

Restoring Beavers for Montana's Watershed Health

Montana Beaver Action Plan

February 2021 Progress Report

A collaborative initiative of the Montana Beaver Working Group



Beaver habitat freezing up, along the Clearwater River. Photo: Rob Rich

Executive Summary

In February 2020, a group of 50 professionals representing diverse affiliations and expertise gathered in Butte, MT to identify priorities for restoring beaver and beaver habitat in Montana. With generous support from the Turner Foundation and hosting by the National Wildlife Federation (NWF) and the Clark Fork Coalition (CFC), participants committed to specific goals, strategies, and actions. Jennifer Boyer facilitated the meeting and worked with NWF and CFC to produce an Action Plan that outlined and summarized the meeting's commitments. This working document established lead groups/individuals for implementation and benchmarks for progress, with the expectation of reconvening early in 2021 to evaluate progress and next steps.

To prepare for its 2021 update, NWF and CFC reached out to some of the 2020 meeting participants to share their progress made over the previous year. This progress report reflects their contributions, as well as additional information gathered at a March 19, 2021 virtual workshop. Contributors to the initial meeting and/or this Action Plan update are listed at the end, with acronyms designating their place of work. The items offered here do not represent the positions of the participants' employers or affiliated organizations, but rather capture the key ideas developed by individuals in the 2020 and 2021 workshops and in follow-up communications.



Ninemile Creek, one of Montana's flagship watersheds for restoring beaver habitat. Photo: Sarah Bates

Background and Overview

The role of beavers and their dams in maintaining healthy watersheds has been a lively topic recently in the western United States and Canada. Interest in beavers among the ecological restoration community has increased dramatically in the last 10 years, with workshops, books, and films coming out to examine and promote the positive impact that beavers can have on fish and wildlife habitat, water supply, and watershed resilience to fire and drought.

Signs of this growing interest in Montana included a workshop in 2014 in Butte co-sponsored by the Miistakis Institute (Alberta-based nonprofit) and CFC, a workshop in 2017 in Missoula hosted by NWF and CFC with Montana Fish, Wildlife & Parks (FWP), and a public workshop in Helena in 2019 hosted by FWP. These workshops were generally very well attended by a broad array of state and federal agency biologists and land managers, nonprofit conservation organizations, university researchers, and members of other interested groups such as the Montana Trappers Association (MTA). In these workshops, participants learned about the science of beavers' impact on aquatic ecosystems, and heard stories from efforts to restore and expand beavers on the Montana landscape for decades (e.g. Dan Tyers and Greg Munther with the U.S. Forest Service (USFS), Jeff Burrell with Wildlife Conservation Society (WCS), and others).

Following these efforts and growing public interest in beavers, NWF and CFC decided to host a strategy meeting early in 2020 focused on developing concrete actions to move beaver restoration forward as a tool for watershed conservation and stream restoration statewide. The goal was to bring together a diverse group of people interested in beaver restoration, and to hammer out specific action items. In preparation for this meeting, participants completed an online survey to identify key topics of interest, shared objectives, needs and challenges. The results of the survey shaped the four priority goals in which discussion groups established strategies and actions included and extended in this Action Plan.

The meeting took place on February 21, 2020 in Butte, at Montana Technological University. Fifty stakeholders from around the state attended this daylong meeting, which included focused breakout sessions, collaborative activities, and large group dialogue. Although COVID-19 precluded some proposed actions that stakeholders developed in February 2020, many organizations were able to move forward during this year on the important work they intended.

This progress report summarizes strategies and actions that have emerged since that February 2020 meeting, including examples highlighted at a March 31, 2021 virtual workshop co-hosted by the Clark Fork Coalition and National Wildlife Federation.

Priority Goals, Strategies, and Action Steps

Goal 1: Integrate beaver into the design and approach of stream and wetland restoration, so that beaver restoration scales up and expands beyond isolated beaver habitat projects.

This topic was ranked first priority in the 2020 pre-meeting survey of participants. There is strong interest among restoration professionals and some agencies in using beaver and/or beaver dam analogs (BDAs) and similar process-based restoration techniques for certain types of degraded streams. Participants want to develop a common framework in Montana for when and how to integrate beaver into ecological restoration planning.

Strategy 1.1: Identify and prioritize suitable areas for beaver restoration in Montana			
Action	2021 Specific Examples	Partners	Contact
Analyze historic beaver presence in Montana using Beaver Restoration Assessment Tool (BRAT) with ongoing ground-truthing and refining.	With funding from the BLM, the Montana Natural Heritage Program produced a BRAT model for the Montana and western South Dakota, plus an online tutorial and series of workshops for user orientation.	MTNHP, BLM	Braden Burkholder, MTNHP - bburkholder@mt.gov
Coordinate development of methods, which may include citizen science, for surveying beaver habitat and occupancy, to refine habitat models and occupancy models.	Clark Fork Coalition worked with diverse partners to lead middle-school age-crews and adult volunteers in a citizen-science beaver habitat monitoring project in the Lolo NF. Future work may expand into the Blackfoot Valley. Produced a report for 2018-2019 surveys, a story map, and invited journalists to share the story.	CFC, LNF, MCC, NWF	Lily Haines, CFC - lily@clarkfork.org
	Swan Valley Connections produced a preliminary field survey and report of beaver habitat occupancy in the upper Swan Valley to spur USFS interest and prioritization for beaver restoration.	SVC, FNF (Swan Lake RD)	Rob Rich, SVC - rob@svconnections.org
Develop a decision flow chart for watershed-scale conceptual restoration planning using beaver, including social and biological suitability metrics.	FWP developing white paper to guide decision-making processes for headwaters beaver restoration.	FWP	Torrey Ritter, FWP Reg.2 - torrey.ritter@mt.gov

Prioritize beaver restoration on public land headwaters in Montana, and other sites where conflicts with humans are reduced.	BLM included language in Lewistown and Missoula management plan revisions to value beaver habitat for riparian and watershed health.	BLM	Alden Shallcross, BLM - ashallcross@blm.gov
	USFS evaluating opportunities to relocate beaver between watersheds in the Custer-Gallatin NF.	C-GNF	Allison Stringer, Bozeman RD / C-GNF / USFS - allison.stringer@usda.gov
	Lolo NF producing Draft Beaver Reference Guide for Unconstrained Populations to identify reestablishment in the most strategic locations with connections to recovery objectives.	LNF	Traci Sylte, Missoula RD / LNF / USFS - traci.sylte@usda.gov
	National Wildlife Federation presented on opportunities associated with beaver restoration through Forest Service planning at Beaver Con 2019 (OR).	NWF	Sarah Bates, NWF - bates@nwf.org
Strategy 1.2: Address fisheries and other resource managers' concerns by engaging in continual learning and sharing results widely			
Action	2021 Specific Examples	Partners	Contact
Research and communicate about problems associated with expanded beaver distribution and with beaver dam analogs, including fish community composition/competition, water temperature effects, fish passage concerns, impacts on water storage and flows, and impacts on riparian ecology	Ongoing UM PhD research exploring BDA feasibility/impact and fish passage around natural and simulated beaver dams in LNF. Produced 2 one-pagers summarizing preliminary results and presented at IOE Rough Cut seminar in Fall, 2020.	UM, CFC, LNF	Andrew Lahr, UM - andrew.lahr@umconnect.umt.edu
	Lolo NF inventorying road and stream crossing interactions and developing mitigation devices to integrate beavers and wetlands with crossings and reduce maintenance needs	Lolo NF	Traci Sylte, Missoula RD / LNF / USFS - traci.sylte@usda.gov
	Big Hole Watershed Committee produced "Holding Back the Snowpack," a video describing BHWG's ongoing integration of beaver mimicry into restoration for natural water storage and climate adaptation	BHWC, B-DNF, The Morris Ranch, TNC, WCS, FWP, Watershed Consulting, NRCS, Watershed and Environmental Technologies	Pedro Marques, BHWC - pmarques@bhwc.org

Integrated forest and stream restoration work in the Upper Clark Fork presented at the Montana Watershed Coordination Council "Summit to Stream 2020" Symposium	GWE, WRC	Amy Chadwick, GWE - achadwick@greatwestern.g.com ; Ted Dodge, WRC - ted.dodge516@gmail.com
Beaverhead-Deer Lodge NF pursuing BDA restoration activities; completed report for East Fork Divide Creek project.	B-DNF	Anne Roberts, Butte RD / C-GNF / USFS - anne.roberts@usda.gov
Bitterroot NF pursuing experimental BDA restoration with forthcoming how-to installation guide planned, in partnership with Niall Clancy (FWP)	BNF, USU, FWP	Niall Clancy, FWP Region 2 - niallc66@gmail.com
Custer-Gallatin NF pursuing BDA activities (Absaroka-Beartooths, Shield River, Sage Creek)	C-GNF	Allison Stringer, C-GNF, allison.stringer@usda.gov
Helena-Lewis and Clark NF pursuing BDA restoration activities (Beaver Creek, Big Belts)	HLCNF	David Kemp, Allison Kolbe Judith-Mussellshell RD / HLCNF / USFS - david.kemp@usda.gov , allison.kolbe@usda.gov
BLM implemented several low-tech, process-based restoration projects in coordination with NWF and partners along the Hi-line. They shared these projects throughout the state and with BLM news feeds.	BLM, NWF	Alden Shallcross, BLM - ashallcross@blm.gov ; Sarah Bates, NWF – bates@nwf.org
BLM entered into three new cooperative agreements: 1) with Utah State University, to enhance field project training, mapping, and protocol; 2) with Montana Watershed Coordination Council, to provide sub-awards to watershed groups to implement low-tech, process-based restoration in coordination with local BLM field offices; and 3) with the National Wildlife Federation, to assist BLM field offices with planning/compliance and support/training for watershed groups will need to implement low-tech, process-based restoration with BLM.	BLM	Alden Shallcross, BLM - ashallcross@blm.gov

	Two continuing education workshops included in 2021 American Fisheries Society of MT Annual Meeting: "Technical Solutions to Living with Beaver" (CFC, Beaver Institute) and "An Introduction to Low-Tech Restoration" (Utah State University)	CFC, UM, USU, Beaver Institute	Lisa Eby - Professor, UM lisa.eby@umontana.edu
Compile and share information for specific watersheds and for specific fisheries in professional meetings and publications.	ongoing (see above examples)		



In August 2020, NWF, BLM, and diverse partners completed the second work season of a three-year project to [restore prairie streams](#) in north-central Montana. By slowing water and creating wet meadows in priority sage grouse habitat, this effort will enhance the survival of this vulnerable species throughout the dry late summer and early fall. Photo: Sarah Bates

Goal 2: Expand beaver on public lands headwaters to restore self-sustaining ecological processes on riparian lands that will build resilience to drought and wildfires.

This topic ranked second in priority by the participants in the 2020 pre-meeting survey. Land management agencies, including U.S. Forest Service, Bureau of Land Management, and state agencies are increasingly appreciating the benefits of more beaver on the landscape, as a complement to their wider resource management goals, including climate resilience. Public lands are less vulnerable to private infrastructure-beaver conflicts, and can serve as demonstration sites to build public understanding.

Strategy 2.1: Identify, articulate, and pursue shared interests in beaver restoration among land management agencies in Montana.			
Action	2021 Specific Examples	Partners	Contact
Develop a briefing memo for federal/tribal/state agencies on shared goals and objectives for beaver management and restoration.	No progress due to Covid-19 and other constraints		
Draft a Memorandum of Understanding (MOU) among officials from key agencies, including Montana FWP, USFS Northern Region, Montana BLM, and Blackfeet Nation. The MT DNRC , MT DEQ, USFWS, NPS, and Bureau of Reclamation may be incorporated in a second phase MOU.	No progress due to Covid-19 and other constraints		
Obtain signatures and finalize MOU by November, 2020	No progress due to Covid-19 and other constraints		



Photo: Rob Rich

Goal 3: Provide coordinated education and outreach on the benefits of beavers and options for addressing nuisance concerns.

This goal focuses on developing a set of educational materials around the concept “living with beaver” to promote watershed health and increase tolerance for beavers on the landscape. This topic tied for second priority in the 2020 pre-meeting survey, and was identified as a key element in other topics. Participants agreed that education on the benefits of beaver and addressing beaver conflict issues are critical to success in expanding beaver on the Montana landscape.

Strategy 3.1: Combine existing “living with beaver” materials into a single, easily shared set of educational resources			
Action	2021 Specific Examples	Partners	Contact
Develop a packet of materials covering the MT BRAT model, potential benefits of beaver, interpreting habitat potential, non-lethal conflict resolution, role of trappers in management, and beaver mimicry compared with beaver activity	No unified packet developed, but several individual intentions achieved and acknowledged elsewhere in this update. Partners also making contributions to forthcoming revisions of the <i>Beaver Restoration Guidebook</i> to address this need, so there is potential to re-evaluate this action.	NWF	Sarah Bates, NWF - bates@nwf.org
	LNF advancing the keystone role of beaver on the landscape, through coverage in MTPR interview, Montana Beaver Working Group Newsletter, and elsewhere.	LNF	Traci Sylte, Missoula RD / LNF / USFS - traci.sylte@usda.gov

Conduct workshops and trainings to share information	see above	NWF, CFC, DOW	Will McDowell, Elissa Chott CFC - will@clarkfork.org , elissa@clarkfork.org
<p>Share with prioritized audiences:</p> <p>Tier 1 audiences (highest priority, with broad influence over others):</p> <ul style="list-style-type: none"> - Schools, students, and teachers - MT FWP and DNRC - Land trusts, watershed groups, and conservation districts - Cities and counties - MT Department of Transportation and railroads <p>Tier 2 audiences (secondary priority):</p> <ul style="list-style-type: none"> - Ranchers and farmers - Amenity landowners - Grazing coalitions, Farm Bureau, and Stockgrowers - Trappers, hunters, and anglers - USFS & BLM - Fisheries representatives 	see above	NWF, CFC, DOW	Will McDowell, Elissa Chott CFC - will@clarkfork.org , elissa@clarkfork.org
Develop curriculum related to beavers through the FWP community education program	Not yet started		
Develop educational materials around the BRAT beaver habitat model; publish a poster on benefits of beaver	MTNHP produced an online tutorial and is planning workshops in 2021	MTNHP, BLM	Braden Burkholder, MTNHP - bburkholder@mt.gov
Develop a packet of materials on beaver conflict resolution, and provide workshops and trainings to interested organizations.	The CFC-NWF-DOW Beaver Conflict Resolution Project presented at events for landowners, conservation districts, and the American Fisheries Society Annual Meeting 2021. This project also produced a "What Do I Do If I Have Beavers?" decision-making flow chart, a series of handouts describing the tools to mitigate conflicts, an information video, and hosted a live webinar.	CFC, NWF, DOW	Elissa Chott, CFC - elissa@clarkfork.org Lily Haines, CFC - lily@clarkfork.org

Develop fliers on benefits of beaver and beaver dam analogues.	The CFC-NWF-DOW Beaver Conflict Resolution Project developed several print handouts and materials; we also have ample supplies of existing "Pond of Gold" handout.	CFC, NWF, DOW	Elissa Chott, CFC - elissa@clarkfork.org
Strategy 3.2: Identify or establish point people and organizations to store, distribute, and update education materials, and commit to ongoing outreach, both internal and external			
Action	2021 Specific Examples	Partners	Contact
TBD	Future actions		



In May, 2020, the collaborative [Beaver Conflict Mitigation Project](#) built a 10' x 22' culvert exclusion fence to prevent beaver damming within two small culverts at Council Grove State Park, near Missoula. Problematic damming has not continued on the culverts since the installation, which alleviated the need for beaver trapping and offered an opportunity for public education through an informational sign near a well-used parking area. The design also included a wildlife passage corridor, which allows beavers and other large animals to use the culverts for movements up or downstream. Photo: Elissa Chott

Goal 4: Remove legal and policy obstacles to beaver habitat restoration and relocation of beavers to suitable, prioritized habitat.

This topic ranked third in the 2020 pre-meeting survey of participants. At the meeting, discussion group members identified removal of some policy obstacles and education on how to avoid other policy obstacles as ways to advance beaver restoration. They addressed two types of policies: permitting for beaver habitat restoration, and permitting for relocation of beavers themselves.

Strategy 4.1: Simplify and streamline the process for obtaining permits for beaver habitat and riparian restoration projects including beaver dam analogues (BDAs).			
Action	2021 Specific Examples	Partners	Contact
Share experiences among different practitioners in procuring permits for BDAs.	Several meetings and exchanges		
Encourage use of existing regulatory tools to more efficiently permit BDA and similar structures (e.g. Clean Water Act Section 404 binding agreement; National Environmental Policy Act categorical exclusion).	USFS is exploring efficiencies for Categorical Exclusions and Environmental Assessments for beaver restoration work	USFS	Scott Spaulding, Region 1 USFS - scott.spaulding@usda.gov
	Lolo NF is improving NEPA permitting strategy/coordination by promoting greater awareness to address beaver-related activities.	LNF	Traci Sylte, Missoula RD / LNF / USFS - traci.sylte@usda.gov
	BLM advanced Executive Order 14008 (Tackling the Climate Crisis at Home and Abroad) to put a new generation of Americans to work conserving our public lands and waters.	BLM	Alden Shallcross, BLM - ashallcross@blm.gov
	BLM is finalizing a Low-Tech, Process-Based Riverscape Restoration Programmatic EA for Montana and the Dakotas. While focused on BDAs and similar structures, the EA addresses the ways to maintain beavers on the landscape for ecological purposes and references best practices for mitigating nuisances and damage.	BLM	Alden Shallcross, BLM - ashallcross@blm.gov
Build common understanding and open lines of communication by conducting tours with the U.S. Army Corps of Engineers (USACE) and other regulatory agencies to established BDA sites, and perhaps by establishing a liaison position at USACE.	TNC is working with a student from the Bluhm Law Clinic (Northwestern University, Pritzker School of Law) to identify inconsistencies in wetland permitting through the USACE across the western US, especially in MT. This research should assist MT conservation efforts in making low-tech restoration project permitting more streamlined and cost-effective.	TNC, BHWC, NWF, CFC, TU	Sierra Harris, TNC - sierra.harris@tnc.org

Engage the MT DNRC & FEMA in dialogues about establishing a floodplain administrator for floodplain restoration who could process BDA-type proposals.	Not yet started		
Standardize monitoring and data collection/sharing on BDA projects.	BLM entered into Cooperative Agreement with Joe Wheaton of Utah State University to develop streamlined monitoring protocols for public agency use.	USU, BLM	Alden Shallcross, BLM - ashallcross@blm.gov
Strategy 4.2: Clarify and streamline processes for evaluating beaver relocation proposals			
Action	2021 Specific Examples	Partners	Contact
Share information about other western states' approaches to relocation, starting with Bob Inman's presentation at August 2019 FWP beaver workshop.	Some existing information in <i>Beaver Restoration Guidebook</i> and a 2015 report from the Miistakis Institute, but incomplete.	FWP	Torrey Ritter, FWP Reg.2 - torrey.ritter@mt.gov
MT FWP publish an updated, vetted guidance document for relocation procedures.	FWP developing white paper to guide decision-making processes for headwaters beaver restoration.	FWP	Torrey Ritter, FWP Reg.2 - torrey.ritter@mt.gov
Integrate review with habitat evaluation and prioritization outlined in Goal 1, above	FWP developing white paper to guide decision-making processes for headwaters beaver restoration.	FWP	Torrey Ritter, FWP Reg.2 - torrey.ritter@mt.gov



Amy Chadwick of Great West Engineering is seeing positive results from work to advance beaver mimicry activities for natural water storage above Butte's reservoirs and the nearby Blacktail Creek headwaters. This work occurred with diverse partners including but not limited to the Watershed Restoration Coalition, Wildlife Conservation Society, Silver Bow County, City of Butte, Montana Technological University, Watershed Consulting, and private landowners. Beavers are now moving into these restored areas for the first time in decades. Photo: Rob Rich

Next Steps

The action steps outlined here represent both short- and long-term efforts to advance beaver restoration for the benefit of Montana's watersheds. The partners named here, and others with shared interests, will be responsible for executing particular actions, which in most cases will require collaboration across agencies and groups to achieve success.

This draft report informed a virtual workshop on March 19, 2021, which included many people who attended the 2020 strategy meeting and several others, and which produced an updated set of strategic priorities.

As this work evolves, we invite any contributions that you have to advance these goals. Any specific examples you share – from images or written accounts to formal reports or emerging plans – will add value to our collective efforts. We will report our ongoing progress in newsletters and other communications with the [Montana Beaver Working Group](#), and in future convenings. If you are not already on the mailing list for the Montana Beaver Working Group and wish to be added, please contact Sarah Bates.

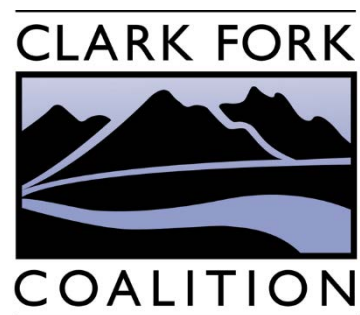
We wish to express our deep appreciation to all participants who are devoting time and energy to inform and engage with one another on this important issue. We hope to reinforce and build upon your commitment to improving Montana's watershed health. We are grateful for Rob Rich's valuable contributions to the content and editorial quality of this 2021 progress report.

Sarah Bates

National Wildlife Federation
Northern Rockies, Prairies & Pacific Region
BatesS@nwf.org
406.541.6730

Will McDowell

Clark Fork Coalition
will@clarkfork.org
406.396.7716



Action Plan Participants (2020 workshop)

Helen Augare, Blackfeet Community College (BCC)
Sarah Bates, National Wildlife Federation (NWF)
Vanna Boccadori, MT Fish, Wildlife & Parks (FWP)
Jennifer Boyer, Future West (facilitator)
Steve Carpenedo, MT Department of Environmental Quality (DEQ)
Amy Chadwick, Great West Engineering (GWE)
Elissa Chott, Clark Fork Coalition (CFC)
Ted Dodge, Watershed Restoration Coalition (WRC)
Michael Downey, MT Department of Natural Resources & Conservation (DNRC)
Lisa Eby, University of Montana (UM)
Termaine Edmo, Blackfeet Environmental Office (BEO)
Nick Gevock, Montana Wildlife Federation (MWF)
Eliza Gillilan, Big Sky Watershed Corps/Wildlife Conservation Society (WCS)
Joe Griffin, retired/former Montana Department of Environmental Quality (DEQ)
Sierra Harris, The Nature Conservancy (TNC)
Taylor Heggen, UM
Paul Hooper, USFS / Beaverhead-Deer Lodge NF (B-DNF)
Blake Hossack, University of Montana and U.S. Geological Survey
Kris Inman, Wildlife Conservation Society (WCS)
Kelvin Johnson, FWP
David Kemp, Helena-Lewis & Clark NF (H-LCNF, Helena RD)
Nathan Korb, The Nature Conservancy (TNC)
Ethan Kunard, Montana Watershed Coordination Council (MWCC)
Pedro Marques, Big Hole Watershed Committee (BHWCC)
Bryce Maxell, Montana Natural Heritage Program (MTNHP)
Will McDowell, CFC
Ernest McKenzie, U.S. Bureau of Land Management (BLM)
Amy McNamara, Natural Resources Defense Council (NRDC)
Greg Munther, citizen and former Forest Service biologist/district ranger
Robert Pal, Montana Tech University (MTU)
Paul Parson, Trout Unlimited (TU)
Denise Pengeroth, USFS / H-LCNF / Helena Ranger District
Olivia Regnier, TNC
Rob Rich, Swan Valley Connections (SVC)
Torrey Ritter, FWP
Anne Roberts, USFS / B-DNF
Alli Russell, USFS / H-LCNF / Helena Ranger District
Pat Saffel, FWP
Alden Shallcross, BLM
Glenn Shaw, MTU
Scott Spaulding, USFS, Region 1 Fisheries Manager
Allison Stringer, USFS / Custer-Gallatin NF (C-GNF) / Bozeman Ranger District
Kate Sutherland, NWF
Traci Sylte, USFS / Lolo NF / Missoula RD
Abigail Toretsky, Lolo Watershed Group (LWG)
Caleb Uerling, FWP
Gerald Wagner, BEO
Melissa Weatherwax, BCC

Catherine Wightman, FWP
John Wilson, Montana Trappers Association (MTA)
Alicia Yellow Owl, BCC