Montana Biocontrol Coordination Project

2021 Annual Report

Montana Biocontrol Coordination Project

EXECUTIVE COMMITTEE

Kenny Keever, Chair

Hannah Lewis, Vice Chair

Natalie West, Science Advisor

STAFF

Melissa Maggio,
Project Coordinator

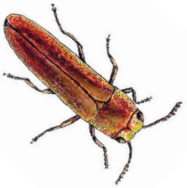
Madeline Gaffigan,
Biocontrol Assistant

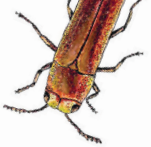
Alyssum Ahler,
Biocontrol Technician

Eliza Gillilan,
Big Sky Watershed
Corps Member

OUR MISSION

Provide the leadership, coordination, and education necessary to enable land managers across Montana to successfully incorporate biological weed control into their noxious weed management programs.





If I had to sum-up 2021 in one word it would be BUSY!

I don't understand how the year is over already. When reflecting on the past year, there are many projects that I am proud we were a part of but the two areas that stand out the most are the educational materials that we helped create and the variety of monitoring projects we took part in (both featured in the following pages). Many, many hours (many more than expected) were put into updating the Montana Biocontrol Field Guide and creating the biocontrol poster. We are so proud of these projects and hope that Montana land managers put them to good use.

We are also thrilled to be gathering a great deal of valuable biocontrol data through the variety of monitoring projects we are participating in. The information gathered through monitoring is necessary to determine if what we are doing is beneficial and we want to be able to back up the benefit of our work with solid evidence.

As great as it feels to wrap-up some of these projects, it is also exciting to be planning for the new projects! As always, let me know if you have any ideas of projects you think we should be taking on or getting involved in and Thank You for your support!

Melissa Maggio
MT Biocontrol Project Coordinator
406-258-4223
mmaggio@missoulacounty.us
mtbiocontrol.org

Biocontrol illustrations by Evelyn Neel, www.evelynneel.com

PARTICIPATION

4 in-person workshops/ presentations

12 virtual workshops/ presentations

Outreach

1 poster created

1 field guide updated

44 Days Spent Collecting

374 Collection Day Participants

24,650 Miles Traveled For Workshops and Collections

INSECTS

10 species released

9 species collected

11,172 Acres Treated

138 sites monitored

40 counties received insects

9 States Received Insects

1,226,397 Insects Distributed

$338,512 Market Value of insects

2021 BREAKDOWN *

7% Out of State Coordination

7% Fundraising

20% Education

55% Collections and Monitoring

11% In-state Coordination

* Breakdown of time in all previous years was a breakdown of just the Project Coordinator's time, this year all staff's time was included.

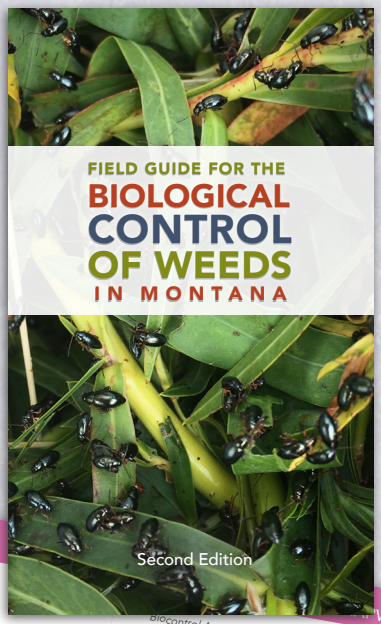
EDUCATIONAL MATERIALS

We finished two very exciting outreach material projects that were both partially funded by the Montana Noxious Weed Trust Fund. Distribution of these educational resources will begin in early 2022, starting at the MWCA Conference as part of a "Tools that Enhance Biocontrol" Workshop.

Montana Biocontrol Field Guide

In conjunction with Todd Breitenfeldt and the Whitehall Biocontrol Project, we completed an update of the Montana Biocontrol Field Guide! This field guide features:

- 10 state-listed noxious weeds and their corresponding biocontrol agents (21 agents in total).
- Pictures and descriptions to help identify and understand the biocontrol agents.
- Illustrations regarding the part of the plant that is attacked and collection methods for biocontrol agents.
- Life cycle graphics for convenient use throughout the year.
- How to's for: determining a good release site, collecting, releasing, and monitoring.
- Information on how to incorporate biocontrol as part of an Integrated Weed Management (IWM) plan with an easy-to-use table informing which management tools can be utilized for which state-listed terrestrial noxious weeds.
- A "Low Impact" table includes the biocontrol agents that are considered to not result in an adequate level of control.
- Useful links for additional biocontrol information.



This field guide was made possible by:

- 5 authors
- 13 editors
- 1 talented and patient graphic designer
- 18 generous donors

Biocontrol Poster

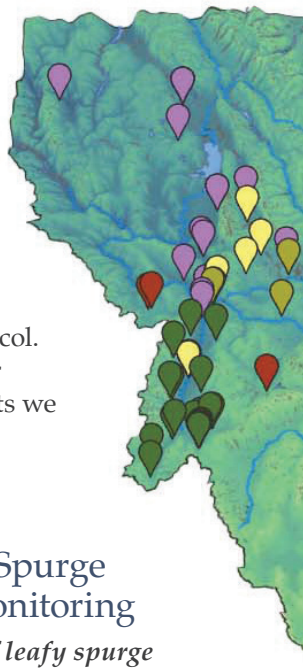
After some Covid related timing setbacks, we are excited to be finishing up this poster featuring illustrations of the most common and effective biocontrol systems in Montana. These illustrations depict the target weed and what stage and where you will find the associated biocontrol agents throughout the seasons. Land managers often know when and where to look for biocontrol agents as adults but not when and where to look for agents at other stages. In addition to being a beautiful addition to your wall, this poster is meant to be a tool for identifying biocontrol agents throughout the seasons.

Posters feature:

- 37 individual illustrations
  - 5 state-listed noxious weeds (spotted knapweed, leafy spurge, Dalmatian toadflax, yellow toadflax, and St. Johnswort)
  - 14 biocontrol agents in a variety of stages and associated plant damage

MYRIAD OF MONITORING

In 2021, we took part in a variety of monitoring projects resulting in 138 total sites being monitored. Depending on the question being investigated, there are many ways of gathering information. In many cases, we used the Standardized Impact Monitoring Protocol (SIMP) to answer our questions. This is the regionally accepted biocontrol monitoring protocol, and it investigates changes in vegetation cover (target weed, other weeds and desirable vegetation) as well as biocontrol agent population levels. Therefore, you can answer a variety of questions with the information gathered with this protocol. However, in some cases we must develop specific protocols for our questions. Below is an overview of the different monitoring projects we participated in and the questions that are being addressed.



Montana Army National Guard

Is biocontrol aiding in the management of the target weed?

- 12 sites monitored with SIMP
- 4 weed species

BCIFP Houndstongue Root Weevil Non-Target Monitoring

Is the houndstongue root weevil impacting non-target plant species?

- 11 of the 14 sites are in MT and were monitored with a protocol developed to determine population-level impacts
- 5 non-target species

BCIFP Leafy Spurge Biocontrol Monitoring

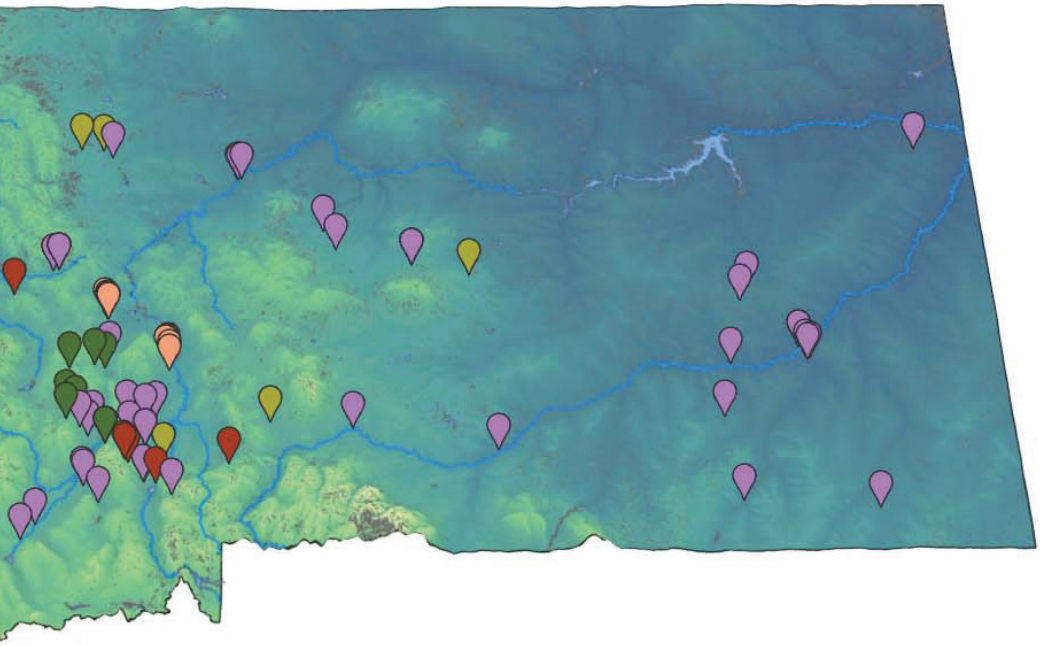
Can biocontrol of leafy spurge in the many habitats and regions where it is not currently effective be improved?

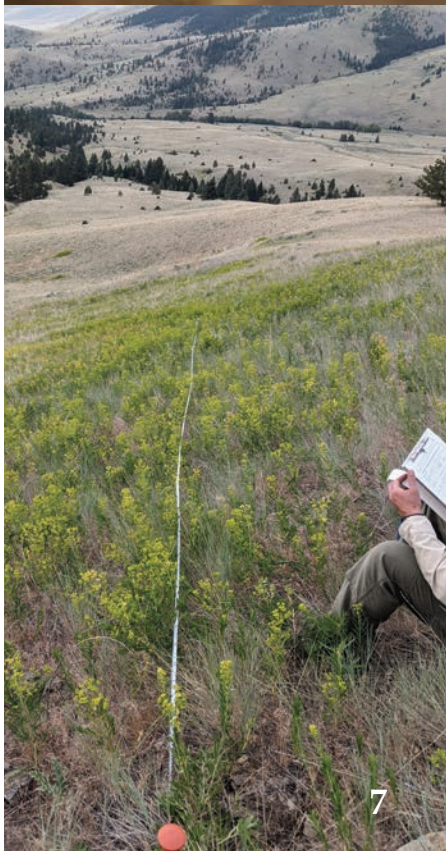
- We monitored 7 of the 50 total sites in MT with modified SIMP as well as collecting plant, root, insect, and soil samples

Insectary Establishment

Have we been able to establish collectible populations?

- 6 total sites monitored with SIMP
- 3 yellow toadflax sites
- 3 St. Johnswort sites





Forest Service Biocontrol Monitoring

Is biocontrol aiding in management of the target weed?

Did the biocontrol agents released in the past establish?

- 29 total sites, 2 monitored with SIMP and 27 with sweep-nettingand root dissections
- 3 weed species

Canada Thistle Rust Establishment and Impact Monitoring

Are there site characteristics associated with establishment and impact of the Canada thistle rust?

- 82 sites across MT monitored with SIMP
- Partner organizations helped monitor about 30 sites
- Working with MSU to develop predictive tools with this data

UPCOMING EDUCATION PROJECTS

Resin Displays

To help with biocontrol agent identification and public education, we want to create resin displays for the 8 most common and effective biocontrol agents in Montana. These resin samples (resembling a paper weight) aim to encourage questions, appeal to a broader spectrum of the public, and educate people about biocontrol agents used to control noxious weeds.

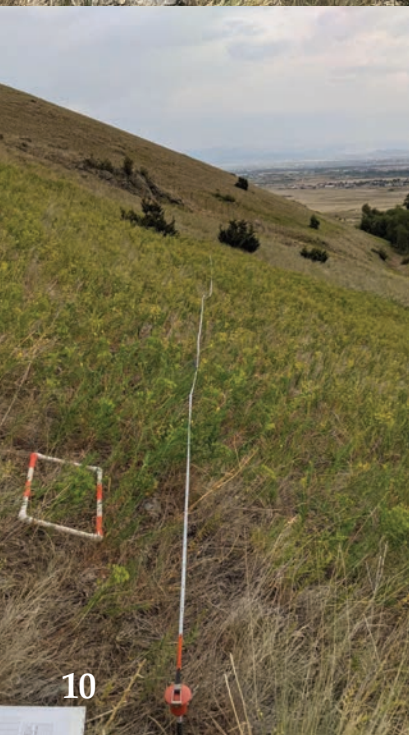
Videography

We would like to create additional "How to…" videos (similar to the "How to Monitor Canada Thistle Rust with SIMP" created in 2020) for additional field activities. These videos will be a great addition on social media providing the public and land managers with much more detail regarding everything that goes into collecting, releasing, and monitoring biocontrol agents.

"Learning more about Cyphocleonus and all the other biocontrol agents opened my eyes to the endlessly fascinating world of beneficial bugs and also helped me understand the concept of Integrated Weed Management at a deeper level . . . As the name suggests, the Montana Biocontrol Coordination Project is a remarkable display of coordination in the state, and it was an amazing experience to learn firsthand how much goes into ensuring land managers not only receive biocontrol but are informed about this seemingly magical, but strongly scientific, method of invasive species control."

- Big Sky Watershed Corps Member 2021, Eliza Gillilan

PARTNER'S PERSPECTIVE



Diversifying Weed Management Tactics

Jeff Stone, *Natural Resources Manager,*
Dept. of Military Affairs, MTARNG, Fort Harrison, MT

The Montana Army National Guard Environmental Office (MTARNG-ENV) entered into an agreement with the Montana Biocontrol Coordination Project (MTBCP) to provide biocontrol releases and biocontrol transect establishment and monitoring at our training lands near Townsend and Helena during the summer of 2021. Prior to this agreement, we had been very impressed with the work that Melissa and the MTBCP staff had been performing across the state and were excited to see what MTBCP could bring to MTARNG training lands.

One of the primary goals of the MTARNG Integrated Natural Resource Management Plan is to diversify our weed management tactics and work towards a reduction in herbicide use across our training lands. In the past, MTARNG-ENV weed management tactics have relied heavily on chemical treatments as the primary tool, however, recent analysis of historic vegetation monitoring plot data indicate a disturbing loss of native forb species diversity on many monitored plots. Overlaying our historic herbicide spraying data as well as weed species target data in these plot locations indicate an over-reliance on herbicide treatment for Dalmatian toadflax. It was obvious that the MTARNG needed to add new weed management tools into the mix. MTBCP offered the right approach at the right time.

The partnership activities and training we received from MTBCP this year are just what we needed to jump-start an effective Integrated Weed Management Program for our organization. As a minimally staffed office with many thousands of acres of training lands to manage, the resources and knowledge provided by Melissa and her staff at the MTBCP were a valuable and much needed resource for our program. Previous biocontrol releases at both training areas were not completed with any apparent organization or monitoring protocol involved with the process. With the guidance from the MTBCP, we were able to locate and establish monitoring and biocontrol release transects in the most effective locations.

We were excited as we entered into this partnership this year and are very pleased with the results of the assistance provided by MTBCP in 2021 and look forward to further collaboration and knowledge sharing in the future.

THANK YOU!

A big THANK YOU for the financial and technical support we received in 2021! Without such supportive partners, the Montana Biocontrol Coordination Project would not be possible.

Agricultural Research Service
APHIS' Plant Protection and Quarantine
Beaverhead County Conservation District
Blaine County Weed District
Broadwater County Conservation District
Bureau of Land Management
Carbon County Weed District
Cascade County Weed District
Daniels County Weed District
Fergus County Weed District
Flathead County Weed District
Gallatin County Weed District
Garfield County Conservation District
Granite County Conservation District
Granite County Weed District
Hill County Weed District
Jefferson County Weed District
Lake County Weed District
Lewis & Clark County Weed District
Liberty County Weed District
Lincoln Conservation District
Lolo National Forest
MT Department of Natural Resources & Conservation
MT Fish, Wildlife, & Parks
MT Noxious Weed Trust Fund
MT Department of Transportation
MT Wild Sheep Foundation
MT State University Extension
Madison Valley Ranchlands Group
Mile High/Jefferson Valley Conservation District
Mineral County Weed District
Missoula County Conservation District
Missoula County Extension
Missoula County Weed District
Park County Extension & CWMA
Park County Weed District
Petroleum County Conservation District
Pondera County Conservation District
Powder River County Weed District
Powell County Weed District
Prairie County Weed District
Richland County Weed District
Richland County Conservation District
Sanders County Weed District
Stillwater Valley Watershed Council
Sweet Grass County Weed District
Teton Conservation District
Teton County Weed District
Toole County Weed District
United State Forest Service – Region 1
Wibaux Conservation District

Majority of the TECHNICAL SUPPORT we receive comes from the Montana Biological Control Steering Committee. THANKS to all of the members for your support and assistance on a variety of topics!

MONTANA BIOCONTROL PROJECT
2825 Santa Fe Ct.
Missoula, MT 59808

PRSRT Std
US Postage Pd
Missoula MT
59801
Permit No. 402