

GARLIC MUSTARD, KNAPWEEDS, POLLINATORS AND REVEGETATION

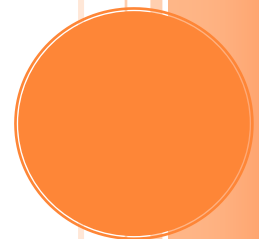
Summit CWMA 2019 ISM Contract # 201815 Report

Produced for:
Invasive Species Mitigation Grant
Division of Plant Industry and Conservation
The Utah Department of Agriculture and Food

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Ecology Bridge LLC

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PROJECT INTRODUCTION

The Summit CWMA 2019 ISM Garlic Mustard, Knapweeds, Pollinators and Revegetation Program is a partnership between the Summit CWMA, Ecology Bridge LLC, USU Extension-Coalville, USU Extension-Swaner EcoPreserve and Summit County. With the increase concern for the health of pollinators and local resident concern over herbicides, this partnership intended to correct misinformation regarding herbicide and pollinators and empower residents to aid in providing a healthier habitat for pollinators and increase private landowner weed control actions.

The program was a combination of webinars, one focused on honeybees and the other on pollinators in general, incentives and one-on-one outreach. Participants learned about environmental threats to pollinators, including loss of plant diversity resulting from noxious weeds. The webinars also discussed potential impacts herbicide use for noxious weed control could have on pollinators. Participants were given ideas as to how they can reduce environmental threats through providing pollinator friendly gardens and open spaces while also controlling noxious weeds. Each webinar had an event webpage that contained several relevant resources for participants to refer to. These materials included the USU Noxious Weed Guide, Summit County Noxious Weed Guide, lists of plants appropriate for pollinator gardens, and handouts on common honeybee diseases and hive care.

To incentivize participation in webinars and provide a tangible action participants could take to facilitate noxious weed control, control of garlic mustard and knapweeds in particular, we offered free native wildflower and grass seed. From previous reseeded programs, we have seen that a native grass seed mix can establish post garlic mustard control and when knapweed is low in density, in sunny sites. We purchased seed mixes appropriate to local site conditions to give to



participants to spread where noxious weeds have been controlled. The addresses of those receiving seed was collected to map the distribution of these native seeds and in the Park City and Snyderville Basin areas, several houses were visited to deliver seed in person to also identify noxious weeds that were present and give control information. Many of these in person visits lead to conversations about long-term struggles with known noxious weeds and identification of weeds the resident did not previously know was a weed. Extra seed has been incorporated into outreach efforts in the Summit CWMA

ISM Garlic Mustard and Knapweed Control Program to extend the reach of the Garlic Mustard, Knapweeds, Pollinators and Revegetation Program.

Advertising for Events

The events were advertised through all partners and multiple social media and email platforms. The majority of participants learned about the webinars through social media posts and emails. Other participants heard about the program through word of mouth (friends, neighbors, and employees) or partner publications. Beekeepers were specifically targeted through an email to registered beekeepers in Summit, Salt Lake, Wasatch, and Morgan Counties.

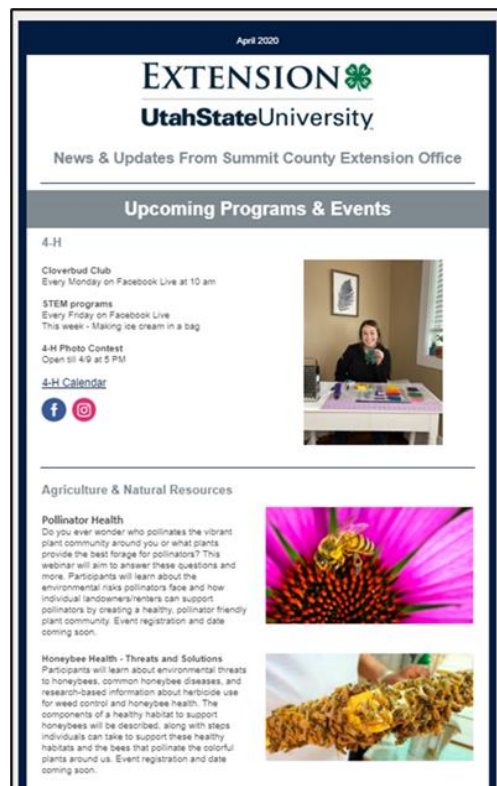
Webinars

Be a Honeybee Helper

Be a Honeybee Helper was held on May 13th, 2020 hosted by USU Extension and featured three speakers. Sara Jo Dickens, local ecologist of Ecology Bridge LLC and Project Manager for the Summit CWMA provided a description of the impacts noxious weeds have on honeybees and other pollinators through reducing plant/forage diversity and bloom period. Stephen Stanko, State Apiary Inspector for UDAF, presented the common threats to honeybees, how to watch for signs of illness, and the importance of working with local specialists to keep hives healthy. He provided a detailed description of common disease symptoms and available treatments for these diseases. Along with discussing hive care, he also addressed the misconception that herbicides are a common direct cause of honeybee death. Sheridan Hansen, Extension Assistant Professor of USU presented on the diversity of native and some non-native, non-invasive plants that support native pollinators and how these plants can be incorporated into residential properties to support pollinator health. She, like the other speakers, stressed the importance of diversity in plants to increase the length of bloom in any given garden. The Webinar was one- and one-half hours long and most participants stayed through the full question and answer section. This was a popular webinar particularly with the local beekeepers. We had 81 people register, 48 attended and 34 filled out the survey.

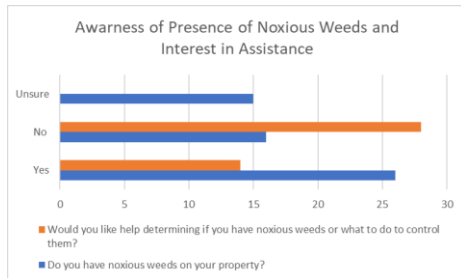
Out with the Weeds, in with the Pollinators

Out with the Weeds, in with the Pollinators was held May 19th hosted by Swaner EcoPreserve and featured four speakers. Sara Jo Dickens provided a brief description of what a CWMA is and its role in the community along with a short description of noxious weed impacts on pollinators. Amy Sible, the Instructor/Community Engaged Learning Coordinator of USU Extension, presented on the wide variety of pollinators native to Utah and addressed the threats pollinators face. She introduced participants to pollinator friendly



plant selection, grouping plants such that there are three of each species in clusters and the use of bee houses and bare ground patches to support native bees. Mindy Wheeler, Rare Plant Conservation Coordinator for the State of Utah and USU Wildland Resources, presented on the diversity of native plants that can be used in gardening to support pollinators. She also provided examples of what noxious weed monocultures look like and the impact that has on native pollinators. Dee Downing, owner of Red Ant Works, introduced participants to the idea of pollinator friendly lawns through incorporating wildflowers in lawns and reducing non-native grass. She also discussed the importance of permeable surfaces and the use of ground covers with lattices in drives and walkways to reduce stormwater run off while providing additional habitat for pollinators. Like Mindy, she provided a list of plants suitable for the techniques she described. There was a high level of interest in this webinar with 115 people who registered, 75 attended and 46 filled out the online survey. Both webinars were recorded and made available to the public.

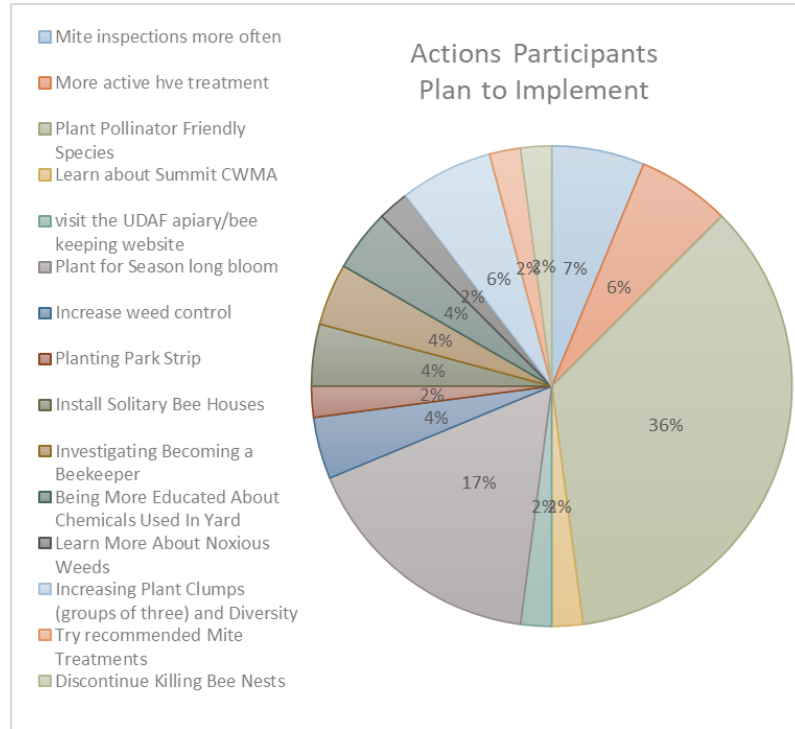
Most participants were aware of whether they had noxious weeds on their property or not. Many of those that had weeds or were not sure if they had weeds were interested in some form of assistance. Thirty one percent were interested in



information about noxious weeds and their identification, twenty five percent would like assistance identifying weeds on their property and eighteen percent would be interested in assistance with control efforts and learning about programs that assist landowners.

What weed species do you have?	Honeybee webinar	Pollinator Webinar	Total
<i>Canada Thistle</i>	4	5	9
<i>Common Burdock</i>	2	0	2
<i>Dalmatian Toadflax</i>	2	1	3
<i>Diffuse Knapweed</i>	1	0	1
<i>Dyers Woad</i>	4	5	9
<i>Field Bindweed/Morning Glory</i>	10	9	19
<i>Hoary Cress/ White Top</i>	4	3	7
<i>Musk Thistle</i>	2	1	3
<i>Leafy Spurge</i>	0	1	1
<i>Oxeye Daisy</i>	1	3	4
<i>Scotch Thistle</i>	3	5	8
<i>Russian Knapweed</i>	2	1	3
<i>Spotted Knapweed</i>	1	0	1
<i>Viper's Bugloss</i>	1	0	1
<i>Yellow Starthistle</i>	2	0	2
<i>Yellow Toadflax</i>	0	3	3

All but one participant planned on implementing ideas and methods described in the webinar and most planned to do it within either a week or a month of the event.



Seed Component

Five seed mixes were used for the project to address differences in site conditions and the common issue of reseeding in shaded areas after garlic mustard has been controlled. There were two shady native grass seed (trial) mixes, one sunny native seed mix for higher elevations, one sunny mid-to-lower elevation native grass mix and a native wildflower seed mix that would do best in sun to part shade. All seed was ordered from Pawnee Butte Seed and has shown high germination rates. Because the webinars occurred late spring, the season had already passed for many participants to apply seed without needing high amounts of watering. For this reason, many have chosen to hold the seed until fall and apply just before snow fall to take advantage of snow melt and spring rains. Those who have planted the seed have had high germination of the grasses, but slower germination of the native wildflowers. Only where the native wildflowers received watering twice daily for two to three weeks was there high rates of wildflower germination.



Grasses from the Mountain Native Seed Mix establishing up to the edge of the sunny patch and garlic mustard rosettes persisting in the more shaded areas.

Native Grass Shade Mix 1		
10%	Slender Wheatgrass	<i>Elymus trachycaulus</i>
20%	Streambank Wheatgrass	<i>Elymus lanceolatus</i>
10%	Mountain Brome	<i>Bromus marginatus</i>
20%	Fringed Brome	<i>Bromus ciliates</i>
20%	Alpine Bluegrass	<i>Poa alpine</i>
20%	Rocky Mountain Fescue	<i>Festuca saximontana</i>

Native Grass Shade Mix 2		
10%	Slender Wheatgrass	<i>Elymus trachycaulus</i>
10%	Mountain Brome	<i>Elymus lanceolatus</i>
20%	Blue Wildrye	<i>Elymus glaucus</i>
20%	Prairie Junegrass	<i>Koeleria macrantha</i>
20%	Tufted Hairgrass	<i>Deschampsia cespitosa</i>
20%	Spike Trisetum	<i>Trisetum spicatum</i>

Foothills Native Grass Mix		
10%	Slender Wheatgrass	<i>Elymus trachycaulus</i>
10%	Arizona Fescue	<i>Festuca arizonica</i>
10%	Switchgrass	<i>Panicum virgatum</i>
10%	Big Bluestem	<i>Andropogon gerardii</i>)
20%	Streambank Wheatgrass	<i>Elymus lanceolatus</i>
10%	Yellow Indiangrass	<i>Sorghastrum nutans</i>)
5%	Blue Grama	<i>Bouteloua gracilis</i>
5%	Beardless Wheatgrass	<i>Pseudoroegneria spicata</i>
5%	Indian Ricegrass	<i>Oryzopsis hymenoides</i>
5%	Little Bluestem	<i>Schizachyrium scoparium</i>
5%	Sand Dropseed	<i>Sporobolus cryptandrus</i>
5%	Sideoats Grama	<i>Bouteloua curtipendula</i>

Mountain Native Grass Mix		
20%	Slender Wheatgrass	<i>Elymus trachycaulus</i>
20%	Streambank Wheatgrass	<i>Elymus lanceolatus</i>
15%	Mountain Brome	<i>Bromus marginatus</i>
5%	Arizona Fescue	<i>Festuca arizonica</i>
15%	Blue Wildrye	<i>Elymus glaucus</i>
5%	Big/Sandberg Bluegrass	<i>Poa secunda</i>
20%	Tufted Hairgrass	<i>Deschampsia cespitosa</i>

Native Wildflower Mix		
12.5%	Arrowleaf Balsamroot	<i>Balsamorhiza sagittate</i>
12.5%	Blue Flax	<i>Linum lewisii</i>
12.5%	Purple Coneflower	<i>Echinacea purpurea</i>
12.5%	Mountain Lupine	<i>Lupinus monticola,</i>
12.5%	Rocky Mountain Penstemon	<i>Penstemon strictus</i>
12.5%	Showy Goldeneye	<i>Heliomeris multiflora</i>
12.5%	Utah Sweetvetch	<i>Hedysarum boreale</i>
12.5%	Western Yarrow	<i>Achillea millefolium</i>

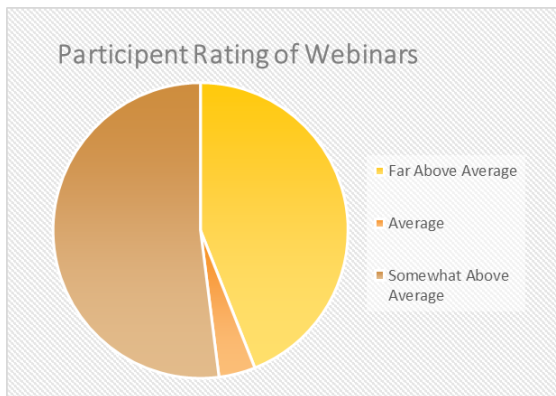
Seed was provided to 76 webinar participants across the US. Most participants were from the Park City and Salt Lake City Areas (See Appendix for maps). Participants

in other states were typically individuals that own second homes in the Park City area or had previously lived in the area. Wildflower seed was mailed to any participant outside the Park City/Snyderville Basin area. For those within the Park City/Snyderville Basin area, seed was hand delivered to provide information about any noxious weeds found on site and determine which grass seed was most appropriate. In locations where no one was home, wildflower and the appropriate native grass seed mixes were left with a Summit County Noxious Weed Guide and note giving them contacts for additional resources for assistance.



Bags of seed included the species list (common and Latin name), planting instruction and the logos of project partners.

Community Feedback

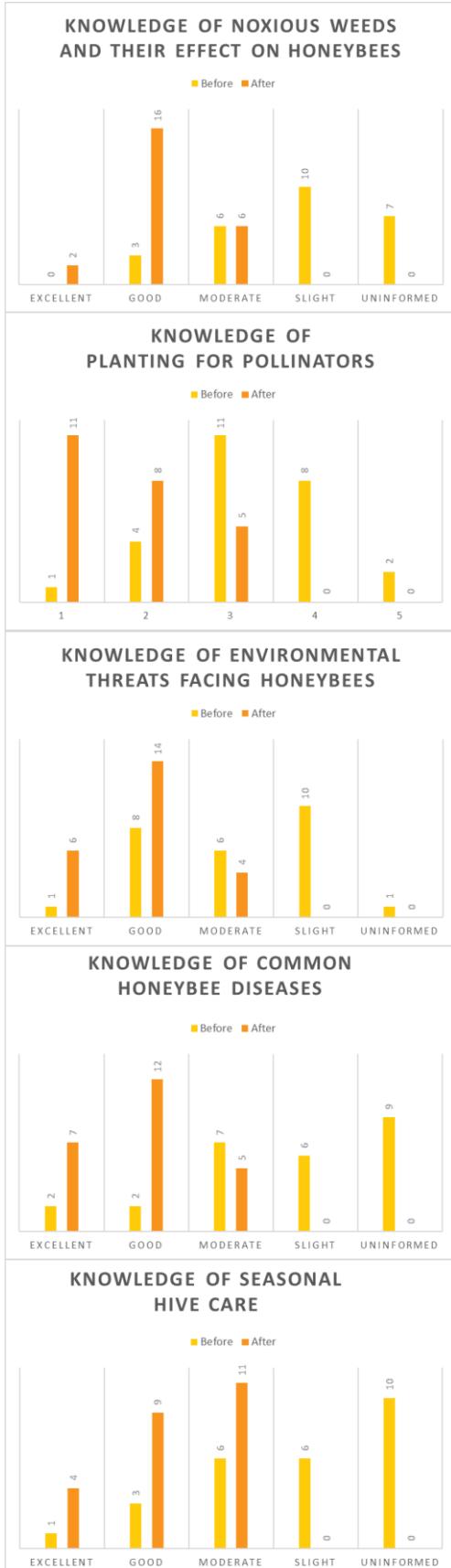


Participants said they gained knowledge in all five of the target knowledge areas:

Feedback on the value of the two webinars was collected through Qualtrix surveys. Not all participants filled out the survey however most did. In order to increase the likelihood of participants filling out the surveys we incentivized them with free wildflower and native grass seed. We had sixty four percent of participants fill out the survey and generally all participants were happy with the webinars.

I really enjoyed the webinar last night and am using the information from it and another presentation last Monday, to try and create a pollinator friendly area. I have 2 acres, up the gully above Jeremy Ranch Elementary School, 1/2 of which is aspen woods and the other half is open area around my house. Is there anyway someone could help me identify what to keep and what to get rid of? I am hand picking or digging up what I think are the undesirable plants, but would like to make sure my efforts are put to the best use. Any suggestions/help you can offer would be greatly appreciated. I've attached photos in case they are of any help. Again, thanks for the webinars, they are really useful and inspiring!
Libby Wadman- Jeremy Ranch

Noxious weeds and their impacts on pollinators, planting for pollinators, environmental threats to pollinators, common honeybee disease and hive care. Several followed up after the webinar for contact information for speakers to ask



additional questions or sent additional questions to the project manager and partners. All questions were provided to the speaker that was most suited to answer the questions and all were answered.

Expanding the Reach of the Program

Even with high rates of participation in the webinars, we had a large amount of seed, particularly grass seed left over. To increase our impact, we used the extra seed in several ways, including to aid in long-term control of garlic mustard and other weeds for residents that responded to Facebook and Nextdoor app posts, incentives for volunteer weed pulls, surprise rewards for people we saw controlling noxious weeds in their properties and as a way of conducting outreach to people not controlling their weeds.

Long-term Control Assistance

Through the outreach of the Summit CWMA ISM Garlic Mustard and Knapweed Control Program, regular posts on Facebook and Nextdoor go out to inform residents of control opportunities, where crews might be and outreach events. Some posts mentioned that there was native seed available for residents

Hi there - if you have any extra seeds we'll take them!

It's for the hill behind our house. We've pulled what we can, but our neighbors have a thick and healthy garlic mustard crop going strong! Would love to prevent them from taking over... Molly DuBray-Summit Park

that had been controlling weeds and were in need of a way to revegetate with something that might compete with garlic mustard in the

We would love some wildflower and grass seed. We have a hillside that had been taken over by hoary cress and we mostly got rid of it so we need to fill it in with something. How can I get it from you?

Thanks Sara Jo!

Mark Maziarz-Pinebrook

Program, three weed pull events were held, two in Summit Park and one in Pinebrook. Previous years of that program offered incentives such as a bounty for each bag pulled. This year, one of the incentives was the extra wildflower and native grass seed. All of the adults that participated in the weed pull events took seed and were quick to share



Summit Park residents pulling garlic mustard along the community trail, Moose Moss in Summit Park.

their weed control stories and excitement to start replacing the weeds with natives. CWMA Project Manager was out in the field for other weed control and restoration activities. While there were only a handful of these individuals, they were incredibly grateful, and the gesture gave the recipient confirmation that the Summit CWMA works to use integrated weed control whenever possible.

Outreach to People Not Controlling Their Weeds

One of the greatest challenges to success in controlling many noxious weeds is often the neighbor that doesn't either know they have noxious weeds or doesn't care. These weeds go uncontrolled and uncontained becoming the problem of everyone around them. While enforcement has been effective in Summit County, there is single enforcement officer for the county. The Summit CWMA does not have enforcement authority, but as an organization, we can use outreach to aid the county in the

future. The response to these posts was relatively high and seed was delivered to all who reached out.

Incentives for Volunteer Weed Pulls

For the Summit CWMA ISM Garlic Mustard and Knapweed Control

Program, three weed pull events were held, two in Summit Park and one in Pinebrook. Previous years of that program offered incentives such as a bounty for each bag pulled. This year, one of the incentives was the extra wildflower and native grass seed. All of the adults that participated in the weed pull events took seed and were quick to share

Rewards for People We Saw Controlling Noxious Weeds on Their Properties

Generally, incentives that come from noxious weed control programs are limited to assistance with weed control. With some of the extra seed from this program, we instead thanked people that were already taking care of their weeds. Seed was delivered to individuals observed actively removing noxious weeds from their properties while the Summit



Outreach materials and seed left for a resident that was not home but had obvious noxious weeds in their yard.

Dear Property Owner or Renter

The Summit Cooperative Weed Management Area (CWMA) is working with local landowners to control noxious weeds to improve wildlife habitat and support pollinators. We know that most people do not know they, by state law, are required to control noxious weeds on their lands or what plants are noxious weeds. So, we are helping landowners and renters identify noxious weeds on their property and providing wildflower seed to inspire the control of noxious weeds and replacement with native flowering plants and grasses. Please control the plants that are enclosed in this weed identification booklet and plant native plant seed.

Thank you
Sara Jo Dickens
Summit CWMA Project Manager

educational portion of their outreach program. Residential properties along the edges of public open space were surveyed while the project manager was out controlling weeds. When noxious weeds were obvious in the front yard of a residential property, the project manager would collect samples and place them in the Summit County Noxious Weed Guide in the pages that discussed each weed. This along with the native wildflower seed, was given to the resident if they came to the door. For those residents not home at the time of the visit, the book, weeds, seed, and a note inviting them to control weeds on their property to increase pollinator habitat quality was left at the door. Properties not near open space were also visited if the noxious weeds were particularly bad or appeared to be cared for in a garden as if wildflowers. Two of



Outreach materials for residents that had obvious noxious weeds in their yard.

these residents followed up and asked for assistance in determining what actions they need to take to control their weeds and stated several times they had no idea the plants were weeds.

Financial Summary

The primary expense of this project was the seed given to residents. The program was awarded \$9425, of which, \$9,262.50 was used leaving \$162.50 unspent. The grant funding was matched with labor and materials from project partners to a value approximately \$2,780, which is about a 30% match.

Line Item	Budgeted	Current Expenditure
Seed Mixes	\$6,065.00	\$5,559.00
Outreach Materials	\$300.00	\$135.10
Arc GIS Specialist and Data Management	\$2,300.00	\$2,808.40
Administration	\$760.00	\$760.00
Total	\$9,425	\$9,262.50

Conclusion

The Summit CWMA 2019 ISM Garlic Mustard, Knapweeds, Pollinators and Revegetation Program had envisioned two webinars and a bit of outreach associated with seed delivery to webinar participants in the Park City/Snyderville Basin area. The program reached far beyond the target region and enabled additional outreach mechanisms to further noxious weed control in Summit County. The program showed that addressing a community concern, such as impacts of herbicide, using an educational program and solutions for threats to a related natural resource can effectively reduce misinformation and begin to open the minds of the community to consider the bigger picture of natural resource protection and see herbicide as just one tool and one that can actually benefit pollinators and other wildlife.



Seed packet mailed to participants.

Program Partners

Red Ant Works – Dee Downing

State of Utah and USU Wildland Resources - Mindy Wheeler

Summit County – David Bingham and Robin Judd

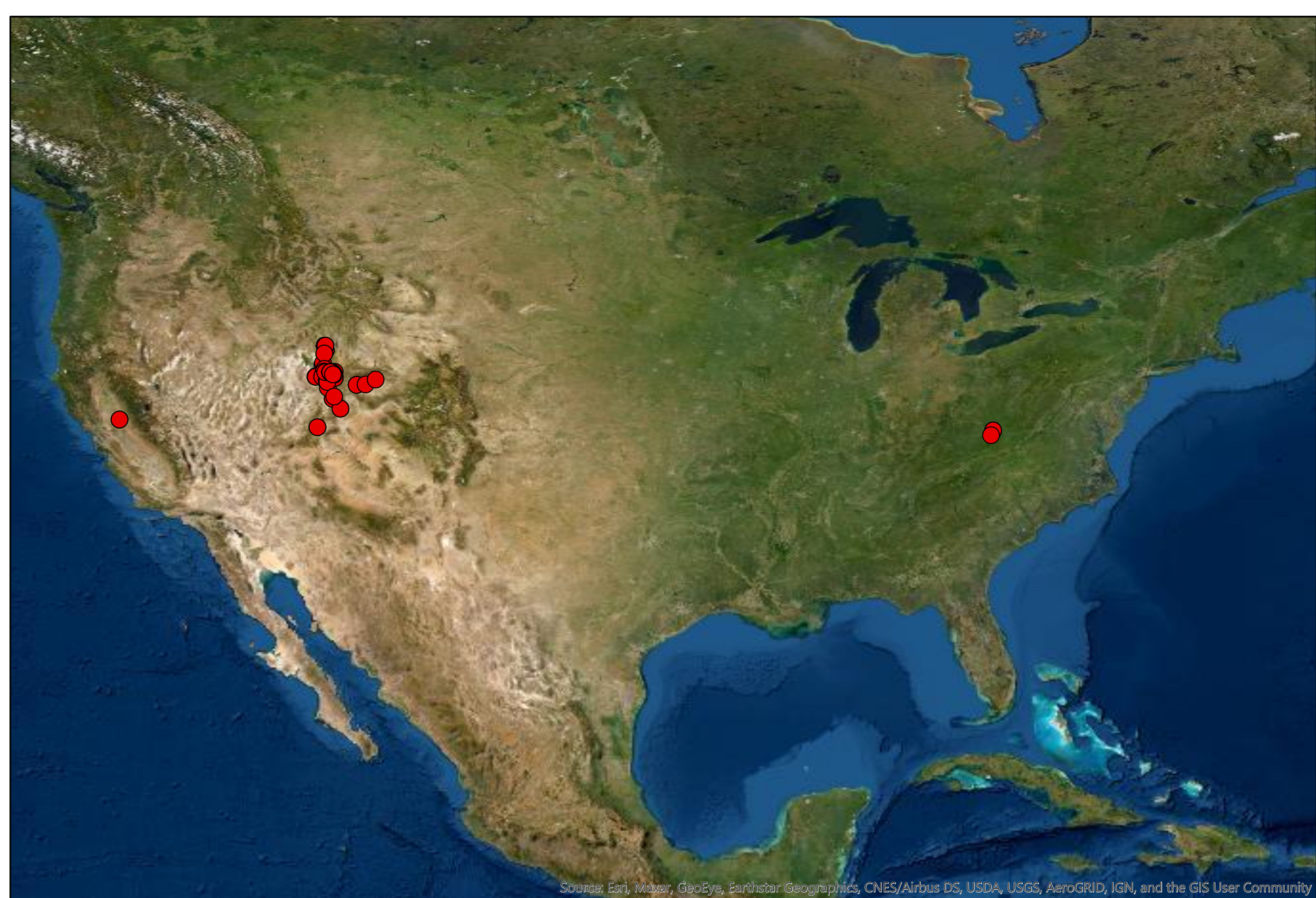
Summit CWMA and Ecology Bridge – Sara Jo Dickens

Swaner EcoPreserve - Hunter Klingensmith and Rhea Cone

Utah Department of Agriculture and Food (UDAF)- Joey Caputo and Stephen Stanko

Utah State University Extension - Amy Sible, Elizabeth Cohen, and Sheridan Hansen

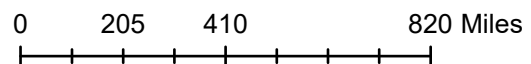
Appendix



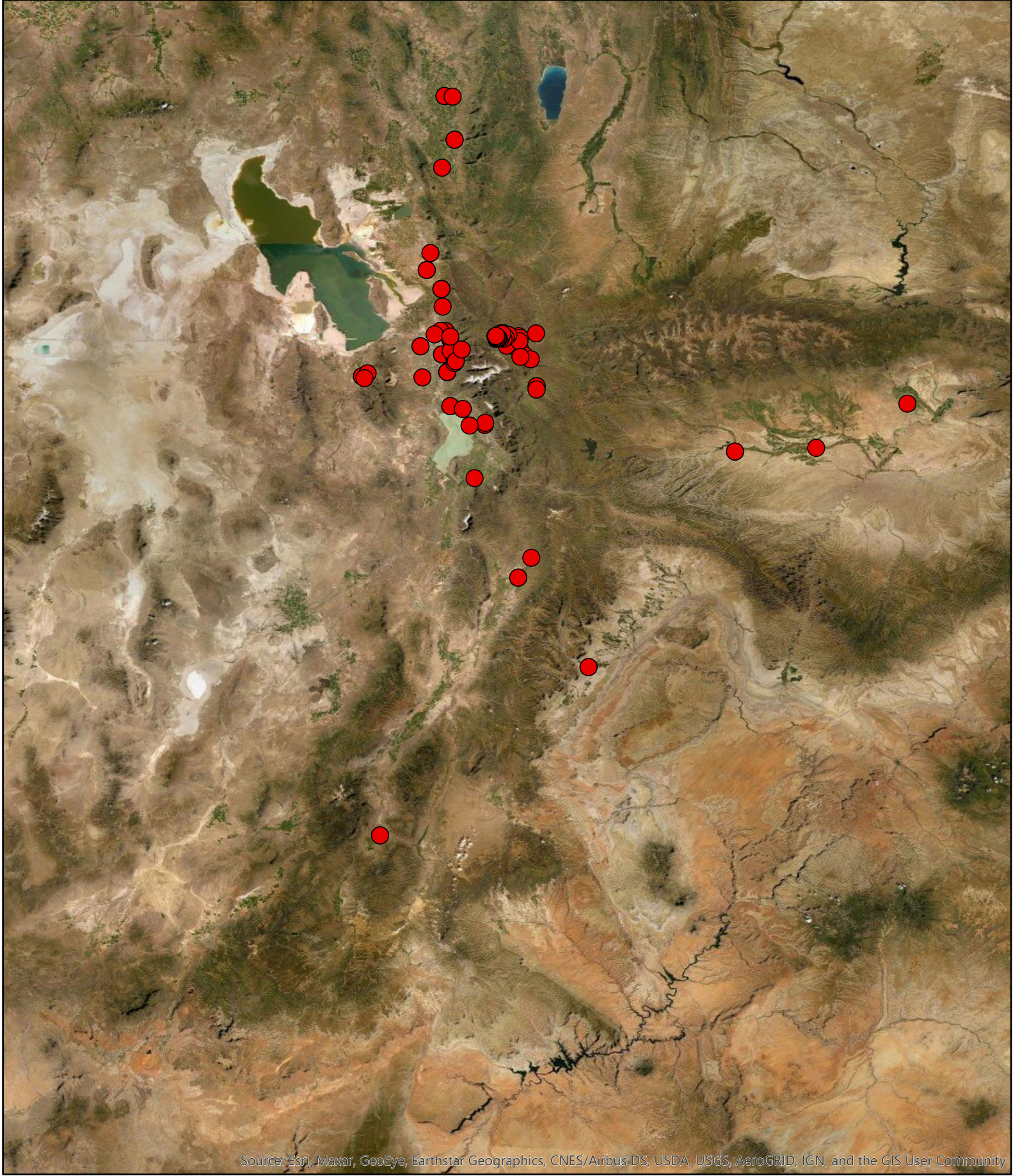
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The Summit CWMA 2019 ISM
Garlic Mustard, Knapweeds, Pollinators and Revegetation Program
Participants Across the United States of America

● ISM 2019 Pollinator Program Participants



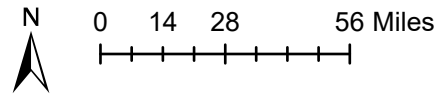
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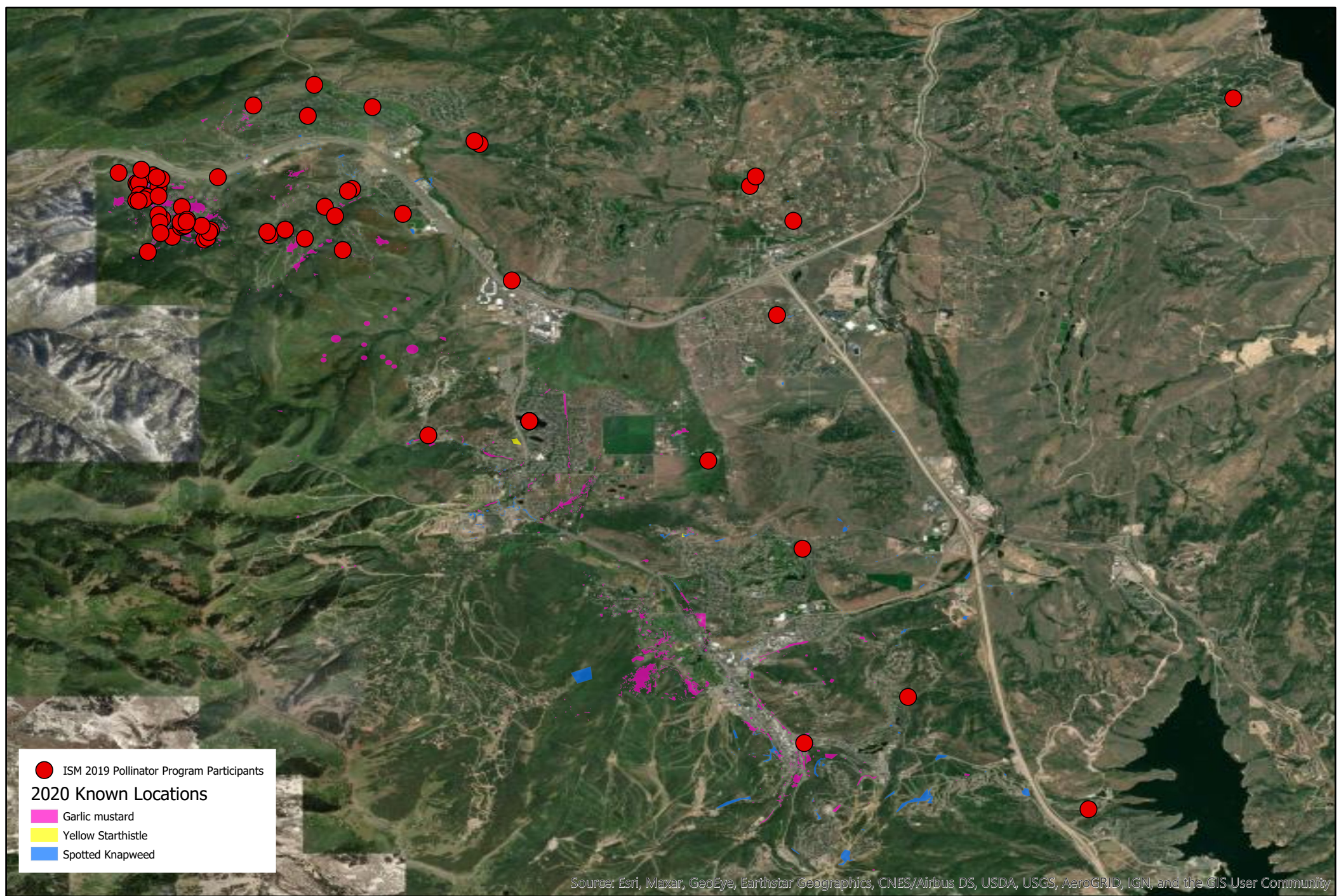
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The Summit CWMA 2019 ISM
Garlic Mustard, Knapweeds, Pollinators and Revegetation Program
Participants Across the State of Utah

● ISM 2019 Pollinator Program Participants

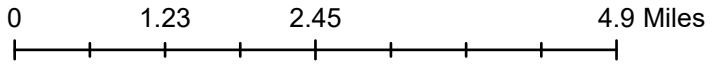


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The Summit CWMA 2019 ISM
Garlic Mustard, Knapweeds, Pollinators and Revegetation Program
Participants within the Summit CWMA Main Project Area



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