



MEMORANDUM

TO: Members of the UCFRB Remediation and Restoration Advisory Council

FROM: Doug Martin, NRDP

DATE: November 23, 2022

SUBJECT: December 7, 2022, Advisory Council Meeting

The Advisory Council will meet on **Wednesday, December 7, 2022**, at the Deer Lodge Elks. The meeting will start at 1:00 p.m. There will also be a remote option via Microsoft Teams to attend the meeting. See Remote Meeting Instructions for link and procedures on next page. See attached agenda for meeting details.

Meeting materials are attached and can be download from the NRDP website at: <https://dojmt.gov/lands/council-meetings/>. Below is a summary of the major agenda items.

Fiscal Report 2022/Program Update: Meranda Flugge, NRDP

The Upper Clark Fork River Basin fund fiscal year 2022 Financial Reports will be presented. As well as brief updates on other funds managed by NRDP.

Aquatic and Terrestrial Resources Restoration Plans 2022 Project Update: NRDP Staff

NRDP staff will provide a brief update during the meeting of the restoration activities associated with the implementation and monitoring of the Upper Clark Fork River Basin Aquatic and Terrestrial Resources Restoration Plans for aquatic (flow and non-flow), terrestrial, and recreation projects. A full written summary of projects implemented to date, with 2022 highlights is attached and can be download from the NRDP website at: <https://dojmt.gov/lands/council-meetings/>. The 2022 Project Update is intended to replace and update the 2021 Project Update presented to you 2021. The 2022 activities are specifically identified (***bolded, italic, font***) for reference in the Project Update and the Tables 1, 2, and 3.

Parrot Tailings Waste Removal Update: Jim Ford, NRDP

NRDP project manager, Jim Ford, will provide the Council with an update of activities associated with the Parrot Tailings Waste Removal restoration activities.

UPPER CLARK FORK RIVER BASIN

REMEDIATION AND RESTORATION

ADVISORY COUNCIL

Deer Lodge Elks
Wednesday, December 7, 2022
1:00 p.m.

AGENDA

Kristie Beal, Chair Missoula	1:00 – 1:20	Introductions, NRDP Update and Meeting Overview – Kristie Beal, AC Chair and Doug Martin, NRDP
Billie Kulaski Philipsburg	1:20 – 1:40	UCFRB Restoration Fund Financial Update <ul style="list-style-type: none">• Summary – Meranda Flugge, NRDP• UCFRB Advisory Council questions/comments on financial update• Public Questions/Comments
Steve Hill Anaconda		
Mike Paffhausen Butte		
Mick Ringsak Butte	1:40 – 2:20	UCFRB Aquatic Restoration Plan Annual Project and Monitoring Update <ul style="list-style-type: none">• Project Updates – NRDP Staff• UCFRB Advisory Council questions/comments on project• Public Questions/Comments
Margery Christiansen Fairmont		
Bryon Nelson Deer Lodge		
	2:20 – 2:30	Break
Maggie Schmidt Deer Lodge		
	2:30 – 2:50	UCFRB Terrestrial Restoration Plan Annual Project and Monitoring Update <ul style="list-style-type: none">• Project Updates – NRDP Staff• UCFRB Advisory Council questions/comments on project• Public Questions/Comments
Chris Dorrington, Dept. of Environmental Quality		
Bill Schenk, Dept. of Fish, Wildlife and Parks		
Anna Pakenham Stevenson, Dept. of Natural Resources and Conservation	2:50 – 3:10	Parrot Tailings Waste Removal Project <ul style="list-style-type: none">• Project Update – Jim Ford/Harley Harris• UCFRB Advisory Council questions/comments on project• Public Questions/Comments
Tom McDonald, Chairman Confederated Salish & Kootenai Tribes		
Jacqueline Lavelle, NPS U.S. Dept of Interior	3:10 – 3:20	2023 UCFRB Aquatic/Terrestrial Resources Restoration Plans Revision Process and Proposed Schedule
	3:20 – 3:30	Additional Public Comment/Other/Adjourn

Remote/Hybrid Meeting Procedures:

* This meeting is open to the public via in-person, telephone or the Microsoft Teams meeting app or webapp. Due to the content of this meeting, we strongly recommend you attend the meeting in-person or access this meeting via Teams on a computer/laptop or smartphone if you have the ability to do so.

Procedures Council, NRDP staff, and public shall follow to make this meeting a success:

NRDP staff will be the meeting host/moderator and assist in running this meeting.

The agenda provides the approximate times for items to be presented, discussed, and considered by Council members and oral public comment.

This meeting will be recorded for the purpose of public record, the meeting recording will be posted publicly to NRDP's website. As such, **all meeting participants shall announce their name before speaking every time they speak** for continuity purposes. If participants do not announce their name, the moderator or council chair will need to interject and ask the speaker to give their name. This is especially important for those participants who are joining by telephone, as we will only be able to see a telephone number.

Council Members Procedures to Participate:

All Council comments, questions, motions, and discussion will be held upon conclusion of presentations.

Council members attending the meeting remotely, your comments/questions will be taken after in-person council members. Council members participating via Teams may raise their hand (for directions see links at the end of this document) and wait to be addressed by the moderator or acknowledged by the Chair or politely interject and wait for acknowledgement by the Chair, to provide comment or ask a question, **please do not talk over others**. If your question is asked or addressed before you are acknowledged, please lower your hand. Everyone will get a chance to speak if they wish to do so.

NOTE: If you try to speak without being recognized by the chair, your comment/question may not be heard. Also, it has come up that the raise your hand feature in Teams is not always available depending on how you join the meeting. If you do not have the ability to raise your hand, please politely interject and ask the Chair or the moderator to speak, only when the question/discussion portion of the meeting is opened by the Chair.

Due to the content of this meeting, we strongly recommend you access this meeting via Teams on a computer/laptop or smartphone; however, Council members may participate via telephone. Access to the slideshow presentation and other meeting materials can be found at: <https://dojmt.gov/lands/council-meetings/>.

Public Procedures to Participate:

Members of the public may observe/listen to the meeting and attend for purposes of public comment either in person, by using the Teams link or by telephone. Meeting agenda and backup materials, including the slideshow presentation, can be found at: <https://dojmt.gov/lands/council-meetings/>.

All public comments and questions will be held upon conclusion of presentations, Council member questions, comments, and discussion.

Members of the public participating via Teams may raise their hand (for directions see links at the end of this document) and wait to be addressed by the moderator or acknowledged by the Chair or politely interject and wait for acknowledgement by the Chair, to provide comment or ask a question, **please do not talk over others**. Comments/questions will first be taken from the public attending the meeting in-person and then those participating remotely via Teams or telephone. If your question is asked or addressed before you are acknowledged, please lower your hand. Everyone will get a chance to speak if they wish to do so.

NOTE: If you try to speak without being recognized by the moderator, your comment/question may not be heard. Also, it has come up that the raise your hand feature in Teams is not always available depending on how you join the meeting. If you do not have the ability to raise your hand, please politely interject and ask the Chair or the moderator to speak, only when the question/discussion portion of the meeting is opened by the Chair.

Due to the content of this meeting, we strongly recommend you access this meeting via Teams on a computer/laptop or smartphone; however, members of the public may participate via telephone. Access to the slideshow presentation and other meeting materials can be found at: <https://dojmt.gov/lands/council-meetings/>.

Any oral public comment provided to the Council is a public record that is recorded, archived, and available on the Internet.

NRDP will make reasonable accommodations for persons with disabilities who wish to participate in this public meeting. For questions about accessibility or to request accommodations, please call Meranda Flugge at 406-444-0229 or email at meranda.flugge@mt.gov as soon as possible but no later than 3:00 PM Tuesday, December 6th, 2022, the day before the meeting date.

December 7, 2022, UCFRB AC Meeting Access information:

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UCFRB Fund - Restoration Categories

FY 2013 through FY 2022 (6/30/22)

	Restoration Categories						
	Groundwater- Butte	Groundwater- Anaconda	Aquatics	Terrestrial	Aquatics Reserve	Terrestrial Reserve	Totals
FY 2013 Restoration Plan Original Allocation	\$ 30,097,479	\$ 10,032,493	\$ 45,670,190	\$ 19,909,661	\$ 8,059,445	\$ 3,513,470	\$ 117,282,738
Backfill to Original Balance*	\$ (3,559,579)	\$ (1,186,526)	\$ (4,370,372)	\$ (2,801,520)	\$ (771,242)	\$ (494,386)	\$ (13,183,625)
FY 2013 Beginning Cash and Invested Cash Balance	\$ 26,537,900	\$ 8,845,967	\$ 41,299,818	\$ 17,108,141	\$ 7,288,203	\$ 3,019,084	\$ 104,099,113
FY 2022 Interest Earned	\$ -	\$ -	\$ 1,502,085.83	\$ 152,853.54	\$ 501,587.14	\$ 214,612.74	\$ 2,371,139.25
FY 2013 - FY 2022 Interest Earned	\$ 8,186,846.23	\$ 2,124,723.30	\$ 15,685,968.44	\$ 4,182,891.78	\$ 4,948,234.42	\$ 2,216,488.05	\$ 37,345,152.22
Backfill to Original Balance*	\$ (3,559,579)	\$ (1,186,526)	\$ (4,370,372)	\$ (2,801,520)	\$ (771,242)	\$ (494,386)	\$ (13,183,625)
Allocable Interest through FY19	\$ 4,408,794	\$ 938,197	\$ 6,842,757	\$ 704,756	\$ 2,210,862	\$ 880,859	\$ 15,986,225
Allocated Interest per FY 2020 Restoration Plan Update	\$ (4,408,794)	\$ (900,000)	\$ (4,700,000)	\$ (450,000)	\$ -	\$ -	\$ (10,458,794)
FY 2019-FY 2022 Interest Remaining after FY 2020 Restoration Plan Update Allocation	\$ 218,473	\$ 38,197	\$ 6,615,597	\$ 931,372	\$ 4,176,993	\$ 1,722,102	\$ 13,702,733
FY 2020 - FY 2022 Ag & Grazing Lease Revenues (CFRR)	-	-	-	\$ 62,831	-	-	\$ 62,831
FY 2021 DCCR Sale Revenue	-	-	-	\$ 2,108,356	-	-	\$ 2,108,356
FY 2022 Expenses	\$ (630,220)	\$ -	\$ (1,734,286)	\$ (629,597)	\$ -	\$ -	\$ (2,994,103)
FY 2013 - FY 2022 Expenses	\$ (29,878,825)	\$ (10,442,543)	\$ (20,148,295)	\$ (18,812,502)	\$ -	\$ -	\$ (79,282,166)
FY 2022 General Expenses, Revenues, and Liabilities	\$ -	\$ -	\$ (590,198)	\$ (59,697)	\$ -	\$ -	\$ (649,896)
FY 2013 - FY 2022 General Expenses, Revenues, and Liabilities	\$ (323,082)	\$ (192,810)	\$ (2,312,530)	\$ (920,789)			\$ (3,749,211)
FY 2020 Transfers per Plan Amendments	\$ (5,200,000)				\$ (4,800,000)	\$ (3,200,000)	\$ (13,200,000)
FY 2022 End Balance	\$ (677,040)	Complete	\$ 36,644,041	\$ 3,728,929	\$ 12,236,438	\$ 5,235,572	\$ 57,167,940

* Difference Between Beginning Cash and Invested Cash Balance and Original Allocation

Upper Clark Fork River Basin (UCFRB) FUND (08102) Overview

FINANCIAL STATUS as of June 30, 2022

	UCFRB Fund Restoration Categories	Encumbered Funds						Total UCFRB Fund (Cash and Invested Cash Balance)	SABHRS Fund Balance	Liabilities (Change from Prior Year) - Cumulative	Unrealized Appreciation/ Depreciation - Cumulative
	Total	Grants	Dutchman	Milltown	Warm Springs Ponds	Completed Carryover for Internal Costs	Total Encumbered Funds Balance				
FY 2013 Restoration Plan Original Allocation	\$ 117,282,738						\$26,746,332		\$ 144,029,070		
FY 2013 Beginning Cash and Invested Cash Balance	\$ 104,099,113	\$ 24,226,332	\$ 2,400,000	\$ 120,000			\$26,746,332	\$ 154,593,994	\$ 144,029,070		
FY 2013 - FY 2022 Expenses		\$ (19,869,119)	\$ (875,483)	\$ (79,759)	\$ -						
FY 2022 End Balance	\$ 57,167,940	\$ 4,357,213	\$ 1,524,517	\$ 40,241		\$ 335,352	\$ 6,257,323	\$ 63,425,263	\$ 70,704,458	\$ (1,684,546)	\$ (5,594,649)
Restoration Plan Amendments					\$ 2,500,000						

FY22 Other NRDP Funds Financials (through 6/30/2022)

	Butte Area One	Clark Fork River	Smelter Hill Uplands	Parrot	CFWEP
FY 22 Beginning SABHRS Fund Balance	\$7.1M	\$30.4M	\$9.4M	\$13.4M	\$1.8M
FY 22 Revenue	\$252k	\$746k	\$248k	\$31k	\$5K
FY 22 Expenses	\$466k	\$1.8M	\$233k	\$5.4M	\$463k
FY 22 Ending SABHRS Fund Balance	\$6.5M	\$27.8M	\$8.9M	\$8.0M	\$1.3M
FY 22 Ending Cash and Invested Cash Balance	\$5.9M	\$25.7M	\$8.7M	\$7.2M	\$1.2M

Table 1. Summary of Aquatic Resource Restoration Actions

Priority Watershed (Restoration Plan Section)	Project	Restoration Actions					Project Status ¹	Project Performance Monitoring ²	Fish Monitoring ³			O&M ⁴
		Flow	Fish Passage	Fish Entrapment	Riparian Enhancement	Instream Habitat			Basin	Watershed	Project	
Mainstem Clark Fork River (3.2.2.1)	Flint Creek to Rock Creek Fish Population Evaluation and Follow-up Actions					✓	⊖	n/a	X	X		n/a
Blacktail Creek (3.2.2.3)	Butte Golf Course Irrigation Pond		✓				⊖	n/a		*	X	n/a
	Butte-Silver Bow Sanitary Sewer Line		✓				⊖	n/a				n/a
	Redfern Diversion		✓	✓			●	X				X
	Roosevelt Drive Culverts		✓				⊖	n/a				n/a
Browns Gulch (3.2.2.4)	Balentine Ranch		✓	✓			⊖	n/a		*		n/a
	Brothers Ranch		✓	✓	✓	✓	●	X				X
	Liva Ranch		✓		✓		●					
	Myers Ranch				✓	✓	●					
	Heavens Valley Ranch				✓	✓	●					
	Woods Ranch				✓		●					
Cottonwood/Baggs Creek (3.2.2.5)	McQueary Ranch		✓	✓			●	X		X	X	X
	Upper Cottonwood Diversions	✓	✓	✓			○	n/a			X	n/a
	Upper Cottonwood Diversions - Aspen Grove Irrigation Improvement and Fish Screen	✓	✓	✓			●	TBP			TBP	TBP
	Lower Applegate Diversion		✓	✓			●	X			X	X
Flint Creek and Boulder Creek (3.2.2.7)	Allendale Diversion		✓	✓			●	X		X	X	X
	Flint Creek Private Diversions		✓	✓			●	X			X	X
	Spencer Ranch				✓		●					
	Corbett Downs				✓	✓	●	X			X	X
	Rue Slaughter				✓	✓	⊖	n/a				n/a
	Olson Property		✓		✓	✓	●	X			*	X
	Lundgren Project				✓	✓	●	X			*	X
German Gulch/Silver Creek (3.2.2.8)	Tailings Removal and Fish Barrier		✓			✓	●	X	X	X		
Harvey Creek (3.2.2.9)	Irrigation Improvements	✓	✓	✓			●	X		*	*	X
	Culvert replacement		✓				●	X			*	
	Bank Stabilization				✓	✓	●	X			*	
	Riparian Fencing				✓		●	X			*	
Little Blackfoot River (3.2.2.10)	D.W. Beck Property				✓	✓	⊖	n/a		*		n/a
	Janke Property				✓		●	X				X
	Snowshoe Creek		✓	✓			●	X				X
	Lower Spotted Dog Creek	✓	✓	✓	✓	✓	○	n/a			*	n/a
Mill/Willow Creeks (3.2.2.12)	Mill Creek Irrigation Improvement		✓	✓	✓	✓	●	X		*	*	X
Racetrack Creek (3.2.2.13)	Project Prioritization						○	n/a		*		n/a
Warm Springs Creek (3.2.2.14)	Silver Lake Infrastructure		✓				⊖	n/a		*		n/a
	Anaconda Diversion		✓	✓			●	X				X
	Gardiner Diversion		✓	✓			⊖	n/a				n/a
	Upper Warm Springs Creek		✓				●	X				

Table 1. Summary of Aquatic Resource Restoration Actions

Priority Watershed (Restoration Plan Section)	Project	Restoration Actions					Project Status ¹	Project Performance Monitoring ²	Fish Monitoring ³			O&M ⁴
		Flow	Fish Passage	Fish Entrapment	Riparian Enhancement	Instream Habitat			Basin	Watershed	Project	
Basin Creek (3.2.2.15)	Reservoir Infrastructure		✓				Θ	n/a		*	*	n/a
	Re-Routing Near Burt Mooney Airport					✓	n/a	n/a				n/a
Gold Creek (3.2.2.16)	Fish Screen and Irrigation Improvement		✓	✓			○	n/a		*	*	n/a
O'Neill Creek (3.2.2.17)	Culvert replacement		✓				●	X		*		
	Fish Screen and Irrigation Improvement		✓	✓			Θ	n/a			*	n/a
Rock Creek (3.2.2.18)	Bohrnsen-Marletto Fish Screen		✓	✓			●	X		*		X
	Upper Rock Creek Ditch Consolidation	✓	✓	✓			Θ	n/a				n/a

Notes:

- Project update in 2022
- Project completed in 2022

¹ Status of the project at the end of 2022

○ - Conceptual

Θ - Design/Construction/In Progress

● - Complete

n/a - not applicable/project no longer being pursued

² Monitoring conducted in 2022 to determine if project is still functioning and achieving restoration goals

X - completed in 2022

n/a - project not yet complete, no monitoring conducted

TBP - to be performed; project completed in 2022

³ FWP Fisheries Monitoring

Basin - fish monitoring of the mainstem Clark Fork River and Silver Bow Creek

Watershed - fish monitoring conducted at sites spread throughout the watershed

Project - fish monitoring conducted to evaluate the specific project

X - FWP conducted monitoring in 2022

* - fisheries monitoring was not conducted in 2022, but is part of the monitoring program

TBP - to be performed; project completed in 2022

⁴ Operations and maintenance actions completed in 2022 by NRDP or project partners

X - completed in 2022

n/a - project not yet complete, no O&M conducted

TBP - to be performed; project completed in 2022

Table 2. Summary of Terrestrial Resource Restoration Actions

Priority Landscape (Restoration Plan Section)	Project	Restoration Actions					Project Status ³	Project Performance Monitoring ⁴	O&M ⁵
		Land Conservation ¹	Riparian/Wetland Enhancement	Grassland ² Enhancement	Forest Enhancement	Data Gathering			
Land Projects ⁶									
Lower Flint Creek (4.2.4.2)	Buxbaum Conservation Easement	✓					●	X	
Garnet (4.2.4.3)	Graveley Conservation Easement	✓					●	X	
Deer Lodge North (4.2.4.5)	Clark Fork River Ranch	✓					●	X	X
Deer Lodge South (4.2.4.6)	Dry Cottonwood Creek Ranch Conservation Easement	✓					●	X	X
Anaconda (4.2.4.7)	RY addition (Garrity WMA)	✓					●	X	X
	YT Timber addition (Garrity WMA)	✓					●	X	X
	Stumptown addition (Garrity WMA)	✓					●	X	X
Habitat Enhancement Projects ⁷									
Philipsburg West (4.2.4.1)	DNRC North Fork Spring Creek		✓				⊖	X	
	Habitat Enhancement Project Development		✓	✓			○	n/a	n/a
Garnet (4.2.4.3)	DNRC Brock Creek		✓	✓	✓		●	X	
	Hollenback Ranch		✓	✓			⊖	n/a	n/a
	Dutton Ranch		✓	✓			○	n/a	n/a
Deer Lodge South (4.2.4.6)	Dry Cottonwood Creek Ranch		✓				●	X	TBP
	Clark Fork River Ranch		✓	✓		✓	⊖	X	X
	Anderson Ranch		✓				○	n/a	n/a
	Lampert Ranch			✓			●	X	TBP
Upper Clark Fork WMAs (4.2.5)	FWP WMA support						⊖	X	X
Upper Clark Fork Riparian (4.2.6)	CREP Blacktail Creek Riparian Habitat Enhancement		✓				○	n/a	n/a

Notes:

- Project update in 2022
- Project completed in 2022

¹ Conservation easement or public acquisition

² Grassland or shrub grassland

³ Status of the project at the end of 2022

- O - Conceptual
- Θ - Design/Construction/In Progress
- - Complete

⁴ Monitoring conducted in 2022 to determine if project is still functioning and achieving restoration goals

- X - completed in 2022
- n/a - project not yet complete, no monitoring conducted

⁵ Operations and maintenance actions completed in 2022 by NRDP or project partners

- X - completed in 2022
- n/a - project not yet complete, no O&M conducted
- TBP - to be performed; project completed in 2022

⁶ Land projects refer to acquisition of land for conservation; habitat enhancement and data gathering goals are not applicable

⁷ Habitat enhancement projects refer to projects aimed at enhancing wildlife habitat; conservation easement or public acquisition goals are not applicable

Table 3. Summary of Recreation Projects

Project	Project Status ¹	Project Performance Monitoring ²	O&M ³
Drummond Kiwanis Riverside Park	●	X	X
Deer Lodge Trestle Park / Old Yellowstone Trail	●	X	X
Washoe/Hafner Dam Parks	●	X	X
Milltown State Park	●	X	X
Bonner Dam Removal	●	n/a	n/a
Clark Fork Fishing Access Sites			
Bearmouth FAS	●	X	X
Gold Creek FAS	●	X	X
Racetrack Pond FAS	●	X	X
Vet Clinic FAS	Θ	n/a	n/a
Kohrs Bend FAS	Θ	n/a	n/a

Notes:

	- Project update in 2022
	- Project completed in 2022

¹ Status of the project at the end of 2022

Θ - Design/Construction/In Progress

● - Complete

² Monitoring conducted in 2022 to determine if project is still functioning and achieving restoration goals

X - completed in 2022

n/a - project not yet complete, no monitoring conducted

³ Operations and maintenance actions completed in 2022 by NRDP or project partners

X - completed in 2022

n/a - project not yet complete, no O&M conducted

Upper Clark Fork River Basin Restoration Fund

Project Status Report

DECEMBER 2022

Status of Aquatic and Terrestrial Restoration as well as Recreation Projects

This document provides an update of all the restoration projects NRDP has developed, designed, implemented, and/or monitored as proposed in the *Upper Clark Fork River Basin (UCFRB) Aquatic and Terrestrial Resources Restoration Plans* (Restoration Plans) since 2012. Landowners, water users, local governments, project partners, contractors, state and federal agencies, and others coordinated, cooperated, and assisted in the completion of these projects. The attached summary tables list NRDP's projects for aquatic resource restoration (Table 1), terrestrial resource restoration (Table 2) and recreation (Table 3).

In the sections below, bolded text indicates 2022 activities. The highlighted projects listed on Tables 1, 2, and 3 also indicate 2022 activities. Priority streams and priority areas are shown in Figures 2-1 (Aquatics) and 2-2 (Terrestrial) of the Restoration Plans and are attached.

Aquatics Restoration Plan

In 2012, NRDP, in consultation with the Advisory Council (AC), stakeholders, and the public, prepared the *UCFRB Aquatic Resources Restoration Plan* (Aquatic Restoration Plan) for public comment, consideration, and approval by the Governor. This restoration plan provides the State's analysis of restoration alternatives for aquatic resource restoration in the UCFRB and contains proposed restoration actions and budgets for the preferred alternative. Following public comment and approval by the Governor, the plan was amended in 2016 and 2019. The Aquatic Restoration Plan specifies the following components to achieve aquatic resource restoration goals:

- Aquatic Flow Resources (\$20 million allocated in 2012).
- Aquatic Non-Flow Resources (\$20 million allocated in 2012).
- Restoration actions are implemented in priority areas and actions are prioritized in consultation with resource managers using relevant data.
- Close coordination with landowners and project partners to implement and maintain projects. Project partners include conservation districts, Watershed Restoration Coalition (WRC), Trout Unlimited (TU), Clark Fork Coalition (CFC), Montana Fish, Wildlife, and Parks (FWP), Montana Department of Environmental Quality (DEQ), and Montana Department of Natural Resources and Conservation (DNRC).

AQUATIC RESOURCE RESTORATION GOALS

1. Restore the mainstem trout fishery by improving recruitment from tributaries.
2. Replace lost trout angling in the mainstem by improving trout populations in tributaries.
3. Maintain or improve native trout populations in the UCFRB to preserve rare and diverse gene pools.

Aquatic Flow Resources (Section 3.2.1)

The stretch of the mainstem of the Clark Fork River (CFR) between Galen and Deer Lodge and tributaries that feed it face chronic dewatering issues and typically experience the lowest flows during periods of peak demand in late July and early August. Aquatic flow projects aim to provide clean, cold water to the main stem Clark Fork River and its tributaries to mitigate dewatering and help meet flow targets established by FWP, see Restoration Plan Table 3-1.

The following sections discuss NRDP's aquatic flow projects and monitoring of these projects.

Aquatic Flow Projects

The Restoration Plans identified the mainstem of the CFR between Galen and Deer Lodge as the highest priority for project development. To date, work on these projects has mainly involved water rights, flow assessment, and coordination tasks needed to determine the likely flow benefits and viability of the projects. NRDP has executed master contracts with CFC and TU to assist with management and development tasks. The following descriptions provide updates specific to the projects being evaluated, all of which have proceeded with the involvement of NRDP. Also, NRDP is continuing to monitor flows in the Upper CFR to obtain flow data and to fill gaps in the U.S. Geological Survey (USGS) monitoring stations.

Summaries of activities (2012-2022) within each of the targeted watersheds are described below and summarized in Table 1.

Helen Johnson Ditch

In 2013, the Dry Cottonwood Creek Ranch eliminated the use of one of their diversions/ditches known as the Helen Johnson ditch, installed a pump system closer to the irrigated acres, and converted a portion of its irrigated acreage from flood to pivot irrigation, which conserves up to 9 cubic feet per second (cfs) of CFR flow. As required by the DNRC Water Court, the water rights were split from other water rights holders that were not involved in the change process. This process took over a year to complete.

In 2016, DNRC determined the application to be correct and complete, but they raised some issues in their technical report that NRDP did not believe was correct. The primary issue was DNRC determined a volume for the instream flow that was much less than what the application proposed. NRDP and CFC supplied additional information and waived the statutory review timelines in 2016 to further substantiate some of the water use measurement data for DNRC to consider in the technical report.

In 2021, DNRC issued a final decision and issued the final change authorization, changing the water rights uses from "irrigation" to "instream flow." DNRC approved 9.28 cfs for instream flow from July 15th to September 6th of each year, which was the flow rate requested by NRDP and CFC.

In 2022:

- *The CFC (on behalf of NRDP) submitted a change application to DNRC to convert the water rights for Helen Johnson ditch associated with the former Deer Lodge River Ranch to instream flow. DNRC issued their correct and complete determination in September of 2022 and is currently analyzing the water rights change application. Initial discussions with DNRC indicate that approximately 6 cfs will be protected instream for 36 days starting when the trigger flow of 40 cfs occurs.*
- *In addition, NRDP implemented a project with the last remaining water user on the Helen Johnson ditch that eliminated the use of the ditch while still providing stock water and limited irrigation. To maximize use of resources, this work was coordinated with DEQ's remediation of the area.*

Dry Cottonwood Creek Water Rights

DNRC's original determination related to the Dry Cottonwood Creek water right application would only protect 0.6 cfs of the 4.3 cfs freed up by converting some of Dry Cottonwood Creek Ranch's irrigation system from flood to pivot. This outcome was problematic because it did not consider site-specific measurement data provided by the applicant, CFC, to quantify the volume of water used for irrigation, which can in turn be protected to instream flow. In 2021, CFC (on behalf of NRDP) resubmitted the change application. *In 2022, DNRC issued their correct and complete determination in September and is currently analyzing the water rights change application. Unfortunately, the DNRC technical report still disregarded site-specific measurements. However, the revised determination would protect approximately 1.5 cfs of water instream, which is acceptable to NRDP and CFC.*

Racetrack Pond Water Rights

In 2022, CFC (on behalf of NRDP) submitted a change application to DNRC to convert water rights associated with the Racetrack Pond Property to instream flow. Depending on the outcomes of the change of use process, the instream rights could add up to 6 cfs of flow to the CFR.

West Side Ditch and Whalen Ditch

In 2018, after many years of working cooperatively with the West Side and Whalen ditch water users and ultimately providing a draft change of use application that would facilitate future ditch piping work, the water users of the West Side ditch voted not to move forward with the proposed project. The decision appears to be based largely on concerns about the quantity of water savings, future maintenance and longevity of the pipe, and concerns about going through the change of use process and reducing their irrigation rights. The project is currently on hold pending further conversations with the water right holders. *In 2022, NRDP continued informal discussions with water users to develop flow projects associated with West Side and Whalen ditches.*

Harvey Creek

NRDP began working with TU and Harvey Creek Ranch in 2013 to install irrigation infrastructure improvements on the eastern side of Harvey Creek Ranch and consolidate three ditches into one. The single ditch was fitted with a fish screen in 2014. After a change of diversion was approved for three more diversions to furnish water to the western side of Harvey Creek Ranch, additional irrigation infrastructure was installed to consolidate all points of diversions on the ranch to the diversion with a fish screen. This project has eliminated six diversions that precluded upstream fish migration and

resulted in fish entrainment. In September 2020, DNRC issued the final change orders to change the irrigation water use to instream flow. (See Aquatic Non-flow projects section on Harvey Creek for additional restoration actions and monitoring.)

Clark Fork River Ranch/Valiton Ditch

In 2022, NRDP, CFC, and TU worked with water rights holders on Valiton Ditch to initiate a split season lease agreement. Under this agreement, a private water right holder “leases” the pivots on Clark Fork River Ranch (CFRR) in return for allowing their water rights and CFRR water right to be used for instream flow after July 15th, or when flows in the Clark Fork River drop below optimal flow levels. This agreement is for two years, and if successful will lead to a more permanent agreement and associated instream flow changes. In addition, conceptual designs have been initiated for improving the irrigation infrastructure associated with the Valiton Ditch.

Monitoring – NRDP and its project partners conducted monitoring associated with this project. The monitoring focused on evaluating the production and sustainability of a split season lease on crop production as well as flow benefits associated with this project. Monitoring of the lease will continue during the next growing season, at a minimum, and a report summarizing the monitoring of the lease will be completed in winter of 2024. Additional flow monitoring information will be available in the 2022 Upper Clark Fork River Basin Surface Water Monitoring Report anticipated to be completed in early 2023. Effectiveness monitoring will continue for this project in 2023.

Clark Fork Above Deer Lodge

In 2022, NRDP continued to meet with willing water users in the UCFRB to discuss potential flow-saving projects. NRDP, along with CFC and TU, is continuing efforts to identify and evaluate potential flow projects that would augment instream flow in the dewatered sections of the CFR between Warm Springs and Deer Lodge. Project development activities continue for additional permanent instream flow opportunities.

Silver Lake Water System

In 2019, NRDP, in cooperation and coordination with Butte-Silver Bow County (BSB) and TU, conducted a short-term lease of Silver Lake water for instream flow. The lease involved pumping of up to 32 cfs from Silver Lake and discharging the water to Warm Springs Creek where it was monitored for four-weeks from late July to August 2019. The monitoring, which was done with assistance from TU and CFC, occurred at USGS monitoring sites and other temporary monitoring stations, such as select irrigation diversions, in Warm Springs Creek and the CFR. The monitoring revealed that though there was some diminishment in flow enroute to the river, about 20 cfs made it as far as Galen, and potentially about 10 cfs reached Deer Lodge. Temperature data is not as definitive, but it appears that these releases have a significant effect on reducing temperature in the mainstem CFR. NRDP considers these releases to be successful. Since these Silver Lake water rights have already been designated for instream flow use, a water lease is not required to go through the DNRC’s change authorization process.

In 2021 (a summer of severe drought), NRDP, BSB, and Montana Resources reached an agreement to secure water releases from Silver Lake to improve instream flows in the CFR. Under this agreement, 32 cfs of water was released from Silver Lake from August 5th to September 20th, 2021. The 2021 release had two primary goals; first, to improve flows in the CFR in what were extremely critical low-flow circumstances, and second, to continue to evaluate the Silver Lake Water System as a possible source

of water to improve the CFR as provided for in Section 3.2 of the Restoration Plans. The 2021 release was extremely successful. NRDP received cooperation from most irrigators, and the release allowed the CFR to maintain flows near or above flow targets for most of the summer. Monitoring of the release also confirmed information collected in previous releases. Of the 32 cfs of water released from Silver Lake, a flow increase of approximately 12.5 cfs was observed in the CFR at Deer Lodge.

In 2022, NRDP and BSB continued discussion of the possibility of future releases from Silver Lake.

Racetrack Lake

In 2010, CFC submitted a Proposal Abstract to NRDP to purchase a storage Water Right in Racetrack Lake, an on-stream reservoir located in the headwaters of Racetrack Creek in the Flint Creek Mountain range. The Water Right authorizes the holder to store 433.33-acre feet (AF) of water per year. The water right was purchased with a 50% cost-share from the Columbia Basin Water Transaction Program. Upon completion of the water right transfer, CFC committed to filing a change of use application with DNRC to change the use of the Water Right from irrigation to instream flow for the benefit of the fishery resource of Racetrack Creek.

In 2018, DNRC issued a decision on CFC's application to change the Racetrack Lake storage water right from "irrigation" to "instream flow." According to the decision, CFC would only be able to protect the lake water released during summer low flows for the top 17 miles of Racetrack Creek to immediately below the Cement Ditch, which is where previous water right holders diverted the lake water to use for irrigation. Downstream of this so called "historical point of diversion" – a stretch where Racetrack Creek typically goes dry from irrigation withdrawals – DNRC said CFC has no legal authority to protect the water and ensure it reaches the river.

Following a hearing in front of a DNRC hearings examiner and then an appeal to the Water Court, in April 2019, the Water Court ruled in CFC's favor and ordered DNRC to grant the change application to protect the entire Historic Diverted Volume (390 AF) instream in Racetrack Creek. The change application went through the public notice process and received several objections. The objectors and CFC developed a plan for managing and monitoring instream flow releases. CFC reached a settlement agreement with 14 of the 16 objectors. In September 2021, DNRC held a hearing for CFC and the two remaining objectors. DNRC dismissed the remaining objections from these two objectors.

In 2022, the first instream flow release was initiated from Racetrack Lake in accordance with the Racetrack Creek Streamflow Monitoring Plan (RCSM Plan). This plan was developed in conjunction with the objectors to the change application.

Monitoring – Extensive monitoring of this flow release was conducted in accordance with the RCSM Plan. Monitoring showed that stored water from Racetrack Lake reached the confluence of the CFR and provided increased flows and decreased temperatures as well as provided a cold-water refuge for fish in lower Racetrack Creek. Additional monitoring information will be available in the *2022 Upper Clark Fork River Basin Surface Water Monitoring Report* anticipated to be completed in early 2023.

Other Flow Projects:

Rock Creek Cattle Water Lease

In 2000, FWP and others contributed to a water conservation project on Rock Creek that involved a flood to pivot irrigation conversion including a fish screen, pipeline and two center pivots. The conversion project made available up to 27.22 cfs of water to be leased for purposes of instream flow and effectively re-watered 1.5 miles of Rock Creek that were historically dewatered. The term of the original lease was for 20 years which expired in 2021. ***In 2022, NRDP prepared a funding recommendation for this project and received a recommendation by the AC and Trustee Restoration Council to fund a portion of this lease. This recommendation was approved by the Governor and FWP renewed the lease for another 10 years.***

Hearst Lake

In 2022, NRDP, in coordination with CFC and Anaconda-Deer Lodge County (ADLC), continued to evaluate the feasibility of using Hearst Lake as a source of instream flow to Warm Springs Creek/CFR. Flow monitoring conducted in 2020 and 2021 lead to the George Grant Chapter of TU to develop a project on lower Fifer Gulch. NRDP funded a hydrologic assessment of Hearst Lake that included gaging on Fifer Creek and some of the other tributaries. Hearst Lake is in the Anaconda Mountain Range about five miles southwest of the city of Anaconda at an elevation of 8,300 feet. The lake is natural but was modified with impoundments to increase storage by the Anaconda Copper Company.

Warm Springs/Mill Creek Springs

In 2020, two unnamed springs were identified, one on Warm Springs Creek near Fifer Gulch and one on Mill Creek in Opportunity. These springs have limited, or no water rights associated with them. In 2021, the CFC evaluated these springs to determine if the water could be protected in stream and if these springs could be improved to provide flow and cold-water habitat for fish. ***In 2022, based on the flow and temperature monitoring conducted in 2021, it was determined that these springs did not provide a consistent source of water. If additional information or monitoring shows that these springs provide more reliable flows additional project development will be performed.***

Split Season Lease Study

In 2022, NRDP, along with CFC and University of Montana, continued investigating the feasibility of short-term, water leasing projects in the UCFRB. The goal of the proposed study is to estimate the quantity of surface water, available through short-term leasing, that could be used to augment both tributary and mainstem flows in low-water years within several key watersheds. The study will also investigate the social desirability of a potential short-term water leasing program in the UCFRB and estimate the potential cost of implementing such a program on a limited basis.

Upper CFR Streamflow Group

In 2021, NRDP, working with project partners, other State agencies, and the Confederated Salish and Kootenai Tribes (CSKT), established a streamflow working group. This group's mission is "to pursue solutions that support the water need of the Upper Clark Fork Watershed Community." ***In 2022, this group met six times and plans to continue in 2023 and beyond. These meetings were solution-oriented and were a highly collaborative effort between water users, ranchers, farmers, industry, municipalities, recreationalists, non-government organizations, CSKT, and state agencies. This group is currently pursuing a suite of projects aimed at improving flows while maintaining agricultural production in the UCFRB.***

Flow Monitoring

NRDP, through contracts with its project partners, routinely monitors season streamflow and water temperature in the mainstem of the Upper CFR and tributaries in the UCFRB. The purpose of the monitoring is to collect additional data where existing data is lacking, monitor performance of instream flow projects, and develop other flow projects. The overarching goal of the monitoring is to better understand summer streamflow and water temperature conditions in the UCFRB. The stretch of the mainstem of the CFR between Galen and Deer Lodge and tributaries that feed it face chronic dewatering issues and typically experience the lowest flows during periods of peak demand in late July and early August. The data collected from this monitoring is integral to the understanding of surface water and groundwater dynamics in the most dewatered portion of the UCFRB.

In 2022, NRDP through its project partners, CFC and TU, monitored flows on the mainstem CFR between Deer Lodge and Warm Springs, on Racetrack Creek in relation to the Racetrack Lake instream flow release, and at multiple irrigation diversions. The purpose of the monitoring is to better understand the timing and magnitude of dewatering at points between the USGS gauges and to monitor performance of implemented projects. The flow and temperature gauges were pulled in late fall 2022 and the data are currently being processed. Additional monitoring information will be available in the 2022 Upper Clark Fork River Basin Surface Water Monitoring Report, anticipated to be completed in early 2023. The following preliminary observations are from monitoring conducted in 2022:

- Flow conditions leading up to spring runoff were below historical averages. Precipitation in May and June, prior to deployment of flow and temperature gauges, temporarily alleviated the effects of drought in the Upper Clark Fork and peak flows for 2022 were around average. However, there was very little precipitation after June, leading to decreased flows and increased temperatures in the UCFRB.*
- Flows on the mainstem CFR dropped below flow targets in early August remained below the flow targets until mid-September.*
- Low flow conditions in the Upper Clark Fork led to increased temperature at mainstem locations. Temperature at Sager Lane exceeded the 20-degree Celsius target for 60 days (early July to early September). Temperature at other mainstream locations followed a similar pattern.*

Aquatic Priority Area Specific Plans (Section 3.2.2)

Aquatic non-flow projects aim to improve fish passage, reduce fish entrainment, and improve aquatic habitat to improve trout recruitment to the Clark Fork River and Silver Bow Creek mainstems.

Work on the non-flow aquatic projects in priority watershed areas has involved continued coordination with landowners, evaluation of current riparian and instream habitat conditions, as well as fish passage/entrainment issues, prioritization of restoration actions, development of restoration project designs, and implementation of restoration projects in the 17 watersheds targeted for work. The development and implementation of projects includes projects that protect/enhance riparian habitat, improve fish passage, reduce fish entrainment, and/or improve instream habitat. These projects are being accomplished through contracts and task orders between NRDP, property owners, and our project sponsors/partners (CFC, TU, and the WRC), and various engineering firms.

Summaries of activities (2012-2022) within each of the targeted watersheds are described below and summarized in Table 1.

Mainstem Clark Fork River (Section 3.2.2.1)

Flint Creek to Rock Creek: Fish Population Evaluation and Follow-up Actions

Beginning in July 2015, UM gathered and organized background information on the sources of nitrogen within the Clark Fork River between Flint Creek and Rock Creek (Reach C) of the CFR. UM began an extensive field data collection campaign and evaluated the findings during the winter. The UM study was extended for a second year to expand on the preliminary findings. Following evaluation of the data collected from July 2016 through June 2017, UM identified the Dutchman Wetland Complex as a potential nitrogen source leading to Cladophora blooms in Reach C. NRDP expanded the investigation to include the Dutchman Wetland Complex and other nutrient sources that contribute to compromised habitat conditions in Reach C of the CFR. UM completed a preliminary evaluation of the Dutchman Wetland Complex in 2018 and 2019 and worked with NRDP to narrow the focus to develop restoration projects that will result in improved nutrient loading conditions in the CFR. In addition, the University's National Science Foundation award has been integrated with NRDP work to further investigate how the trout food-web is being impacted. The Clark Fork River Working Group was established and successfully held monthly meeting throughout 2021 discussing a variety of topics to help share information on the various projects being implemented within the UCFRB. ***In 2022, UM gathered fish population and biomass data for trout as well as mountain whitefish. This study documented that mountain whitefish are the most abundant fish species in all reaches of the Clark Fork River and recommended that whitefish receive more monitoring attention. UM also began analyzing food web and metals data, which will be available in 2023.***

In 2022, NRDP's consultant completed a master plan that identifies and evaluates restoration alternatives to decrease the release of nitrogen from the Dutchman Wetland Complex and improve water quality in the main stem of the CFR. NRDP coordinated with various stakeholders to evaluate the feasibility of specific projects and begin the planning and design process. This included working with Anaconda/Deer Lodge County on improvements to the wastewater treatment system, which was identified as a source of nitrogen to the Dutchman Wetland Complex. In addition, NRDP has coordinated with Atlantic Richfield (AR; landowner), Environmental Protection Agency (EPA), DEQ, and the U.S. Fish and Wildlife Service (USFWS) to develop a pilot project to install check dams in Dutchman Creek in an effort to improve nitrogen cycling. NRDP anticipates constructing this pilot project in 2023. NRDP continues to collaborate with Anaconda/Deer Lodge County, AR, EPA, DEQ, USFWS, and members of the public on project design and development.

Summary of Priority Tributary Watersheds Projects

Blacktail Creek (Section 3.2.2.3)

Butte Golf Course Irrigation Pond

This project will provide upstream fish passage by removing an instream pond. (Blacktail Creek is currently dammed to create the Butte golf course irrigation pond.) In 2019, NRDP and a contractor initiated design of a diversion structure and screened intake to be installed upstream of the irrigation pond. The diversion structure will divert 600 gallons per minute into the pond for irrigation. The pond outlet will be reconstructed to exclude fish from the pond. ***In 2022, NRDP continued to work on this project in tandem with the Butte-Silver Bow Sanitary Sewer Line. NRDP has received a Conditional***

Letter of Map Revision (CLOMR) from Federal Emergency Management Agency (FEMA) which was the last permit requirement except for the change in diversion point for the water rights from DNRC. Work could start in early 2023 if NRDP receives the DNRC approval this fall. If NRDP does not receive DNRC approval in November 2022 then the project is estimated to start in the fall of 2023.

Butte-Silver Bow Sanitary Sewer Line

A sewer line across Blacktail Creek is currently blocking fish passage. ***NRDP is working through the CLOMR process with FEMA to enable BSB to move this line with support from NRDP. This permitting process should be completed in 2022. BSB and NRDP will establish a Memorandum of Understanding (MOU) for BSB to install the new line with materials purchased by NRDP.***

Redfern Diversion

Project completed. In November 2018, TU, along with NRDP and Great West Engineering, completed construction of the Redfern Diversion and fish screen project. The project provides upstream fish passage through a series of constructed rock step-pool weirs and eliminates fish entrainment with a fish screen located in the throat of the upstream most rock weir. ***In 2022, NRDP and project partners provided project monitoring, operations, and maintenance assistance on this fish screen.***

Blacktail Creek Culverts at Roosevelt Drive

In 2022, BSB was granted funds from the Federal Lands Access Program (FLAP), administered by the U.S. Department of Transportation, to repair culverts under Roosevelt Drive. Multiple undersized and failing culvert crossings, through which the Blacktail Creek flows under Roosevelt Drive, are impediments to connectivity within the middle and upper reaches of the creek. NRDP supports this project and has agreed to provide matching funds for the FLAP grant. The state considers replacement of these culvert crossings as the top priority fisheries project in the drainage. Replacing these culverts will improve connectivity within the core range of the westslope cutthroat trout in the Blacktail Creek population and likely help this population become more robust and resilient.

Blacktail Creek Aquatic Monitoring

FWP conducts watershed monitoring in the Blacktail Creek Watershed every 2-3 years. ***In 2022, FWP also collected baseline fish population data related to the Butte Golf Course Project. Refer to the Aquatic Resource Monitoring and Maintenance section of this update for more details.***

Browns Gulch (Section 3.2.2.4)

NRDP and the WRC have led project development and design/permitting on numerous diversions, streambanks stabilization, and crossing projects on Browns Gulch. As of 2021, all allocated funds for Browns Gulch have been expended on priority projects in the watershed. Plans are currently being developed to monitor the effectiveness of projects completed in Browns Gulch.

Balentine Ranch

In 2021, final designs for four diversions on the Balentine property were completed based on the conceptual designs developed in 2020. The WRC is seeking funding from other sources to complete these projects.

Brothers Ranch

In 2021, construction work at diversion #4 on the Brother's Ranch was completed. This diversion was identified as a high priority fish passage barrier on Brown Gulch. The project also included replacing two undersized culverts that were fish passage barriers and stabilization of a streambank adjacent to a

dry fire hydrant. This work was performed with ~\$27,500 in match funding from a Natural Resource Conservation Service (NRCS) grant. Previous work on this ranch began with placing an open bottom arch culvert in 2018. The culvert provides upstream fish passage and improves hydraulic conveyance for the landowner. The previous culvert was a fish barrier at a wide range of flows and caused significant scour and stream degradation of Browns Gulch downstream. This project complements riparian and streambank restoration actions completed in 2017.

Liva Ranch

Project completed. Restoration actions including off-stream water, fencing, irrigation diversion, and fish passage improvements began in 2017 and were completed following high water in 2018. Off-stream water was provided to reduce cattle use of Browns Gulch to improve the riparian corridor. A diversion at the north end of the property was replaced with a new wooden pin and plank diversion that, when boards are placed to check water, activates a fish bypass channel allowing for upstream fish migration.

Myers Ranch

Project completed. A robust riparian planting effort occurred in June 2018 including two reaches of Browns Gulch on the Myers property. In October 2018, work began on ~1,100 feet of channel restoration and was completed in November 2018; additional plantings were completed in June 2019. This newly reconstructed reach of Browns Gulch provides improved pool and riffle habitat for fish. This project occurred immediately upstream of the new fish bypass channel and riparian improvement projects on the Liva Ranch. In 2021, emergency maintenance of the river right floodplain took place to address adverse effects to ranch operations outside the identified riparian zone. Two outside bends were elevated to direct high flows to targeted floodplain areas.

Heavens Valley Ranch

Project completed. In 2017, beaver mimicry and riparian protection via downed trees was completed.

Woods Ranch

Project completed. In 2016, riparian fencing (~3,100 feet) along Browns Gulch and a hardened water gap for cattle watering were installed to reduce grazing on streambanks.

Browns Gulch Aquatic Monitoring

FWP conducts watershed monitoring in the Browns Gulch Watershed every 4-5 years. Refer to the Aquatic Resource Monitoring and Maintenance section of this update for more details.

Cottonwood/Baggs Creek (Section 3.2.2.5)

NRDP and the WRC are working on developing numerous projects on Cottonwood and Baggs creeks.

McQueary Ranch

In December 2019, WRC completed work on the Cottonwood Creek Irrigation Improvement and Fish Screen Project. The project involved irrigation infrastructure improvements, including a fish screen, to improve fish passage and reduce entrainment of trout. In 2021, minor modifications were made to the fish screen to allow the landowner to better manage sediment in and around the fish screen. The project will benefit cold-water fish migration into and out of Cottonwood Creek and its tributaries (Baggs Creek, North, Middle, and South Forks of Cottonwood Creek), together comprising a 42-square mile drainage. The WRC has brought \$118,330.00 of matching NRCS funding to this project. **In 2022,**

NRDP and project partners provided project monitoring, operations, and maintenance assistance on this fish screen.

Upper Cottonwood Diversions

In 2020, four diversions on Upper Cottonwood Creek were identified as high priority projects that have a high potential for entraining fish. In 2021, several conceptual designs for these diversions were evaluated. NRDP, along with NRCS project funding, finalized the design for a large fish screen and irrigation improvements on the Aspen Grove Ranch.

The Aspen Grove Irrigation Improvement and Fish Screen project had two phases. Phase 1 of this project, constructed in Fall 2020 and funded by NRCS, consisted of a temporary inlet control structure and construction of two irrigation pivots. ***Phase 2 of this project, funded by NRCS and Restoration Funds, started in 2022. Phase 2 consisted of installation of a new Farmers Conservation Alliance (FCA) modular fish screen, a new headgate, and over one mile of irrigation pipeline and irrigation pivots. This project completely eliminates one of the existing irrigation diversions on Cottonwood Creek, allows for upstream and downstream fish passage, and prevents entrainment. Water will be saved by replacing a leaky irrigation ditch with a pipeline and improved irrigation infrastructure. This project was completed in November 2022 and was implemented in conjunction with the NRCS and the landowner who provided technical expertise and match funding.***

Lower Applegate Diversion

FWP identified the lower Applegate diversion on lower Cottonwood Creek to be a high priority project with a high potential for entraining fish. In 2021, NRDP along with project partners, replaced the existing irrigation diversion with a series of rock step pools and installed a Corrugated Water Screen on the irrigation ditch. ***In 2022, NRDP and project partners provided project monitoring, operations, and maintenance assistance on this fish screen.***

Cottonwood Creek Aquatic Monitoring

FWP has collected extensive baseline fish population data in the Cottonwood Creek Watershed. ***In 2022, FWP coordinated with NRDP to initiate a fish tagging study to evaluate the effects of fish screen and fish passage projects and identify future projects. As most of these projects have only recently been completed, more time is needed to complete the study. The FWP tagging study in Cottonwood Creek will continue at least through 2023.***

Flint Creek and Boulder Creek (Section 3.2.2.7)

Allendale Diversion

Project completed. NRDP, TU, DNRC, and water users worked cooperatively to design the fish screen and diversion for the Allendale Ditch, a large State-owned irrigation canal known to entrain up to 50% of fish that encounter the diversion. DNRC led the design and construction of this project. DNRC completed an environmental assessment (EA) and issued a decision notice in Fall 2018 selecting the preferred alternative (vertical plate screen and new diversion infrastructure – including fish passage). Construction began in October 2020. Due to project delays (COVID-19, ice jams, irrigation delivery demands, etc.) the Allendale diversion and roughened riffle rock ramp were completed in November 2021. ***In 2022, NRDP worked extensively with DNRC, TU, and the water users on operation and maintenance of the new headgate and fish screen during this project's first full irrigation season.***

Flint Creek Private Diversions

Immediately downstream of the Allendale Diversion was a private rock and tarp irrigation diversion that is a fish passage barrier at low flows and includes three ditches that are high risk for fish entrainment. In 2020, NRDP, TU, DNRC, and the private diversion owners worked together to design and construct a roughened riffle rock ramp diversion for fish passage and install fish screens on the three ditches. NRDP and DNRC incorporated this project with the Allendale project, described above, to operate under one State contract for construction. Water delivery was maintained throughout the irrigation season, despite record low flows late season. Construction was completed on all major infrastructure components in 2021. ***In 2022, NRDP worked extensively with TU, consultants, and the water users on operation and maintenance of the new headgate and fish screen during this project's first full irrigation season.***

Spencer Ranch

In 2018, WRC completed a riparian fencing and revegetation project on a highly productive spring creek that produces cold water and provides spawning and rearing habitat for mainstem fish. The project was funded out of terrestrial dollars allocated to Flint Creek riparian protection and restoration.

Corbett Downs

NRDP and TU completed a stream restoration and riparian revegetation project on a reach of Flint Creek east of Hall in 2021. The stream restoration portion of the project was funded with matching funds from TU. NRDP funded the revegetation out of terrestrial dollars allocated to Flint Creek riparian protection and restoration. ***In 2022, NRDP, TU, and River Design Group coordinated to conduct vegetation and geomorphic monitoring.***

Rue Slaughter

In 2022, NRDP and TU met with landowners to discuss stream restoration and riparian vegetation enhancement concepts on Flint Creek on the Rue and Slaughter properties. NRDP's contractor, River Design Group, completed hydraulic surveys and initiated the final design process. TU will begin construction on this project using matching funds in 2023.

Olson Property

In 2017, WRC, NRDP, and the Olsons worked cooperatively to return Boulder Creek to its pre-2011 channel. This project provides unimpeded up and downstream fish migration. In 2011, the Boulder Creek channel captured a private pond, creating native trout passage issues as well as higher levels of predation. The project was completed in May 2018 and included the placement of topsoil in the de-activated stream channel and a robust revegetation effort with native plants.

Lundgren Project

In 2017, a riparian and streambank restoration project was completed on the Lundgren property on Boulder Creek. The project improved fish habitat through improved woody debris conditions and overhanging cover, providing stability while riparian plant communities are reestablished.

Flint Creek and Boulder Creek Aquatic Monitoring

NRDP and project partners have conducted monitoring on the following projects in Flint Creek and Boulder Creek:

- **Allendale and Flint Creek Private Diversions** – FWP, in coordination with NRDP, is conducting a long-term, large-scale fish tagging study to document how fish are using the new diversions and fish screens associated with these projects. Prior to the new diversions being built, the Flint Creek Private Diversion was virtually a complete barrier to upstream fish movement during low flow periods. After the installation of the new diversion, FWP documented tagged trout and suckers successfully moving up over the structure. Before the fish screen was installed on the Allendale Canal, FWP documented that 53% of the fish moving downstream of the diversion were lost into the irrigation canal. *Monitoring in 2022, after the screen was installed, indicated that no tagged fish were entrained into the canal. Two of the fish that were bypassed by the Allendale fish screen in 2022 were cutthroat trout that were tagged approximately 20 miles downstream in the Clark Fork River and that migrated into Flint Creek to spawn. This tagging study will continue at least through 2023.*
- **Corbet Downs** – After this project was completed in 2021, FWP conducted a trout population estimate on Flint Creek through the Corbet Downs project. FWP estimated 870 brown trout per mile and 14 westslope cutthroat per mile. One bull trout was also found in the project reach.
- **Olson Property** – The WRC completed project monitoring for year 1 in September of 2019. In August 2020, FWP fisheries staff completed fish sampling within the project area. 40 westslope cutthroat trout and 14 bull trout were found.
- **Lundgren Project** – The WRC completed year 2 project monitoring in September 2019. In August 2020, FWP completed fish sampling within the project area. 70 westslope cutthroat trout and 11 bull trout were found.

German Gulch/Silver Creek (Section 3.2.2.8)

Project completed. Tailings were removed from the German Gulch floodplain by DEQ during Silver Bow Creek remedial action and a fish barrier was constructed to prevent non-native trout from migrating upstream.

German Gulch and Silver Bow Creek Aquatic Monitoring.

FWP conducts electrofishing in Silver Bow Creek twice a year as part of basin-scale monitoring. Summer sampling is conducted during low flows and high water temperatures. Low dissolved oxygen has been documented in the past during the summer and hypoxic areas of Silver Bow Creek tend to be devoid of trout during this period. Fall sampling is focused on evaluating fish numbers and distribution when water temperatures have cooled, and dissolved oxygen concentrations are more favorable to fish. *In 2022, FWP conducted basin monitoring in Silver Bow Creek and NRDP contracted with a professor at Montana Tech to document dissolved oxygen and water temperatures throughout the year. Dissolved oxygen monitoring indicated improvements following the upgrade of the Butte Municipal water Treatments plant in 2016, but oxygen concentrations still may be too low for trout in certain reaches of Silver Bow Creek during the summer. FWP conducts watershed monitoring in German Gulch every 2-5 years. Refer to the Aquatic Resource Monitoring and Maintenance section of this update for more details.*

Harvey Creek (Section 3.2.2.9)

All projects are completed. TU assisted in the completion of most of the identified fisheries improvement projects on Harvey Creek. The failing culvert and manmade fish barrier on Mullan Road

that crosses Harvey Creek were replaced by a new concrete box culvert and an eight-foot concrete vertical fish barrier in April 2016; irrigation improvements have been installed; a 100-foot bioengineered bank stabilization project was completed to protect corrals on the Harvey Creek Ranch from erosion and to provide a natural vegetative buffer between the corrals and Harvey Creek; and riparian fencing. In 2019, DNRC issued a favorable preliminary decision on the instream flow water rights change applications. After the decision, final steps were taken to consolidate all irrigation diversions into a single screened diversion. All other diversions were removed from the stream channel and ditches blocked. This will allow for unrestricted upstream and downstream movement of native fish from the Mullan Trail to the headwaters of Harvey Creek. *In 2022, TU worked with the landowner, NRDP, and a fabricator to perform maintenance on the paddlewheel that powers the fish screen cleaning system.*

Harvey Creek Aquatic Monitoring

In coordination with NRDP, FWP has collected extensive pre- and post- project fish abundance and distribution data in the Harvey Creek Watershed. These data indicated an immediate post-project increase in cutthroat trout numbers in Harvey Creek just downstream of the fish screen. FWP's monitoring data also showed an increase in bull trout abundance and distribution throughout the project area after the restoration projects were completed. Project partners provided project monitoring, operations, and maintenance assistance on this fish screen.

Little Blackfoot River (Section 3.2.2.10)

The Little Blackfoot River experienced long duration high flow during 2018 and made vertical and lateral adjustments in many locations. TU is evaluating the effects of the 2019 high flow and NRDP, TU, and the WRC are actively working to identify potential restoration actions that will benefit the Little Blackfoot River, with potential benefits to affected landowners.

D.W. Beck Property

In 2018, the Little Blackfoot River captured an existing ranch road causing a channel avulsion. In 2019, NRDP and TU worked on design, engineering, and permit channel and floodplain restoration activities on the Little Blackfoot River, DW Beck Ranch. The project includes approximately 1,800 feet of the Little Blackfoot River. *In 2022, NRDP and TU learned the DW Beck Ranch was not interested in moving forward with the project at this time.*

Janke Property

Project completed. High flows in 2018 impacted the riparian fencing project implemented in 2017. TU worked with the landowner to repair and replace fencing that was adversely impacted. TU also completed some riparian pole planting to complement the riparian fencing.

Snowshoe Creek

Project completed. In 2017, a fish screen and fish-friendly diversion were installed to address entrainment and fish passage issues. Project partners provided project monitoring, operations, and maintenance assistance on this fish screen.

Lower Spotted Dog Creek

Between 2013 and 2017, the lower section of Spotted Dog Creek was identified as a location to complete irrigation efficiency projects to reduce the number of instream diversions, thus reducing

passage and entrainment issues while realizing incidental instream flow. The potential exists to relocate or restore several sections of lower Spotted Dog Creek from its current degraded condition.

Little Blackfoot River Watershed Aquatic Monitoring

FWP has collected extensive baseline and trend fish population data throughout the Little Blackfoot River Watershed. Electrofishing is now conducted in the Little Blackfoot River Watershed every two years. ***FWP planned on doing watershed monitoring on the Little Blackfoot River in 2022, but this monitoring was not completed due to time constraints.***

Mill/Willow Creeks (Section 3.2.2.12)

In fall 2020, NRDP along with project partners, FWP, NRCS, TU, and CFC, completed the Mill Creek Diversion No. 4 Irrigation Improvement Project. This project involved installing a rock weir, replacing a headgate, construction of a new irrigation ditch, installation of a fish screen, and streambank stabilization. This project provides irrigation water to the Mill Creek Irrigation Company, prevents entrainment of fish in the ditch, and provides upstream and downstream fish passage on Mill Creek. NRCS contributed approximately \$25,000 to this project. In 2021, additional streambank stabilization was completed in the project area.

In 2022, NRDP and project partners have been working with other water users and landowners on Mill and Willow Creek to identify other potential projects. NRDP and project partners provided project monitoring, operations, and maintenance assistance on this fish screen.

Mill/Willow Creeks Aquatic Monitoring

FWP conducts watershed monitoring on Mill and Willow Creeks every 4-5 years. In 2021, FWP electrofished Mill Creek downstream of the Diversion No. 4 Project and captured 44 brook trout and 43 brown trout.

Racetrack Creek (Section 3.2.2.13)

In 2022, NRDP and the WRC worked to develop projects in the Racetrack Creek watershed. Note: Work on Racetrack Creek was on hold pending resolution of the Racetrack Lake water rights. NRDP is hopeful that the resolution of the Racetrack Lake instream flow change and the successful in streamflow release in 2022 will lead to project development in 2023. Please see Racetrack Lake under Aquatic Flow Projects.

Racetrack Creek Aquatic Monitoring

FWP conducts watershed monitoring in the Racetrack Creek Watershed every 4-5 years. Refer to the Aquatic Resource Monitoring and Maintenance section of this update for more details.

Warm Springs Creek (Section 3.2.2.14)

Silver Lake Infrastructure

In 2022, NRDP, FWP, and TU continued to work with BSB to redesign Silver Lake water delivery infrastructure at diversions on Storm Lake Creek, Twin Lakes Creek and Meyers dam. These diversions pose barriers to upstream fish migration of native bull trout. Permitting processes are underway with USFWS, Army Corps of Engineers, Beaverhead National Forest, and Anaconda Deer Lodge County. Diversion structures, which will facilitate trapping and passage of native fish by FWP staff and include the opportunity for passage by native trout at the Twin Lakes diversions, have

reached 90% design. This project has required close coordination between all partners and multiple permitting agencies. Permitting and release of a bid package are expected in early 2023.

Anaconda Diversion

Project completed. Project monitoring, operations, and maintenance ongoing. Installation of a fish screen and diversion improvements for the “Anaconda Diversion” southwest of Anaconda was completed in the fall of 2016. Project partners provided project monitoring, operations, and maintenance assistance on this fish screen.

Gardiner Diversion

Below Anaconda, design for a fish screen and a rock ramp to reduce entrainment and improve upstream fish migration was completed in 2018. Construction is currently on hold, pending water user agreements.

Upper Warm Springs Creek

Project completed. NRDP provided funding to TU as a cost share for fish passage improvements in the Upper Warm Springs Creek drainage. NRDP funds helped replace a failing culvert that was a known fish passage barrier with a clear span bridge. The project was completed in the summer of 2017.

Warm Springs Creek Aquatic Monitoring

FWP conducts watershed monitoring in the Warm Springs Watershed every 2 years. Refer to the Aquatic Resource Monitoring and Maintenance section of this update for more details.

Basin Creek (Section 3.2.2.15)

Basin Creek Reservoir Infrastructure

In 2019, NRDP, FWP, and TU began working with BSB on an aquatic project to address fish passage between the lower Basin Creek Reservoir and Upper Basin Creek Reservoir. In 2021, NRDP and BSB signed an agreement to implement the project. NRDP bid the project in late 2021 and awarded a contract for this work. ***In 2022, BSB notified NRDP that they were planning an extensive fuels reduction project in this area and this project would interfere with the fish passage project. As a result, BSB requested to postpone the fish passage project until at least 2027. Since a contract was already awarded for this work, NRDP had to pay the contractor for lost “profit and expenses.” No further work on this project is anticipated.***

Basin Creek Re-routing Near Burt Mooney Airport

In 2021, NRDP examined whether re-routing Basin Creek south of the airport into Blacktail Creek is a feasible and cost-effective project consistent with the goals of the Restoration Plans. The project would entail construction of up to a mile of new stream channel across multiple ownerships and would impact water use of downstream users on both Basin and Blacktail Creeks. This would be a costly and complicated project with uncertain benefit to aquatic resources. At this time, NRDP does not consider this to be a feasible project.

Basin Creek Aquatic Monitoring

FWP conducts watershed monitoring in the Basin Creek watershed every 4-5 years. In 2021, FWP collected baseline fish population and movement data related to the Basin Creek Reservoir Project. Refer to the Aquatic Resource Monitoring and Maintenance section of this update for more details.

Gold Creek (Section 3.2.2.16)

In 2022, the WRC has garnered interest in a fish screen project from three of the four water users on Gold Creek. NRDP plans to move forward with planning and designing a fish screen for Gold Creek and the WRC will continue to communicate with the four water users to see if there is interest in screening all diversions.

Gold Creek Aquatic Monitoring

FWP conducts watershed monitoring in the Gold Creek Watershed every 4-5 years. In 2020, with help from the WRC and NRDP, FWP shocked six irrigation ditches on Gold Creek and discovered that many trout are being entrained in the ditches.

O'Neill Creek (Section 3.2.2.17)

In October 2020, an FWP contractor replaced the washed-out and clogged culvert on O'Neill Creek with a bridge. DNRC, FWP, and NRDP contributed to the cost of the new bridge. The new bridge will allow unimpeded fish passage in O'Neill Creek. NRDP and the WRC were in discussions with the landowner to determine his interest in a fish screen, but the landowner passed away in December 2020. An NRDP engineer prepared a design options memorandum in early 2021. ***In 2022, the WRC has been in contact with the new landowner, but the landowner wants to wait until the legal transfer of the estate is complete, anticipated to be the end of 2022. NRDP will present the design options to the new landowners when the legal process is complete.***

O'Neil Creek Aquatic Monitoring

FWP conducts watershed monitoring in the O'Neil Creek Watershed every 4-5 years. In 2020, FWP and the WRC shocked the main irrigation ditch coming off of O'Neill Creek and discovered that many trout are being entrained in the irrigation ditch.

Rock Creek (Section 3.2.2.18)

Bohrnsen-Marletto Fish Screen

Beginning in 2019, NRDP and TU, with engineering services provided by Great West Engineering, surveyed and evaluated the Bohrnsen-Marletto diversion and ditch on Rock Creek for a potential fish screen project. After identifying a preferred screen alternative, final design and bid package development occurred in 2020. Construction was completed in late 2020, with some site reclamation occurring in early 2021 prior to irrigation season. ***In 2022, project partners provided project monitoring, operations, and maintenance assistance on this fish screen.***

Upper Rock Creek Ditch Consolidation

Beginning in 2019, NRDP and TU, with engineering services provided by Great West Engineering, surveyed and evaluated the two diversions and irrigation ditches in upper Rock Creek and lower Middle Fork Rock Creek for a potential ditch consolidation and fish screen project. ***In 2022, Great West Engineering began preliminary designs and to work with TU, NRDP, and water users to identify project alternatives. After a preferred alternative is selected, TU will complete construction on this project in 2023 using matching funds.***

Rock Creek Aquatic Monitoring

FWP conducts watershed monitoring on the mainstem of Rock Creek every two years. Refer to the Aquatic Resource Monitoring and Maintenance section of this update for more details.

Aquatic Resource Monitoring and Maintenance Plan (Section 3.2.3)

The Aquatic Resource Monitoring and Maintenance Plan aims to develop consistent monitoring protocols to evaluate the effectiveness of implemented restoration actions and make adaptive management decisions.

Through an interagency agreement, NRDP funds FWP to conduct fisheries monitoring in the UCFRB. As described in the Aquatic Resource Management and Maintenance Plan, this monitoring occurs on three levels: project monitoring, watershed monitoring, and basin monitoring. This monitoring is focused on evaluating the effectiveness of restoration projects in meeting the aquatic goals of the Restoration Plans and identifies further opportunities for fisheries restoration. ***Details of 2022 FWP monitoring activities and results will be compiled in a report and available in spring 2023.*** Previous years' monitoring reports can be found on FWP's FishMT webpage:

<https://myfwp.mt.gov/fishMT/reports/surveyreport>. Below is a summary of recent monitoring activities. A summary of the monitoring associated with each project, watershed, and basin is also included in Table 1.

Basin Monitoring

FWP conducts trout population estimates on seven sections of the Clark Fork River between Warm Springs and Bearmouth every spring. Results from this monitoring has shown that the brown trout population upstream of Deer Lodge has been well below average for the last 5 years. The reduced brown trout numbers are of concern to the public as well as to agencies such as NRDP and FWP. The reason for the decline in the trout population is not well understood, but it is related to reduced spawning and rearing success.

In March 2022, NRDP and UM organized a meeting with academic, agency, and NGO partners to identify reasons for the decline in the trout population and identify critical areas for future fish studies. At this meeting, USGS and FWP presented a study that indicated that prolonged drought is likely affecting brown trout in many Montana rivers. Following this meeting, FWP and NRDP made plans to conduct in-depth studies on trout spawning and rearing in the Upper Clark Fork River, including repeating a previous study that showed which areas (tributary and mainstem) contribute the most brown trout to the Clark Fork River.

Watershed Monitoring

FWP collects baseline and trend trout population data in all priority 1 and 2 tributaries. Watershed monitoring entails sampling fish at established locations spread throughout the watershed. Because not every restoration project can receive detailed fisheries monitoring, the hope is that watershed monitoring will capture any trends in the fish populations. Larger tributaries such as Warm Springs Creek, the Little Blackfoot River, and Flint Creek are sampled every two years. Smaller tributaries were sampled annually from 2015-2017 and are now sampled every 2-5 years. More time and/or more projects are needed before measurable changes in fish populations may be realized in some watersheds. In smaller watersheds where restoration actions are complete (see Harvey Creek update above), improvements in fish populations may appear earlier in the monitoring data.

Project Monitoring

Due to time and funding limitations, not every project can be monitored by FWP. So, project monitoring focuses on high-priority projects or projects where lessons learned can be applied to future projects. Examples listed above include fish screen and fish passage projects in the Cottonwood and Flint creek watersheds. These studies focus on answering two questions related to fish screens: 1) How much of the trout population in the tributary is influenced by these projects, and 2) Do the screened fish make it to the Clark Fork River? Project monitoring will continue in Cottonwood and Flint creeks in 2023.

Terrestrial Restoration Plan

In 2012, NRDP, in consultation with the AC, stakeholders, and the public, prepared the *UCFRB Terrestrial Restoration Plan* for public comment, consideration, and approval by the Governor. Following public comment and Governor approval, this restoration plan was amended in 2016 and 2019.

The core elements of the plan are:

- Terrestrial Resource funding (\$19.6 million allocated in 2012).
- Nine Priority Areas identified by scientific data, resource managers, and stakeholders.
- Fee title acquisitions/conservation easements are the highest priority.
- Landowners must allow public access as part of agreements to participate in projects.
- Close coordination with willing landowners, FWP, DNRC, the WRC, and the CFC are necessary.

TERRESTRIAL RESOURCE RESTORATION GOALS

1. Restore injured terrestrial resources and associated ecological and recreational services.
2. Replace injured terrestrial wildlife resources by protecting and enhancing habitats similar to those injured.
3. Replace lost hunting, wildlife viewing, bird watching, and other wildlife-related outdoor recreational opportunities by enhancing wildlife habitat, wildlife populations, and ensuring public access to these wildlife resources.

Terrestrial Projects (Section 4.0)

Terrestrial restoration actions in 2022 were focused on wildlife habitat improvement projects. Enhancement projects were completed in the Garnet, Philipsburg West, and Deer Lodge South Landscapes. A land project near Galen on Lost Creek was considered for several months in 2021, but ultimately rejected because of uncertainty regarding water rights that were available for instream flow.

Terrestrial projects are summarized in the sections below and in Table 2.

Land Projects

Per the Restoration Plans (Section 4.2.4), purchase of conservation easements from willing landowners and fee title acquisition of lands are a high priority action to acquire equivalent resources (and services) to those that were damaged by historic mining and smelting in the UCFRB. Acquisition of equivalent resources is a core part of NRDP's mission. Since approval of the 2012 Restoration Plans,

NRDP has provided funding for three conservation easements on private lands as well as four fee title purchases of land—three of which added to FWP’s Garrity Mountain Wildlife Management Area (WMA). Below are updates on recent work on these lands.

Buxbaum Conservation Easement (Lower Flint Creek Landscape, Section 4.2.4.2)

Project completed. Monitoring ongoing.

Five Valleys Land Trust (FVLT) and NRDP worked with the Buxbaum family to protect 1,193 acres of grassland, wetland, and forest habitat near Maxville with a permanent conservation easement in 2018. FVLT also worked with FWP to secure public hunting opportunities on the property and USFS lands east of the property. The property is located east of Highway 1 in the foothills of the Flint Creek Mountain range. In September 2018, the AC and Trustee Restoration Council recommended allocation of \$200,000 in funds to assist in the acquisition of this conservation easement, which were subsequently approved by the Governor. Most of the project funding came from NRCS. The Buxbaum property was encumbered with a conservation easement to protect its natural resource values and provide for public access in February 2019. One hundred hunter days of access must be provided to lands in this conservation easement every year.

The property’s grasslands, forests, wetlands, and aspen groves are connected to wildlife habitat in the Flint Creek range to the south and the John Longs to the west. Most of the property is undeveloped and provides rangeland and wildlife habitat. The conservation easement provides an effective and cost-efficient way to permanently protect the properties’ conservation values, while keeping the land in private ownership and management. No residential development is permitted, thereby protecting in perpetuity the wildlife habitat and open space values the property offers.

In 2022, NRDP and FVLT staff visited the Buxbaum conservation easement. No breaches of the conservation easement terms were observed. NRDP will continue to communicate with FWP regarding hunting access to this Block Management Area.

Graveley Conservation Easement (Garnet Landscape, Section 4.2.4.3)

Project completed. Monitoring ongoing.

In February 2019, the Governor approved the allocation of \$3.5 million for the acquisition of two conservation easements on the Graveley and NCP Bayou properties, located northwest of Garrison. These properties, totaling approximately 8,276 acres, consist of montane grasslands, forests, wetlands, aspen groves, and two perennial creeks which are connected to wildlife habitat throughout the Garnet Range. The conservation easements, held by Five Valleys Land Trust (FVLT), provide an efficient and cost-effective way to permanently protect the public access and conservation values of these properties, while keeping the land in private ownership and management. Given the substantial natural resource and recreational benefits, high quality habitat, and the diversity of wildlife that were protected, the Graveley conservation easement ranked high in both the NRDP and FWP land acquisition processes.

FVLT makes annual site visits to monitor this conservation easement. ***In 2022, NRDP staff accompanied FVLT on their monitoring visit. Nothing inconsistent with the terms of the easement was observed in 2022 or prior years’ monitoring visits. The ranch is part of the Warm Springs Creek Block Management Area (BMA), which from 2017 to 2021 provided an average of 1,778 hunter days***

annually. The Graveley family remains a committed conservation partner and they are interested in pursuing habitat enhancement projects on their property.

Clark Fork River Ranch (Deer Lodge South, Section 4.2.4.6)

Project completed. Monitoring and management ongoing.

In April 2019, the Governor approved the purchase of the 2,650-acre Clark Fork River Ranch (CFRR), located several miles south of Deer Lodge. The CFRR includes 5.5 miles of the Clark Fork River corridor containing approximately 850 acres of riparian habitat and another 1,800 acres of high-quality grassland and shrub grassland habitat. Having this property in State ownership supports the State with remedial and restoration actions, provides flow to the dewatered reach of the Clark Fork River, and allows for permanent public access on the entire property. NRDP manages the ranch and is developing a management plan for its future use. FWP and NRDP are managing access to the river and upland areas for public hunting, fishing, and other recreational activities. The BMA for this ranch, Sager Lane BMA, was launched in September 2019. FWP reports that since the CFRR's purchase it has provided an average of 628 hunter days annually.

After the property is no longer needed for remediation/restoration actions, NRDP will work with other state and local government agencies and seek public input regarding the properties' disposition. Disposition options for the property must meet state requirements and could include establishment of additional conservation easements to protect Restoration Plan goals and retain some level of public access with subsequent sale of the property; transfer of the property to another state or local governmental entity or entities; or other options developed by NRDP with stakeholder and public input. If the property is sold, consistent with state requirements, the three funds will be reimbursed the pro rata share of the proceeds of the sale.

Work in 2022 consisted of vegetation monitoring, repair of fence along the Clark Fork River on the northern boundary of the property, and evaluations of water use. NRDP has a lease with the adjoining landowner that allows for cattle grazing and split season hay production on the 250 acres of pivot irrigated lands. In 2022, NRDP continued to evaluate the efficacy of this approach to water management and cooperative management with a landowner. NRDP accompanied FVLT on their annual monitoring trip to the Broken Circle conservation easement, which includes the CFRR as well as two other ranches. FVLT and NRDP staff discussed options for placement of a repository on the ranch once remediation begins as well as the split season water lease.

Dry Cottonwood Creek Ranch Conservation Easement (Deer Lodge South, Section 4.2.4.6)

Project complete. Monitoring ongoing.

The purchase and placement of a conservation easement on Dry Cottonwood Creek Ranch (DCCR) and Deer Lodge River Ranch (DLRR), located in Anaconda-Deer Lodge County approximately 13 miles northwest of Anaconda, was recommended by the AC and approved by the Governor in 2018. In 2019, NRDP and CFC acquired both properties. NRDP and CFC sold DCCR in April 2021 for \$2.1 million with a conservation easement that protects the ranch's natural resource values.

The conservation easements placed on DCCR and DLRR ensure public access and habitat protection on 3,396 acres—including 5.3 miles of the Clark Fork River. Having this river corridor available for the public allows access this area in perpetuity. Other riparian benefits from this project have been access

to 1.5 miles of Dry Cottonwood Creek and 1.2 miles of Modesty Creek. The 2,425 acres of uplands habitat surrounding the east end of the property are primarily native intermountain grasslands and conifer forests. They provide habitat for a variety of game and non-game species. This property is part of the Upper Clark Fork BMA—which is a heavily used BMA. FWP reported 1,919 hunter days on the BMA in 2021. The DCCR will continue to be available to hunting in perpetuity. Much of the property is important big game winter range, primarily for elk and mule deer.

In 2022, NRDP contracted with the Forcellas, the new owners of the DCCR, to remove high fencing around the Clark Fork River where remedial actions were completed in 2016. In total, 4.6 miles of fence were removed and replaced with 4.9 miles of fencing more compatible with wildlife passage and ranch operations. Montana Land Reliance (MLR) holds the conservation easement on the ranch and at the time of this update have not completed their 2022 monitoring trip. No breaches of the easement terms occurred in 2021. NRDP has been in communication with Forcellas since their purchase of the property and is not aware of any issues with the conservation easement in 2022.

RY Addition to the Garrity WMA (Anaconda Landscape, Section 4.2.4.7)

Project completed. Operations and maintenance ongoing by FWP.

In 2014, the Governor approved the acquisition of 640 acres on the east side of the Garrity WMA. The property was initially owned by RY Timber Company, and the Conservation Fund acted as a bridge party while the State of Montana completed necessary due diligence and public processes. The property's value includes critical elk winter range, spring calving habitat and abundant aspen stands, which support and multiple nongame species, including migratory neotropical birds. Since its purchase, FWP has used NRDP funding to complete fencing, control weeds and construct a wildlife viewing area.

YT Timber Addition to the Garrity WMA (Anaconda Landscape, Section 4.2.4.7)

Project completed. Operations and maintenance ongoing by FWP.

In April 2019, the Governor approved the acquisition of 154 acres of land adjacent to the Garrity WMA 7 miles west of Anaconda. This project provided a unique opportunity to conserve a private inholding of important wildlife and fish habitat along Warm Springs Creek and consolidate it with the rest of the Garrity WMA. The property provides habitat connectivity between the Flint Creek and Anaconda-Pintler Mountain ranges and protects key habitat for bull trout and westslope cutthroat trout.

Current management of this addition is consistent with the objectives of the purchase which were to: add critical fish and wildlife habitat to the WMA, enhance recreational opportunities and access, buffer the WMA from development on its northern border, and protect a bighorn sheep migration route.

Stumptown Addition to the Garrity WMA (Anaconda Landscape, Section 4.2.4.7)

Project completed. Operations and maintenance ongoing by FWP.

In June 2020, the Governor approved the purchase of an additional 600 acres to the Garrity WMA known as the Stumptown Addition. The Stumptown Addition provides critical winter range for elk and deer and provides spring calving habitat for elk. The property includes 0.7 miles of Warm Springs Creek and associated riparian habitats which constitute some of the most productive and diverse riparian habitats in the area. The addition supports a diversity of game species and many nongame species. Located only 1.5 miles west of Anaconda, the property offers a variety of recreational opportunities including hunting, fishing, hiking, picnicking, and wildlife-watching. The addition improves fishing

access on Warm Springs Creek and provides access to a network of trails and old roads that pass through a diversity of habitats. The appraised value of the property was \$1,740,600 with \$1,465,600 coming from NRDP restoration funds. Closing for the property occurred in October 2020 and the property opened to public access in early November 2020.

Habitat Enhancement Projects

NRDP has worked with project partners on multiple habitat restoration projects in the UCRFB using terrestrial funds. ***NRDP implemented two projects on DNRC properties in 2022.***

Habitat Enhancement in the UCRFB

NRDP is working with FWP and has contracted with the WRC to assist in assessing and implementing terrestrial restoration projects on private lands in the Deer Lodge South, Garnet, and Philipsburg West landscape areas. ***In 2022, NRDP, FWP, and the WRC visited completed projects in the Garnet and Deer Lodge South landscapes. Monitoring and status updates of completed terrestrial priority projects were a high priority in 2022. The final monitoring report that summarizes the status of all terrestrial enhancement projects completed will be available in early 2023.***

Philipsburg West Landscape Area (Section 4.2.4.1)

In 2022, NRDP worked on the following wildlife enhancement projects in the Philipsburg West Landscape Area:

- ***DNRC North Fork Spring Creek:*** two stream crossings as well as 5,896 feet of fence were constructed on a DNRC parcel to protect the North Fork of Spring Creek and associated riparian habitat on approximately 50 acres. ***This project was completed in 2022.*** In 2023, NRDP plans on planting willows, aspen, and other vegetation along the bank to restore this riparian area.
- ***Habitat Enhancement Project Development:*** The WRC, TU, and NRDP are working with landowners to identify opportunities for riparian fencing, spring developments, and grassland enhancement projects in this area.

Monitoring will occur 2023 as construction was completed in the North Fork of Spring Creek in 2022. The other habitat enhancement projects in this landscape are conceptual.

Garnet Landscape Area (Section 4.2.4.3)

In 2022, NRDP worked on the following wildlife enhancement projects in the Garnet Landscape Area:

- ***DNRC Brock Creek:*** Construction of one spring development, a water gap, 300 feet of pipeline, two stock water tanks and fencing to keep cattle out of Brock Creek was completed. This work protected approximately 5 acres of riparian habitat.
- ***Hollenback Ranch:*** Design has been completed or is in progress for a habitat enhancement project that will include the installation of up to four spring developments, removal of conifers encroaching on grasslands, multiple beaver dam analogs, and biological weed control.
- ***Dutton Ranch:*** Conceptual planning began on a project which would include water developments, conifer thinning, and weed control.

In cooperation with WRC and DNRC, formal monitoring of the Brock Creek project will occur in 2023.

Deer Lodge South Landscape (Section 4.2.4.6)

Habitat enhancement projects in the Deer Lodge South Landscape Area started in 2016 with the WRC working with local landowners on projects that enhance wildlife and wildlife habitat. Projects implemented to date include aspen regeneration, conifer encroachment removals, off stream stock water developments, riparian fencing, beaver mimicry, biological and chemical weed control, and other riparian enhancement work. Project identification, development, and implementation in the Deer Lodge South landscape will continue in 2023.

In 2022, the following projects were completed:

- ***Dry Cottonwood Creek Ranch (DCCR):*** 4.9 miles of fence were built to facilitate wildlife passage, and high fencing was removed and replaced with fence more compatible with wildlife passage and ranching around a 350-acre area on the DCCR. This included a 5-mile section of the Clark Fork River where remediation and restoration were completed. More information on activities on the DCCR is provided in the lands projects section of this summary.
- ***Clark Fork River Ranch:*** Detailed information on management and restoration efforts on the CFRR is provided in the lands section of this summary.
- ***Anderson Ranch:*** A habitat enhancement project is in the conceptual phase on the Anderson Ranch. This project would include off-stream water development, riparian fencing, and beaver dam analogs. The WRC and NRDP made a site visit to evaluate opportunities and discuss the feasibility of a project with the landowner.
- ***Lampert Ranch:*** Significant habitat enhancement work has been accomplished on the Lampert Ranch beginning with construction of numerous beaver dam analogs on Cook Creek and Girard Gulch as well as eleven aspen enclosures in 2017. In 2021, two spring developments were constructed with 8,577 feet of pipeline to service four stock water tanks. ***In 2022, three laydown fences were constructed to accommodate wildlife passage. Also, a conifer encroachment project was completed on 12 acres in coordination with the CFR remediation/restoration***

Monitoring, completed in 2022, of the Deer Lodge South projects recommends that long-term maintenance is necessary to assure that infrastructure investments provide long-term benefits. Other preliminary findings are:

- Beaver dam analogs have been effective in the short term but need consistent monitoring and maintenance to assure that they remain effective after installation.
- Aspen clone enhancement through conifer thinning and grazing exclosures are most likely to generate suckering and stimulate growth in larger clones.
- Laydown fences for wildlife passage are effective when used correctly.
- Riparian fencing must be maintained to be effective and coordination with landowners is necessary to assure fences remain intact and in good repair.
- Off stream water systems need better preliminary assessment to assure they will continue to flow in dry years and additional fencing, rather than just the provision of water in the uplands, may be necessary to alter cattle grazing patterns.

- Conifer encroachment, precommercial thinning and slash filter windrows are all effective prescriptions.
- Biological control of weeds needs additional assessment to determine its effectiveness.

FWP Wildlife Management Area Support (Section 4.2.5)

In 2022, operations and maintenance continued on FWP WMAs in the UCFRB. Per the Restoration Plans, NRDP and FWP have an MOU which allocates \$2 million for habitat protection and enhancement for existing FWP WMAs acquired with NRD funds. These areas include the Spotted Dog, Garrity, Blue-eyed Nellie, Stucky Ridge, Warm Springs, Mount Haggin, and Lost Creek WMAs. Proposed actions for these WMAs are those beyond the routine operation and maintenance activities for which FWP is normally funded. These activities include riparian fencing, riparian restoration, acquisition of key private in holdings, biological and other weed control, road removal, wetland restoration, and enhancement. Activities by FWP began in 2019 and will continue in 2023. ***In 2022, FWP activities in UCFRB WMAs were focused on fencing and weed control to enhance and prevent degradation of riparian, grassland, and shrub grassland habitat.***

Conservation Reserve Enhancement Program (CREP) (Section 4.2.6)

In September 2016, the Governor formally submitted to the U.S. Department of Agriculture an application for a Conservation Reserve Enhancement Program (CREP) for the UCFRB. The CREP is administered by the Farm Service Agency and focuses on high-priority conservation issues identified by local, state, or tribal governments by removing environmentally sensitive land from production and/or introducing conservation practices in which farmers, ranchers, and agricultural landowners are paid an annual rental rate. ***CREP projects were initiated in 2022 and are described below.***

Blacktail Creek Riparian Habitat Enhancement

In 2022, NRDP, the WRC and NRCS prepared CREP proposals for several landowners along Blacktail Creek. These proposals would enhance wildlife and aquatic habitat along approximately 1.5 miles of Blacktail Creek. Securing public access to portions of this property are also a priority.

Recreation Projects (Section 5.0)

The six recreation projects included in the Restoration Plans are funded with the proportionate allocations of aquatic and terrestrial priority funds identified in the Restoration Plans.

The following are key factors that the State relied on in developing its proposed plan for the enhancement of recreational services:

- That by restoring or replacing injured natural resources of the UCFRB, some of the recreational services lost due to those injuries will also be restored.
- That recreational projects must be natural resource-based and offer resource benefits in addition to recreational benefits.
- That general preferred types of recreational projects that offer resource benefits include those that: 1) prevent resource degradation by the user public; 2) enhance existing recreational projects; and 3) provide fishing and hunting access in a resource-protective manner.

Recreation projects are summarized below and in Table 3. Project sponsors are responsible for operation and maintenance of all recreational facilities.

Drummond Kiwanis Riverside Park

Following public comment and a favorable funding recommendation from the AC and Trustee Restoration Council, the Governor approved the property acquisition portion of this project for funding in November 2013, subject to several funding conditions. The land acquisition was completed December 2014. In 2021, the Kiwanis completed the construction of the park trails, parking area, and fish access locations. Other park amenities, funded by Kiwanis, are planned for completion in 2023.

Deer Lodge Trestle Park / Old Yellowstone Trail

NRDP and Powell County finalized a phased contract that enabled the County to conduct some initial outreach and design tasks associated with the Trestle Park. However, due to unforeseen circumstances, Powell County was not able to implement the Trestle Park project. In the 2015 Update to the Restoration Plans, Powell County submitted a project abstract, proposing to compose a Master Plan to create linkage between existing recreational opportunities in and around the City of Deer Lodge along the Clark Fork River, and connect to the trail system at the Grant-Kohrs National Park. This planning proposal was integral to the Deer Lodge Trestle Park project being funded through the Restoration Plans. Rather than include this project as a separate recreational project, NRDP worked with Powell County to integrate this project into Powell County's current Trestle Park project, as there were funds available. Powell County completed their Trails Master Plan in October 2016 and requested NRDP and UCFRB AC approval to proceed with development of the Branning Trail purchase and development.

In 2016, Powell County, on behalf of the Powell County Parks Board, used Restoration Funds to purchase 7.5-miles of the Old Milwaukee right-of-way to convert it into a recreational trail for public use. Powell County completed construction on eight miles of the trail, known as the Old Yellowstone Trail, in 2018.

In 2021, Powell County started the second phase of the project which included planning and design to connected to the Grant-Kohrs Ranch trail system maintained by the National Park Service. ***In 2022, Phase 2 of the trail was constructed, completing an 11-mile trail system from Garrison to Deer Lodge.***

Washoe/Hafner Dam Parks

Project completed. NRDP and Anaconda Deer Lodge County (ADLC) executed a contract in December 2013 for the second phase of work which includes project management, engineering, and design work for recreational improvements based on Phase I 2013 LIDAR results and Phase III implementation. ADLC entered into a contract with Jordan Construction and began construction in spring 2015. Work at Washoe/Hafner Park was completed in 2017. ADLC held a dedication ceremony in the summer of 2017 and the UCFRB AC was given a tour of the park in June 2017 by former AC member and project manager Mark Sweeney.

Milltown State Park

FWP and NRDP signed a memorandum of agreement for the Milltown State Park project work covered in the Restoration Plans. Most of the recreational trail and access feature development work at the park was conducted in 2013 was done pursuant to the 2009 Milltown State Park grant. FWP developed and

implemented a trail plan to establish trails on the south side of the river upstream of the former dam site in 2015. The trails on the south side provide public access to the former reservoir area.

In 2018, after finalization of an access agreement with International Paper for the Confluence Area, FWP completed construction of the Milltown State Park Confluence area with its grand opening in June 2018. FWP is also working with the Bonner Development Group for a donation of property in the former Duck Bridge area. Efforts continue with the development of trails and other park amenities.

In 2019, along with operations and maintenance, FWP assessed the development of a connecting trail through the old Chicago-Milwaukee railroad tunnel and coordinated trail development up the Blackfoot River with the Montana Department of Transportation during the I-90 bridge replacement.

In 2020, FWP finalized a property donation from the Bonner Development Group to the Milltown State Park. This 17-acre parcel is located near the old Duck Bridge and includes established trails and a pavilion.

In 2021, FWP saw record visitation at Milltown State Park. FWP continues to work on trail connections within and to the park. The old Chicago-Milwaukee railroad tunnel evaluation continues as alternatives to safely open the tunnel are considered.

In 2022, FWP continued its operation of the Milltown State Park. A volunteer tree planting day was held on National Parks Day and in September a western red cedar tree was planted in the Confluence Area in recognition of former AC member and CSKT environmental staff member Mary Price for her years of dedicated work in the UCFRB. FWP did have to close the parks overlook area due to potential unstable areas near the cliff face, which FWP is evaluating in order to make a decision on how to manage this area.

Bonner Dam Removal

This work was completed in January 2014 with the removal of remaining dam infrastructure.

Clark Fork River Fishing Access Sites (FASs)

FWP and NRDP have established a memorandum of agreement for FWP to begin the scoping process on certain Upper Clark Fork River department-owned properties, which are currently undeveloped fishing access sites (FAS), to determine the feasibility of developing these FASs to include improvements such as boat launches, latrines, and designated parking.

- *Bearmouth FAS*: FWP completed the Bearmouth FAS in early 2019. The FAS is open to the public.
- *Gold Creek FAS*: FWP initiated work on the Gold Creek FAS in 2018. Gold Creek FAS was completed in 2019 and is open to the public.
- *Racetrack Pond FAS*: NRDP completed the Racetrack Pond FAS in 2018, except for the installation of the fishing pier, which occurred in spring 2019. FWP has stocked the pond with fish and the FAS is open to the public.
- *Vet Clinic FAS*: NRDP assisted FWP in completing a Checklist Environmental Assessment released for public comment. *As of fall 2022, FWP is working on a draft EA for this project.*
- *Kohrs Bend FAS*: NRDP, FWP, and DEQ evaluated new data related to possible contamination of sediments in the floodplain. NRDP is working with FWP and DEQ to develop an expected timeline for cleanup and recreational improvements at the site.

Figure 2-1. Aquatic Priority Areas 1 and 2

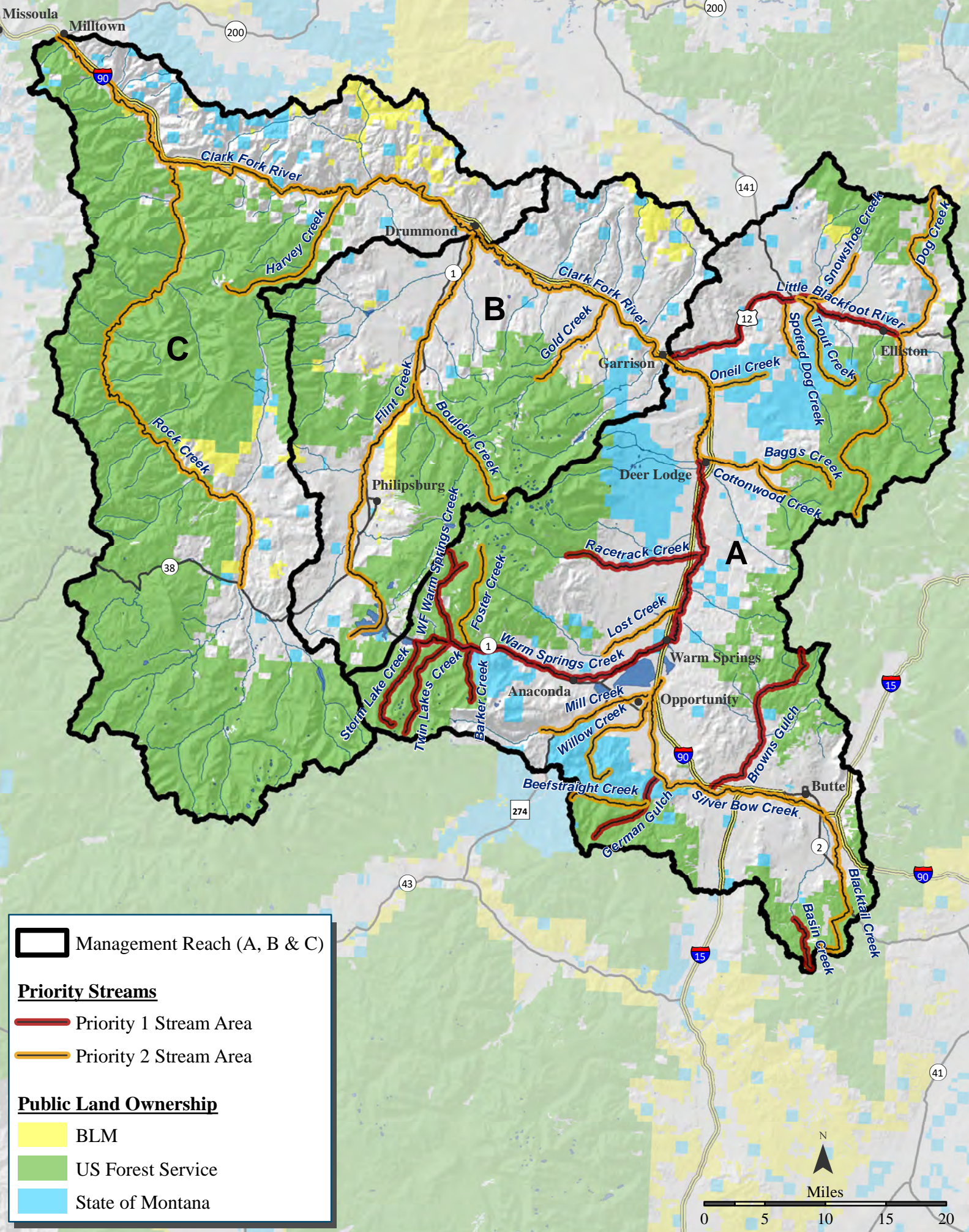


Figure 2-2 Terrestrial Priority Landscapes

