion of the Whiskey Creek Channel noted in 2007 (photo 1), was partially controlled by mine reclamation work at the head of the canyon completed in 2001 and 2012 (photo 2). However, there remains an area outside of the mining permit boundary that is contributing large amounts of sediment to Eccles Creek (photo 3).

In particular, a culvert placed at a road crossing has become clogged with sediment (photo 4), forcing the Whiskey Creek flows to leave the channel and run down the road in eroded gullies (photo 5 & 9). This drainage is not controlled and continues to add sediment load to Eccles Creek (photo 10). This project will enhance previous reclamation work downstream in Mud Creek (WRI project #3440) and completed reclamation projects upstream (State of Utah Division of Purchasing project AR 11035 and AR 14171). This project is needed to prevent additional contributions of suspended solids to Eccles Creek. This project will enhance the funded 2015 reclamation to occur 0.5 miles upstream in Eccles Creek under the supervision of both the DWR and DOGM.

This project will help improve hiding cover in fawning and calving area for deer and elk. It will be improved by increasing tall vegetation that can be used during the early stages of the big game life cycles.

Objectives:

The project is located in a disturbed ecological site that contributes disproportionately to the overall ecosystem.

The project has the potential to improve water quality and habitat and recreational fishing in Eccles Creek.

The project will replace the existing 12 inch culvert in Whiskey Creek with a rock lined swale that will allow ATV travel through the channel yet contain flows within the channel.

The project will utilize on site rock to line the swale. (Rock cut during trail construction is piled on the trail outslope.)

The project will install water bars along the ATV trail.

The project will create drop structures using native rock within the channel to heal the downcut sections of channel and restore channel bank vegetation.

Threats / Risks:

Funding this project will contribute to the beneficial outcome of all the reclamation work in Whiskey Creek, Mud Creek and Eccles Creeks completed to date. If the project is not undertaken at this time the cost for future improvements may be greater, since this project could be coordinated with the timing and equipment mobilized for the upstream Eccles work planned by DOGM and DWR in 2015.

The logging road and culvert were constructed in 2009. Five years later, gullies have eroded that are 3 feet deep and 2 ft. wide due to ephemeral Whiskey Creek flow running down the road. The threat is that the gullies become ever deeper and with each season contribute more sediments and phosphorus to Scofield Reservoir. If this project is not funded sediment will continue to load Eccles Creek and Scofield downstream, potentially affecting aquatic life.

A disastrous situation could occur should there be a wildfire in the adjacent National Forest. Denuded slopes would shed rainfall. Water and sediment and debris would exacerbate the gully erosion and sediment flow into Eccles Creek.

Relation To Management Plan:

See Attachment.

Fire / Fuels:

N/A

Water Quality/Quantity:

N/A

Compliance:

2 PMArchaeology, Archaeological clearance was obtained in 1980 by the Valley Camp Belina #2 Mine. The investigation was titled, Intensive Archaeological Surface Evaluations in the Proposed Whiskey Creek Canyon. Pleasant Valley Project in Carbon County, Utah. 1980. F.R. Hauck, Ph.D. and D.G. Weder. Archaeological Environmental Research Corporation. Paper No. 21. In. 007001 Mining and Reclamation Plan, Appendix 411.140. Historic sites were found. Clearance was issued. This historic work will be reviewed and updated if necessary, by the UDWR archaeologist prior to initiating work. , Jan 21 2015 / 6 NEPA, None needed, this is private property on a previously disturbed site., Jan 21 2015

Methods:

Remove the blocked culvert. Construct a rock lined low water trail crossing or swale, using readily available rock from the trail outslope. Within the ephemeral stream channel, construct two drop structures above the swale and one below the swale to slow flow and encourage vegetation re-establishment along the stream bank. Install water bars every 50 ft. along the ATV trail from the Confluence with Eccles Creek south to the swale, to reduce flow and sediment movement. Continue installing water bars every 50 ft. on the existing two trails above the swale for a distance of 150 ft on each trail.

Monitoring:

Installations of drop structures, the swale and the confluence will be monitored for erosion and stability through observation and the use of photo points for 5 years after completion, 2016 - 2020. Water quality database will be monitored at Skyline Mine monitoring points VC6 and VC9. Skyline mines water data will be used to monitor the improvement in water quality. Field data and lab analysis collected is as described in Table 2.3.7-1 and 2.7.7.2 of the Skyline Mining and Reclamation Plan, attached. Skyline Mine began in 2007 conducting macro invertebrate and cutthroat trout surveys every three years. The results of these surveys will be monitored (Skyline Mine MRP, Vol 1A, Sec 2.8, p. 2-71, 2-71A, B, & C and Table 2.8-1a)

Partners:

N/A

Future Management:

Darin Caine has stated that there will be no further logging. He has also indicated future plans are to encourage wildlife use of the land. DOGM will inspect the site for a period of five years to monitor the condition

of in stream structures and road water bars.

There is no grazing on this property so any plant establishment will be protected from grazing.

Project activities will occur on private lands that winter large herds of deer and elk for the Manti.

The area is within the The Deer Herd Management Plan for the Manti unit 16B. The herd objective is 38,000 deer with a 3 year average of 16 buck per 100 does post season. The fawn recruitment last year was 65 fawns per 100 does. The Manti Elk Herd (unit 16B) Management Plan states that population objective is 12,000 elk the current population estimate is at 12,300. The 3 year average for harvested bulls is 6.1 years old. The 2013 pre-season calf count was 44 calves per 100 cows. Hopefully these plans will maintain or imp

Domestic Livestock Benefit:

N/A

BUDGET	WRI/DWR	Other	Budget Total	In-Kind Total	Grand Total
	\$18,000.00	\$1,500.00	\$19,500.00	\$2,000.00	\$21,500.00

Item	Description	WRI	Other	In-Kind	Year
Personal Services (permanent employee)	DWR Heavy Equipment Crew	\$6,000.00	\$0.00	\$0.00	2016
Materials and Supplies	Logs and rocks for instream structures, several loads of road base for road.	\$12,000.0	\$0.00	\$0.00	2016
Other	DOGM employee time allocated to project.	\$0.00	\$0.00	\$2,000.00	2016
Seed (not from GBRC)	seed and 1 ton/ac certified weed free straw	\$0.00	\$1,500.00	\$0.00	2016

FUNDING	WRI/DWR	Other	Funding Total	In-Kind Total	Grand Total
	\$18,000.00	\$1,500.00	\$19,500.00	\$2,000.00	\$21,500.00

Source	Phase	Description	Amount	Other	In-Kind	Year
Private		N/A	\$0.00	\$1,500.00	\$0.00	2016
Habitat Council Account	HCRF	N/A	\$18,000.0	\$0.00	\$0.00	2016

Allocation	Percent of Total
Big Game	0%
Upland Game	0%
Waterfowl	0%
Sport Fish	100%
Nongame Fish	0%
Nongame Wildlife	0%

UDOGM		N/A	\$0.00	\$0.00	\$2,000.00	2016
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EXPENSE	WRI/DWR	Other	Expense Total	In-Kind Total	Grand Total
	\$2,286.36	\$0.00	\$2,286.36	\$3,500.00	\$5,786.36

Source	Phase	Description	Amount	Other	In-Kind	Year
Private		The landowner used a trackhoe to remove the blocked culvert from the channel and grade out the severe ruts in the ATV trail.	\$0.00	\$0.00	\$1,500.00	2016
Habitat Council Account	HCRF		\$136.36	\$0.00	\$0.00	2016

Allocation	Percent of Total
Big Game	0%
Upland Game	0%
Waterfowl	0%
Sport Fish	100%

Source	Phase	Description	Amount	Other	In-Kind	Year
Allocation			Percent of Total			
		Nongame Fish	0%			
		Nongame Wildlife	0%			
UDOGM		NELCO Construction invoice dated 7/21/2016	\$2,150.00	\$0.00	\$2,000.00	2015

SPECIES

Species	"N" Rank	HIG/F Rank
Mule Deer		1
Threat		Impact
No Threat		NA
Elk		2
Threat		Impact
No Threat		NA
Bonneville Cutthroat Trout	N4	1
Threat		Impact
No Threat		NA
Olive-sided Flycatcher	N4	N/A
Threat		Impact
No Threat		NA
Northern Pygmy-owl	N4	N/A
Threat		Impact
No Threat		NA

HABITATS

PROJECT COMMENTS

Comment 01/05/2015 Type: Project Commenter N/A

Excavator

Comment 01/13/2015 Type: Project Commenter Daniel Eddington

If there is any partner match for this project I would include that in the budget and funding tabs.

Comment 01/13/2015 Type: Project Commenter Daniel Eddington

For example, the \$51,000 grant that is mentioned.

Comment 01/20/2015 Type: Project Commenter Priscilla Burton

The land owner has expressed a willingness to contribute. I have not suggested an exact amount.

Comment 01/20/2015 Type: Project Commenter Priscilla Burton

The \$51,000 is appropriated for work upstream on Eccles Creek. It will not be used towards this project, but was mentioned to indicate the amount of interest and effort being contributed to improvement of the local watershed.

Comment 01/21/2015 Type: Project Commenter Priscilla Burton

The landowner, Darin Caine, has agreed to purchase the seed and the certified, weed-free straw (personal communication with Darin Caine 1/21/2015).

Comment 01/13/2015 Type: Project Commenter Makeda Hanson

I would add the bonneville cutthroat conservation agreement to the habitat management plans

If mule deer and elk are benefiting species, and most of your management plan points are related to them, I would identify how the project helps the species more.

In future management, try to directly relate how the mule deer and elk plans help with the future management of this project. This will not be inherent to those outside of our agency.

Direct these comments to Nicole if you need to.

Comment 01/13/2015 Type: Project Commenter Makeda Hanson

Also, I would combine your management plans section. At least copy the information in the section to the word document so it is all in once place.

Comment 01/13/2015 Type: Project Commenter Daniel Eddington

It looks like a seed might be included but was not attached nor was there money in the budget for it. If DWR is going to help provide seed it should be included. I can help if needed.

Comment 01/21/2015 Type: Project Commenter Priscilla Burton

A seed mix has been added after consultation with Nicole Nielson, DWR. The cost of the seed and one ton/acre mulch is expected to cost \$500/ac. A contribution of \$1,500 towards seed and mulch is being discussed with the landowner.

Comment 01/13/2015 Type: Project Commenter Daniel Eddington

The method section talks about the attached Skyline Mining and Reclamation Plan, but I don't see it attached.

Comment 01/20/2015 Type: Project Commenter Priscilla Burton

Thank you for the reminder. I have updated the Skyline Mine MRP references that describe the monitoring plan.

Comment 01/20/2015 Type: Project Commenter Priscilla Burton

Photos have been compiled into an attached document. Images will be provided as .jpg's upon request.

Comment 10/19/2016 Type: Admin Commenter Alison Whittaker

Please enter missing expenses at the bottom of the finance page. Thanks.

Comment 01/21/2015 Type: Financial Commenter N/A

Landowner

Comment 01/21/2015 Type: Financial Commenter N/A

DOGM employee time allocated to the project

COMPLETION

Start Date:

06/08/2016

End Date:

06/30/2016

FY Implemented:

2016

FY Completed:

2016

Final Methods:

A PC 200 excavator removed the clogged 12" pipe which had blocked water flow across the jeep trail. The pipe was cut into segments and removed from the site. The excavator created a swale and used the excavated material to raise the downhill side of the swale. The excavator then trammed up and down the ATV trail carrying rocks from an existing rock pile back up to the swale. Rip rap in the swale had a D50 of six inches. The rock apron at the upper end of the swale extended clear across the flood plain feeding into the swale and serves as a drop structure into the swale. A drop structure was also constructed at the lower end of the swale into the existing drainage channel. Five water bars were constructed along the ATV trail between the swale and the rise in the trail downstream. The swale and ATV trail were seeded from just above the swale beyond all the water bars, all the way down to Eccles Creek.

Project Narrative:

The swale will contain the channel flows and pass them across the road removing a major source of sediment into Eccles Creek. The swale has slopes of 2h:1v that are still passable by an ATV. The project removed an erosion problem that contributed to sediment load and phosphorus loading in Eccles Creek. The seed mix was as described with some substitutions due to availability. The seed mix used has been uploaded to this database. Photos of the finished work have been uploaded as well.

Future Management:

The project will be monitored for 5 years with photographs at photo points. A review of up-stream and down stream monitoring on Eccles Creek conducted by the nearby Skyline Mine will be included in the project review (stream monitoring sites VC 6 & VC 9 and macro invertebrate and cutthroat trout surveys).

Map Features

ID	Feature Category	Action	Treatment/Type
660	Aquatic/Riparian Treatment	Stream Corridor/Channel	Vanes (log)

