Montana Beaver Working Group

Connecting people and sharing resources
to advance the beaver's keystone role in watershed health

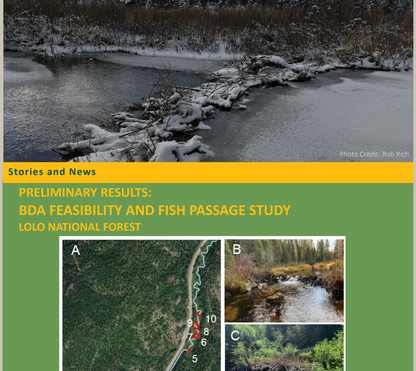

Photo Credit: Rob Rich

Stories and News

PRELIMINARY RESULTS:
BDA FEASIBILITY AND FISH PASSAGE STUDY
LOLO NATIONAL FOREST

Fig 1. A) Map of 1.95 km section of West Fork Lolo Creek where study occurred. Beaver dams marked in red. Numbers indicate dam ID number. B) Photograph of beaver dam 4 (max dam height 0.62 m). C) Photograph of beaver dam 5 (max dam height 1.15 m). D) Photograph of beaver dam 9 (max dam height 0.67m).

Image Credit: Andrew Lahr, 2020. Lolo Beaver Dam Fish Passage Project

As 2020 came to a close, the multi-year beaver study partnership between the Lolo National Forest, Clark Fork Coalition, and the University of Montana has some preliminary results to share. In the first year of post-restoration data collection for their beaver dam analogue (BDA) feasibility study at Tepee Creek (where BDAs were installed) and North Howard Creek (left as a control), the data is showing that: 1) In regards to hydrology, there are small increases in residence time and baseflow discharge compared to pre-restoration, and these changes were not observed at the control site; 2) In regards to habitat, there was an increase in the treatment site's average bankfull depth and increase in wetted depth that was not observed at control site; and 3) In regards to temperature, there were some increases at individual loggers at the treatment site compared to the control, but that maximum average temperatures across all loggers did not increase in the restoration site as much as they did at the control, indicating potential increases in groundwater exchange.

In a companion study, the partnership explored the effects of beaver dams on fish movement and passage. Lead researchers Andrew Lahr and Lisa Eby monitored beaver dam characteristics and stream flows during on the West Fork Lolo Creek during summer 2020, and after following more than 600 tagged westslope cutthroat trout and brook trout, they found fish passed over each of the 10 dams in the study. This passage occurred regardless of dam height, and the tallest dam was passed more than any other. Sampling will continue into the spring and summer of 2021, which will enable Lahr and Eby to examine data from a wider range of flow and dam conditions, as well as the effects of dams on the critical spring spawning movements of westslope cutthroat trout. These data will also be compared to the fish passage sampling results in the BDA feasibility study to enable analyses between natural and simulated beaver dams.

NEW RESEARCH TO EXPLORE
THE EFFECTS OF BEAVER MIMICRY ON RIPARIAN FOOD WEBS

Photo Credit: US Forest Service

Caddisflies and beavers are both ecosystem engineers, altering their habitats to increase their odds of survival. With thin silk threads, caddisflies bind fine gravels and woody debris in casings around their bodies, as protection from predators. Like the beaver, these localized changes for have larger impacts, altering substrate, flow, and relationships throughout the aquatic ecosystem.

Drs. Rachel Malison *(Flathead Lake Biological Station)* and Ben Coleman *(UM College of Forestry and Conservation)* are starting a new project examining the influence of beaver mimicry on the structure and function of headwater streams and riparian food webs in western Montana. As part of the Systems Ecology program at the University of Montana, they will be launching this work with a new graduate student in May 2021. The project will focus on understanding changes to aquatic insect communities due to the installation of BDAs, which are increasingly used as a method of stream restoration. Aquatic insects are an important component of streams and their surrounding riparian ecosystems. This work on aquatic insects, combined with ongoing work focusing on how BDAs influence fish communities and stream/riparian biogeochemistry, will provide important information on how BDAs influence linked stream-riparian systems.

Photo Credit: Rob Rich

UPCOMING EVENTS

WORKING WITH BEAVER FOR RIPARIAN HEALTH:
How University Research Supports Conservation and Management

February 3, 2021 at noon (MST).
Free virtual webinar with registration here.
Given a strong response to its November presentation, the Montana Institute on Ecosystems' Rough Cut Seminar Series will run Part 2 of "Working with Beaver for Riparian Health: How University Research Supports Conservation and Management." Along with introductory remarks from Sierra Harris *(The Nature Conservancy)* and Sarah Bates *(National Wildlife Federation)* this event will feature:

Dr. Rebekah Levine (Assistant Professor – UM Western)
Torrey Ritter (Nongame Biologist, Region 2 – Montana Fish, Wildlife & Parks)
It is free, and you can register to attend here. Part 1 on this topic was recorded in November 2020 and featured Andrew Lahr, Andrew Bobst, and Jamie McEvoy. The recording can be found here.

ASWM-BLM BEAVER RESTORATION SERIES

February 4, 2021, 1-2:30pm MST.
Register and (view the previous four webinars) here:
https://www.aswm.org/aswm/aswm-webinarscalls/3354-beaver-restoration-webinar-series

Photo Credit: Rob Rich

Webinar #5: **Coalition Building for Beaver Based Stream and Wetland Restoration Success** will feature these speakers:
Alexa Whipple (Director – Methow Beaver Project)
Chris Jordan (Research Biologist – NOAA/NMFS Northwest Fisheries Science Center)
Natalie Arroyo (Lecturer – Humboldt State University)

The Association of State Wetland Managers and the Bureau of Land Management continues to co-sponsor its Beaver Restoration Series.

MONTANA TECH PUBLIC LECTURE SERIES

March 31, 2021, 4pm MST.
Stay tuned and find access here.
On March 31, Carly Peach of Montana Technological University will offer her presentation, "Beaver Ponds as Catchment-Wide Retention Basins for Heavy Metals Sequestration."

RESOURCES

IF FIRE WERE AN ANIMAL, IT WOULD BE A BEAVER

Lenya Quinn-Davidson
Essay on the blog of the Fire Adapted Communities Learning Network, linking two necessary ecosystem processes for the health of the American West.

"INTEGRATED FOREST AND STREAM RESTORATION FOR WATERSHED RESILIENCE"

Fred Staedler, Jr. (Watershed Restoration Coalition) and Amy Chadwick (Great West Engineering)
Presentation materials available from the Summit to Stream Watershed Symposium, hosted by the Montana Watershed Coordination Council and Montana Forest Collaboration Network in October 2020.
You can find their slides here, and handout here.

PACIFIC STATES MARINE FISHERIES COMMISSION, HABITAT PROGRAM

Beaver Video Series
This excellent, four-part video series on beaver benefits and coexistence in salmon ecosystems features landowners, fisheries biologists, and hydrologists with valuable, transferrable insights for Montana.

Hi, my name is Rob Rich, and I've recently started working with the National Wildlife Federation to support its beaver restoration goals, including coordination of this Montana Beaver Working Group newsletter.
I also work at Swan Valley Connections, and I've spent over a decade as a field naturalist and educator throughout New England and Pacific Northwest. Please feel free to reach me at rlrich3@gmail.com, and know that I look forward to growing the impact of the Montana Beaver

Photo Credit: Andrea DiNino

Please send photos, stories, upcoming events, and other resources to:
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MT Beaver Working Group newsletters are posted online at:
nwf.org/Works-With-Beavers