



MISSOULA COUNTY
WEED DISTRICT
**ANNUAL
REPORT**

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MISSOULA COUNTY WEED DISTRICT

Staff

Jerry Marks
Department Head

Bryce Christiaens
Weed District Manager

Lindsey Bona-Eggeman
Weed Management
Area Coordinator

Steffany Rogge
Education Coordinator

Jed Little
GIS Coordinator

Melissa Maggio
Statewide Biocontrol
Coordinator

Chris Mascari
Prevention Coordinator

Pirrie Durkee
Financial Coordinator

Layne Van Lanken
Weed Ranger

Sawyer Meegan
Education Assistant/YIR Crew Lead

Elizabeth Hecker
Biocontrol Technician

Madeline Gaffigan
Big Sky Watershed Corps Member

Board

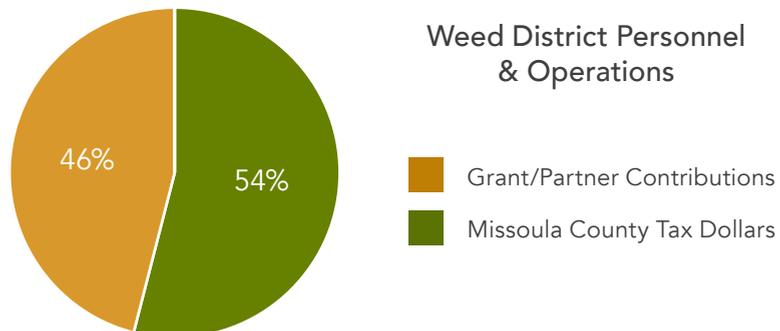
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It goes without saying that 2020 presented us all with many significant challenges and uncertainties. But despite them all, Missoula County Weed District staff found ways to adapt and overcome to continue to provide Missoula residents with the resources and programs that they have come to expect. From virtual plant identification hikes with 5th graders via YouTube to socially distant watercraft inspections at the Clearwater Watercraft Inspection Station, we all learned how to move forward together. Our partnerships grew despite restrictions, once again providing nearly half our operations budget, with each Missoula County tax dollar spent on invasive species matched by \$.86 in grants or partner contributions! And with the help and support of our many watershed partners and the Missoula County Commission, we created Montana's first county-wide Aquatic Invasive Species District! We are excited by the potential projects and partnerships that this new District will bring to our ability to protect Missoula County's economy and environment from the threat of aquatic invasive species. Finally, our partnership with the Missoula Conservation District and Missoula Butterfly House & Insectarium for our new facility at the Missoula County Fairgrounds, The Rocky Mountain Gardens and Exploration Center, continues to gain momentum, with ground breaking just around the corner!

Thanks to all of you who have been a part of making this happen. We could not do it without you, and look forward to continuing our partnerships into 2021.



Cover photo by Hannah Leonard



REFLECTIONS FROM: the 2020 Big Sky Watershed Corps Member

My time with the Missoula County Weed District has been extremely rewarding in terms of personal relationships and professional goals. I moved to Missoula on New Year's Day from Seattle with everything I owned shoved into my car. As I headed east from Washington, I was scared to start a new job in an unfamiliar place. I had never been to Montana before, but growing up in Colorado, I knew I wanted to be in the Rockies.

The Weed District made me feel welcome right off the bat as I started taking on different projects and meeting new people in the office. One of my first projects was developing new material for Leave No Weeds. Unfortunately, due to COVID, we had to move to online classes, but, despite the setback, our final result was funny and light-hearted: videos, a painting class, and recorded Nature ID hikes. These were insanely fun to film, and I received some drawings and silly emails from kids that made all of our struggle worth it.

Once fieldwork began, I gave up my home office for long days in the field, reading transects, learning biocontrol, and collecting the first bugs of the season. We continued with different phases of bug collections and releases throughout the summer and fall. As an advocate of diversifying control methods, this was



a dream come true for me. I loved to spend my day zoning in on one species, watching how they interact with the plant, and scooping them up to send them across the U.S. to work their "magic."

Throughout the season, the biocontrol team was on the hunt to find houndstongue monitoring sites. These sites were unique because they needed to have evidence of crucifer beetle feeding, houndstongue, and native *Hackelia*. This trio proved to be quite elusive, and our search took us from Glacier to Livingston to Washington. Many road trips and gas stations later, we only discovered a few sites but I grew quite passionate

about *Hackelia*'s characteristic small blue flower and loved being a part of the project.

I felt so lucky to explore Montana through my work, especially while speaking with landowners that shared a passion for preserving the health of their land. My experience with the Weed District allowed me to build a family of relationships here in Missoula, and I am so thankful to be connected to such determined people. I am beyond thrilled to be coming back next year to work with the Weed District and continue fostering those friendships.

— Madeline Gaffigan

NEW INVADERS & PREVENTION

New Invaders Along Missoula County's Waterways

Like most projects in 2020, COVID-19 played a significant role in either the success or failure in our day-to-day activities. Fortunately Weed District staff were able to utilize this period to double down on our efforts in the field and focus on controlling invasive species along the Clark Fork, Bitterroot, and Clearwater Rivers. Weed District staff was able to successfully locate, map, and treat new invader species like yellowflag iris, perennial pepperweed and purple loosestrife, in portions of the rivers that haven't been surveyed in over four years. Additionally, Weed District staff, with the help of local partners, were able to also dedicate extra time to effectively controlling new invader species in some of our smaller watersheds, including Miller Creek and Pattee Canyon.



PREVENTION

350

acres of MDT
right-of-way
treated

105

acres inspected
and certified
weed-free seed

16

work days
on the Bitterroot,
Clark Fork, and
Clearwater Rivers

115

river miles
surveyed,
mapped, and
treated



7

miles
hiked/floated
per day



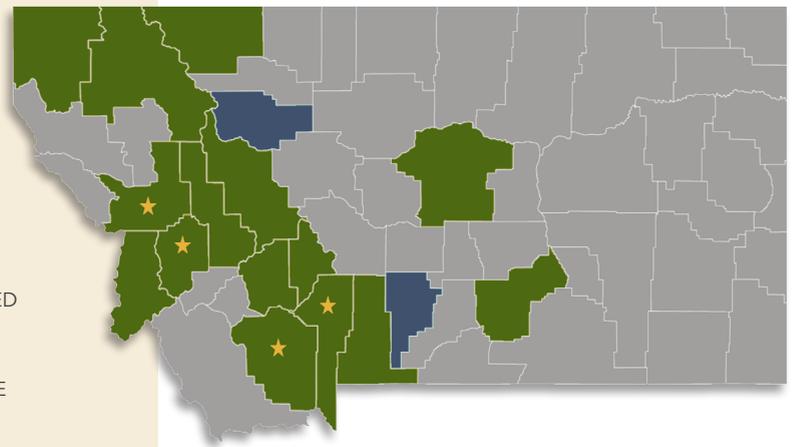
Houndstongue Root Weevil Monitoring Project

In 2019, the Montana Invasive Species Council held a Science Advisory Panel to evaluate the feasibility of approving and using the houndstongue root weevil (*Mogulones crucifer*) in the U.S. There is concern that the weevil may have negative impacts on plants other than houndstongue that are in the same family (*Boraginaceae*). Since the weevil was approved for release in Canada in the 1990's and has since moved into the U.S., one of the panel's recommendations was to begin monitoring the root weevil and its impact on non-targets at locations it has naturally established.

We received USFS Biological Control of Invasive Forest Pests funding to monitor for non-target impacts of the houndstongue root weevil. In 2020, we developed the monitoring protocol with the assistance of Dr. Jane Mangold, MSU, Dr. Sharlene Sing, USFS Rocky Mountain Research Station, and Dr. Rosemarie De Clerk-Floate, Agriculture and Agri-Food Canada. We also identified 9 sites in Montana with houndstongue, the weevil, and a non-target plant species and monitored 8 of those sites. All sites will be monitored for 3 consecutive years, collecting data (vegetative form, height, number of flowers, feeding damage, and oviposition scarring) on houndstongue and the non-target individuals found within our 5 m x 5 m plots. After collecting data in the 3rd year, plants will be destructively sampled to inspect for eggs and larvae.

In 2021, we will re-monitor the 8 sites established in 2020 and expand our monitoring sites to include 2 additional sites in Montana, 5 in Washington, and 5 in Idaho.

- WEEVIL SUSPECTED
- WEEVIL PRESENT
- ★ MONITORING SITE



BIOCONTROLS



As we search for sites with houndstongue, the weevil and non-target species, we have been able to collect information regarding presence of the weevil. Dr. Jeff Littlefield, MSU, is also conducting adventive surveys for the houndstongue root weevil. The map includes counties where the root weevil has been identified or suspected (suspicious feeding damage but no weevils) through either the MSU surveys or the searches for these monitoring sites.

AQUATIC INVASIVE SPECIES

2020 Clearwater Watercraft Inspection Station Program

This is Missoula County Weed District's 4th season in partnership with Montana Fish Wildlife and Parks to staff and operate the Clearwater Watercraft Inspection Station. If you are unfamiliar with the Watercraft Station, it is located at the intersection of Highway 200 and Highway 83. Also, affectionately referenced by saying "across from The Cow!"

In the last two summers we have seen a dramatic increase in the number of watercraft inspections. This is due in part to increasing station operating hours and boater compliance with stopping at the station. We spent much of fall and winter of 2019-2020 gearing up for another busy watercraft inspections season, but 2020 . . . nobody could have accounted for 2020.

The Watercraft Check Stations are a mandatory stop for all types of watercraft including, but not limited to: stand up paddleboards, kayaks, canoes and all types of motorized watercraft. At Clearwater Junction watercraft traffic must stop and be inspected coming from East and West on Highway 200. Watercraft traffic does not have to stop coming south on Highway 83.

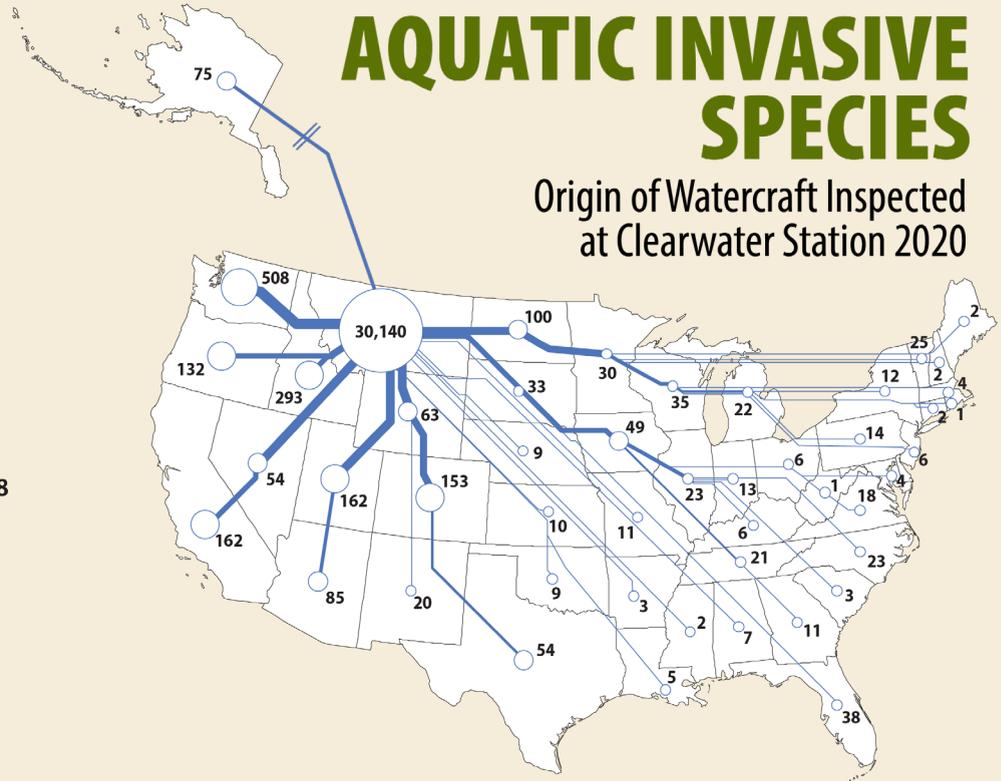
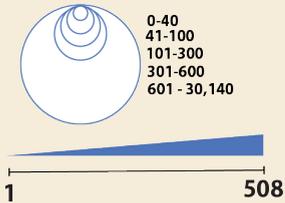
The Watercraft Check Station was deemed essential, so we adapted what seemed like almost daily to the recommendations and guidance for operating during a global pandemic. Hiring and training staff this year presented a unique challenge. Dealing with the required Zoom interviews, travel quarantines, social distancing, and developing safety protocols and



AQUATIC INVASIVE SPECIES

Origin of Watercraft Inspected at Clearwater Station 2020

Number of Watercraft



measures on the fly. Possibly a silver lining to the pandemic was our applicant pool was phenomenal this year. The virus kept some college kids close to home, and disrupted some folk's summer travel plans which was a score for us at the station!

With stay at home orders in place and many businesses closed, people took to the outdoors in greater numbers than even Montana is used to seeing. It was obvious almost immediately that this wasn't going to be a normal summer. Throughout the summer we took special precautions to keep both our staff and the public safe during the pandemic. This included our staff wearing masks during the interview and inspection process. We also eliminated the handing out of paperwork unless absolutely necessary. At our station we reconfigured the traffic lanes to help the inspectors and boaters maintain social distancing. Our staff performs self-health checks every day and we had ample sanitization materials.

The total watercraft inspected in 2020 is 34,855. We broke our own record on for the most inspections performed in one day on July 3rd, with 626 watercraft inspected.

We were lucky not to have found any zebra/quagga mussels on any of the watercraft we inspected this year. We found plenty of standing water, vegetation, one incidence of live fish and a commercially hauled vessel with a sea mussel attached. Inspectors also found faucet snails on a kayak coming out of Lake Upsata. Faucet snails are problematic because they carry a pathogen that is toxic to waterfowl.

2020 is one for the record books in many ways. We are grateful that at the Clearwater Watercraft Station we have been able to continue to protect Montana's waters from invasive species during the pandemic.

AQUATIC INVASIVE SPECIES RESEARCH

Missoula County Weed District Aims to Understand Fragrant Water-lily (FWL) Impacts

FWL's tranquil presence, aromatic smell, and radiant white petals made it the ideal aesthetic addition to the slow-moving waters of Salmon Lake in the mid-1930s, where it was first introduced within Missoula County. Despite this calming beauty, FWL is actually a non-native introduced species with native populations occurring in the eastern and southern portions of the United States.

During the Spring of 2020 the Flathead National Forest petitioned the Missoula County Weed District to list FWL as a noxious weed after the introduced non-native species began to grow at an alarming rate within the Clearwater River Watershed. In December of 2020, the petition turned to policy and FWL was officially listed as a noxious weed within Missoula County.

As prominent as the species is within the Pacific Northwest, little information is available in terms

of management and ecology. The Missoula County Weed District has taken this lack of information as an opportunity to research these components and spearhead a rather unique study which will begin during the spring of 2021. The ambitious research aims to complete three primary objectives:

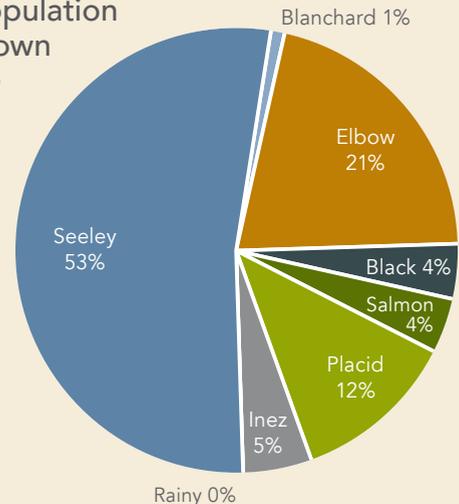
Objective 1: Quantify the changes in native plant communities as a result of non-native fragrant water-lily habitat infringement.

Objective 2: Assess and quantify the long-term impacts that fragrant water-lily has on water quality (pH, dissolved oxygen, chlorophyll) in aquatic habitats.

Objective 3: Develop genetic lineage tracing to evaluate the history of biogeographic distribution, and spread, of fragrant water-lily and its reproductive mode currently present within the Pacific Northwest.



FWL Population Breakdown by Lake

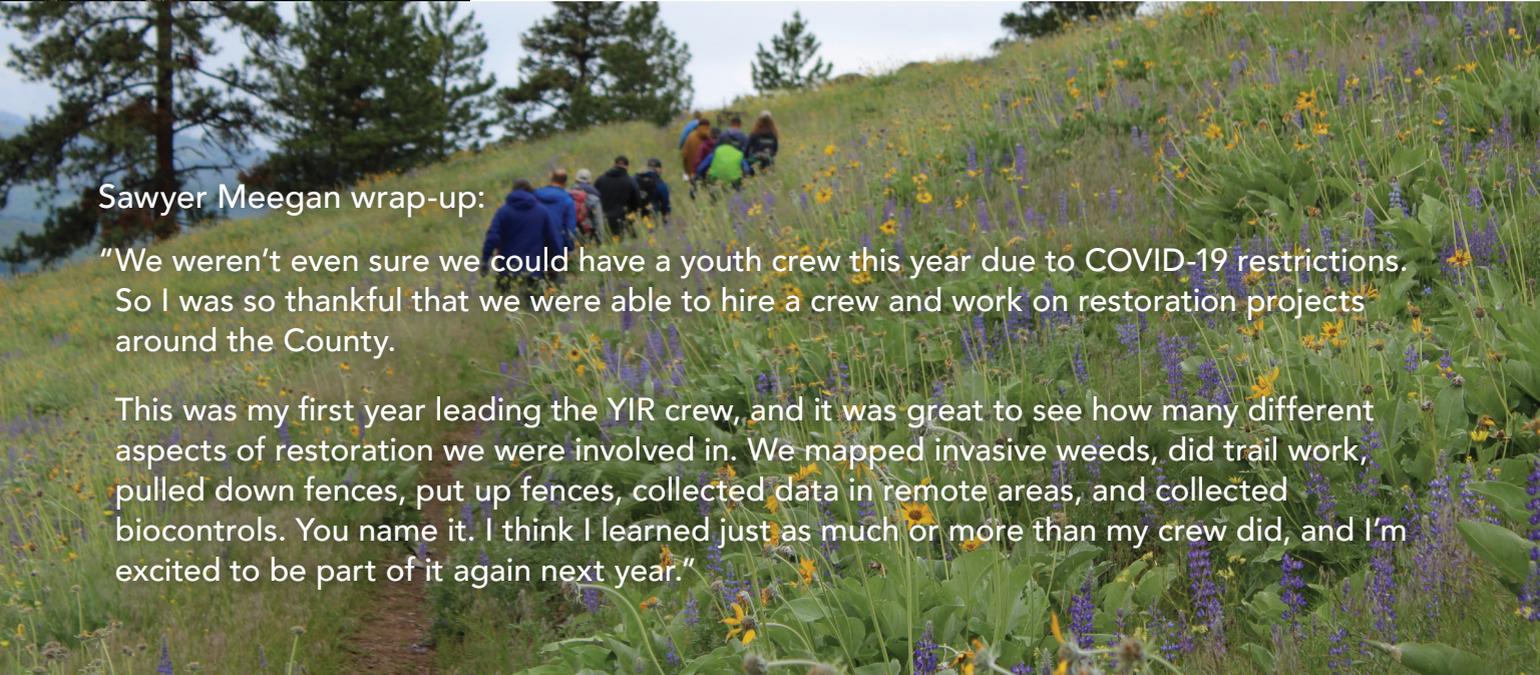




YOUTH IN RESTORATION



With the uncertainty of the pandemic and the safety of employees in mind, the decision to host a youth crew for the 2020 season seemed doomed. However, with new COVID policies, health acknowledgments, and safety protocols in place, we marched forward and hired 3 high school students to brave the unknown new working conditions. Under the direction of Sawyer Meegan the 2020 youth crew consisting of; Finn Krutek, Isaac Odegaard, and Zade Little masked up, temperature/symptom checked themselves through a season of hard work and new experiences. As always, our partner support and their invaluable knowledge makes the Youth in Restoration program so unique and valued. The youth crew always comments that the best projects are the ones where they worked directly with the managers who educated them on the background and outcomes of each project. This connection makes the youth crews' hard work worthwhile. The Youth in Restoration program exposes and provides skills that are essential in resource and land management such as, scientific monitoring protocols, plant identification, and GPS training but they also gained valuable life skills in teamwork, patience, hand sanitation, and lunch making skills. Therefore, the program is well-rounded in readying our youth for success in their futures.



Sawyer Meegan wrap-up:

"We weren't even sure we could have a youth crew this year due to COVID-19 restrictions. So I was so thankful that we were able to hire a crew and work on restoration projects around the County.

This was my first year leading the YIR crew, and it was great to see how many different aspects of restoration we were involved in. We mapped invasive weeds, did trail work, pulled down fences, put up fences, collected data in remote areas, and collected biocontrols. You name it. I think I learned just as much or more than my crew did, and I'm excited to be part of it again next year."

YOUTH IN RESTORATION

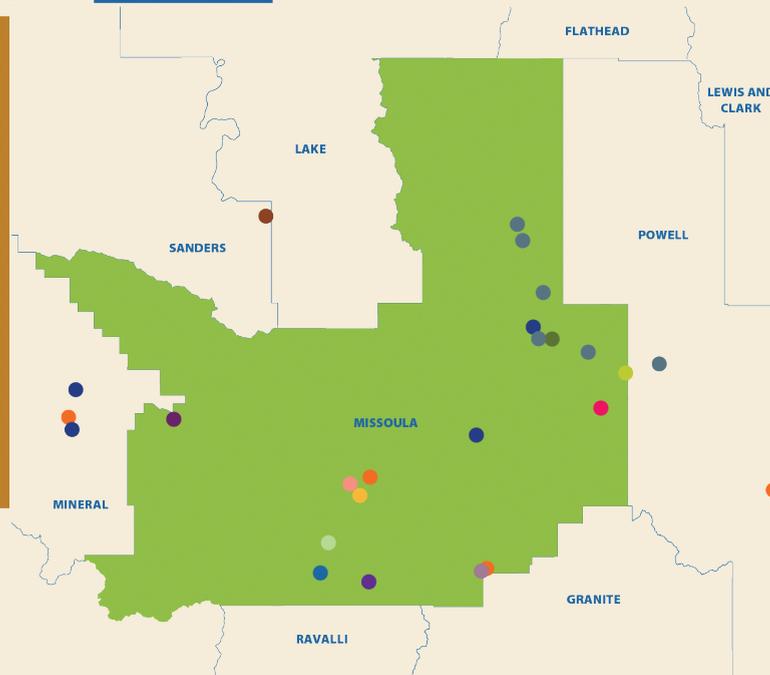


YOUTH *in* RESTORATION

12
PARTNERING
AGENCIES

PROJECT TYPES

- Biocontrol Collections
- Biocontrol Release/Monitoring
- GPS Training/Mapping
- Trail Construction/Maintenance
- Noxious Weed Removal
- Fence Repair/Removal
- New Invader Project- Blueweed
- Avian Assessment Education
- Fragrant Water Lily Monitoring
- Watercraft Inspection
- Greenhouse Native Plant Restoration
- Riparian Habitat Improvement
- Native Seed Collection
- Wildlife Habitat Improvement



YOUTH IN RESTORATION

A group of five people, including three young adults and two men, are standing in a grassy field with a dense forest of tall evergreen trees in the background. They are all wearing jackets and caps, suggesting outdoor work. The individuals are looking at handheld electronic devices, likely GPS or data collection tools. One person on the left is wearing a blue jacket and a dark cap, another in the center is wearing a blue jacket and a white cap with a green logo, and a person on the right is wearing a grey jacket and a white cap. The overall scene depicts a field-based restoration or research activity.

Partner Perspective

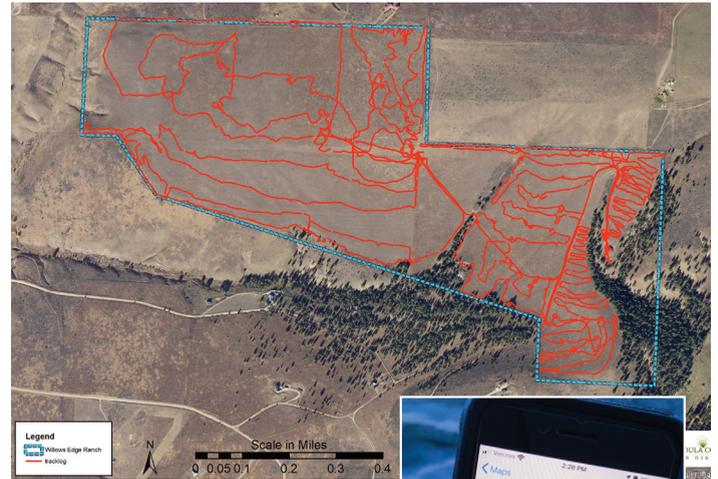
Kylie Paul – Natural Resource Specialist, Missoula County Parks, Trails and Open Space

Youth in Restoration is incredibly important to Missoula County's Parks Trails & Open Lands program. With a small staff and large workload, we have a difficult time addressing all the needs of our parks. YIR allows us to get work done on the ground and helps address our budget limitations. Beyond the valuable products and outcomes we get from the work YIR provides, we thoroughly enjoy the time spent with the young adults, working side by side. It's always a highlight of the summer season. Thanks so much for the opportunity that YIR provides!

The Missoula County Weed District launched an exciting new program in 2020 that makes it easier than ever for private landowners to map their noxious weeds. A number of private landowners spent the 2020 field season testing the utility of using ArcGIS Collector to inventory the noxious weeds on their property. We have championed the benefits of weed mapping for many years and have trained numerous landowners on the nuts and bolts of weed mapping and the use of our fleet of loaner GPS units. Now with the advent of ArcGIS online and the Collector app, it is more convenient and easier than ever for people to map their weeds.

There are many benefits to mapping your weeds prior to doing any noxious weed control. Controlling your weeds can be an expensive and time-consuming endeavor. It is important to know beforehand what weeds you have, where they are, and how extensive and dense the infestations are. While many landowners already have a general sense of what weeds they are dealing with on their property, a thorough inventory can have many benefits. For a landowner new to noxious weeds, the exercise of weed mapping can be beneficial, helping hone your weed ID skills and giving you a better sense of each weed's preferred habitat and possibly discovering hidden nooks and crannies of your property.

A good weed map helps you see the big picture of your weed problem: where the weeds are most concentrated, areas that are relatively weed free, where the edges of a weed infestation are, which weeds are in relative low abundance and might be good candidates for eradication. Whether you are treating your weeds on your own, or hiring a contractor, a good weed map will help you estimate the amount of herbicide you may need, identify good sites for bio-control releases, and enable you to prioritize the control of newly invading weeds. A solid baseline weed inventory can help you evaluate the effectiveness of your weed control efforts if



you remap your weeds a few years after treatment.

In the past, landowners could borrow GPS units ranging from simple Garmins to fancy Trimble dataloggers and even fancier Trimble units running the powerful, finicky, hard to learn mapping program ArcPad. While a better tool for weed mapping, the Trimbles required frequent visits to the weed office for charging and data downloads. With ArcGIS Collector, we now have a mapping tool that is easier to use and can be installed on your smart phone. An added benefit of Collector is it enables landowners who may need multiple days in the field to see their tracklogs and data from previous mapping days, minimizing the risk of mapping the same weed patch twice. Collector will also enable landowners to relocate weeds for treatment and for post treatment monitoring.



If you are interested in taking advantage of this new weed mapping tool, contact Jed Little at mapping@missoulaeduplace.org.

2020 PARTNERSHIPS

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
Fergus County Weed District
Five Valleys Land Trust
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
Lolo Mosquito District
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 State University - LRES
Montana Weed Control Association
Montana Wild Sheep Foundation
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 Forest Service – Region 1
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
Seeley Lake Regional Outdoor Center
for Kinetic Sports
Soil and Water Conservation Districts
of Montana
Stillwater Valley Watershed Council
Swan Lakers
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
Whitefish Lake Institute
Whitehall School Project
Working Dogs for Conservation
Yellowstone County Weed District
Zoom

MISSOULA COUNTY WEED DISTRICT

2825 Santa Fe Court Missoula, MT 59808

P: 406.258.4200 | F: 406.258.3916