

PHOTOGRAPHS OF RECENTLY COMPLETED PROJECTS

Klondike Creek Culvert to Bridge (2013)

Klondike Creek (Lewis and Clark County), a tributary to Beaver Creek and ultimately the Blackfoot River, is located near the town of Lincoln, and supports genetically pure westslope cutthroat trout. The stream had an undersized road culvert that was acting as a seasonal upstream migration barrier to cutthroat trout and was causing impairments to the stream channel. This project replaced the existing undersized culvert with a concrete bridge set on concrete footings. The stream health is now allowed to improve, and additional habitat was made available for migrating westslope cutthroat trout, thus providing the potential to increase genetic structure, diversity, and population persistence.

BEFORE (2012)



AFTER CONSTRUCTION (2013)



Pearson Creek Channel Restoration (2013)

Pearson Creek (Powell County) is a small, second-order tributary to Chamberlain Creek (in the Blackfoot River drainage) that supports slightly hybridized populations of westslope cutthroat trout, as well as brook trout and longnose sucker. The stream has been the site of a number of previous restoration activities, including a donated water lease for in-stream flow, 4,000 feet of channel restoration, riparian revegetation, and improvements in grazing management. However, a portion of Pearson Creek continued to be impaired. In this segment, the stream was straightened and the streambanks were elevated with the placement of earthen berms. Additionally, an undersized county road culvert acted as a partial barrier to upstream-migrating fish. To address these issues, this project reconstructed 1,244 feet of the straightened reach to mimic features of reference reaches, adding meander bends to improve habitat and decrease stream erosion. The undersized culvert was replaced with a larger concrete box culvert that spanned the bank-full channel width and allowed for fish passage. Native shrubs were also transplanted, and approximately 6,000 willow cuttings were planted. Finally, the riparian corridor was fenced to prohibit grazing in or near the stream.

BEFORE (2012)



AFTER CONSTRUCTION (2013)



South Fork Poorman Creek Road Relocation (2013)

South Fork Poorman Creek (Lewis and Clark County), a tributary to Poorman Creek located in the upper Blackfoot River drainage, supports populations of genetically pure westslope cutthroat trout and bull trout. Aquatic habitat on South Fork Poorman has been negatively affected by existing road crossings and undersized culverts, which have created excessive sediment delivery to the stream and hindered upstream fish migration. This project removed 2,400 feet from the floodplain and relocated them to areas that would have minimal, if any, impacts on the stream. The road relocations replaced five stream crossings (four fords and one undersized culvert) with a single stream crossing located on the West Fork of South Fork Poorman Creek. The streambed and streambanks that were located at each of the old stream crossings were rehabilitated. The project was identified as a priority under the Collaborative Forest Landscape Restoration Program by the USFS.

BEFORE (2009)



AFTER CONSTRUCTION (2014)



Braziel Creek Channel Stabilization (2013)

Braziel Creek (Powell County) is a small tributary to Nevada Creek (located south of Helmville) that supports a hybridized population of westslope cutthroat trout. In 2010, a reach of the stream that had been historically channelized was reconstructed, and a new grazing management plan was implemented, resulting in an increase in westslope cutthroat trout densities. However, a downstream reach of Braziel Creek was being degraded by channel incision, lack of riparian woody vegetation, and cross-valley channel realignment. This project restored the stream-channel and floodplain morphologies, restored the riparian vegetative community, and implemented a livestock grazing management plan. Approximately 540 feet of stream channel was restored.

BEFORE (2012)



AFTER CONSTRUCTION (2013)



LONG-TERM PHOTO MONITORING (2013-2014)

As part of the FFIP, projects are inspected when they are completed, before final funds are dispersed. Thereafter, however, monitoring occurs when practical and possible for the duration of the project's life. Because of the number of projects and time constraints, Morrison-Maierle, Inc. was hired in 2013 as a consultant to monitor several projects in western Montana. Projects were also monitored by M. Lere and M. McGree.

With 521 completed projects and over 40 pending or ongoing, a significant and worthwhile investment has been made in the lake and stream habitat of Montana. Since implementation of the FFIP 1996, the Commission has approved \$14,358,000 for restoration projects which generated approximately \$41,550,000 in available matching funds. Overall, nearly \$56,000,000 of habitat restoration work has been undertaken in Montana since 1996 as a result of the FFIP. Such a large investment requires monitoring, not only to ensure that projects are being maintained, but also to determine if projects are effective and represent the type of projects that should be funded in the future. FFIP monitoring includes implementation monitoring (whether the project was completed as proposed), effectiveness monitoring (whether the project

met objectives), and compliance monitoring (whether land use activities are in compliance with the project agreements).

To meet long-term monitoring goals, photo-point procedures and comprehensive monitoring forms were developed. The use of photo points to monitor projects is an invaluable method to document compliance and investigate changes over time in areas such as riparian conditions and maintenance of channel function, for example. Visual references, combined with written notes of long-term project effectiveness, land management changes, and compliance are necessary to provide critical, unbiased project records. This information, combined with landowner considerations, can be used to gain additional understanding on what makes a successful habitat project. Determination of project components or procedures that worked well could help improve future project quality and success rate.

Long-term photo-monitoring goals call for re-visiting selected sites every five or six years to take follow-up photographs and record land-use data. As new projects are completed, they are added to the rotation. Projects that have reached the end of their contractual life are removed from long-term monitoring. However, many completed projects are continued by the landowners or projects sponsors after the contract has expired.

Morrison-Maierle Inc.

Morrison-Maierle Inc. was able to monitor 21 projects in 2013. Of these projects, most (14) were clearly compliant. The other 7 projects required follow-up, as compliance was uncertain. As of October 31, 2014, 5 of these projects have been visited and been found to compliant or have been open to modification to return to compliance. Land ownership changes and misunderstandings have been the primary reasons for questionable compliance.

Table 6. Projects monitored by Morrison-Maierle Inc., in 2013, for the Future Fisheries Improvement Program (FFIP). Bold, italic projects indicate funding from the Native Species Enhancement Program, funded by the Resource Indemnity Trust fund. FWP = Fish, Wildlife and Parks, and DNRC = Department of Natural Resources and Conservation.

FFIP #	PROJECT NAME	APPLICANT	Monitoring Year
003-96	O'Brien Creek Restoration	FWP/Landowner	2013
011-96	Sweathouse Creek enhancement	Landowners	2013
001-97	Elk Creek channel restoration	Watershed group	2013
005-97	Clark Fork River riparian fence	Landowner	2013
004-98	Big Creek channel restoration	Cons. Dist./Consult	2013
054-98	Smith Creek riparian fence	Landowner	2013
004-99	Butler Creek fence and stockwater	Landowner/FWP	2013
007-99	Coal Creek riparian fencing	DNRC	2013
020-99	Rock Creek water salvage & channel restoration	Landowner/FWP	2013
047-99	Lost Creek corral relocation	Landowner/FWP	2013
054-99	Racetrack Creek riparian fence & channel restoration	Landowner/FWP	2013
005-00	Bitterroot River riparian fence	Landowner	2013
015-00	Flint Creek off-site water and riparian fencing	FWP/Landowner	2013
024-00	<i>Prospect Creek channel restoration</i>	<i>Watershed group</i>	2013
051-00	<i>O'Brien Creek riparian fencing</i>	<i>FWP</i>	2013
036-03	Clark Fork River riparian fencing	Landowner	2013
033-04	Willow Creek riparian restoration	Bitterroot Land Trust	2013
020-05	<i>Threemile Creek channel stabilization</i>	<i>Landowner/Consultant</i>	2013
045-06	Wheelbarrow Creek bank stabilization and riparian restoration	Watershed group	2013
009-07	<i>Graves Creek habitat & riparian enhancement</i>	<i>Watershed group</i>	2013
021-09	<i>Thompson River riparian enhancement</i>	<i>Consultant</i>	2013

FWP Staff

In 2014, 38 projects were monitored by FWP staff. Of these projects, all were compliant. Many of these projects involved riparian fencing and were identified as a monitoring priority because of land-use activities. Most involved willow plantings and riparian growth. Other project components included installing experimental electric fence, enhancing fish passage, relocating corrals, improving instream flow, and installing fish screens.

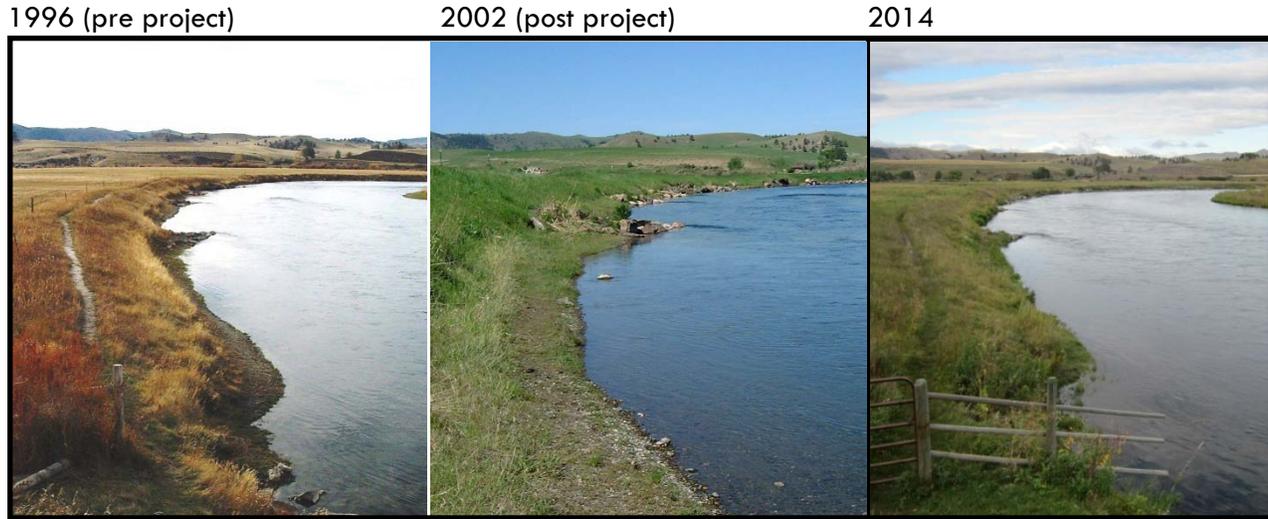
Table 7. Projects monitored by Montana Fish, Wildlife and Parks (FWP) staff in 2014. Bold, italic projects indicate funding from the Native Species Enhancement Program, funded by the Resource Indemnity Trust fund. DNRC = Department of Natural Resources and Conservation, and TU = Trout Unlimited.

FFIP#	PROJECT NAME	APPLICANT	MONITORING YEAR
041-00	Big Creek fish screen	Landowner	2014
035-01	Big Otter Creek corral relocation	Landowner	2014
051-96	Bitterroot River fence	Landowner	2014
042-00	<i>Bitterroot River fish screen</i>	<i>Ditch Company</i>	2014
033-02	<i>Bitterroot River Republican Ditch fish screen</i>	<i>FWP</i>	2014
034-01	Bitterroot River riparian fence	Landowner	2014
005-00	Bitterroot River riparian fence	Landowner	2014
056-96	Canyon Creek bank stabilization	Landowner	2014
003-08	<i>Cedar Creek instream water right purchase</i>	<i>FWP</i>	2014
005-10	Fleshman Creek flood control	Park County	2014
006-06	Little Prickly Pear Creek irrigation efficiency	Landowner	2014
012-11	<i>MF & SF Horse Creeks channel stabilization</i>	<i>Landowner/FWP</i>	2014
021-97	Missouri River bank stabilization	TU/Landowner	2014
016-98	Missouri River bank stabilization	TU/Landowner	2014
045-02	Missouri River bank stabilization repair	FWP/Landowner	2014
021-04	Missouri River riparian plantings	FWP	2014
010-01	Missouri River riparian restoration	FWP	2014
044-04	Missouri River riparian restoration and fencing	Trout Unlimited/FWP	2014
018-97	Mol Heron Creek Fish Screen - supplement	Landowner	2014
021-96	Mol Heron Creek flow enhancement	Landowner	2014
033-09	N. Fk Smith River riparian fence	FWP	2014
015-10	N. Fk Smith River riparian fencing	FWP	2014
016-11	<i>Rock Creek culvert removal</i>	<i>FWP</i>	2014
020-99	Rock Creek water salvage & channel restoration	Landowner/FWP	2014
061-99	S. Fk. Smith River off-site water & fence	Landowner/CD	2014
024-10	S. Fk. Smith River riparian fencing	FWP	2014
028-00	S.F. Musselshell River fish passage	DNRC	2014
034-11	<i>Shields River Chadbourne fish barrier</i>	<i>FWP</i>	2014
013-13	<i>Shields River Chadbourne fish barrier</i>	<i>FWP</i>	2014
048-02	<i>Skalkaho Creek fish screens</i>	<i>FWP</i>	2014
025-03	<i>Skalkaho Creek Republican canal siphon</i>	<i>FWP</i>	2014
039-06	<i>Skalkaho Creek Hedge siphon supplement</i>	<i>FWP</i>	2014
040-06	<i>Skalkaho Creek Republican siphon supplement</i>	<i>FWP</i>	2014
011-96	Sweathouse Creek enhancement	Landowners	2014
053-03	Tenmile Creek channel stabilization	County water quality district	2014
020-05	<i>Threemile Creek channel stabilization</i>	<i>Landowner/Consultant</i>	2014
058-00	Wolf Creek fish passage	FWP	2014
023-05	<i>Yellowstone tributaries fish screens</i>	<i>FWP</i>	2014

Examples of long-term project monitoring

Missouri River Bank Stabilization: 021-1997

This section of the Missouri River (Lewis and Clark County) downstream of Craig suffered from eroding banks due to grazing. This project stabilized approximately 2,250 feet of bank using root wads, rock veins, back-sloping, revegetation, and fencing to exclude cattle. This project represents a successful riparian fencing and bank stabilization project involving a reluctant landowner. Persistence led to stabilization of the bank and successful vegetative colonization that decreased erosion and sediment input, as well as other improvements, including overall stream health.



Big Otter Creek Corral Relocation: 035-2001

Big Otter Creek (Judith Basin County) supports a mixed salmonid fishery that includes brown and brook trout. This project involved moving a corral that was adjacent to the stream to a new location. Approximately 2,400 feet of stream was treated. The corral now sits high on the hillside and is a more efficient configuration for the landowner.



Tenmile Creek: 053-2003

Ten Mile Creek (Lewis and Clark County) suffered from damage caused by grazing practices and previous flooding. The stream supports a mixed salmonid fishery that is locally popular. This project involved increasing channel length by re-activating an old oxbow, stabilizing banks using natural materials, and creating additional pool habitat. Approximately 1,000 ft of channel was treated.

BEFORE (2003)

POST CONSTRUCTION (2005)

AFTER (2014)



Threemile Creek Channel Restoration: 020-2005

Threemile Creek (Ravalli County) supports a mixed salmonid fishery. This project was intended to correct several problems related to land management practices. Treatments included reshaping several sections of over-widened channel, enhancing riparian areas with shrubs and willows, installation of a rock grade control structure, and improved fish passage through a culvert.

BEFORE

POST CONSTRUCTION (2005)

AFTER (2014)



POST CONSTRUCTION (2005)



AFTER (2014)



POST CONSTRUCTION (2005)



AFTER (2014)



Cedar Creek Instream Water Right Purchase: 003-2008



Cedar Creek (Park County) is one of the most important Yellowstone cutthroat trout spawning tributaries in the Paradise Valley. FWP leased water for instream flow purposes in Cedar Creek for a number of years to enhance spawning and rearing habitat for cutthroat trout. In the 2007 legislative session, FWP was given authority to acquire permanent water rights for instream flow purposes on up to 12 streams. This project involved the permanent acquisition of Cedar Creek water at flows of up to 7 cubic feet per second (cfs) and at least 1.7 cfs. This water right is the second most senior on the stream.

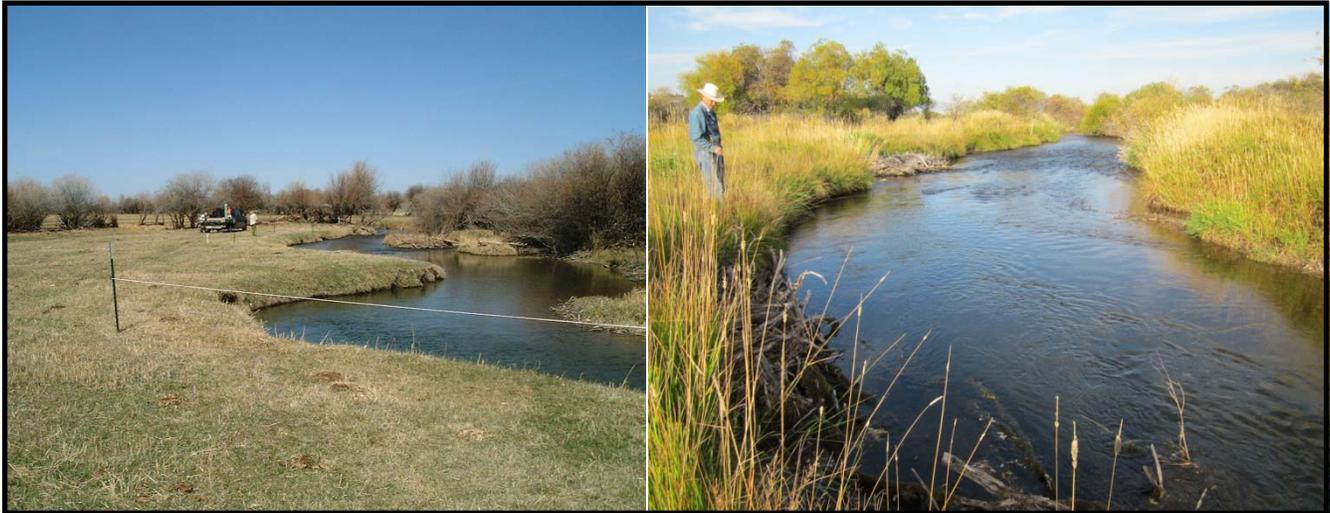
In 2014, a fry trap was temporarily installed on Cedar Creek, near the confluence with the Yellowstone River. Nearly 7,100 Yellowstone cutthroat trout were caught, and the average length was 38 mm. Streamflow has been monitored consistently since project inception.

North Fork Smith River Experimental Riparian Fencing: 015-2010

North Fork Smith River (Meagher County), located near the town of White Sulphur Springs, supports a mixed assemblage of salmonids. In this location, the stream was degraded from past livestock overgrazing and resulted in bank instability and low willow recruitment. This four-year, experimental project involved the installation of temporary electric fencing to exclude livestock on a series of three short segments of the channel. The landowner reported that bank stability increased from this project, and he elected to continue the work on his own after the project expired. This project provided a demonstration for future riparian management by allowing for the recruitment of willow and the elimination of hoof shear on protected stream banks.

Before (2010)

After (2014)



LONG-TERM MONITORING PLANS

In the next biennium, 2015-2016, there will be a significant, increased emphasis on monitoring. In 2015 and 2016, inspections of approximately 100 sites per year will be a priority, which will bring the program closer to having current monitoring records.

ANTICIPATED EXPENSES FOR ENSUING 10 YEARS

Since inception of the Future Fisheries Improvement Program (FFIP; enacted in 1995), the Commission has committed an average of approximately \$804,150 per year to habitat enhancement projects (combined FFIP and Native Species Enhancement Program [NSEP; formerly the Bull Trout and Cutthroat Trout Enhancement Program]). Combined Program expenditures for the last three report periods have totaled between approximately \$916,406 and \$1.56 million while appropriations have totaled between \$790,000 and \$1.25 million.

	November 1, 2008 - October 31, 2010	November 1, 2010 - October 31, 2012	November 1, 2012 - October 31, 2014
Expenditures	\$1.56 million	\$1.72 million	\$916,406
Appropriations	\$1.15 million	\$1.246 million	\$790,000

The amount appropriated has been less than the amount expended for at least the last three biennia, made possible only as a result of unexpended carry-over from past appropriations (prior to 2007).

Assuming appropriations to the two programs (FFIP and NSEP) remain at similar levels as in the past three biennia (\$0.79 to \$1.246 million per biennia), we would anticipate expending the total amount appropriated, resulting in an overall expenditure of between \$3.95 and \$6.23 million in the next 10 years. These anticipated future expenses, however, are directly tied to future appropriations, which are unknown. The estimated range of expenditures is lower than the last decade, potentially resulting in fewer completed projects. The program is now receiving more funding requests than the appropriations can accommodate, and funding proposals are prioritized to best utilize limited dollars.