

MISSOULA COUNTY WEED DISTRICT

ANNUAL REPORT | **2018**





**Front rendering of
new facility**

**2018 MARKED THE BEGINNING
of an exciting new partnership**

between the Missoula County Weed District and the Missoula Butterfly House and Insectarium, when they joined our vision for a new facility at the Missoula County Fairgrounds. The facility has been designed around our many community education and outreach programs, and feature greenhouses, a Master Gardener lab, demonstration kitchen, expanded plant clinic, a large diversity of teaching gardens and classrooms as well as a year-round tropical butterfly house. Groundbreaking for the facility will begin in 2020!



**Back rendering of
new facility**

WEED DISTRICT STAFF

Jerry Marks –

Department Head

Bryce Christiaens –

Weed District Manager

Lindsey Bona-Eggeman –

*Weed Management
Coordinator*

Steffany Rogge –

Education Coordinator

Jed Little – *GIS Coordinator*

Mathew Deaton –

Prevention Specialist

Melissa Maggio –

*Statewide Biocontrol
Coordinator*

MISSOULA COUNTY WEED DISTRICT BOARD

Jim Olivarez – *Chair*

Dennis Vander Meer –

Vice Chair

Neal Carson, *Member*

Andy Hayes, *Member*

Doug Kopp, *Member*

Dean Pearson, *Member*

John Rimel, *Member*

Pat Sweeney, *Member*

Joann Wallenburn, *Member*

*Native grass illustrations
featured throughout this
document were produced
by Evelyn Neel.*

COVER PHOTO:
**North Fork of
the Blackfoot**

2018 AQUATIC INVASIVE SPECIES

CLEARWATER
WATERCRAFT
INSPECTION STATION

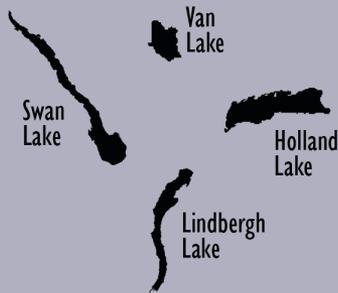


13,717 Total watercraft
inspected

Busiest Day
302 watercraft

1 Mussel-fouled
boat intercepted

SWAN ROVING WATERCRAFT INSPECTION



(Not to scale)

1,587

*Total
Watercraft
inspected*

710

Motorized



NO AIS
Detected

877

*Non-
motorized*

The 2018 AIS season consisted of a combination of prevention, monitoring and education/outreach. Missoula County Weed District partnered with multiple agencies and watershed organizations to help protect Western Montana waterbodies from the threat of aquatic invasive species. MCWD managed and staffed the Clearwater Watercraft Inspection Station (busiest in the state) as well as a roving Watercraft Inspector in the Swan Valley. Through a DNRC grant funded partnership with the Blackfoot Challenge, Clearwater Resource Council and Swan Valley Connections, 13 waterbodies were monitored for aquatic invasive species and a plethora of education and outreach occurred.



PREVENTION

Missoula County had another successful year of weed free forage production in 2018. Ten local producers supplied approximately 289 tons of weed free forage to local sportsman, stock growers and federal agencies. The 207 acres of fields certified was the highest total in 13 years and 50 acres more than in 2017. Our local producers grew a variety of forage mixes this year including alfalfa, alfalfa-grass, high carb grass and low carb grass for horses. In addition to growing a variety of forage types local products were again made available at Murdoch's Ranch & Home supply, the Axeman and Mountain West Co-Op. Growing and using weed free



Festuca idahoensis - Idaho Fescue



forage can be a great way to prevent noxious weeds from invading your pasture and backyard. Although some producers advertise weed free products, always look for a Montana Department of Agriculture forage marker and a transport certificate at the time of purchase. As always, the Missoula County Weed District and the Montana Department of Agriculture are committed to growing the weed seed free forage program into the future. If you or someone you know are interested in the weed seed free forage program please contact Matt Deaton at 406-258-4218. And remember, certified forage is required to be fed for at least three days prior to entry when horses or pack animals are used on any public lands in Montana!





YOUTH 2018 EDUCATION

"I loved how active the Leave No Weeds field trip was! My (very active) class thrived on this trip and they loved their learning! Thank you!" MCPS 5th Grader Teacher

 19 SCHOOLS
 33 FIELD TRIPS
 34 Classrooms

782 5th Graders Hiked 2 miles learning native plant identification
 Spread 25 pounds of native seed
 Spent 1 hour pulling Spotted Knapweed & Houndstongue

The Missoula County Weed District continues to provide programs that promote biodiversity and educate on the importance of healthy plant communities to emphasize the potential impacts invasive species can cause. Youth programs consist of teaching identification skills that encourage students to become acquainted with their surrounding natural spaces. Through hands-on outdoor activities students gain the ability to differentiate between native, non-native and invasive plants and the roles they play in the ecosystem.



210 3rd Graders
 Learned about structure & function of native & invasive plants through identification

92 7th & 8th graders
 practiced scientific data collection through vegetation monitoring along the Bitterroot River to assess the health of the riparian zone





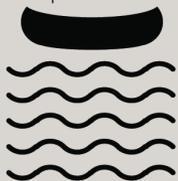
YOUTH *in* RESTORATION

ALL-GIRL
CREW

2
0
1
8

Surveyed
7.25
miles of
shoreline
for aquatic
invasive
species
& native
species

11
**PARTNERING
AGENCIES**



Removed 2 miles
of fencing to improve
wildlife corridors on

3 CONSERVATION
EASEMENTS

Pulled over
40 bags of
Houndstongue
in 2
days 

Collected nearly
20,000
biocontrols to
redistribute
across
Montana

Maintained & Improved
25 miles of trail *in the*
BOB MARSHALL WILDERNESS

In 2018, the Missoula County Weed District completed its sixth year of the Youth in Restoration program which, to date, has employed 24 high school students. The program provides career mentorship and on-the-ground, hands-on training in conservation and resource management work. The YIR's program success largely due to cooperative partnerships with state and local land management organizations. The experts and professionals who dedicate their time to the youth crew provide the educational components and oversight/expertise that connects the experiential work to the overall land-use benefit of each project.

Looking to the future of the Youth in Restoration program, the Weed District will continue to develop new partnerships expanding the experiences and knowledge provided to the youth crew and the program.



A photograph of three young women relaxing in colorful hammocks in a forest. The top hammock is green and blue with a pattern, the middle one is yellow and blue, and the bottom one is red and grey. They are all smiling and looking towards the camera. The background shows tall pine trees and a clear sky.

What activity did you most enjoy working on this season?

SAGE SENTERFEIT:

"I really enjoyed the 5-day Bob Marshall trip, even though it was extremely challenging at times, I valued camping and getting to know my coworkers. There aren't many high school students who are awarded the opportunity to spend time deep in the backcountry of Montana."

Of all the projects we worked on, which do you think was the most beneficial?

MAYA HEFFERNAN:

"Weeding Sawmill Gulch with the Forest Service was really beneficial because so many people use that area for recreation and keeping it weed free for the community and the environment is really important and especially feels important when it's in a place where people go."

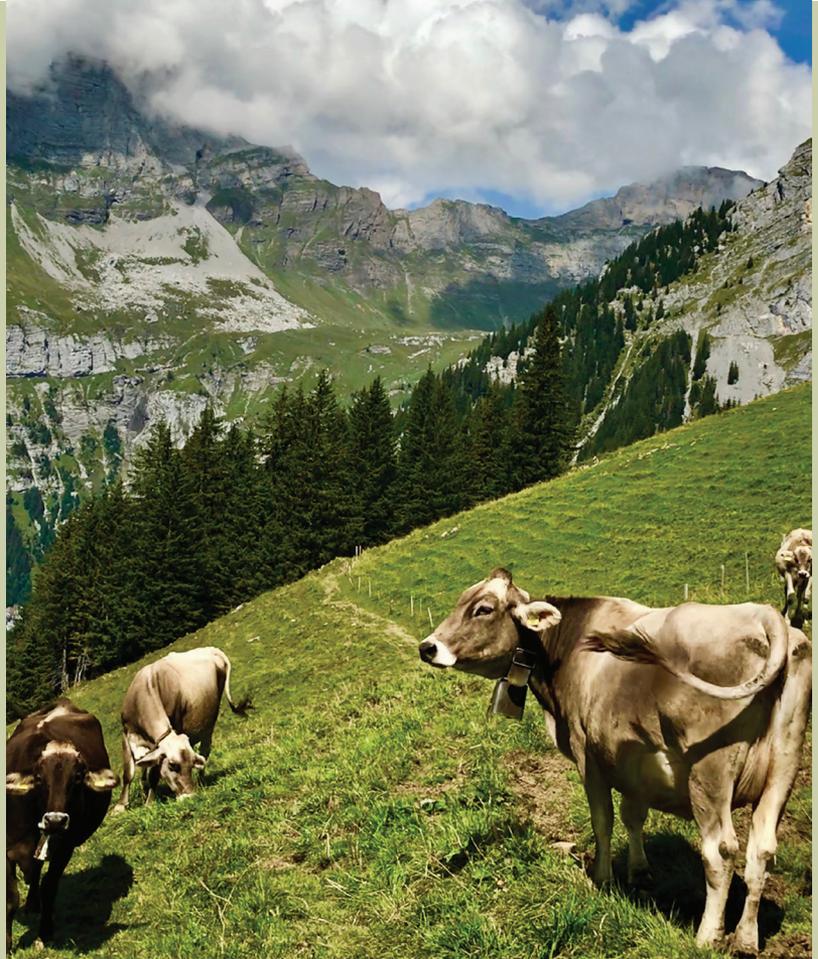
FIONA MARROW:

"Building trails with Five Valleys Land Trust, not only were we helping restore a now riparian area, we were also making it handicap accessible, which more places need to be in Montana especially outdoor areas."

BIOCONTROL

Weather conditions in the winter of 2017/18 and the spring of 2018 resulted in decreased biocontrol agent populations across the state. Insect numbers were about 1/3 of what they have been the last few years and this was not due to a lack of trying. We spent 41 days collecting (all but 2 of these collection days were in Missoula Co.), an increase of 6 days (1.5 work weeks) from 2017 and numbers were still down! Luckily, land managers were interested in services other than insect releases this year. I travelled to 24 locations to give presentations or hold biocontrol workshops, this is an increase of 9 events from 2017! In addition to an increase in the number of days spent collecting and the number of presentations/workshops, I was able to travel to Switzerland for an international biocontrol symposium where I presented a poster on our predicted suitable habitat model (on following page) and was able to visit the lab where much of the host-specificity and impact research is conducted prior to biocontrol agents being released in the U.S. This was a great experience and allowed me to come home with a plethora of new information and a much better understanding of the research that is conducted overseas.

**Engelberg,
Switzerland
alpine
farmland**



PARTICIPATION



24

Workshops/
Presentations



730
Workshop
Attendees

41

Days Spent
Collecting



420

Collection Day
Participants



9713

Miles Traveled for
Workshops and Collections



INSECTS



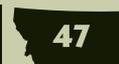
Species Collected

8220 Acres Treated



3

New Species
Released



47

Counties and
7 of 7 Reservations
Received Insects



9

States
Received Insects

755,000 Insects Distributed



\$200,530

Market Value of Insects

2018 BREAKDOWN



8%

Out-of-State
Coordination



9%

Fundraising



22%

Workshops

28%

Collections



33%

In-State
Coordination

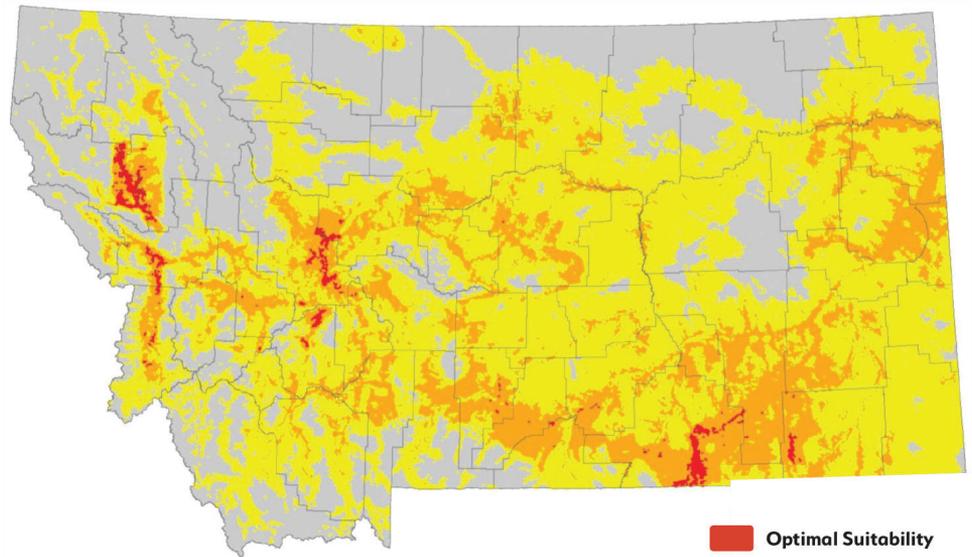
RESEARCH

THE DEVELOPMENT OF PREDICTED SUITABLE HABITAT MODELS FOR BIOCONTROL IN MONTANA

The Missoula County Weed District and the Montana Biocontrol Coordination Project partnered with the Montana Natural Heritage Program to develop predicted suitable habitat models for Montana's most successful biocontrol agents. Based on data associated with known established insect populations, these models allow us to determine the more ideal sites associated with successful establishment and help to increase the efficacy of biocontrol by guiding land managers' releases of the insects to sites where they will most likely survive and thrive.

These models are a work in progress. Additional known, established populations of insects and ground-truthing the current model output will add to the strength of these models in the future.

To view the complete model output for each species visit: <http://fieldguide.mt.gov/displaySpecies.aspx?inv=BIOCNTRL>



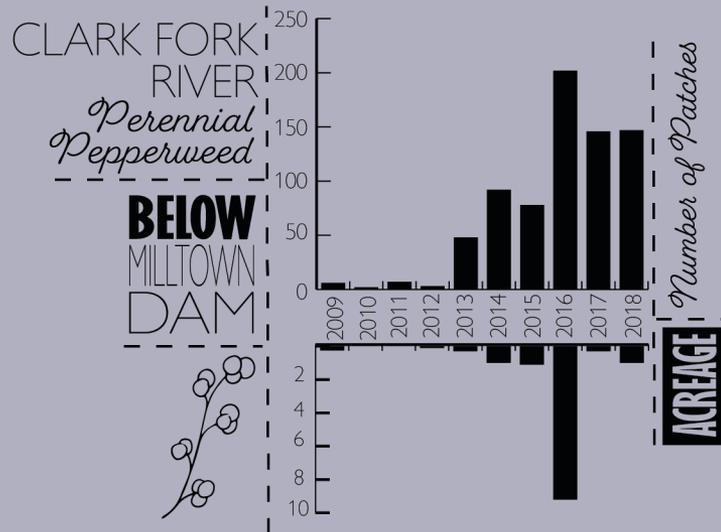
Predicted suitable habitat for biological control (*mecinus janthiniformis*) for Dalmatian toadflax.



MAPPING

2018 saw another successful season hunting perennial pepperweed (*Lepidium latifolium*) and yellowflag iris (*Iris pseudacorus*) on the Clark Fork and Bitterroot Rivers. First detected in 2009, perennial pepperweed has been working its way down the river from the Butte and Deer Lodge areas. A 2009 noxious weed inventory on the Clark Fork River found moderate infestations of perennial pepperweed on the river bank from Garrison Junction through Powell and Granite Counties and into Missoula County. The perennial pepperweed appeared to be in the early stages of invasion, often occurring on the tip of an island but not extending down the banks. Often lining the river bank, it rarely was seen spreading into adjacent pastures or uplands. However, below the Clark Fork's confluence with the Blackfoot River, where the Milltown Dam had blocked the river just the year before, the pepperweed essentially disappeared. In that initial year of mapping perennial pepperweed, we only found 6 patches below the Milltown Dam site. It seemed that the dam had drastically slowed the spread of pepperweed downstream, but now that it was gone, we knew we would need to take action to stop the further spread of pepperweed.

In 2011 we started actively controlling perennial pepperweed on the Clark Fork using our GPS units to locate and treat every infestation we had ever mapped while mapping and treating all new infestations. At the same time we were working to stem the flow of yellowflag iris moving down the Bitterroot River from Ravalli County and we included yellowflag iris in our search and destroy missions. In the subsequent years we have treated many patches



Locating pepperweed on the Clark Fork River.



Perennial pepperweed

of iris and pepperweed, eradicating many infestations. Despite our efforts, we have watched pepperweed leap frog its way down the Clark Fork River. In 2013 we mapped and treated 48 patches of pepperweed below the Milltown Dam site. That number ballooned to 202 in 2016 and seems to have stabilized in the 140s the last two seasons. 2016 was notable as the first year we found perennial pepperweed spreading into pastureland adjacent to the river which accounts for the huge jump in acreage that year.

With help from a Trout Unlimited grant this year we expanded our inventory, mapping the Clark Fork below Missoula County all the way to Superior. We are optimistic that the last pepperweed patch we mapped and treated, just downstream from Alberton, is the bottom of the infestation. While perennial pepperweed is

clearly moving down river and beginning to spread into adjacent fields and uplands, we remain optimistic that our efforts are holding it in check. Our challenges for 2019 are to get more comprehensive control on the larger infestations above the Milltown Dam, continue our seek and destroy missions on the lower river, and respond to seed dispersal from last year's spring floods. Mapping data on the extent of flooding along the Clark Fork River in the Missoula valley will help us compile a mailing list of landowners who potentially had pepperweed seed moved into their pastures. With any luck we will be able to locate and treat any new infestations that pop up in 2019 as a result of the flooding.



Pseudoroegneria spicata -
Bluebunch Wheatgrass

PARTNERSHIPS

Allied Waste
Beaverhead County Weed District
Big Sky Watershed Corps
Bitterroot Biocontrol Project
Bitterroot National Forest
Blackfoot Challenge
Blaine County Weed District
Bureau of Land Management
CABI-Swiss
City of Helena
City of Missoula — Conservation Lands
Clark Fork Coalition
Clearwater Resource Council
Climate Smart Missoula
Confederated Salish and Kootenai Tribes
Defenders of Wildlife
Fergus County Weed District
Five Valleys Land Trust
Flathead Basin Commission
Flathead Biological Research Station
Flathead County Weed District
Flathead National Forest
Gallatin Valley Land Trust
Golden Valley/Musselshell County Weed Districts
Granite County Weed District
Lake County Weed District
Lee Metcalf Wildlife Refuge
Lewis & Clark Conservation District
Lewis and Clark County Weed District
Lolo National Forest
Lower Rock Creek Weed District

Madison Valley Ranchlands Group
Missoula Butterfly House and Insectarium
Mineral County Weed District
Missoula Conservation District
Missoula County Community and Planning Services
Missoula County Parks
Missoula Snowgoers
Montana Department of Transportation
Montana Invasive Species Council
Montana Land Reliance
Montana Natural History Center
Montana State University Extension
Montana Weed Control Association
MPG Ranch
MT Association of Conservation Districts
MT Department of Agriculture
Department of Natural Resources & Conservation
MT Noxious Weed Education Campaign
MT Noxious Weed Trust Fund
MT Fish Wildlife and Parks
MT Wildlife Habitat Improvement Program
National Bison Range
National Wildlife Federation
Natural Resource Collaborative Working Group
Natural Resource Conservation Service
Ninemile Ranger District
North American Invasive Species
Management Association
Northern Rockies Invasive Plant Council
Park County Cooperative Weed Management Area
Powell County Weed District

Ravalli County Weed District
Ravalli County Extension
Rocky Mountain Elk Foundation
Sanders County Weed District
Seeley Lake Ranger District
Stillwater Valley Watershed Council
Swan Valley Connections
Sweet Grass County Weed District
The Nature Conservancy
Teton County Weed District
UM Franke College of Forestry & Conservation,
Human Dimensions Lab
University of Montana — Natural Areas
Upper Columbia Conservation Commission
USDA Forest Service — Rocky Mountain
Research Station
US Fish and Wildlife Service
USDA — Agricultural Research Station
USDA — Animal and Plant Health
Inspection Service
Watershed Education Network
Wheatland County Weed District
Whitehall School Project
Wild Sheep Foundation
Working Dogs for Conservation
Yellowstone County Weed District

**MISSOULA COUNTY
WEED DISTRICT
2825 Santa Fe Court
Missoula, MT 59808
P: 406.258.4200
F: 406.258.3916**

