



Blackfoot Watershed Stewardship Guide

Resources for conserving
community values through land
and water stewardship

Dear neighbor,

We are fortunate to be in the Blackfoot watershed, a special place not just because of its incredible natural setting, but also because of the people who call it home. In the Blackfoot, we've learned that respect and collaboration among neighbors help us all to be better stewards of this landscape. Working together, we are able to pool the knowledge that comes from decades of living on the land with a focus on the latest research and information.

After generations of our family ranching in the Ovando valley, I find that we're still trying new ways to manage our land and resources. Some traditions stand the test of time, while other methods have evolved as we have learned new ways to care for this remarkable place. We believe that together we can find the best solutions to living here while conserving the natural values that make it the place we love. In a watershed organization we talk about stewardship "from ridgetop to ridgetop," realizing that what we do affects not just our own property or livelihood, but those of everyone in our shared landscape.

So whether you're new to the watershed or a longstanding resident, I hope you'll join me in committing to be a part of the solution to the issues we face, whether they be reducing conflicts between people and wildlife, weathering changes in water availability, or improving the way we manage our forests and grasslands. This Stewardship Guide is the beginning of a conversation — a way for us to share our collective knowledge and understanding, for our own good and for this place we all call home.



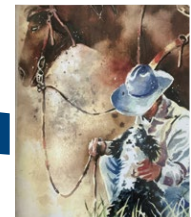
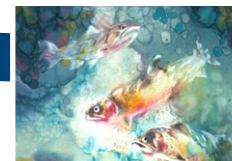
Jim Stone, Chair
Blackfoot Challenge



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Cover art: THE BLACKFOOT, Angela Bennett



Introduction

The Blackfoot Challenge has long recognized the need for a local resource that residents can reference to learn about natural resource issues and land stewardship in the Blackfoot River watershed. We developed this stewardship guide to share basic information and best practices related to water, wildlife, forestry, grazing, wetlands, native and invasive plants, and more. We provide a few pages of helpful information for each of these topics along with lists of pertinent contacts, resources, and references to easily learn more or to find assistance from Challenge staff and our partners. So whether you are a new resident or a long-time landowner, we hope this will be a helpful go-to source to learn more about many of the stewardship issues and resources unique to the Blackfoot.

"We have never thought of ourselves as the true 'owners' of this land. Instead, we are stewards of the soil, streams, grass, timber, and wildlife that belong to this ecosystem. The land is the lifeblood of our community, and we strive to be worthy caretakers of those resources that fall under our management."

—Mannix Family Ranch, Helmville



WHITE WINGS TOUCH SHORE, Claire Emery

A note about the art used in this guide: several local artists have generously donated the use of their artwork for this guide. We feel the inclusion of these works helps convey the beauty of the Blackfoot, while also sharing the community spirit and creativity of those who live here. A list of the art pieces and artist contact information is included at the end of the guide. Please join us in supporting these generous local artists!



The Blackfoot Challenge is a community-led collaborative of land and resource managers throughout the Blackfoot River watershed. Since 1993, we have coordinated inclusive and respectful conversations focused on issues facing the watershed and its residents. By following a deliberate process that builds understanding and common ground, these conversations lead to on-the-ground solutions for conservation and stewardship, supporting the Blackfoot's many generations to come.

MISSION

To coordinate efforts to conserve and enhance the natural resources and the rural way of life in the Blackfoot watershed for present and future generations.

CURRENT PROGRAMS

- **Blackfoot Community Conservation Area:** A 5,600-acre community forest managed cooperatively by a 15-member community council for multiple uses.
- **Conservation Strategies:** Coordinating land conservation and stewardship between private landowners, public agencies, and land trusts to keep working landscapes intact.
- **Education:** Nurturing watershed awareness and stewardship through place-based education.
- **Forestry:** Restoring forest health and reducing wildfire risk near communities.
- **Land Stewardship:** Supporting landowners through stewardship assistance one property at a time.
- **Trumpeter Swans:** Restoring trumpeter swans to their native habitat on Blackfoot wetlands.
- **Vegetation:** Integrated, locally-led approaches to invasive plant management across fence lines.
- **Water:** Voluntary water stewardship grounded in shared knowledge and shared commitment.
- **Wildlife:** Reducing human-wildlife conflicts through proactive and preventative strategies.

BECOME A MEMBER

Membership in the Blackfoot Challenge is free and includes access to a variety of stewardship programs and resources, as well as invitations to meetings, tours, and events where you can learn about issues facing the watershed and meet others who support the mission of the Challenge.

Sign up at blackfootchallenge.org!



The Blackfoot River Watershed

The Blackfoot River watershed is well-known for its beauty, ecological diversity, recreational opportunities, and rural way of life. Beginning at the Continental Divide east of Lincoln, the Blackfoot River runs 132 miles westward to its confluence with the Clark Fork River just east of Missoula. The 1.5-million-acre watershed forms the southern end of the Crown of the Continent, one of the most ecologically-intact ecosystems in North America. Every species that was known to be present when Meriwether Lewis made his return trip east along the Blackfoot River in 1806 still resides here today.

A history of glaciation left the Blackfoot watershed with a mosaic of habitat types that support a wide variety of fish and wildlife species. Higher elevations — including the Rattlesnake and Scapegoat Wilderness Areas — support trees such as subalpine fir and Engelmann spruce. Low and mid-elevation forests are dominated by ponderosa pine, lodgepole pine, Douglas-fir, western larch, cottonwood, and aspen. The watershed floor — characterized largely by private ownership — is covered with meadows, sagebrush steppe and native bunchgrass. The greatest source of biological diversity in the watershed arises from wetland features such as glacial “potholes,” basin-fed creeks and spring creeks, marshes, shrubby riparian areas, and cottonwood forests. Rare wildlife species that call the Blackfoot home include grizzly bear, gray wolf, Canada lynx, wolverine, sandhill crane, and trumpeter swan, among many others. The river and its tributaries house a world-renowned blue-ribbon trout fishery, providing habitat for the native bull trout and westslope cutthroat trout.

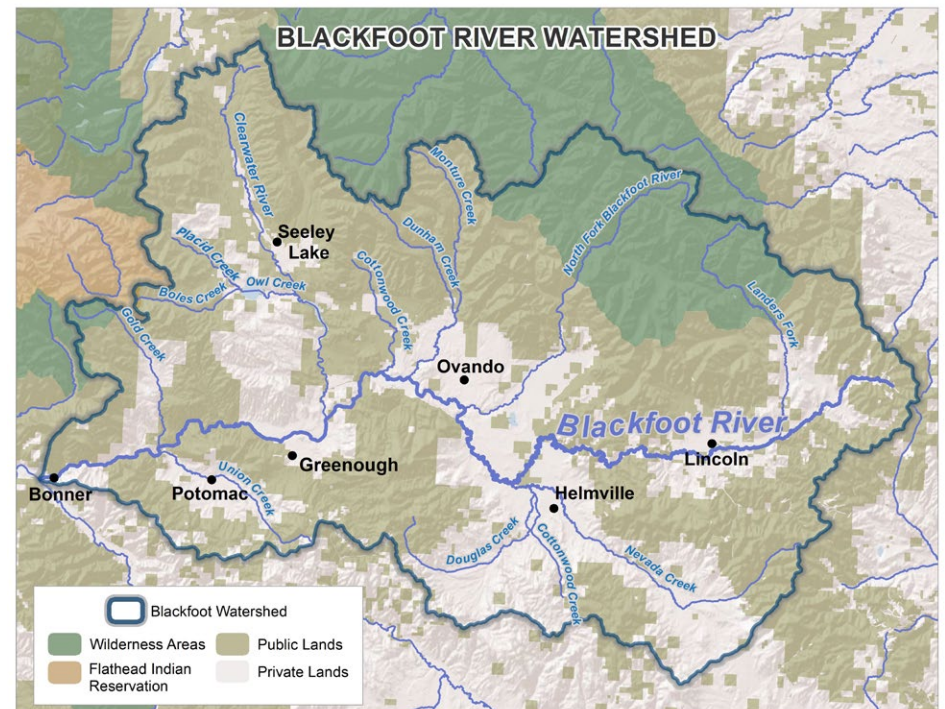
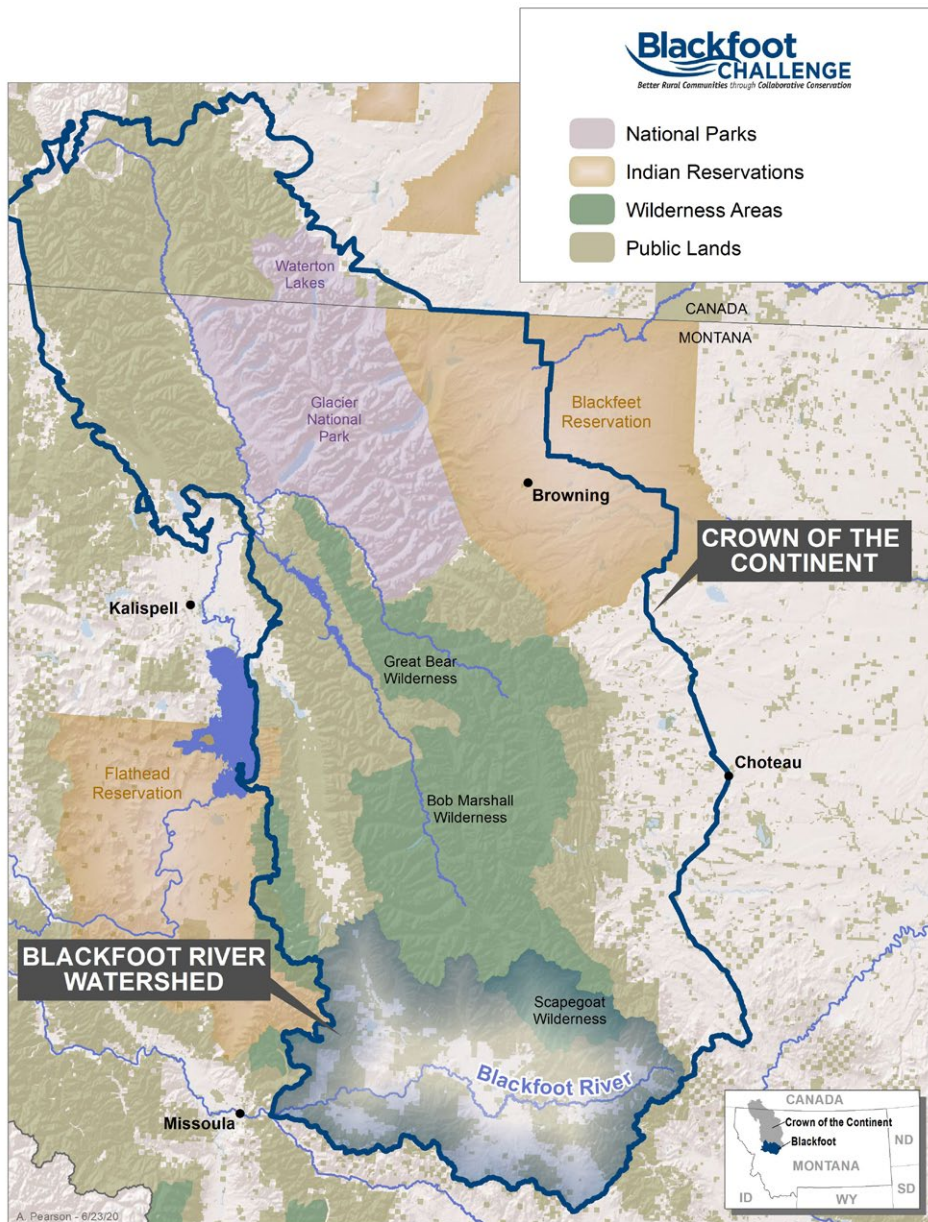
The people of the Salish, Kootenai, and Nez Perce Tribes hunted, fished, and gathered in the Blackfoot watershed, and used the river corridor, the “Cokahlarishkit” (Road to the Buffalo), as a passage to the bison herds east of the Continental Divide. Salish place names for the river, “In-ah-e-it-z-chistum” (bull trout river), or “Naayc̓stm” (the place of large bull trout) indicate the importance of the river and one of its now iconic trout species to the native people of Western Montana.

The Lewis and Clark Expedition and other white explorers found extensive trails already in the Blackfoot when they arrived.

Unlike other watersheds across Western Montana, the Blackfoot remains relatively undeveloped. Cradled between the larger cities of Missoula and Helena, the Blackfoot remains rural with approximately 9,000 residents. Seven communities dot the landscape, from Lincoln at the headwaters of the Blackfoot River down to Bonner at the mouth, with Helmville, Ovando, Seeley Lake, Greenough, and Potomac in between. Logging and ranching remain principal livelihoods and still shape the core identities of most communities, while newer economies based in recreation and tourism are on the rise.

This rich diversity of communities, wildlife species and habitats in the Blackfoot watershed is complicated by a checkerboard land ownership pattern that dates back to railroad development and settlement of the west. Nearly 10 unique agencies or organizations own and manage land in the Blackfoot, in addition to private landowners. This complexity gives rise to the need for a coordinated vision and management approach across the entire landscape. While founders of the Blackfoot Challenge recognized the inherent “challenge” in bringing all these partners together, they similarly recognized the opportunity that collaboration presented for the long-term success of the Blackfoot watershed. It is in this spirit of public and private collaboration that we offer a guide for stewarding private land here.

We have tried to draw upon generations of wisdom from those who live and work in the watershed, as well as the latest scientific and commonsense knowledge of specialists. However, being good stewards of the place where we live is always a work in progress, and we’re all learning and re-learning every day. We welcome the contribution of your own knowledge and understanding to our watershed community.



Maps by Amy Pearson, The Nature Conservancy

Water Rights & Conservation

We are in this together

Water is the life force of the Blackfoot watershed. The Blackfoot River connects the communities throughout the watershed as it flows from its headwaters above Lincoln at the Continental Divide to its confluence with the Clark Fork River at Bonner. The river and its tributaries provide habitat for countless fish and wildlife species, irrigation water vital to the survival of family ranches, and opportunities for world-class fishing and recreation that feed our bodies and our spirits. Interest in the health of the river is what brings together ranchers, landowners, recreationists, resource managers, and others to collaborate on innovative conservation in the Blackfoot watershed. The Blackfoot Challenge wants to provide landowners with the information and assistance they need to be the best possible stewards of the river and the lands through which it flows.

Understanding water rights, water conservation, and how to protect our water resources and the habitat they provide will help to not only conserve the incredible biological diversity of the Blackfoot, but will also help

keep our communities healthy and vibrant and our rural ways of life intact.

Water Rights

In Montana all water is owned by the state, and its use is allowed through water rights. A water right allows you to legally use water in a prescribed manner. A water right designates a source, a beneficial use, a quantity or flow rate, a place of use, and a source of diversion. Beneficial use means for the benefit of the right's owner, other persons, or the public, including for agriculture, domestic use, fish and wildlife, mining, power, recreation, and instream flow to benefit fish. Because Montana waters belong to the state, water rights holders do not own the water itself. Instead, they possess a right to use the water, within state guidelines. The Montana Constitution explains that:

[a]ll surface, underground, flood, and atmospheric waters within the boundaries of the state are the property of the state for the use of its people . . . (Article IX, section 3(3)).



EMERSED, Annie Allen

Water rights in Montana are guided by the prior appropriation doctrine: that is, *first in time is first in right*. A person's right to use a specific quantity of water depends on when the use of water began — defined by the water right's "priority date." The first person to use water from a source established the first right (the senior right); the second person could establish a right to the leftover water, giving them a junior right, and so on.

FAQs

How do water rights affect what I can do on my property?

"Water use" includes actions like impounding or diverting water. Water users are limited to the amount of water they can beneficially use. Your water rights also define where that water can be used. The Blackfoot is in a "closed basin" — meaning all available *surface water* rights have been appropriated and no new ones may be established. Anyone who anticipates using more than 35

By the numbers in the Blackfoot watershed

132

miles of Blackfoot River

3,700

miles of streams

6,452

water rights holdings

6,000

cfs at high flow

15,000

irrigated acres evaluated
for efficiency

100

drought response participants

gallons a minute or 10 acre-feet a year of *ground water* is required to obtain a permit to appropriate water before any development begins or water is used.

How can I find out what my water rights are, if any?

The Montana Department of Natural Resources and Conservation manages water rights across the state. Offices in Helena and Missoula support residents across Missoula, Powell, and Lewis & Clark counties in understanding water rights and resolving disputes.

The Montana DNRC operates an online searchable database that provides detailed information, history, and maps about all water rights in Montana, including individual water rights in our basin.

What is the Milltown Water Right and how does it affect me?

In April 2015, the Montana Legislature ratified the Confederated Salish & Kootenai Tribes (CSKT) Water Rights Compact. The compact negotiations incorporated some off-reservation water rights — including

the former hydropower right at the Milltown Dam. The original Milltown Dam water right, now two separate rights for the Blackfoot and Upper Clark Fork Rivers, is co-owned by Montana Fish, Wildlife & Parks and CSKT. Enforcement of the Milltown Right was deferred for 10 years until April 24, 2025, to allow time for stakeholders to coordinate on water management and drought planning. The Milltown Water Right has a 1904 priority date that will be used as the basis for enforcing the right and for engaging water users and other stakeholders in drought response to protect instream flows for native fish. That priority date will be enforced during drought conditions starting in 2025.

Water Conservation

The Blackfoot is a remarkable watershed that has benefited from decades of stewardship by local communities and conservation partners. When you conserve water, you become part of the Blackfoot's conservation legacy and help perpetuate the region's diverse natural resources, high quality of life, and varied recreational opportunities.

FAQs

What are some methods being used to conserve water?

There are many ways to reduce water use; just a few of the most common tools include:

- Improving efficiency of irrigation pumps, pipes, nozzles, and delivery systems (such as low-flow nozzles, underground pipe, or ditch lining).
- Reducing water use during low river flows (watering lawns less or rotating pivot use).



Clockwise from top left: Students monitor stream flows and temperatures to help landowners and agencies make informed decisions about water conservation and stream restoration; photo by Elaine Caton. Even smaller tributaries can provide habitat for water-dependent species like trumpeter swans, and contribute critical water to the Blackfoot River during times of drought; photo by Greg Neudecker. Water developments away from the stream channel provide a reliable source of stock water for ranchers, while minimizing livestock impacts to streambanks and protecting water quality; photo by Eliza Wiley.

- Retaining surface water instream during critical periods through an instream flow lease with a conservation organization.
- Conducting stream, riparian area and floodplain restoration projects to cool stream water and naturally retain more water instream and underground.
- Improving soil health to better retain moisture and fully saturate irrigated soils early in the spring when water is plentiful, so that irrigation can be curtailed and groundwater storage can carry you through drought.

What is the Blackfoot Drought Response Plan?

Recognizing the Blackfoot's blue-ribbon fishery many years ago, the State of Montana established a water right to protect instream flows for native fish — specifically

bull trout and westslope cutthroat trout. That water right forms the basis for the voluntary Blackfoot Drought Response Plan. The success of this approach depends on collective water conservation from all water users during drought years, but particularly those who hold significant water rights in the Blackfoot and its tributaries.

The Blackfoot Drought Response Plan is based on the premise of “shared sacrifice” with the goal that all Blackfoot water users voluntarily agree to take actions that will save water and reduce stress on fisheries during critical low flows. Under the Blackfoot plan, water rights holders both junior and senior to the 1904 instream flow water right are asked to establish individual water conservation plans and voluntarily reduce water use when flows reach predetermined thresholds. This

allows junior water users to reduce water use and not be subject to an enforcement “call” to shut off their water use. Participation by other interests such as fishing outfitters and local residents is also critical to the success of the plan. Outfitters and anglers are asked to limit fishing hours and/or alter angling techniques on the river and critical recovery streams when predetermined temperature thresholds are reached. By taking these actions, the angling community helps to reduce stress to fish and increase chances of survival during critical low flow periods. This approach distributes the impacts of drought to all water users instead of to just junior rights holders. Participants in the Blackfoot Drought Response program use a variety of tools and services to help reduce water use year-round as well as specifically during drought conditions. By working together, all water users



“The water binds us all together, and we have to find a balance between these uses. A drought management plan helps us do that here on the ranch.”
—Leigh Kelley, Paws Up Ranch, Greenough

Photo by Bruce Andre

have a unique opportunity to positively impact the future of the Blackfoot watershed.

How can I participate in the Drought Response Plan?

Blackfoot Challenge staff can help you develop a water conservation plan tailored specifically to your needs and water rights. All water rights holders in the watershed are encouraged to participate in the plan. Participants will

receive updates on water conditions and other pertinent information from the Drought Response Committee throughout the water use season.

Aquatic Invasive Species

Aquatic Invasive Species (AIS) are non-native plants and animals that can cause significant harm to our environment and economy by spreading quickly. Like terrestrial invasive species, AIS populations can grow rapidly because there are no natural predators or competitors to limit them. The damages AIS can cause include replacing desirable native species, degrading and clogging streams, culverts, and ditches, impacting irrigation systems, and threatening fisheries. Options available for management of AIS after they have fully established in a water body are severely limited and expensive. Prevention and early detection are the most effective actions we can take to preserve and protect our healthy aquatic systems. Currently, no AIS are in Blackfoot waters. However, zebra and quagga mussels, as well as the invasive plants Eurasian watermilfoil and curly-leaf pondweed, are the dangerous invaders most likely to appear in the Blackfoot River watershed.



Thanks to Montana's inspection program, the Blackfoot River watershed remains free of invasive aquatic mussels. But the number of boats detected with mussels is increasing. Photo by National Park Service



As anglers, boaters, hunters, irrigators, and pond and aquarium owners, we can all help protect Montana waters.

Water Resources



Access these resources and more on our website

<https://blackfootchallenge.org/stewardship-guide>

- Water Rights in Montana Handbook
- Water Rights Query System
- Milltown Water Right Info & Abstracts
- Blackfoot Drought Response Plan
- Confederated Salish and Kootenai Tribes Water Compact
- Aquatic Invasive Species Information

Blackfoot Challenge Water Steward

Jennifer Schoonen

Email: jennifer@blackfootchallenge.org

Phone: 406-793-3900

Services include: Drought planning; irrigation efficiency evaluation; irrigation water management & irrigation scheduling; soil moisture monitoring; beaver conflict mitigation; stream restoration.

Streams & Wetlands

Where the land meets the water

In our relatively arid landscape, water creates areas of vital and vibrant habitat, allowing plants that could not grow elsewhere to grow along streams (the riparian zone) and in wetlands. The watershed contains a wide-spread network of lakes, ponds, wetlands, and streams scattered within grasslands, agricultural croplands, and forests. Most of our wildlife species use a combination of these habitats. Riparian and wetland areas are the most productive wildlife habitats in the watershed. Although only about 3% of Montana is riparian habitat, 59% of land bird species use riparian and wetland habitats for breeding purposes, and 36% of those breed only in riparian or wetland areas. Many other kinds of animals, from amphibians to moose to bears, shelter and feed in these lush habitats.

Riparian trees and bushes also produce large numbers of insects for birds and other species to feed on. They

shade streams, which keeps water temperatures low for cold-water species like trout and other native fish. Leaves and twigs form the base of the aquatic food chain when they fall into streams, and are critical to overall stream health. The woody debris slows the stream velocity, giving the water more time to soak into the surrounding soil, and also creates resting and hiding places for fish in the stream channel. These same plants provide important services to humans as well by stabilizing stream banks, absorbing the power of floods, and modifying water flow throughout the year.

By treating these relatively small but important areas with extra care, we can have healthy and productive working lands as well as healthy, productive streams and wetlands.

By the numbers in the Blackfoot watershed

120

miles of streams restored

15

streams monitored for water quality and quantity

30,000

wetland acres

12

native fish species depend on cold, clear water

56

mammals depend on these areas for habitat

100+

bird species nest in wetlands and riparian areas



MARSH MAGIC, Lisa Gibson

FAQs

What good are wetlands?

Our wetlands can:

- Improve water quality by filtering sediments and toxins and absorbing nutrients.
- Provide flood control by absorbing large amounts of water and gradually releasing it to adjacent areas.
- Replenish groundwater by holding precipitation until it can percolate into the soil.
- Provide food and habitat for ducks, geese, shore-birds, and swans.
- Enhance property values.

Herbaceous wetlands (those mostly without trees and shrubs) mainly occur on private land in the valley bottom, and good stewardship is vital to their health.

"Everything we do has effects downstream. It all comes down to cooperation and communication, working together and doing what you can for others."

—Steve & April Woodhouse, Cooper's Lake landowners

How do I know if an area is considered a wetland? Is it always wet?

Wetlands are areas that are saturated for at least part of the year. The presence of standing water is a sign that the area could be a wetland, but the lack of visible water doesn't mean it isn't a wetland, as wetlands aren't necessarily wet all the time. Wetlands can dry during part of the year or during drought.

Wetlands and other waters that are subject to federal regulations are "jurisdictional waters." For wetlands to be jurisdictional in Montana, they only need to be saturated at or near the surface for about 12.5 days of the growing season. In some wetlands, water will not be present for much of the time, but there are other clues to help you identify them as wetlands:

- Look for vegetation that is greener and more vigorous than the surrounding area, especially if in a low area or near open water.
- The types of plants present can also identify a wetland. Common wetland plants in the Blackfoot include willows, alders, cottonwoods, aspen, cattails, rushes, and sedges.
- Wetland soils are poorly drained and may look gray.

As a landowner, what can I do to protect our water resources and aquatic habitats?

Maintaining an undisturbed, healthy riparian area helps increase absorption of water by the soil, slows runoff and erosion, and keeps damaging sediments out of the

streams. If you are logging or otherwise removing vegetation in the area, leave vegetation intact along streams and wet areas. The Montana Department of Natural Resources and Conservation guidelines for streamside management zones define those zones as 50 feet wide along each side of the stream in relatively flat areas and 100 feet wide in steeper areas.

If you have livestock on your property, minimizing their access to riparian zones will also keep streams healthy. There are many options available to provide water to livestock while protecting understory plants and preventing erosion. Fencing streams with water gaps left open where animals can reach a small area of the stream, hardened water crossings, and using offsite watering sources such as stock tanks can minimize erosion, sedimentation, and the trampling of vegetation. There is often financial support available to help landowners with the costs of protecting these valuable aquatic resources.

What if I need to work in the streambed, build a bridge or water diversion, or otherwise impact a stream or a wetland?

If you are planning to do work in or near a waterway in Montana, even on private property, you might need a permit from one or more state agencies. The Montana DNRC and other agencies have teamed up to create a joint application form for a *310 Permit*, which covers all aspects of work affecting water resources. Conservation Districts are local divisions governed by a non-paid,

nonpartisan board of supervisors whose role is to "promote education, incentive-based and voluntary approaches to conservation. They serve as non-regulatory, trusted, local partners helping people care for natural resources." The Blackfoot watershed falls within three Conservation Districts: The Lewis and Clark CD, the Northern Powell County CD, and the Missoula CD. Conservation District representatives can answer questions about stream and wetland health, provide resources, and give guidance on working in wet areas.



Streamside vegetation and woody debris in streams help slow runoff, lower water temperatures, filter sediment, and provide habitat for trout. Photo by Elaine Caton

Stream & Wetland Resources



Access these resources and
more on our website

<https://blackfootchallenge.org/stewardship-guide>

- Importance of Streams & Wetland Habitats
- A Guide to Riparian Buffers
- Water Quality Policy, Procedures & Tools
- Stream Permitting Information
- Technical & Financial Assistance

Conservation District Administrators:

- Lewis and Clark CD: 406-449-5000 ext. 5, lccd@mt.net
- Missoula CD: 406-303-3427, missoulacd@macdnet.org
- North Powell CD: 406-415-4043

Blackfoot Challenge Land Steward

Brad Weltzein

Email: brad@blackfootchallenge.org

Phone: 406-793-3900

Services include: Consultation on streamside vegetation management; grazing planning; assistance with permitting; financial assistance.

Did you know?

The importance of vegetation along waterways:

- Filters sediments that can clog gills and smother eggs of fish and other aquatic life.
- Traps and removes pollutants like nitrogen, ammonia, and pesticides.
- Lowers water temperatures, benefitting native cold water fish and other animals.
- Increases dissolved oxygen in the water, necessary for aquatic life.

Photo by David Schmidt

Montana Stream Access Law

Montana's stream access law allows recreationists to use rivers and streams up to the ordinary high-water mark for fishing, swimming, floating, boating, and "other water-related pleasure activities," regardless of who owns the adjacent land. The viability of this law hinges on the mutual respect, cooperation, and goodwill of landowners and recreationists.



Photo by Stephen Beaumont

Wildlife & People

Sharing the landscape

The Blackfoot watershed is one of the most biologically diverse and intact natural landscapes in the western United States. Because of its rural and largely undeveloped nature, the Blackfoot provides habitat for many big game species as well as several species that have been lost from other areas, such as grizzly bears and Canada lynx (both federally listed as threatened species), mountain lions, gray wolves, wolverines, fishers, and a wide variety of small mammals.

The watershed also provides high quality nesting, migratory, and wintering habitat for a diversity of bird species, many of which are at risk due to low and declining overall population levels. High conservation priority species in the Blackfoot include common loon, trumpeter swan, harlequin duck, black-backed woodpecker, flammulated owl, olive-sided flycatcher and brown creeper. Other uncommon species that can be found in the watershed include sandhill crane, long-billed curlew,

black tern, great gray owl, bobolink, and loggerhead and northern shrikes. The Blackfoot Challenge has been working with partners to restore trumpeter swans to the Blackfoot since 2005. This species is now successfully reproducing in the watershed. Twelve native fish species live in the waters of the valley, including westslope cutthroat trout and threatened bull trout, and 13 non-native fish species are here as well as several hybrid salmonids.

All this amazing variety of animals makes the Blackfoot a special place, and a great place to view wildlife. It also can be challenging at times to live in the same area as all of these critters. The Blackfoot Challenge and our many partners work hard to help reduce conflicts between the people and the animals who live here. See the following page for suggestions and resources to help minimize problems related to wildlife.

By the numbers in the Blackfoot watershed

250

species of birds

6

species of reptiles

58

species of concern
due to low population
numbers

63

species of mammals

5

species of amphibians

25

species of fish

countless

species of invertebrates



FAMILY TIES, Diane Whitehead

Reducing Conflict and Increasing Safety

Bears

A significant part of living in the Blackfoot is interacting with wildlife. There are a number of actions you can take to reduce conflicts and help keep everyone in our communities safe. Since we have large carnivores like grizzly bears in our area, we must all take responsibility to ensure that these and other wild animals don't learn to look to humans for food.

Most wild animals, including large carnivores, avoid humans carefully. However, on rare occasions animals like bears or mountain lions will attack humans if they feel threatened or see them as a source of food, and they may prey on pets and livestock.

FAQs

What can I do to reduce conflicts with bears and other animals on my property?

One of the most important things you can do to reduce conflicts with bears and other animals is to keep garbage, animal feed, and other attractants secured. Bears and other animals that find food near houses or human activity can become habituated to seeking out those sources of food, lose their fear of people, and become a nuisance. Once they've found easy food, they may destroy property to get to more, and even kill domestic animals. These behaviors can lead to injuries to humans and the removal or death of bears. **"A Fed Bear is a Dead Bear"**

What kinds of things attract bears?

Any edible items! Bear are omnivores, which means they eat just about anything. Desirable attractants include:

- Animal feed, including grain, alfalfa pellets, bird seed, pet food, deer blocks, and salt licks
- Garbage, compost, and recycling items
- Beehives
- Chickens and other small animals and their feed
- Barbecue grills
- Wild and cultivated fruit
- Dead animals

How can I secure attractants from bears?

- Keep animal feeds, garbage, and compost inside secure buildings with stout doors and windows or in certified bear-resistant containers. Bears can even break into vehicles if something tempts them.
- Install electric fences around beehives, chicken coops, fruit trees, and small livestock. Resources are available to help pay for and install fences.

"Living and ranching in the Blackfoot means sharing the space with a diverse array of wildlife. We have to be willing to modify old habits and adapt as we go. As we do, we become ever-better stewards of this landscape."

—Justin Iverson, Iverson Ranch, Potomac

- Don't put out salt licks, grain, or deer blocks to attract wild animals that will then draw in bears and other predators.
- Feed birds only when bears are hibernating from November through March.
- Remove animal carcasses from near houses or livestock.

What can I do to keep people and pets safe around wildlife?

- Keep pets nearby when you are outside, and indoors at night.
- Carry bear spray and learn how to use it. Bear spray works on most animals, not just bears.
- Do not approach bears or other wild animals, and avoid approaching items such as animal carcasses which might attract them.

How can I protect my livestock from carnivores?

The Blackfoot Challenge and its partners work together with producers to minimize damage by bears, wolves, and other potential predators on livestock. Some methods local landowners have used and found to be effective include:

- Installing electric fencing around calving grounds.
- Using temporary flagging (called fladry) to deter wolves.


- Participating in the Carcass Pick Up Program, preventing carcasses from attracting carnivores to live animals nearby.
- The Range Rider Program, which monitors carnivore activity in proximity to livestock during the summer and fall.



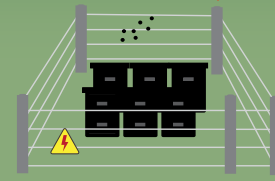
Bear-resistant garbage container. Photo by Seth Wilson

BEAR AWARENESS

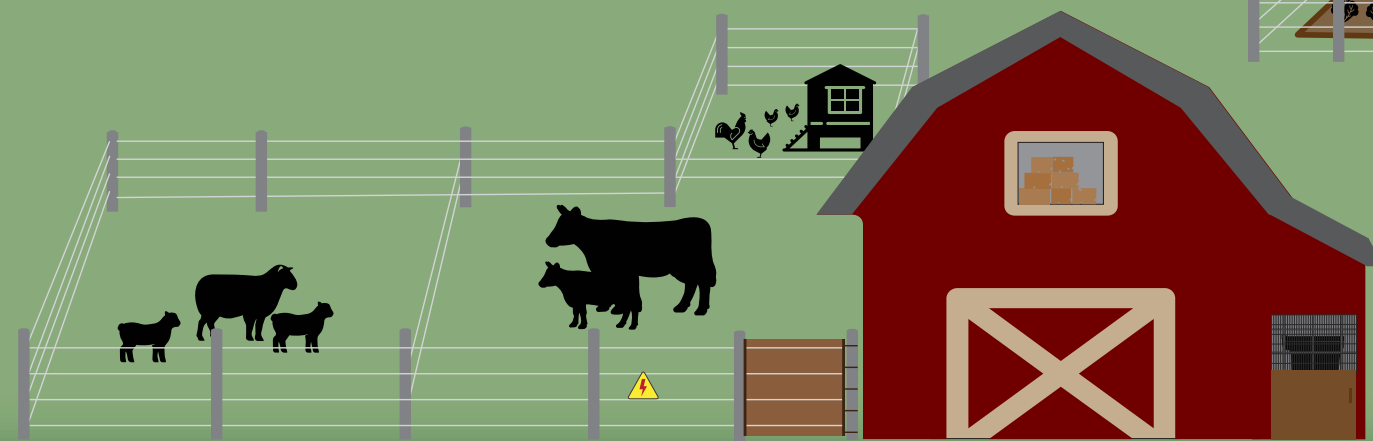
Solutions to Reduce Conflicts



Secure barbecue grills, pet food, bird seed, and bird feeders in bear-resistant containers or inside at night and when not in use.



Electric fencing keeps beehives, fruit trees, gardens, small livestock, and chickens safe.



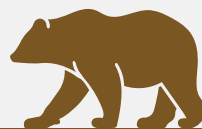
Keep livestock feed, garbage, and compost in bear-resistant containers in secure, closed buildings.

Graphic by Mary McFadzen



This family has an electric fence around their ranch compound, which includes their homesite and calving lots. The 5-wire electric fence (right side of photo) creates a barrier for grizzly bears that reduces conflicts with humans and livestock. The wire mesh on the “combo gate” (left side of photo) keeps bears from crawling through the gate and electric wire on the top keeps them from going over it. Gates like this one and drive-over electrified mats make it easy to enter and exit a fenced area wherever needed. Photo by Tressa Graveley

A checklist to KEEP BEARS AWAY from your home



Bears have an amazing sense of smell — thought to be the best of any animal on earth. More than 1,000 times better than that of humans, they can smell food from miles away, and they can smell right through tin cans. So many items will attract bears even though we might not smell them.

Here are some common items we have around our houses that can be secured or used in a way that won't attract bears and other wildlife to our homes.



Bird seed can attract unwanted wildlife such as bears. Feed birds only in winter months (Nov–Mar) when bears are hibernating and food for birds is scarce. If used any other time of year, feeders should be put inside at night.



Bears can smell even the remnants of food, like on a barbecue grill, from a long way away. Keep grills clean and put them inside a secure building when not in use to keep wildlife off your porch or patio.



Store pet food inside and keep pet food bowls inside between feedings.



Keep all trash, food waste, and recycling materials in bear-resistant containers or inside a secure building.

Graphic by Mary McFadden

How can I recreate safely with grizzly and black bears and other large predators around?

The wild and undeveloped nature that makes the Blackfoot such great country for fishing, hunting, hiking, floating, camping, and riding also means it requires us to take special precautions not needed in more developed areas. Whether you're enjoying a day along the river with its lush riparian zone that offers lots of natural bear foods and cover, or exploring one of your favorite hiking or hunting spots, a few simple precautions can greatly decrease the chances of having a dangerous encounter with bears or other wildlife like mountain lions. While there is always risk having grizzly bears in close proximity to humans, grizzly bears generally avoid people.

- Carry bear spray and know how to use it. Bear spray is readily available and is extremely effective against bears and other animals that might try to harm you. Bear spray has been shown to prevent injury in 98% of cases when it was used against attacking bears, and to be more effective in deterring a bear than a firearm. It can be easily carried in a holster on your belt or chest, and your aim doesn't have to be perfect as it disperses a cloud of debilitating capsaicin (hot pepper extract).
- Be aware of your surroundings and the animals that might be in them with you. Make noise to alert bears to your presence so that you don't surprise them at close range, since they might attack out of fear. This is especially important when running or biking on trails.
- Avoid animal carcasses and be very cautious in patches of wild fruits like berries and chokecherries.
- Never approach a bear, even if it appears calm.
- Travel with other people.
- Be especially aware if moving around at dusk and dawn.

- Hunters should be particularly alert to the possibility of bears attracted to carcasses, and remove meat as soon as possible from a kill site. Don't return to retrieve meat without a clear view of the surrounding area.

What should I do if I encounter a bear?

- If you inadvertently encounter a bear, you should remain calm, move slowly, and attempt to leave the area immediately. Do not run from a bear.
- If a bear makes physical contact with you and you're unable to use your bear spray: Drop to the ground, lie face down, assume cannonball position; protect the neck/head with hands and play dead.
- Report all encounters to local authorities.

How can I camp carefully in bear country?

- Camping in bear country requires special attention. Although attacks on humans in

camp are very rare, bears are mostly nocturnal animals that use their sense of smell to find food. Keeping a clean camp (i.e., not smelly) is key to safe camping.

- Never keep food, drinks, toiletries, or other scented items in your tent.
- Store food items securely in hard-sided vehicles, bear boxes, certified bear-resistant containers, inside electric fencing, or by hanging them at least 12 feet off the ground.
- Do not bury or burn garbage as bears will still smell it and you might endanger someone using the area later. Dispose of garbage in bear-resistant containers or pack it out of the backcountry.
- Don't cook, eat, or clean fish or game near your tent. Set aside a separate area for sleeping so there is nothing to attract predators to your tent.
- Consider using a portable electric fence to enclose your camp.



A hunter wears bear spray in a waist holster.
Photo by Matt Heller

Know your bears

Black Bear



- **Color** varies from black, blond, cinnamon, rust, white, and even blue.
- **No distinctive** shoulder muscle hump.
- **Rump** is higher than front shoulders.
- **Face profile** is straight.
- **Ears** are tall.
- **Front claws** are 1-2 inches long and curved to facilitate climbing. Claw marks **are not** usually visible in tracks.

Grizzly Bear



- **Color** varies from brown, golden-tipped, black, silver-tipped, and even white.
- **Distinctive** shoulder muscle hump.
- **Rump** is lower than shoulder hump.
- **Face profile** appears dish in.
- **Ears** are short and rounded.
- **Front claws** are 2-4 inches long, depending on the amount of digging the bear does, and are slightly curved. Claw marks **are usually** visible in tracks.

Color and size can be misleading.

Know your bears—look for a combination of characteristics.

To learn more visit www.BeBearAware.org.

Photos by
Chuck Bartlebaugh

facebook.com/bebearaware

youtube.com/bebearaware

BeBearAware.org

Other Wildlife Conflicts

Montana Fish, Wildlife & Parks has extensive information on reducing problems with many different species of wildlife. We address a few common ones: woodpeckers, bats, and beavers. Note that all native birds are protected by several state and federal laws, and special consideration should be given to their control.

Birds

FAQs

Why is a woodpecker pecking on my house and how do I stop it?

The rapid, loud “drumming” you hear is done by male woodpeckers to attract mates and indicate territories. Drumming is usually more of a nuisance than a source of damage, as it does not usually create holes, although it can chip paint. Hanging flashy objects to scare the birds away or attaching a metal tube or sheet to a nearby tree as an alternative to your buildings can help.

Woodpeckers may also peck on wood buildings to feed on insect larvae. Gaps and grooves in siding and logs will provide places for insects to nest. Feeding woodpeckers usually create a series of oval or square holes. To prevent these feeding holes, try these steps:

- Discourage insects from entering buildings by caulking holes and keeping wood sealed.
- Attaching an untreated board onto the outside will provide habitat for valuable native pollinators like carpenter bees and reduce damage from both the insects and their predators.
- Scaring woodpeckers with hanging shiny objects or metallic strips can also discourage them.

- In winter when bears are hibernating, you might be able to distract the birds from insects in your house by hanging suet nearby.

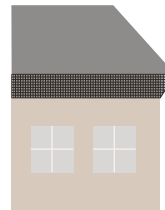
Woodpeckers sometimes create nest holes in buildings, and if one is making a hole big enough to fit in, it should be blocked. Bird netting is especially effective and is barely visible from a distance if secured well. Hang $\frac{3}{4}$ -inch mesh netting at least 3 inches from the building so they can't peck through it. The netting can

be attached to the overhanging eaves and angled back to the siding and secured taut. A longer-term solution is to provide or protect other nesting sites for woodpeckers. Snags or living trees with soft interior wood (heartrot) are the natural sites woodpeckers need for nesting. Retaining large trees, living and dead, gives woodpeckers places to nest other than buildings. You can also install a woodpecker nest box on or near your house as an alternative nest site. There are online sources of designs and instructions for making or purchasing nest boxes.

What's that noise coming from the side of the house?

Woodpeckers can cause damage to buildings by searching for insects and creating nest holes.

Removing insect colonies will help keep the birds from being attracted to your buildings.



Attaching plastic netting tightly below eaves where woodpeckers tend to peck is the most effective way of discouraging them. This can also prevent other birds like swallows from nesting under eaves.



Northern flicker. Photo by Shauna Whitaker/EyeEm

Providing nest boxes on or near your house will encourage them to use an alternate site for nesting. These boxes can be bought at many local and online stores or can be a fun woodworking project!



Graphic by Mary McFadden

Beavers

With the Blackfoot's extensive network of streams, wetlands, and ponds, there's no doubt that beavers helped shape this watershed and were once much more abundant than they are today. For all the good they bring to a watershed, beavers also have a reputation for causing trouble. The good news is there are plenty of options for peacefully coexisting with beavers while they use their natural engineering skills to help improve our water resources.

FAQs

How can we mitigate the problems beavers cause?

- Tree-wrapping: Fencing wrapped around trees to protect them from gnawing beavers.
- Culvert protection: A simple wire and pipe structure that protects culverts from beaver damming and removes the attraction for beavers to continue damming that location.
- Pond levelers (also called beaver deceivers): Basic wire and plastic pipe materials built into and around an existing beaver dam can help prevent ponds from rising above a set level and stop beavers from continuing to build up the dam height.

Can we have the benefits beavers create without the beavers?

In places where beavers no longer inhabit the landscape, restoration practitioners are finding success in imitating the work of the missing beavers. An approach called “low-tech, process-based restoration” is gaining popularity for its low cost and success in helping streams to heal themselves. These methods mimic the work that was once performed over large parts of our country by

beavers and simultaneously prepare the landscape for beavers to move back in. Techniques include:

- Weaving branches through wooden fence posts to mimic beaver dams and create ponds that expand habitat, reconnect floodplains, and encourage beavers to recolonize an area.
- Placing clumps of woody debris in the stream channel to slow stream flow and add habitat complexity.



Top left to right: Types of beaver exclusion structures include culvert protection and tree wrapping; photos by Elissa Chott, Clark Fork Coalition. Bottom: Beaver dams retain water and create habitat for countless wildlife species; photo by Elaine Caton.

Bats

FAQs

Should I worry about bats in my buildings?

Fifteen species of bats live in Montana, and some live in colonies while others live alone or in family groups. Bats are native wildlife that are enormously important in controlling insect populations, including mosquitoes (a single bat can eat over 1,000 mosquitoes in an hour!). However, bats can be a nuisance and even a health hazard if they enter homes. Although only a very small percentage of bats carries rabies, they can transmit it to humans if they bite or scratch a person. This usually happens when someone is trying to remove a sick bat from their home. Bats roost in small spaces to avoid danger and stay warm. Because buildings are good roosting sites and bats are able to enter very small spaces, it's not uncommon to find them in attics, under shingles, loose boards, eaves, and occasionally even in living areas.

How can I keep bats out of my house?

Most bats leave in the fall or winter to hibernate, so these are the best times to “bat-proof” your home.

- Use caulk, heavy duty wire mesh, steel wool, flashing, or insulation to block any openings larger than a half-inch, including plumbing and electrical holes. Install screening on windows, chimney caps, and draft-guards beneath doors.
- Block entry points between living areas and other spaces like attics anytime, providing safety for both humans and bats. Blocking exterior entries should only be done when you are certain there are no bats inside the building, as trapped bats will die and create odor and stain walls and ceilings as they decompose, or try to find an escape route through your living area. Even if you block entrances at night after you see bats leave, young bats that can't fly may be left behind and trapped.
- Hanging bat houses on or near buildings can divert bats from roosting in your buildings.



Little brown bats are the most common bat in Montana, and like to roost in buildings; photo by Axel Bueckert. Appropriately designed bat houses like the one on the left can serve as alternative roosts; photo by Steve Byland.

Wildlife Resources



Access these resources and more on our website

<https://blackfootchallenge.org/stewardship-guide>

- Field Guides to Montana's Flora & Fauna
- How to “Be Bear Aware”
- How to Prevent Woodpeckers from Damaging Buildings
- Removing and Keeping Bats out of Buildings
- Beaver Information and Problem Solving

Blackfoot Challenge Wildlife Coordinator
(bear & large animal conflict reduction)
Eric Graham
Email: eric@blackfootchallenge.org
Phone: 406-793-3900

Trumpeter Swan Restoration Coordinator
(birds & waterfowl)
Elaine Caton
Email: elaine@blackfootchallenge.org
Phone: 406-793-3900

Water Steward (beaver conflicts & habitat)
Jennifer Schoonen
Email: jennifer@blackfootchallenge.org
Phone: 406-793-3900

Services include: Solutions to reduce conflicts with wildlife; providing bear-resistant containers; installing electric fencing; and carcass pick up.

Forestry & Fire

Past, present, and future

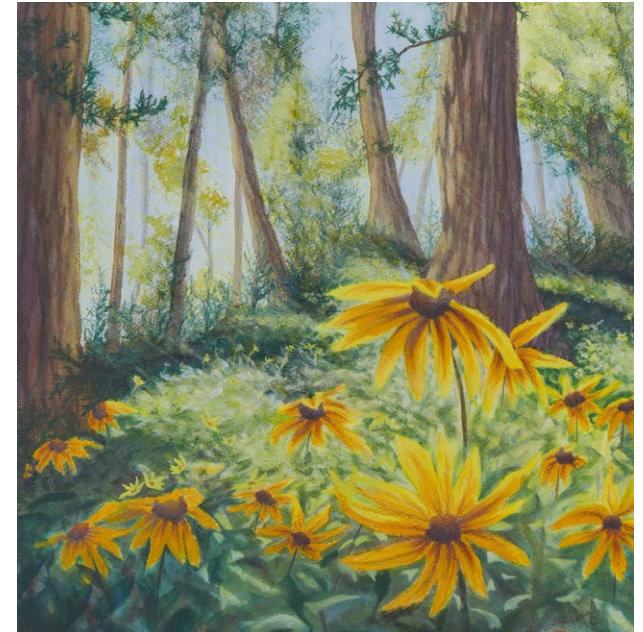
Over 80% of the Blackfoot watershed is forested. At lower elevations, our forests include conifer forests dominated by ponderosa pine, lodgepole pine, Douglas-fir and western larch. In higher regions, subalpine-fir and spruce dominate, especially on cool, moist, northerly aspects.

In the Blackfoot we live in a fire-adapted ecosystem. Historically, fires burned through lower elevation forests approximately every 10 to 40 years. Most fires were started by lightning or by indigenous tribes who traveled and lived in these forests and grasslands. These low-intensity fires typically killed only small trees and consumed litter and duff on the forest floor, clearing the way for fire-resistant trees like ponderosa pine and western larch to thrive. Fire suppression and intensive logging on some lands over the last 100 years has led to forests that are overgrown, unhealthy, and susceptible to large, hot wildfires.

Development of homes in forested areas and lack of fire in grasslands, allowing forest growth and spread, has led to the creation of a Wildland Urban Interface (WUI) in the Blackfoot. Living in such close proximity to forests that are prone to wildfire poses threats to resident safety. The goal of the Blackfoot Challenge's Forestry Program is to work with private landowners across the watershed to restore forest health while reducing wildfire risk near homes and protecting entire communities.

Hazardous Fuels Reduction

The Blackfoot Fuels Reduction Program is a partnership between the Blackfoot Challenge, local fire departments, state and federal agencies, and private landowners. These groups work together to provide landowners with information, expertise, and grant funding to support fuels reduction, forest health improvements, and prescribed fire.



IN THE QUIET, Lisa Gibson

[FAQs](#)

How can the Fuels Reduction Program help me?

Forests that are young and in need of thinning or that have been allowed to grow unchecked for decades may not have substantial commercial value, making it difficult for projects to “pay for themselves.” The Fuels Reduction Program typically provides funding for up to 50% of the total cost of a project, and the landowner is responsible for paying the remainder. Revenue from wood that is sold can help offset the landowner's cost. For certain projects additional funding may be available. Grant funds are typically available in the entire Blackfoot watershed, but landowners may be placed on a waiting list if funding isn't currently available. After a landowner applies to the Blackfoot Challenge, the Blackfoot Challenge Forestry Coordinator will contact you to schedule a time to visit the property and discuss

By the numbers in the Blackfoot watershed

80%

of the watershed is forested

110

landowners received fuel reduction funding as of 2020

21

local contractors supported

10-40

years historically between fires in low elevations

400

acres treated annually

>25%

of our bird species nest in dead trees

the project. The landowner can either hire a contractor or do the work themselves. The Forestry Coordinator can provide a list of local contractors and help you with the bid process.

What happens in a fuels reduction project?

Trees are thinned to create an average spacing of 10 feet between tree crowns (the tips of the branches at the widest part of the tree). All trees within 200 feet of a dwelling are pruned up to 10 feet or 1/3rd the height of the tree — whichever is less. All slash is disposed of by piling and burning, removing, or chipping.

Where should fuels reduction take place?

The most effective actions in terms of protecting people and property will be near homes and other structures on private property — especially in the Home Ignition Zone within 100 feet of the building. However, reducing fuels in the surrounding area and along driveways and roads will reduce fire intensity and increase safety as well. Another consideration is the “microclimate” and natural forest conditions that occur in an area. Although most of our private lands in the watershed would have open stands of primarily large ponderosa pines where fuels reduction treatments mimic nature, wetter zones would naturally support thicker stands of spruce and deciduous trees and shrubs which also provide important habitat for many wildlife species. Thus, fuels reduction treatments may be different in these areas providing important habitat and diversity. The Blackfoot Challenge Forestry Coordinator can help you decide what is the best approach for your property.

Prescribed Fire

Research and recent events indicate that wildfires will become larger and more intense as the climate warms.

Because fire has a role in forest renewal and maintaining biological diversity, allowing fire-adapted forests and grasslands to burn and recover from fire is important to sustaining the landscapes we and other species depend on. Fire is also much more effective in reducing fuels and maintaining low fuel levels than mechanical methods. Managing prescribed fires and allowing naturally-ignited fires to burn under the right conditions will help reduce the threat of future wildfires. Natural resource agencies have been using prescribed fire as a tool to lower wildfire risk and enhance wildlife habitat for many years, and an increasing number of private landowners are now using fire as a tool on their land.

FAQs

What is a prescribed fire and what does it have to do with me as a landowner?

A prescribed fire is one that meets a “prescription” of conditions, management goals, and methods developed

by the landowner and fire specialists. A prescription, or plan, is developed for a particular area to be burned under safe weather and fuel conditions, with support from trained fire management personnel. Prescribed fires are often preceded by mechanical thinning to create safer conditions for burning.

How safe is prescribed fire and who is responsible for its safety?

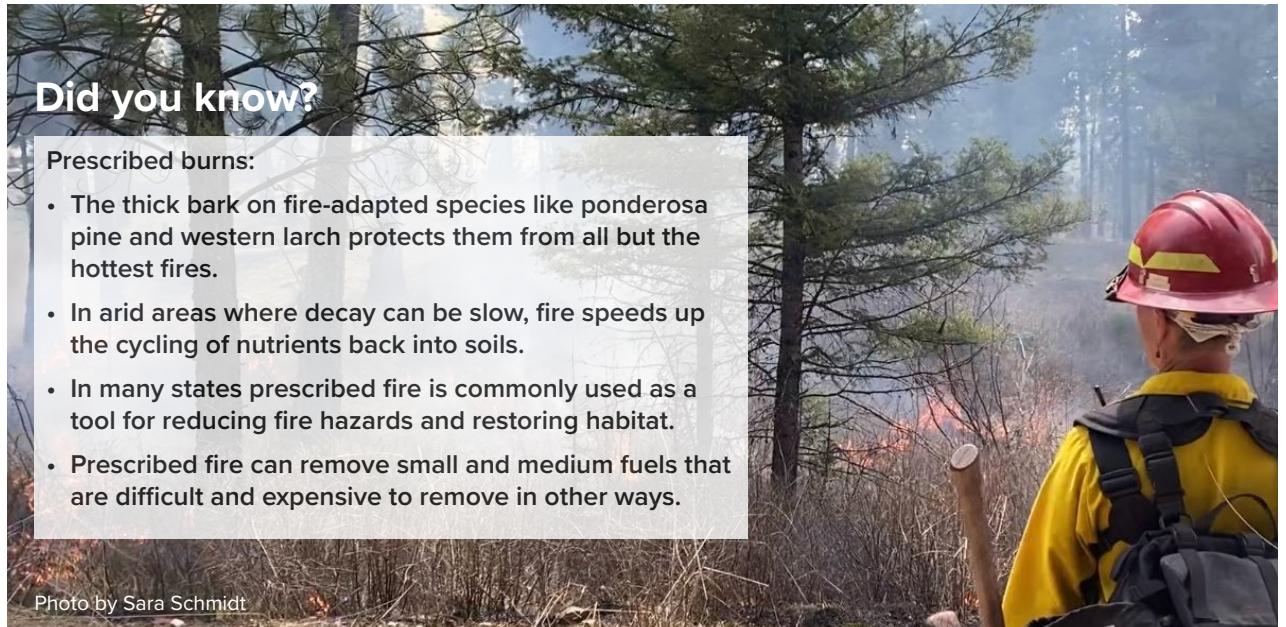
No activity can be made perfectly safe and prescribed fire is no different. Careful planning, training, and experience all contribute to a safe broadcast burn. Burn plans should be written by a qualified “burn boss” and must be reviewed and approved by the landowner, the fire protection agency, and the personnel hired or responsible for conducting the burn. The Blackfoot Challenge Forestry Coordinator can help with coordinating these efforts and answer specific questions. Ultimately the decision and responsibility rests with the landowner.

Did you know?

Prescribed burns:

- The thick bark on fire-adapted species like ponderosa pine and western larch protects them from all but the hottest fires.
- In arid areas where decay can be slow, fire speeds up the cycling of nutrients back into soils.
- In many states prescribed fire is commonly used as a tool for reducing fire hazards and restoring habitat.
- Prescribed fire can remove small and medium fuels that are difficult and expensive to remove in other ways.

Photo by Sara Schmidt

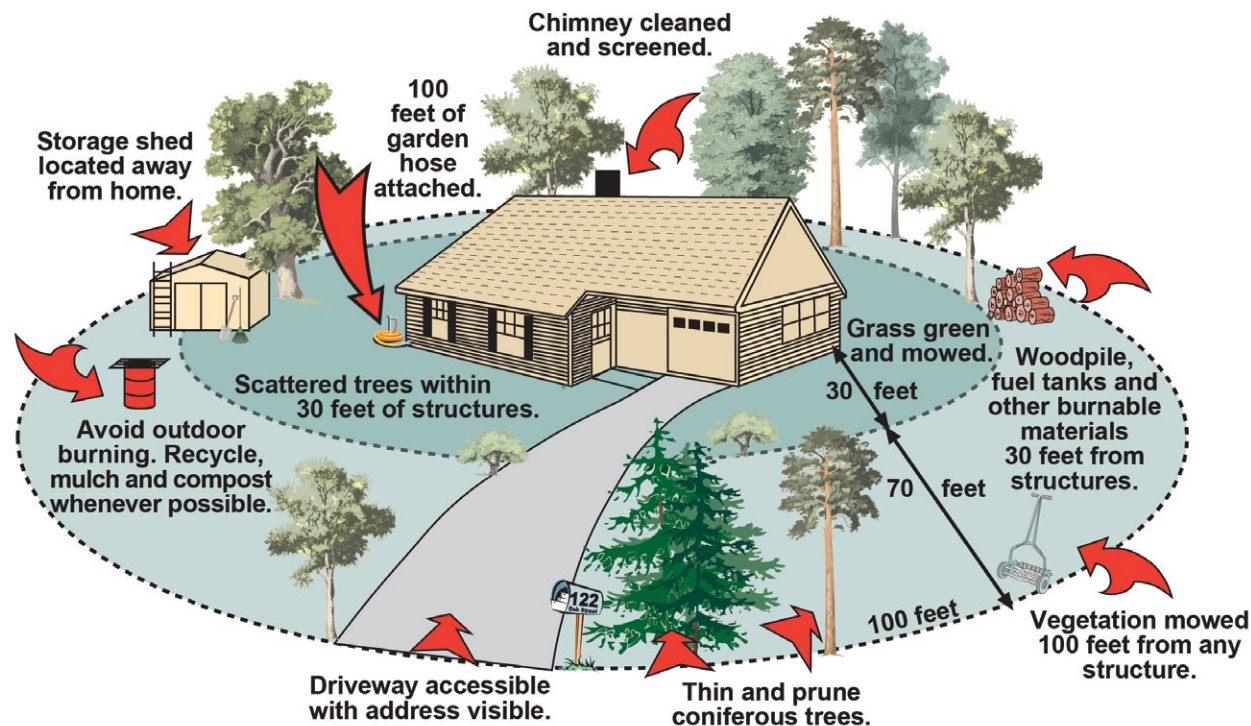


Being *Firewise*: Fire-adapted homes

Research indicates that embers and small flames are the main ways that most homes are ignited and destroyed by wildfires. Burning embers can be carried by winds for more than a mile, causing spot fires ahead of the main fire and even igniting buildings, typically by landing on a wooden roof or deck. There are many actions homeowners can take to proactively make homes and other buildings more resistant to wildfire, thus reducing risks to human life and property.

Homeowners can prepare buildings to resist ignition from embers and minimize the chances of flames reaching structures or adjoining objects. Studies have shown homes ignite due to the condition of the

home and everything around it up to 200 feet from the foundation, called the Home Ignition Zone (HIZ). Vegetation management around buildings, using fire-resistant construction materials, keeping flammable items like fuel and firewood away from buildings, and even using less flammable plants for landscaping can all help homes survive fire. Taking these actions also helps firefighters more safely defend your home from wildfire. Suggestions for specific actions can be found at firesafemt.org. The Blackfoot Challenge Forestry Coordinator can visit with homeowners to assess and mitigate wildfire risk.



Graphic by FireSafeMT.org

Forest Health

Forest health is a term that is used broadly to describe a forest's capacity for self-renewal. Forests follow a cycle of growth, death, decay, and more growth. The purpose is not to have forests free of insect pests, disease, and decay, but to promote these functions at a level where balance and renewal are possible and encouraged. Healthy forests generally consist of growing, vigorous trees with minor mortality relative to the site's potential. While some native insects and diseases occur naturally, large outbreaks of these will likely cause more damage than most landowners would want. When we mimic natural forest disturbance through thinning and prescribed burning, we can promote forest health by improving conditions for trees to grow and thrive. This also tends to make trees more resistant to insects and disease.

Some tree mortality and decay is natural in our forests, and dead and dying trees also provide habitat for wildlife. Landowners wishing to maintain or maximize native



Forest insects like this mountain pine beetle (left) become problematic when populations explode, causing severe outbreaks that kill great numbers of trees. Beetles may be attracted to trees weakened by heat and drought. They create "galleries" (right) beneath the bark where they spend most of their life cycle, thus causing tree death. Woodpeckers and other insectivorous birds help control their numbers. Photos - left: William M. Ciesla, Forest Health Management International, Bugwood.org; right: US Geological Survey

biodiversity on their forested property may consider allowing for some natural tree mortality.

FAQs

Why would I want to have dead trees on my land?

A great number of bird, mammal, and amphibian species depend on snags (standing dead trees) and logs for food



and shelter. In fact, over 25% of Montana's bird species nest in tree cavities. If snag removal isn't needed to control an insect outbreak or for human safety, leaving some snags and logs in place will support wildlife and help return nutrients to the soil. Similarly, large woody debris on the ground supports a variety of decomposers, creates wildlife cavities, and ultimately contributes to overall soil development.



Chickadees, woodpeckers, small owls and ducks, flying squirrels, and many other species rely on cavities in snags (standing dead trees) for nest sites, and downed logs provide habitat for small mammals and amphibians and also play a role in returning nutrients to the soil. Where human safety is not an issue, allowing snags like this one to stand can provide valuable wildlife habitat. Photos - upper left: American marten, Adobe Stock; lower left: pileated woodpecker feeding nestling, Riley McClelland; right: old snag, Elaine Caton

How can I manage for wildlife and still have a healthy, productive forest?

Knowing what kinds of forest stands would naturally occur on your property and managing your forests by trying to mimic those conditions might be the best option. For example, in warmer, drier areas, forests would naturally be open, with widely spaced trees (mainly ponderosa pines). But in cooler and wetter areas — for example, along streams and wetlands and on some

north-facing slopes — the natural conditions might be spruce, Douglas-fir, or deciduous forests that are denser. Finding a balance between fire resistance, timber production, wildlife habitat, and effects on water conservation can be complicated. Blackfoot Challenge staff and local agency experts can help you identify risks and determine how to manage your forests for the conditions you want. See also the Streams and Wetlands section in this guide for special considerations in those areas.



While dry areas like ponderosa pine and larch forests (left) historically burned frequently, leaving behind mostly larger trees and little woody undergrowth, moist and cool sites like a spruce forest (right) will naturally be denser and accumulate more dead and decaying wood. Photos by Elaine Caton

Forestry & Fire Resources



Access these resources and more on our website

<https://blackfootchallenge.org/stewardship-guide>

- Montana Forest Action Plan
- Montana DNRC Fire Protection Program
- Fire Adapted Communities Learning Network
- FireSafe Montana
- Wildfire Adapted Missoula
- How to Prepare Homes for Wildfire

Blackfoot Challenge Forestry and Prescribed Fire Coordinator

Cindy Super

Email: cindy@blackfootchallenge.org

Phone: 406-793-3900

Services include: Forest assessments; fuel reduction assistance and funding; prescribed burn planning.

Grazing & Soil Health

Stewardship from the ground up

Many plant species have evolved with grazing and browsing over time. Historically, grazing animals such as bison and elk moved freely across the landscape in Western Montana, visiting freshly burned and other areas of choice before moving on and returning later. This brief and intense hoof action and trampling influenced plant communities. Today we have fences that keep domestic animals confined and we dictate when plants are grazed and how they recover based on our management. So how can we best manage livestock grazing to achieve a healthy and resilient plant community? Whether you have your own livestock or lease your property to someone who does, here are a few brief tips to consider.

Grazing Systems

A grazing system determines how you manage the

interaction between livestock and the vegetation, soil, and climate on your property. There are many kinds of sustainable grazing systems, including: rest rotation, deferred rotation, short duration, and high density. Some are more applicable to native bunchgrass communities while others are better suited to irrigated pastures with introduced plant species. However, there are two common themes among all these systems: rotate livestock and provide adequate recovery periods for the plants.

Grazing Units

Livestock use forest, grassland, wet, dry, or shrubby areas very differently depending on the time of year. For example, in the spring livestock will likely prefer lush and nutritious grasslands, but during the hot summer they will be drawn to forested or riparian areas to stay cool or seek more palatable forage. By delineating



SEPTEMBER GRAZING, Diane Whitehead

similar areas into specific grazing units, you can manage livestock more effectively throughout the season.

Frequency and Timing

The growing season is the most important time to consider how often and when to graze, since this is when plants collect and store energy, develop root systems, and reproduce. Plants need time to recover from grazing and can't do this in the hot summer and cold winter when they are relatively dormant. For this reason, consider staggering the season of grazing from year to year. If a field is grazed in the spring one year, change it to summer or fall the next year. Also, if a field is grazed in summer, consider leaving more vegetation to help shade the soil and protect it from soaring temperatures. Dry sites often lend themselves to one graze per year while moist or irrigated sites can tolerate more. The key is to allow plants to recover from grazing before they are

By the numbers in the Blackfoot watershed

6"+

residual grass length after grazing promotes recovery

2

week (max) grazing rotation promotes healthy forage

1%

increase in soil organics can raise water holding capacity by 20,000 gal/acre

12

months may be needed for dry sites to regenerate after grazing

20%

protein in native bunchgrasses

>100 million

microbes in 1 teaspoon of healthy soil

grazed again. Generally, irrigated sites need a minimum of 3-4 weeks to recover, while drier native rangeland sites may need 12 months or more.

FAQs

How much grass should I take off of a field?

Plants can recover quickly following grazing if sufficient leaf surface is left to photosynthesize (>6). The remaining leaves also shade the soil and maintain reasonable temperatures and evaporation. Plants that are overgrazed (<6) use energy reserves and stop root growth in order to grow new leaves to resume photosynthesis, taking much longer for plants to regenerate. Under continuous overgrazing, many valuable plant species ultimately phase-out in favor of less desirable species. A good rule of thumb is “take half, leave half” meaning half the grass is grazed while the other half is left to carry out important ecological functions such as contributing organic matter to the soil, armoring bare ground against the elements, and providing for miscellaneous wildlife needs.

How long should a field be grazed?

When moisture is available, plants will start re-growing 2-3 weeks after grazing. Plants that are re-grazed during this period have to start over, resulting in significant stress. Ideally, grazing duration should be limited to less than 2 weeks to avoid re-grazing the same plants. Innovative grazing systems aim for several days or less to give vegetation and soil the best conditions for improvement. Although these systems generally require increased effort to apply, they provide increased long-term productivity.

How many animals should be grazed in a field?

As with many questions, it depends on how large the field is, water availability, and amount of forage. Ideally,

A symbiotic relationship

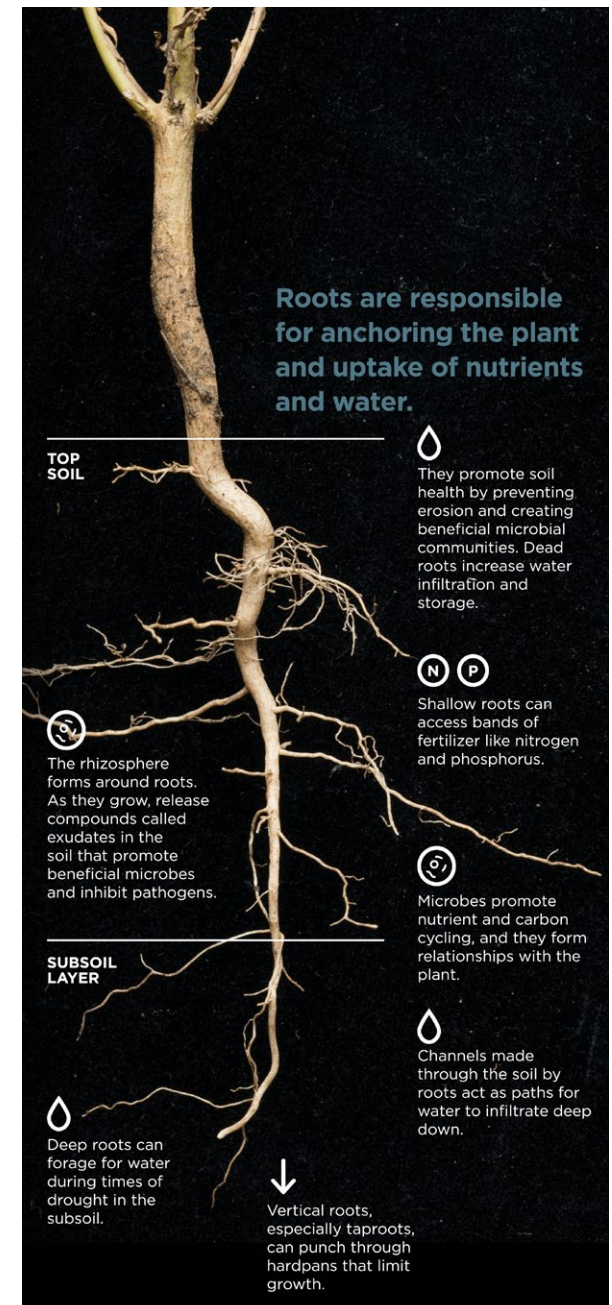
Plants and soil microbes naturally depend on one another. Roots exude sugars which feed microbes that bind soil aggregates, increasing soil stability and water infiltration. Excessive fertilizer disrupts this relationship and creates a cycle where plants become dependent on added fertilizers and no longer exchange nutrients with microbes, leading to fewer microbes, less soil structure, less stability, and less water infiltration.

Root infographic courtesy of Nobel Research Institute

a high density of livestock, for the shortest period, with half the utilization is a good rule of thumb. Higher stock densities may increase grazing utilization slightly, but more importantly will reduce the overall grazing duration, improve distribution, limit forage selectivity, concentrate waste, and maintain hoof action that incorporates grass and seeds into the soil profile.

This sounds challenging. What do I need to implement these grazing methods?

The right infrastructure, including cross-fencing and sufficient stock water, are necessary to manage grazing in these ways. There are a wide variety of cross-fencing options, from permanent barbed wire to temporary single-strand electric. Each has its strengths and drawbacks including cost, wildlife passage, maintenance, aesthetics, and function. Clean stock water is also critical for any grazing system. Stock water can be provided through pressurized or gravity-fed pipelines to stock



tanks or simply from streams or hardened water gaps strategically located in pastures. Careful consideration should be given to streams used for stock water based on fisheries, water quality, bank stability, and season of use. Riparian grazing systems can be compatible with these values if planned accordingly and closely monitored.

How will I know if I'm successfully managing my grazing and keeping my land healthy?

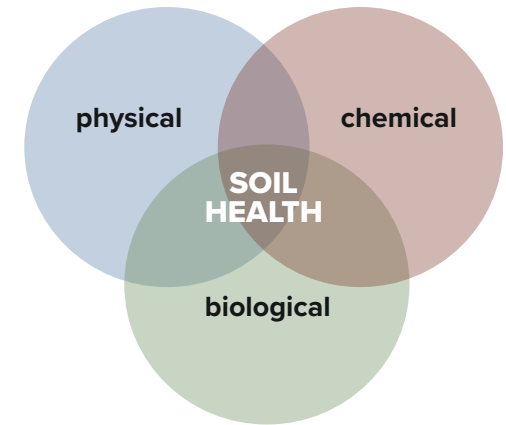
Short-term and long-term monitoring is essential for making informed decisions. Short-term monitoring includes current grazing use levels and distribution throughout the field, presence of predators, stream bank conditions, and other resource circumstances that may

trigger livestock rotation. Long-term monitoring helps assess resource trends and the results of management actions over time such as changes in forage production, species composition, percent of bare ground, or weed infestations. Methods can be as simple as photo points in each grazing unit, or a more detailed approach such as vegetation transects. Monitoring makes it possible to evaluate your past actions and help to adapt future management decisions for better results.

Soil Health: The Underground Herd

The concept of soil health has evolved considerably over the last 20 years, most notably the acknowledgment that soil is a “living system” that is key to ecological function

at a local and global scale. Traditionally, agriculture has generally focused on the chemical elements of soils through standard testing and fertilizer application. Today, we recognize a complex interaction among three primary factors to achieve soil health potential: physical (size and distribution of mineral particles in sand, silt and clay), chemical (such as pH and nutrients), and biological (microorganisms and decaying organic matter).



FAQs

What does healthy soil look like?

To the naked eye, a shovel-full of healthy productive soil looks like black cottage cheese with earthworms and pores. It would have clumpy aggregates held together by the glues excreted by microorganisms and networks of fine roots.

Why would I want plants other than grass in my pasture?

A diverse plant community creates variable root depths to reach nutrients and water. Different roots support a variety of microbes that are specialized to perform unique functions, and different plants fight pests and fix nitrogen from the air.



Healthy soils produce healthy grasslands, and well-managed grasslands retain moisture and return valuable nutrients to the soil in a continuing cycle. Photos by Elaine Caton

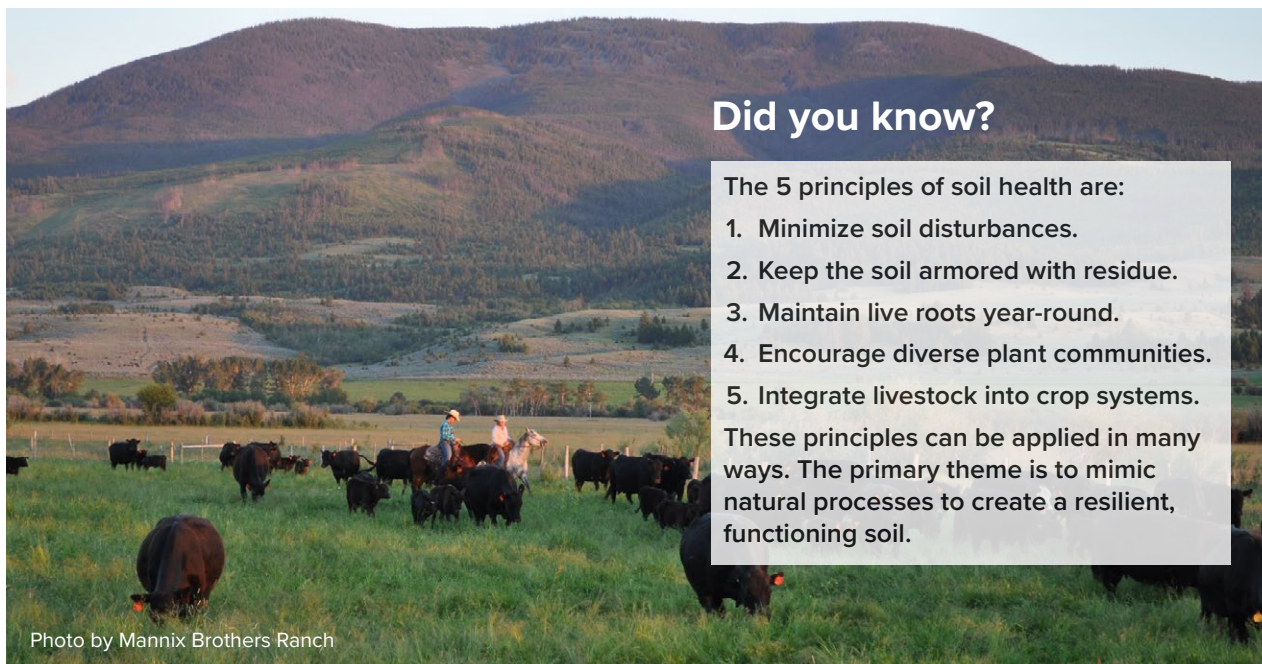


Photo by Mannix Brothers Ranch

Did you know?

The 5 principles of soil health are:

1. Minimize soil disturbances.
2. Keep the soil armored with residue.
3. Maintain live roots year-round.
4. Encourage diverse plant communities.
5. Integrate livestock into crop systems.

These principles can be applied in many ways. The primary theme is to mimic natural processes to create a resilient, functioning soil.

Do you feed your underground herd?

Soil is alive with hundreds of millions of microscopic organisms per teaspoon. These microorganisms, or microbes, break down organic matter and release nutrients back into the soil for living roots to uptake. Grazing accelerates roots' ability to exude sugars which feed the microbes. This symbiotic relationship fails when soils are starved of organic matter, resulting in less microbe activity and a slow-down of nutrient cycling.



Have you noticed the productive, dark green spots in a field following grazing? These areas are from manure and urine from the previous year, and often are spaced out considerably. Higher stock densities help to close the gaps between them, increasing organic matter and nutrient cycling, while hoof action helps to incorporate the organic matter back into the soil.

Grazing & Soil Health Resources



Access these resources and more on our website

<https://blackfootchallenge.org/stewardship-guide>

- Managing & Improving Soil Health
- Montana Grazing Lands Conservation Initiative
- The Soil Health Institute
- Hope in Healthy Soils
- Soil Health Informational Videos

Blackfoot Challenge Land Steward

Brad Weltzien

Email: brad@blackfootchallenge.org

Phone: 406-793-3900

Services include: Property resource assessments and recommendations; grazing plan development; and finding resources and funding to help deliver projects.

Native & Invasive Plants

Managing for healthy vegetation

As the basis of life in the Blackfoot, healthy plant communities are indispensable for people and animals alike. Native species have evolved over time to thrive in the climate and soils of the watershed, and wildlife species from elk to grouse to pollinators like butterflies and bees all depend on them. Native plants like the bunchgrasses that flourish in our dry upland soils provide highly nutritious forage for cattle and other livestock. Many species provide “ecosystem services,” like the wetland plants that help filter harmful pollutants from waterways.

The watershed supports a great diversity of vegetation communities, including prairie grasslands, sagebrush steppe, coniferous forests, and extensive wetland and riparian areas. The most widespread of these are mixed species conifer forests (see Forestry & Fire for more).

Much of the remaining areas, particularly in the valley bottoms, are made up of native bunchgrass prairie, agricultural lands, and a combination of shrublands, wetlands, and riparian areas (zones of vegetation associated with water).

Generally, valley bottoms outside of riparian zones are drier than foothills and mountains and support native bunchgrasses and associated flowering plants, as well as areas of sagebrush. Native grassland and sagebrush communities often occur in a mix throughout the valley, and most are on private land. These communities are associated with more terrestrial species in greatest need of conservation than any other community type in Montana, and several of the Blackfoot’s rare bird and mammal species depend on them. Historically, frequent fires in these areas kept conifers from establishing in



WILD IRIS, Claire Emery

these grasslands and shrublands; however, fire’s exclusion has resulted in establishment of tree seedlings that eventually shade out native bunchgrasses. Sagebrush is often removed to allow more grass for livestock, but our native sagebrush provides important habitat for many wildlife species.

Pollinators

Pollinators are vital partners to our native plants as well as many crops. Three-fourths of the world’s flowering plants depend on pollinators to reproduce. In Montana, native and nonnative pollinators such as native bees, honey bees, beetles, flies, moths, and butterflies forage on almost 40 agricultural crops along with flowering native plants. Montana is also one of the top honey-producing states in the nation.

By the numbers in the Blackfoot watershed

30

native plant Species of
Concern due to rarity

5

types of biocontrols released
in the watershed

65

public and private partners
working together

21

noxious weed species

18

landowner-led Vegetation
Management Areas

18,000 to 24,000

seeds per year produced by
one knapweed plant

Noxious Weeds

Unfortunately, noxious weeds are damaging our native plant communities at an alarming rate, and can wreak havoc on agricultural crops as well. Although “weed” is a term used for any plant growing where it isn’t wanted — grass in a flower bed, for example — “noxious weeds” are non-native plants that are invasive, meaning they spread prolifically and displace desirable plants.

In Montana, a noxious weed is a plant legally designated by the government as harmful to public health, agriculture, recreation, wildlife, or property, and there are specific laws mandating and regulating their control. The most current Montana Noxious Weed List can be obtained from the Montana Department of Agriculture. There are other non-native plant species that have been deliberately or accidentally introduced to areas outside of their native geographic range and have been able to

reproduce and maintain sustainable populations in this area that have not been designated as “noxious.” Noxious weeds and other exotic, invasive plants can reduce agricultural production, including livestock forage and crops; harm livestock and wildlife who ingest them; displace important native vegetation, including rare plants; degrade or eliminate wildlife habitat; contribute to soil erosion; alter the frequency and intensity of fires; affect stream flows and degrade water quality and fish habitat; and decrease biodiversity. Controlling weeds is a goal and a challenge that most landowners share.

FAQs

How can I identify noxious weeds on my property?

If you suspect a plant to be an exotic weed, bring a

Noxious weeds in the Blackfoot include:

- | | |
|----------------------|----------------------|
| • Spotted knapweed | • Whitetop |
| • Diffuse knapweed | • Sulphur cinquefoil |
| • Russian knapweed | • Houndstongue |
| • Yellow toadflax | • Oxeye daisy |
| • Dalmatian toadflax | • Dyer’s woad |
| • Orange hawkweed | • Blueweed |
| • Meadow hawkweed | • Perennial |
| • Tansy ragwort | pepperweed |
| • Common tansy | • Hoary alyssum |
| • Leafy spurge | • St. Johnswort |
| • Canada thistle | • Purple loosestrife |

sample (root, stem and blossoms if possible, kept moist and in good condition) to your county weed office and they’ll help you identify your plant. You can also take a picture of the plant and send it to the Blackfoot Challenge Vegetation Coordinator. The Blackfoot Challenge website has a video that provides a good introduction to the identification and biology of some of the more common noxious weeds and their native look-alikes. The smart phone app called “Sample” enables you to send plant photos to the Schutter Diagnostic Lab at Montana State University for identification free of charge. There are also many other online resources for identifying weeds. You might also find that a neighbor is very knowledgeable about weeds, and anxious to help you learn more, since weeds recognize no property boundaries!

How can I keep weeds off my property?

As with many natural resource matters, prevention is the best cure. Keeping weeds out is likely less expensive, less time-consuming, less detrimental to the surrounding environment, and more sustainable over the long term

Did you know?

Landowners can help pollinators by:

- Recognizing the pollinators and their habitats on your property.
- Adapting management practices to avoid harming pollinators.
- Providing and enhancing habitat for native pollinators.
- Reducing or eliminating pesticide use.

Photo by Ira Hilger

than trying to eliminate them. Maintaining and enhancing desirable vegetation while keeping soil disturbance to a minimum is the most effective way to keep weeds from becoming established on your land. Encouraging healthy and competitive vegetation will reduce a weed's ability to invade. If an area is disturbed through clearing, construction, burning, overgrazing, or other action, reseeding or planting native or other desirable species is key to keeping weeds from colonizing that area.

Preventing weed seeds from entering your land can be difficult, as many seeds are carried by wind, water, animals, humans, and vehicles. Weed seeds and even roots can hitchhike in on shoes, clothing, pets, tires, recreational equipment, and implements. Checking these potential sources and removing plant parts and seeds and disposing of them properly is another useful method for keeping invading plants from spreading. It is worthwhile to check frequently for invasive species establishment and remove them before they go to seed and while populations are small, in addition to maintaining a resistant native plant community.

What methods are available to reduce weed numbers and spread?

An integrated approach is the most effective way to control weeds. Three commonly used methods include physical removal (such as hand pulling, digging, mowing, or grazing), chemical (herbicide application), and biological (the intentional release of species-specific natural enemies, predators, parasitoids, and pathogens). Each of these methods has advantages and disadvantages, and each works in a different yet often complementary way, depending on the weed species you are targeting and the environment they occupy.



Biological controls like this knapweed root weevil are one tool for fighting invasive plants. Photo by Laura Parsons, Creative Commons Attribution-Noncommercial 3.0 License

Are there ways I can coordinate with my neighbors to reduce weed spread?

As plants and their spread are not restricted by property boundaries and fence lines, working together with adjacent landowners to manage noxious weed prevention

and treatment cooperatively can greatly increase effectiveness and efficiency. Check with your area county weed district to get involved with cooperative weed management projects that may include cost-share programs and provide other sources of resource leveraging. Many areas of the Blackfoot watershed have established cooperative weed management groups. Counties may also provide spray, seeding, and other vegetation improvement equipment to residents for minimal to no cost.

What kinds of plants should I encourage to grow on my land?

The types of plants you want to encourage or establish depend on site conditions and use. For example, very different species thrive in dry or upland sites than those that will succeed in wet meadows. If your primary use is livestock grazing, you will want to select species that not only provide good forage but are also resilient, such as perennial grasses. Growing a variety of forage plants in a pasture setting will benefit grazing animals, the plants,

Methods to reduce weed numbers and spread

Physical Removal: Can be safe and relatively inexpensive, generally causing little or no harm to non-target species. It can also be labor intensive where infestations are large. Some species such as spotted knapweed and leafy spurge contain sap that can irritate skin, and gloves are advised when handling. These plants can also be toxic to livestock when ingested in large enough quantities. Caution should be used when evaluating the use of hand pulling or digging as this practice may promote further spread of plant species with rhizomatous or spreading root systems.

Herbicides: Can be applied to larger areas of infestation and can be very effective when used properly. Seeking advice from a professional and following application guidelines printed on herbicide labels is critical. Misuse can lead to unintended consequences such as harming non-target plant species and environmental toxicity such as soil and water contamination.

Biological Control: Implementation is often used as a complement to other management tools. Biocontrol species are defined as the natural enemies of exotic species that have been introduced in order to reduce the vigor or population size of the exotic species. Biological control insects for spotted knapweed, leafy spurge, toadflax species, and a few other noxious weed species are commonly released in the Blackfoot and are known to interrupt flower, seed, stem, and root production.

the soil, and the environment. Research has shown that diversity in plant species supports the biodiversity of everything from beneficial soil organisms and insects to songbirds and small mammals. Growing native ornamentals has many benefits including reduced water consumption, better resilience to weather conditions, lack of fertilizer and pesticide requirements, and providing food and shelter for wildlife. When purchasing seed mixes, it is important to choose those appropriate for your specific use and area. Be especially cautious about mixes containing “wildflowers” since this does not always mean locally native species, and they often include seeds of species that are noxious or invasive in the area you intend to plant them. Blackfoot Challenge staff can help you decide what plants might work best for your particular situation.

Aquatic Invasive Plants

In Montana, the legal definition of aquatic invasive species is, “species that impact waterbodies and

wetlands, whose presence can cause severe damage to local ecosystems, industry, and tourism.” Documented exotic aquatic and riparian plants in Montana include American waterlily, curly-leaf pondweed, Eurasian watermilfoil, flowering rush, and yellowflag iris. Of these, yellowflag iris, Eurasian watermilfoil, and flowering rush are designated Priority 2A on the Montana Noxious Weed List and management criteria requires that these plants be eradicated or contained where less abundant, as prioritized by local weed districts.

FAQs

What can I do to help stop the spread of aquatic invasive plants?

Clean, drain, and dry all water equipment including fishing gear, clothing, boats, and trailers. Do not transport aquatic plant species. Use natives in ornamental planting and aquariums. Don't dump aquariums into natural waterbodies. Learn to identify aquatic invasives, and keep an eye out and report suspicious species.



Pretty ornamental plants like the yellow iris (left) can turn out to be harmful invasive species. Use caution when selecting plants for gardens and flower beds, and consider native plants for landscaping. Eurasian watermilfoil (right) can form large mats that impact native species and recreational activities such as fishing. Photos – left: Shaun Winterton, Aquarium and Pond Plants of the World, Edition 3, USDA APHIS PPQ, Bugwood.org; right: John Madsen, USDA ARS

Native/Invasive Plant Resources



Access these resources and more on our website

<https://blackfootchallenge.org/stewardship-guide>

- Montana Native Plants for Pollinator-Friendly Plantings
- Noxious Weed Identification
- Aquatic Invasive Species Identification
- Montana Weed Control Association
- Montana Department of Agriculture

County Weed District Offices:

- Lewis & Clark County: 406-447-8372
- Missoula County: 406-258-4200
- Powell County: 406-846-3348

Blackfoot Challenge Vegetation Coordinator

Karen Laitala

Email: karen@blackfootchallenge.org

Phone: 406-793-3900

Services include: Site assessments; native and invasive plant identification; treatment and seed mix recommendations; cost-share funding.

Land Conservation

Protecting private lands

Stewardship and conservation of the Blackfoot watershed's private lands is critical not only to support local livelihoods like ranching and forestry, but also for the diverse wildlife species that call these lands home. In fact, 75% of fish and wildlife species depend on private lands for their survival. The Blackfoot watershed has a long history of private landowners using proactive approaches to conserve the lands and resources they own. One of those approaches is called a conservation easement.

[FAQs](#)

What is a conservation easement?

A conservation easement is a voluntary legal agreement between a landowner and a qualified organization that limits the uses of the land in order to protect its conservation values. When you own land, you also own many rights associated with it, such as water rights, timber harvesting rights, and the right to subdivide and develop. When you donate or sell a conservation easement, you are donating or selling some of those rights — most

commonly, the rights to subdivide and develop.

What do I need to consider before putting a conservation easement on my property?

Putting a conservation easement on your property allows you to permanently protect the land's natural and cultural values for future generations. Each of the qualified easement holding organizations that work in the Blackfoot have their own criteria for evaluating potential easements, such as the land's capacity to provide fish and wildlife habitat, preserve scenic open space, accommodate agricultural production, or provide recreation corridor buffers. Minimum acreage requirements may also apply depending on the conservation values to be protected.

In terms of financial considerations, when you sell certain property rights through a conservation easement, income is accrued. If you donate the conservation easement outright, or sell it at below market value, you may also realize certain income and estate tax benefits.



NOVEMBER LANDSCAPE, Bonnie Holmes

Finally, conservation easements are most often established in perpetuity, meaning that they “run with the land” regardless of future ownership changes. While many Blackfoot landowners have adopted this tool, conservation easements are not an appropriate tool for everyone and there are many details to consider before placing an easement on your property. Be sure to discuss this decision with family members and your attorney or financial advisor.

By the numbers in the Blackfoot watershed

381,921

acres of private land

75%

of fish and wildlife species
rely on private lands
for survival

165,410

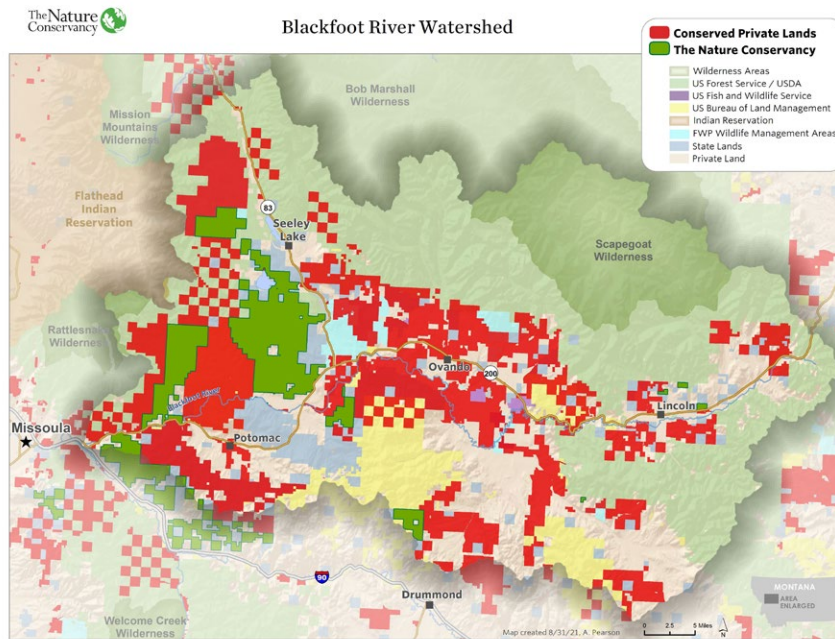
acres under conservation
easement

"When friends come visit me, they talk about how beautiful it is here and ask, 'Why is it this way?' I tell them it's because of the community. People buy in and work together on the things we care about."
—Stoney Burke, Ovando landowner

Permanently Protecting Community Values

In this map, all of the dark green and most of the red parcels denote land once owned by private timber companies. As these companies began to sell their land in the late 1990s, the Blackfoot Challenge worked with The Nature Conservancy to purchase those lands. Over the following decades, we worked through a community-driven process to convey those lands into public and private ownerships that would permanently protect local values like open space, wildlife habitat, agriculture, and public access.

Read the full story at <https://blackfootchallenge.org/corporate-timberland-in-transition>



Map by Amy Pearson, The Nature Conservancy

Did you know?

Montana's first conservation easement was established in the Blackfoot watershed in 1976. Landowners in the Blackfoot worked with The Nature Conservancy to draft legislation to establish conservation easements.

Watch the short film telling this story, *On the Shoulders of Giants—The Story of Montana Private Land Conservation* at <https://montanalandtrusts.org>.

Photo by Peggy Mannix

Land Conservation Resources



Access these resources and more on our website

<https://blackfootchallenge.org/stewardship-guide>

- A Guide to Conservation Easements
- Land Trust Contact Information
- Blackfoot Subbasin Conservation Plan
- Blackfoot Watershed Maps

Blackfoot Challenge Conservation Strategies Coordinator

Sara Schmidt

Email: sara@blackfootchallenge.org

Phone: 406-793-3900

Services include: Information about types of easements and entities that offer easements in the Blackfoot.

Community Contacts

Our public natural resource agency partners can provide additional information about public lands and access, viewing wildlife, hunting and fishing, and can assist landowners in stewardship and resource conservation.

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Helena Headquarters

1520 E Sixth Ave
Helena, MT 59601
406-444-2544
<https://deq.mt.gov/water/index>

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

<http://dnrc.mt.gov>

Missoula Regional Office

2705 Spurgin Road, Building C
Missoula, MT 59804
406-721-4284

Helena Regional Office

1424 Ninth Avenue
P.O. Box 201601
Helena, MT 59620
406-444-6999

Clearwater Unit Office

48455 Sperry Grade Rd.
Greenough, MT 59823-9635
406-244-5857

Lincoln Field Office

355 Sucker Creek Road
P.O. Box 127
Lincoln, MT 59639
406-362-4999

MONTANA FISH, WILDLIFE & PARKS

Region 2 Headquarters

3201 Spurgin Road
Missoula, MT 59804
406-542-5500
fwprg22@mt.gov
<https://fwp.mt.gov>

MONTANA NATURAL RESOURCES CONSERVATION SERVICE

<https://www.nrcs.usda.gov/wps/portal/nrcs/mt/home>

Deer Lodge Field Office

(serves Deer Lodge Valley Conservation District and North Powell Conservation District)
1002 Hollenback Road, Suite C
Deer Lodge, MT 59722-9513
406-415-4046

Helena Field Office

(serves Lewis and Clark Conservation District)
790 Colleen Street
Helena, MT 59601-9713
406-449-5000

Missoula Field Office

(serves Mineral County and Missoula Conservation Districts)
3550 Mullan Road, Suite 106
Missoula, MT 59808-5125
406-829-3395

U.S. BUREAU OF LAND MANAGEMENT

Missoula Field Office

(Missoula and Powell Counties)
3255 Fort Missoula Road
Missoula, MT 59804
406-329-3914
BLM_MT_Missoula_FO@blm.gov

Butte Field Office

(Lewis and Clark County)
106 North Parkmont
Butte, MT 59701
406-533-7600
BLM_MT_Butte_FO@blm.gov

U.S. FISH AND WILDLIFE SERVICE

Partners for Fish and Wildlife Program

P.O. Box 66
Ovando, MT 59854
406-727-7400
<https://www.fws.gov/mountain-prairie/refuges/montanapfw.php>

Ecological Services Field Office

585 Shepard Way, Suite 1
Helena, MT 59601
406-449-5225
<https://www.fws.gov/montanafieldoffice>

U.S. FOREST SERVICE

Lincoln Ranger District

(Helena-Lewis and Clark National Forest)
1569 Highway 200
Lincoln, MT 59639
406-362-7000
<https://www.fs.usda.gov/hlcnf>

Seeley Ranger District

(Lolo National Forest)
3583 Highway 83
Seeley Lake, MT 59868
406-677-2233
<https://www.fs.usda.gov/lolo>

ADDITIONAL RESOURCES

Emergency

Missoula County

Emergency: 911
Non-emergency: 406-728-0911
Greenough Potomac Volunteer Fire Dept.:
406-244-5796
Seeley Lake Fire Dept.: 406-677-2400

Powell County

Emergency: 911
Non-emergency: 406-846-1650
Ovando Volunteer Fire Dept.:
406-793-5600
Helmville Volunteer Fire Dept.:
406-793-3003

Lewis and Clark County

Emergency: 911
Non-emergency: 406-477-8235
Lincoln Volunteer Fire Rescue:
406-362-4377

Montana Cadastral Landownership Map

<http://svc.mt.gov/msl/mtcadastral>

Montana Field Guides

<http://fieldguide.mt.gov>

Artists Gallery

Our heartfelt thanks to these Blackfoot artists for allowing the use of their beautiful work in this guide!



EMERSED
Annie Allen
<https://annieallenart.com>
sunnybunny60@gmail.com



BENEATH



FLICKER OF LIGHT



ON FIRE



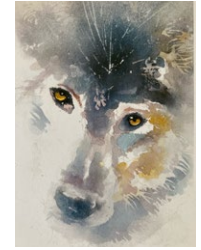
THE BLACKFOOT
Angela Bennett
<https://eleganceoftheimage.com>
hlm5804@blackfoot.net



INTERLUDE



JUDICIAL REVIEW



THE GAZE



WHITE WINGS
TOUCH SHORE
Claire Emery
<https://www.emeryart.com>
claire.emery.art@gmail.com



WILD IRIS



DIPPER



TIME AWAY



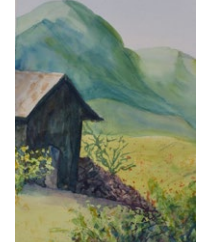
IN THE QUIET
Lisa Gibson
<https://lisagibsonart.com>
hello@lisagibsonart.com



MARSH MAGIC



CALLING MY NAME



SPRING SHED



FAMILY TIES
Diane Whitehead
<https://www.dianewhitehead.com>
dianemwhitehead@gmail.com



SEPTEMBER GRAZING



COW LANDSCAPE



THIS WAY OR THAT
WAY BLUEBIRDS



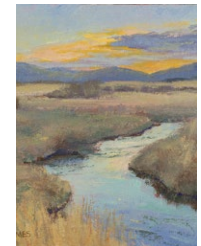
NOVEMBER LANDSCAPE
Bonnie Holmes
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bonnieholmesfineart@gmail.com



EXTREME SUN



TRIBUTE



KEEP COOL



Thank you to these organizations for their support to produce this guide.



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406-793-3900 | info@blackfootchallenge.org
blackfootchallenge.org/stewardship-guide