

Summit CWMA 2024 ISM Report

Low Elevation Garlic Mustard Control Program

February 2025

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Garlic Mustard Games volunteers at Har shalom. Left: Before hand pulling, Right: After hand pulling.

PROJECT BACKGROUND

The Low Elevation Garlic Mustard ISM Weed Control program in Summit County focuses on the Class 1B state-listed noxious weed, garlic mustard (*Alliaria petiolate*). The program area was selected based on over 12 years of garlic mustard control data in Western Summit County. The majority of the program area is within the Wildland-Urban Interface (WUI) where noxious weed invasion of forests and riparian habitats from adjacent residential lands is a growing problem.

Garlic mustard rapidly invades both disturbed and undisturbed areas displacing native plants and altering soil microbial communities. These impacts can result in loss of wildlife habitat and increased wildfire risk. This project focuses on garlic mustard removal and the restoration of natural ecosystems for the protection of natural lands, watersheds and waterways. The program additionally works to protect and enhance pollinator and wildlife habitat through outreach and appropriate revegetation projects. Due to the increasing number of homes adjacent natural lands, residential participation is essential to protecting the adjacent forest.

TREATMENT AND DATA COLLECTION

Inventory of areas previously not mapped for garlic mustard is accomplished through grid walks, when possible, serpentine paths or walking trails, roads and streams. ArcGIS Field Maps is used to map new garlic mustard populations and other priority noxious weeds. The app collects the following attributes: percent cover, dominant growth stage, control method, herbicide rates, and the contractor or partner that applied treatment. Sites previously mapped are monitored for noxious weed status and control effect.

Because mechanical control is labor-intensive and costly, a combination of contractors, partner staff, and volunteers are used for thinning dense flowering garlic mustard populations and removal in sensitive habitat. All herbicide application is completed by licensed staff and commercial contractors.

In areas of dense woody plant overgrowth, access to treat garlic mustard can be limited. Thinning of this vegetation enables access for treatment while also enhancing habitat quality and reducing fire risk.

GENERAL CONTROL METHODS

Mechanical Control



Two approaches enable us to reduce overall herbicide use while also getting better results than with herbicide alone.

- Dense Patches: Weed flowering plants to thin the mustard canopy to prepare for herbicide - more complete herbicide coverage using less herbicide.
- Small and Backcountry Patches: Weeding of flowering and rosette stages.

Herbicide Treatment



Herbicide types and rates are chosen based on species treated, environmental condition and land use.

- 2,4-D (Amine): 64oz/ac plus MSM 60: 1.5oz/ac
- Aquaneet: 2qt/ac
- Escourt XP (partner contractors)

Cultural Control



Revegetation is used to introduce competition and mulching used to cover garlic mustard and its seed bank until the seed bank ages and dies off.

- Revegetation: Native grass seeding
- Mulch: mulching in shaded residential areas

OUTREACH

Garlic mustard has invaded both public and private lands. In urban areas, such as those in this program, garlic mustard can rapidly spread within residential communities and escape into public natural lands where it may spread undetected for years. Due to the scope of invasion and the number of parcels invaded by garlic mustard, community involvement in garlic mustard control is imperative. The Summit CWMA uses a number of outreach methods including free noxious weed trainings, appearances on local radio shows, volunteer events and competitions.

Garlic Mustard Games

The Summit CWMA Garlic Mustard Games (GMG) incentivizes volunteer participation in a community wide competition that combines events and trail side volunteer stations. Prizes and opportunity drawings, along with a food truck party for the individuals and teams that pulled the most garlic mustard over the course of the summer, drive growing participation. Participants that weed independently using the trailside volunteer stations report their pounds of garlic mustard

using QR codes on station signs. The program reduces herbicide use in sensitive habitats and along trails while successfully controlling garlic mustard and facilitating recovery of ecosystem health.

Noxious Weed Ambassador Program

The Ambassador Program is similar to the GMG in that it uses volunteer stations, outfitted with trash bags and tools for mechanical noxious weed control at popular trails and open space areas, however the program targets all noxious weeds. The station signs show photographs of common noxious weeds and describes the best way a volunteer can help control them. These resources are provided in both English and Spanish. Volunteers pull weeds, bag them, and scan a QR code to enter to win prizes in a biweekly drawing. The CWMA and partners pick up the bags and track the total pounds of weeds pulled to share with volunteers on social media.

2024 CONTRACTORS

INVENTORY/MONITORING

Ecology Bridge

HERBICIDE

Ground Solutions

Green Leaf

Eco Lawn

Eco Solutions

PMG Vegetation Management

MECHANICAL CONTROL

Ecology Bridge

Garden Street Landscaping

Ground Solutions

PMG Vegetation Management



GMG volunteers from the Rotary Clubs along McLeod Creek.



Before (left) and after (right) hand removal of garlic mustard at a residential property along Willow Creek. The owner and renters were unaware garlic mustard was a noxious weed and it had become the main plant in their natural areas and side yard. Over 400 pounds of garlic mustard were removed by volunteers and contractors as a result of a GMG event. The neighbors on each side thanked crews for helping bring the issue to the owners attention and the treatment.

HOA Partnership Program

In Summit County, many of the HOAs own open space and/or are adjacent to some form of public open space. The Summit CWMA works to engage these HOAs at the WUI both to educate residents and also prevent/control noxious weeds in residential parcels and HOA open space. Partnering HOAs assist with member outreach and access to HOA open space.

The Ranch Place, Northshore, Jeremy Ranch, Hidden Cove, Moose Hollow, The Oaks, and Solamere HOAs assist in advertising the program to their residents.

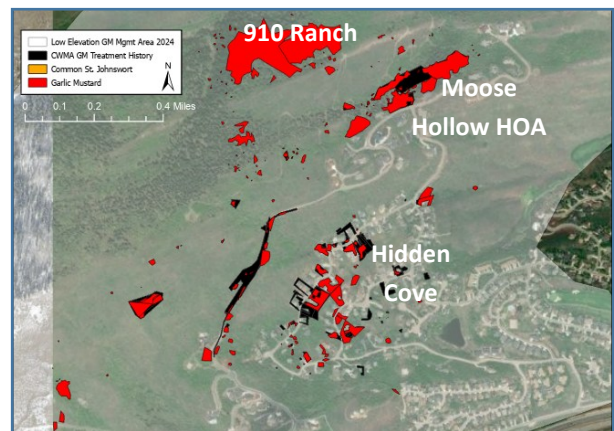
TREATMENT RESULTS

In 2024, inventory and mapping priorities included the boundary between Moose Hollow HOA and 910 Ranch, the edge of the Keetley population at Deer Valley Resort, Rossie Hill and Lookout trails above Marsac Avenue just south of the Virginia Mine in Park City, the trails of Lost Prospector and Gambel Oak areas, along the river at the Old Church Campground in Wanship, and Stevens Grove in Oakley. A total of 693 acres were inventoried including all the above priority areas except the Old Church Camp and the Gambel Oak trail system were inventoried. Contacts for the private properties along the river just below the Old Church Camp have not been found but we will continue to work towards this to ensure garlic mustard is not spreading down

river. The trails on the slopes below the Gambel Oak trails were inventoried however we were unable to inventory the Gambel Oak trails before season end.

Twenty one acres of Moose Hollow Open Space and over 2,000 acres of the 910 Ranch boundary and select canyons were inventoried. This inventory work resulted in the discovery of 0.4 new acres of garlic mustard in Moose Hollow and 36 acres on 910 Ranch.

No new populations were found on the Rossi Hill and Lookout trails above Marsac avenue. Meanwhile, an additional 0.4 acres were mapped along the Lost Prospector Trail. Nearly all of the increased acres were the result of expansion of already known populations at these locations. Treatment timing for these populations



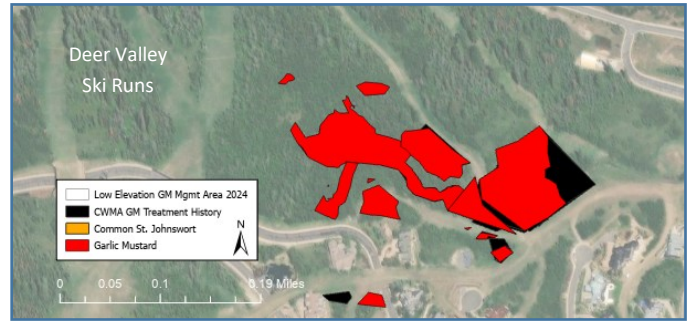
Progress is being made in the Hidden Cove HOA of Jeremy Ranch however more garlic mustard continues to be discovered along the Moose Hollow and 910 Ranch Boundary.

can be challenging as they are on hot dry slopes so the treatment window is always shorter than at other locations.

The Deer Valley Resort Keetley population continues to move downslope covering an additional half acre, however, portions of the original population above have greatly reduced percent cover where control has occurred for over 5 years.

In 2024, 26 acres of previously known garlic mustard populations were monitored for treatment progress. The Jeremy Ranch HOA, Willow Creek Park, the Poison Creek section of the Rail Trail and the Virginia Mine and Rossi Hill populations were the highest priorities. These populations continue to decline in size and cover. All were treated in 2024. Some areas along McLeod Creek had lower garlic mustard density while a few areas had an increase. The increased areas were sites of disturbance from city crews managing stormwater flooding. The disturbance likely moved seed to the soil surface increasing germination.

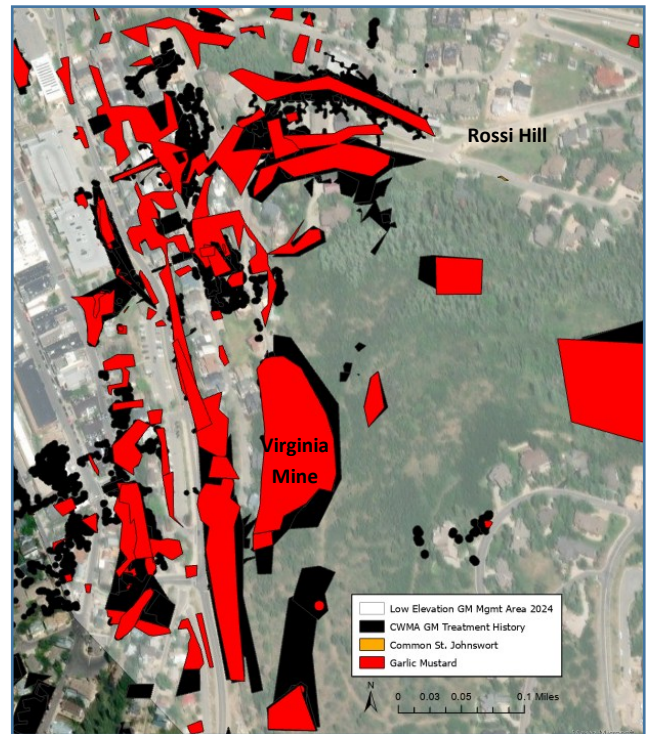
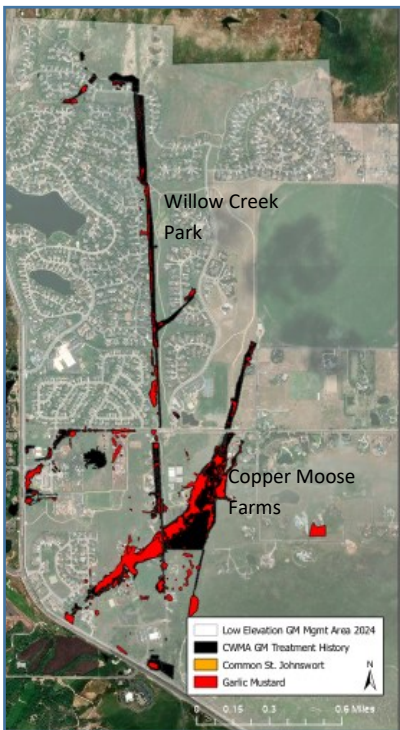
Thanks to our dedicated volunteers and contactors, approximately 16 acres were hand weeded in 2024, making herbicide treatment more effective with less



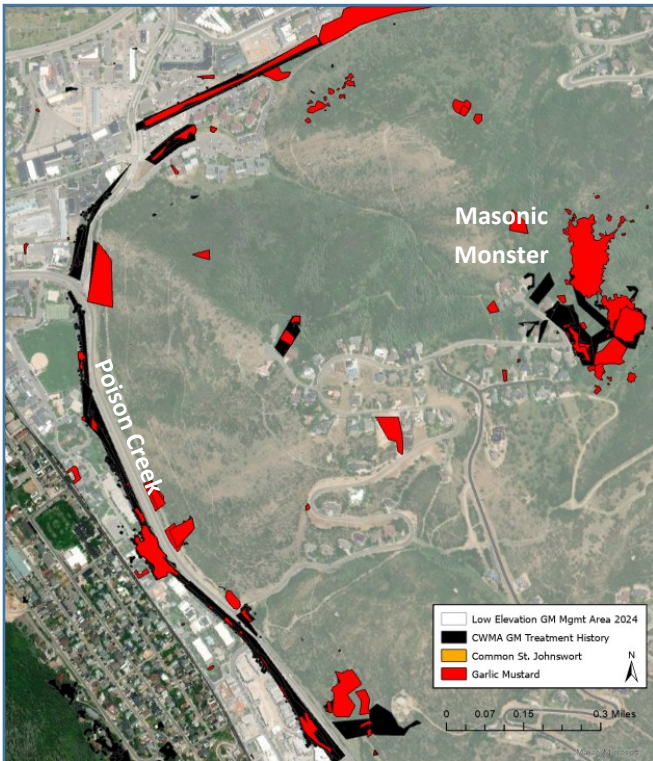
The Keetley population at Deer Valley Resort has decreased in size at the east boundary but is spreading downslope on the northwest boundary. The original population has greatly reduced percent cover of garlic mustard.

volume of herbicide used. In addition to the acres weeded, 10 acres were treated with herbicide.

Areas that received substantial hand weeding included Copper Moose Farms, Willow Creek Park, Quarry Hill, McLeod Creek, Poison Creek, the Lost Prospector Trail, the Masonic Monster and the Deer Valley Resort Keetley population. Herbicide treatment was widely dispersed as usual but areas of concentrated work included follow up treatment of rosettes at all the above mentioned areas after hand weeding. In addition, 41 parcels within the Cove HOA of Jeremy Ranch and



Willow Creek Park (left) and McLeod Creek (center) have creeks of high priority for garlic mustard control to prevent spread into Swaner Preserve & Eco Center and eventually East Canyon Creek. The Virginia Mine Claim population remains high priority due to the trails that run through it connecting the adjacent residential Rossi Hill area to large swaths of natural lands.



Garlic mustard populations of the Poison Creek Trail and upper portions of the Masonic Monster are receding and percent cover decreasing. The lower portion (northern) of the Masonic Monster continues to spread down slope through dense woody forest.

areas of the Prospector Trail received herbicide treatment.

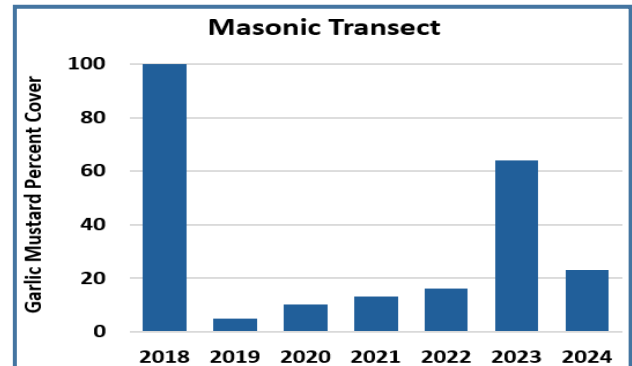
The only thinning of woody vegetation occurred in Wasatch State Park Campground where one in five garlic mustard populations were nearly impossible to access due to dead and overgrown oak and maple. A

total of 0.05 acres were thinned providing access to the largest population from two sides. These populations were not treated as it was too late for herbicide to be effective once thinning was complete.

A total of 0.2 acres were reseeded with native bunchgrass to reestablish a competitive native community in areas previously invaded by garlic mustard. This occurred primarily along poison creek .

The Masonic Monster: Transect and Seeding Trials

This is the seventh year of monitoring the garlic mustard population along the Masonic Trail. Transect data indicates that garlic mustard has been very slowly recovering since 2019 with a substantial pulse in 2023. Given extremely favorable growing conditions for garlic mustard in the past three years, this is not alarming. However,



Garlic mustard along the Masonic Monster transect over time.



Garlic Mustard has been treated for 15 years along McLeod Creek; however, populations within overgrown and dead riparian vegetation could not be accessed for treatments. In 2023, dead, woody vegetation was removed and revealed dense garlic mustard populations. These populations were treated in 2024 and are greatly reduced in percent cover.

in 2024, even with perfect growing conditions, garlic mustard percent cover has been reduced back to just over 20% within the main population. The boundary running north and east seem to be expanding in size and increasing in density. It is likely these boundaries have not been well treated in past years. They will be a focus in 2025.

Native plant recovery, on the other hand, remains low. Shady sites have been difficult to revegetate post garlic mustard control. A seeding trial was conducted in 2020 to determine if seed limitation or soil legacy effects of garlic mustard were inhibiting plant recovery. By 2024, the plots were no longer marked well enough to accurately locate so no plot level readings were made. Over all site assessment continues to suggest seed limitation and site conditions both play a role in poor native plant reestablishment. Native bunchgrass (blue wild rye and wheatgrass) remain present but to a significantly lower degree. Where grasses have declined, bare ground is the common replacement rather than garlic mustard and other natives continue to be limited. The high levels of shade mixed with hotter, drier growing conditions all likely play a role in the poor native plant recovery. The seeding trials did indicate that native grass mix

1 was the most effective mix if soil amendments were used, and seed mix 3 the most effective when soil amendments were not used. (See Appendix for seed mixes). The most cost effective approach based on this limited trial would be to broadcast seed mix 3 with no additional site prep. Additional research using individual grass species and, if available, forbs may narrow down which species are most successful given the majority of grasses never flowered during the trial and could not be identified to species.

Virginia Mine Site: Common St Johnswort Control and Revegetation

Common St Johnswort dominated the looser slopes of the historic Virginia Mine site in 2017. By 2024, Common St Johnswort cover was less than 10%. To reestablish native vegetation, seeding of native grasses was applied. On steeper slopes, seeding was stabilized with erosion matting. The tops of slopes and more gradual slopes were treated with a compost/biochar soil amendment and then seeded.

In 2024, grasses that had densely established by 2022 were thinner, but still present except on the hottest, most exposed slopes. These soils are of poor quality due to mining and support very little vegetation. Remediation of the soil may be necessary to reestablish a dense,



Masonic Moster garlic mustard population seeding trial location. Plot markers were mostly absent so plots were not assessed.



Garlic Mustard Games volunteers at Copper Moose, including the first local business, Savoury Kitchen, to volunteer as a team building event supporting local conservation.

native plant community. No further revegetation is planned for this site but monitoring and weed control will continue.

OUTREACH PROGRAM RESULTS

The Garlic Mustard Games brought in 103 volunteers in 26 teams program wide (both High and Low Elevation Garlic Mustard Program areas) and removed over 13,000 lbs. of garlic mustard. Eight events were held and bags of garlic mustard were picked up near volunteer stations all season.

Volunteers of the county-wide Noxious Weed Ambassador Program removed a total of 972 lbs. of multiple noxious weed species county wide. Musk thistle, houndstongue and common burdock continue to be the most commonly pulled by this group of volunteers.

CHALLENGES IN 2024

Inconsistent participation of individual landowners continues to be a challenge, except for The Cove HOA of Jeremy Ranch where participation remains high annually. Each time a property goes two or more years without treatment, we see recovery of garlic mustard populations. The short window for treatment in 2024 was an additional challenge that made it difficult to treat all the prioritized garlic mustard populations.

CONTRIBUTORS TO SUCCESS

The following is a list of the project components we found most effective.

- Increasing the number of contractors - timelier treatment
- Use of the Arc Field Maps - coordinates contractors and makes data available to partners
- Partnering with HOAs - increases success of outreach programs and number of volunteers
- Consistent partners and treatment over twelve years - allows treatment to run smoothly and helps ensure on-going progress
- Local government and weed department support - ensures access to grants, enriches outreach programs and aids in getting treatment on residential properties

CONCLUSIONS

Treatment is reducing garlic mustard density overall, however the extent of garlic mustard invasion is so great, containment is now the goal until more tools, such as a biological control, can be obtained. Residential participation, particularly in the form of control on their own properties will be key to managing garlic mustard in Summit County and limiting the chance of further escape into adjacent counties. The Summit CWMA Garlic Mustard Games and Ambassador Programs are increasing awareness and participation in garlic mustard removal. These volunteer programs will continue as long as funding is available.

FUTURE TREATMENT PLANS

In 2025, the focus of Summit CWMA garlic mustard control will no longer include residential areas unless they are adjacent major vectors of spread or public open space. Eradication of garlic mustard along Willow Creek and Poison Creek remain viable and high priority. Control along McLeod Creek and the edge of the

Masonic Monster will aim for containment and gradual shrinking of remaining populations. Continued partnership with the Copper Moose Farms will aid in preventing reinvasion of Willow Creek Park. The 910 Ranch garlic mustard will likely be treated in partnership with Summit County. Continuing to work with HOAs will be crucial to ensuring these residential lands do not act as sources of weed seed for adjacent open space. Spring outreach via HOA board/member meetings and newsletters will be used to increase communication.

The Summit CWMA website will continue to be used to advertise events along with the use of Facebook, Instagram and Next-door. The Garlic Mustard Games will be held again in 2025; events will begin in May and continue through September when the annual Food Truck Party takes place. We will also expand the Noxious Weed Ambassador Program to additional locations.

FINANCIAL SUMMARY

The Low Elevation Garlic Mustard ISM Program focuses on the control of garlic mustard. The program was awarded \$60,000 for July 1, 2023 to June 30, 2024 and

had an additional \$31,247.24 from the 2023-24 grant earmarked for work conducted between January 1 - June 30, 2024. A total of \$26,349.67 of the granted \$60,000 was spent in 2024 leaving \$31,318.64 to be spent spring of 2025. In total, \$57,596.91 in ISM grant funding was spent in 2024.

The ISM Grant funds were matched in part by the Utah Weed Supervisor Association Noxious Weed Grant and Partner in-kind matches.

Along with staff time and equipment in-kind matches, Summit County has continued to provide assistance in contacting residents with properties needing treatment, donating space for training, teaching the biological control portion of the training, providing fiscal agent services and providing the Summit County weed book. USU Extension continues to provide their noxious weed book and assists with outreach events. Many of the remaining partners provide in-kind matches via in-house labor and materials. Overall, the ISM grant funds were matched with \$73,745.51 in grants and in-kind matches resulted in over a 100% match to ISM Grant funds.

PROJECT PARTNERS

Thank you so much to our partners and sponsors for their contribution to this program. Thanks to the Utah Department of Agriculture and Food for funding this project.

Thanks to the following partners and contractors for their participation:

Government Partners

Oakley City - Tom Smart

Park City Municipal Corporation - Logan Jones

Snyderville Basin Special Rec District - Maddie Nelson

Summit County - Dave Bingham, Dan Pena, Jessica Kirby

Park City Museum - Morgan Pierce

Recycle Utah - Carolyn Wawra

Local Business Partners

Copper Moose Farms - Ben Smaha

Deer Valley - Laura Sexton and Paul Hedman

Ecology Bridge - Sara Jo Dickens

Vail Resorts - John Sale

Non-Profit & Academic Partners

Swaner Preserve - Nell Larson

Utah State University Extension - Elizabeth Cohen

Utah Weed Supervisors Association - Jerry Caldwell, Amber Mendenhall

Park City Film - Kate Wang

Park City Museum - Morgan Pierce

Recycle Utah - Carolyn Wawra

HOA Partners

Crescent Ridge HOA

Hidden Cove HOA

Jeremy Ranch HOA

Moose Hollow HOA

North Shore HOA

Ranch Place HOA

The Oaks

Solamere HOAs

Private Sponsors

Woodward Park City Arcade

Kate's Real Food

Dakine

Reliance

Savoury Kitchen

Park City Equipment Rental

ISM Grant funded expenses for the 2024 growing season.

Line Item	Description	Expensed
Expensed January 1 June 30, 2024		
Chemical	4 WeedMaster and 4 Milestone	\$405.00
Restoration Supplies	Labor to prepare for restoration	\$1,152.24
Inventory and Mapping	Inventory of new areas to map previously unknown populations and addition of ED-DMaps data, work with KPCW to get additional residents to report new populations to	\$2,475.44
Monitoring	Monitoring known locations of garlic mustard and updating EDDMaps and Arc Field-Maps	\$1,417.92
GIS Specialist	Management of GIS data and mapping software	\$1,988.10
Herbicide Contractor	Herbicide treatment of garlic mustard at Jeremy Ranch and 910 Ranch	\$3,793.20
Mechanical Control	Hand removal of garlic mustard, crew and volunteer supervision	\$17,059.64
Administration	Project management, budgeting and Reports	\$2,955.70
Expensed July 1, - December 30, 2024		
Inventory and Mapping	Contractors to monitor current populations, past restorations and areas adjacent the known populations in order to identify population distribution and boundaries in the	\$1,097.60
Monitoring	Updating EDDMaps data using ArcGIS data or directly in field, Contractors to monitor current populations, past restorations and areas adjacent the known populations in order to identify population distribution and boundaries in the project area. Cost per acre ranges but often averages \$80/ac unless terrain is difficult.	\$30.24
GIS Specialist	Updating and maintaining GIS data	\$52.64
Mechanical Control	Hand weeding first year plants. Garlic Mustard Games volunteers will aid in weeding of multiple acres	\$12,216.87
Herbicide Contractors	Contractors to treat with 2,4D and MSM 60	\$21.00
Mechanical Thinning	Thinning and chipping of dead and overgrown wood in riparian areas and spreading of the mulch to bury denser garlic mustard population	\$1,602.90
Restoration Labor	Labor to implement revegetation	
Seed	Restoration - Native Grass and Wildflower Seed, Soil Amendment	\$1,415.75
Equipment	Chainsaw (weekly rate), dump trailer rental for weed disposal	\$1,979.39
Outreach	Labor hours for Garlic Mustard Games and Dump Fees	\$4,364.98
Administration	Management of grant accounts and payments, Management of project implementation, data management, Reporting	\$618.30
Fiscal Agent	Fiscal Fees	\$2,950.00
Total		\$57,596.91

Grant and partner matches for the ISM Grant for the 2023 growing season.

Funding Source	Descriptions	Match Value
Deer Valley Resort	Labor - garlic mustard control	\$ 2,275.00
Deer Valley Resort	Downhill Mountain Bike Passes - GMG prizes	\$ 206.11
Ecology Bridge	Additional administration, outreach and treatment costs - donated	\$ 2,300.00
Park City Municipal Corporation	Manual control of garlic mustard, musk thistle. Dyers woad and Dalmatian Toadflax	\$ 18,415.00
Park City Municipal Corporation	Inventory and mapping	\$ 2,100.00
Snyderville Basin Special Rec Dist.	Contractor: Ecology Bridge - Manual control of garlic mustard, musk thistle. Dyers woad and Dalmatian Toadflax	\$ 1,200.00
Snyderville Basin Special Rec Dist.	Staff Hours: Garlic mustard control at Willow Creek	\$ 495.00
Snyderville Basin Special Rec Dist.	Volunteer hours: Garlic mustard control at Willow Creek	\$ 1,338.40
Snyderville Basin Special Rec Dist.	Herbicide treatment: Gillmor, Triangle, E Canyon Creek, Silver Creek for Thistle, spotted knapweed, Dyers Woad, Dalmatian Toadflax	\$ 4,000.00
Snyderville Basin Special Rec Dist.	Herbicide treatment: Garlic Mustard, Houndstongue, Thistle, Dyers Woad	\$ 6,925.00
Snyderville Basin Special Rec Dist.	Day passes to recreation center - GMG prizes	\$ 30.00
Summit County Noxious Weed Division	Labor for garlic mustard control	\$ 2,000.00
Summit County Noxious Weed Division	15 county books and 10 USU books donated	\$ 125.00
Summit County Noxious Weed Division	Presenting at the weed trainings	\$ 300.00
Summit County Lands and Natural Resources	Inventory and Control	\$ 20,000.00
UWSA Noxious Weed Grant	Inventory and Control	\$ 7,000.00
Volunteer Hours	Treatment by volunteers (total hours for High and Low Elevation Garlic Mustard Programs was divided between the	\$ 3,104.00
Misc. Businesses	Volunteer program prizes and food donated by several businesses.	\$ 1932.00
Total		\$ 73,745.51

LOW ELEVATION GARLIC MUSTARD CONTROL QUICK SUMMARY



\$60,000

ISM Grant Funds
Awarded 2024-25 FY

\$10,000

UWSA Noxious Weed Grant
Funds Awarded 2024 FY

\$63,745

In-Kind Match



4th Annual
Garlic Mustard Games



13,000 Pounds
Of Garlic Mustard Pulled
for the Garlic Mustard Games



103 Volunteers



8 Weed Pull Events



323 Backpack Sprayers
Worth of Herbicide Not Used

**Garlic Mustard Games metrics cover high and low elevation garlic mustard programs.



Fiscal Agent
Summit County



Project Manager
Ecology Bridge



8 HOA Partners

5 Years

Partnering with HOAs

5 HOA Participants

In the Garlic Mustard Games



12 Years
Of ISM Grant Funding
Garlic Mustard Control



10 Years
Using Spring and Fall Treatments



7 Years
Weeding Remote Locations

TREATMENT SUMMARY



26 Total Acres Treated



693 Acres Inventoried



16 Acres Weeded



**10 Acres Treated
with Herbicide**



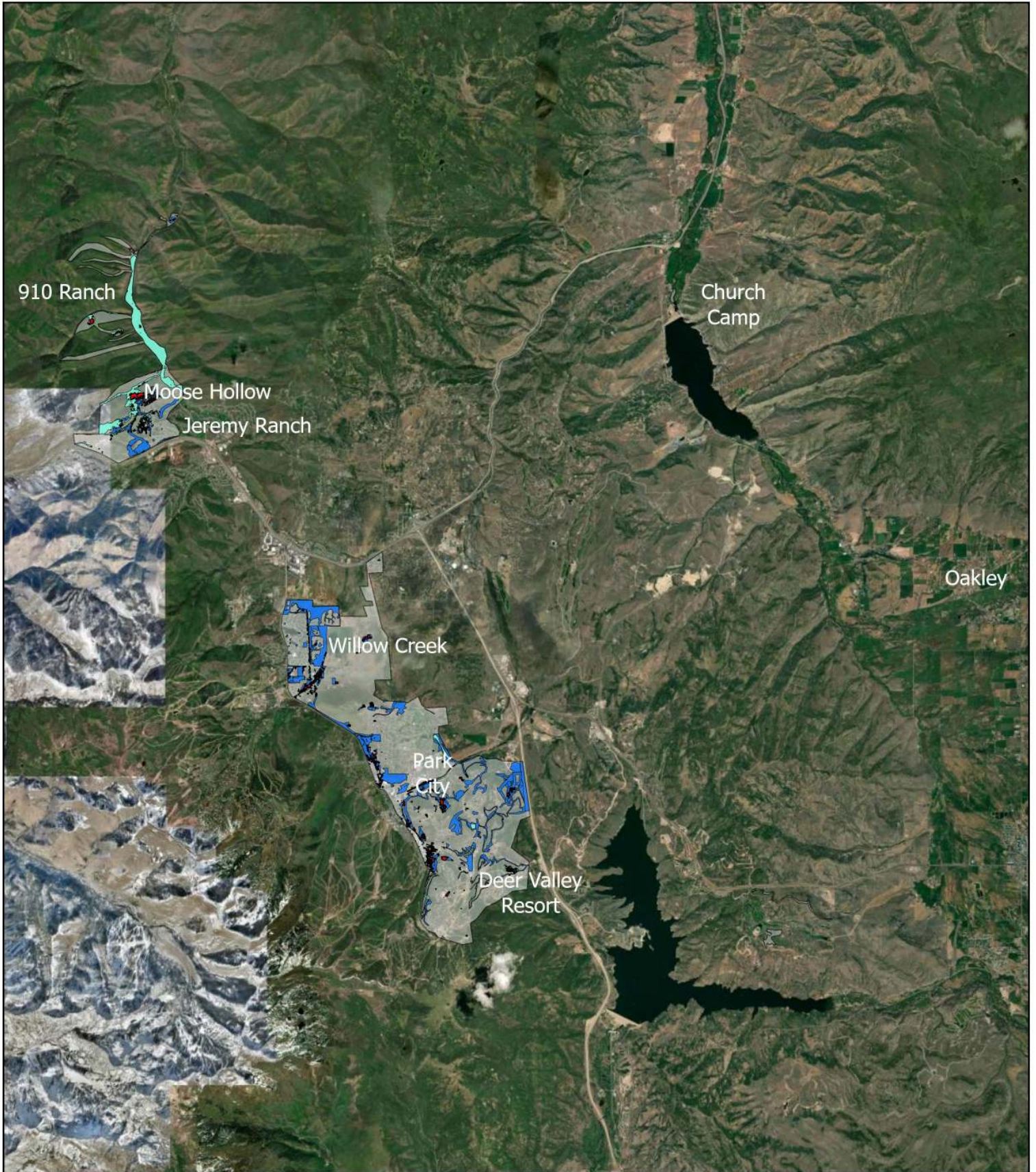
0.2 Acres Revegetated

LOW ELEVATION GARLIC MUSTARD ISM PROGRAM FIVE YEAR PLAN

Garlic mustard control began in 2010 as a partnership between the Summit CWMA, Salt Lake County and the Salt Lake Watershed. Garlic mustard has been treated using hand weeding, mulching, herbicide and restoration. Since the program began, over 1804 acres have been inventoried and 44 acres revegetated/restored. Each year we anticipate needing to control more acres as more populations are found during monitoring, but we also anticipate the treatment efforts can be reduced in areas that have been treated for more than 10 years allowing us to continue to treat a similar number of acres with less effort.

2021	<p>Acres Revisited / Controlled: 407 / 221</p> <p>Acres Inventoried: 146</p> <p>Acres Revegetated: 37</p>	<p>In addition to treatment, restoration and monitoring for new populations, we monitored one transect at the Masonic Trail to track control success and the UWSA funded seeding trials.</p>
2022	<p>Acres Revisited / Controlled: 46.39</p> <p>Acres Inventoried: 12.75</p> <p>Acres Revegetated: 2.23</p>	<p>In addition to treatment, restoration and monitoring for new populations, we monitor one transect at the Masonic Trail and the UWSA funded seeding trials.</p> <p>Implemented 3 Garlic Mustard Games Events.</p>
2023	<p>Acres Revisited / Controlled: 74</p> <p>Acres Inventoried: 242</p> <p>Acres Revegetated: 16</p>	<p>In addition to treatment, restoration and monitoring for new populations, we monitored the Masonic transect and seeding trials. Continue to monitor restoration progress.</p> <p>Added thinning of unhealthy/dead riparian woody vegetation to gain access to previously untreated garlic mustard populations.</p>
2024	<p>Acres Control Goal: 26</p> <p>Acres Inventory Goal: 693</p> <p>Acres Restoration Goal: 0.2</p>	<p>The majority of high priority inventory and monitoring sites were mapped, manual removal was especially important as the short season limited herbicide contractors dispatch at critical times. It was determined in 2024 that the garlic mustard distribution in residential lands, along with poor resident participation in the program and general control of their weeds has made continuing the assistance program infeasible. The program is being revamped for 2025.</p>
2025	<p>Acres Control Goal: 475</p> <p>Acres Inventory Goal: 200</p> <p>Acres Restoration Goal: 1</p>	<p>Control efforts will shift to focus on public lands and vectors of spread. The assistance program for residents will be limited to properties adjacent to vectors of spread. Spring of 2025 will focus heavily on outreach to provide resident access to resource so they can easily address their weed issues. We will continue to increase resources available in both Spanish and English and continue to monitor restoration progress.</p>
2026	<p>Acres Control Goal: 150</p> <p>Acres Inventory Goal: 300</p> <p>Acres Restoration Goal: 1</p>	<p>Continue monitoring transect and remove seeding trial plots. Continue to monitor restoration progress. Reseed in previous restorations needing further assistance. Focus on containing populations at Masonic Trail, Keeley and McLeod Creek. Work towards eradication on Willow Creek and Poison Creek. Increase HOA outreach efforts.</p>
2027	<p>Acres Control Goal: 200</p> <p>Acres Inventory Goal: 300</p> <p>Acres Restoration Goal: 1</p>	<p>Continue monitoring transect at Masonic Monster. Continue progress on 2025 priority areas for containment and eradication. Work closely with HOAs and Trail Foundation.</p>

Appendix 1 | Low Elevation Garlic Mustard Programs Maps



Low Elevation Garlic Mustard 2024 ISM Grant Treatment



- 2024 Treated Noxious Weeds
- Common St. Johnswort
- Garlic Mustard
- 2024 Known Noxious Weeds
- Common St. Johnswort

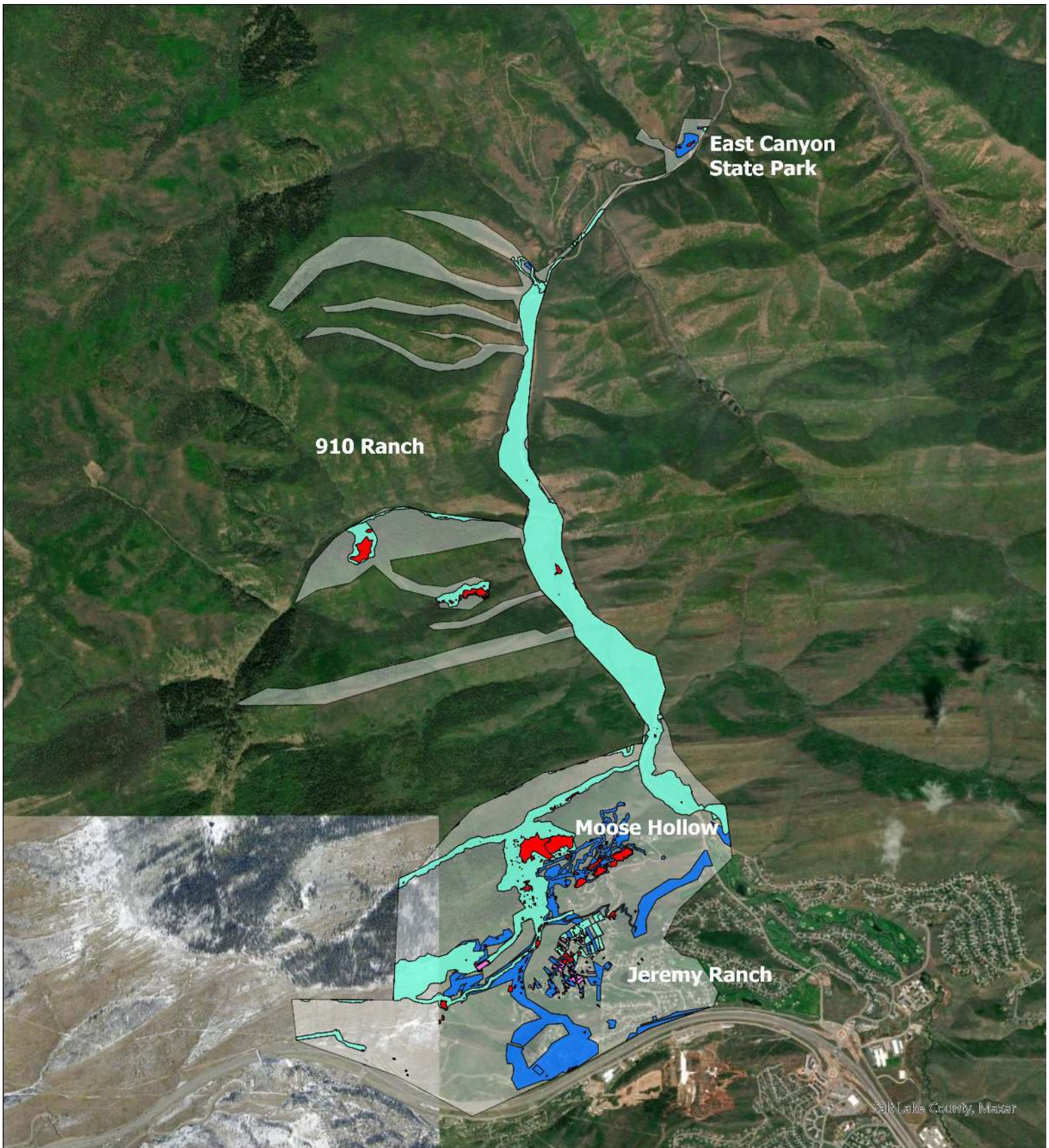
- Garlic Mustard
- Inventoried and Monitored to 2024
- 2024
- Prior Years

- Low Elevation GM Mgmt Area 2024**
- Low Elevation GM Mgmt Area 2024

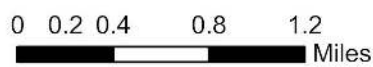


SUMMIT CWMA

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**Low Elevation Garlic Mustard
2024 ISM Grant Treatment:
910 Ranch and Jeremy Ranch Area**



- 2024 Treated Noxious Weeds
- Common St. Johnswort
- Garlic Mustard
- 2024 Known Noxious Weeds
- Common St. Johnswort

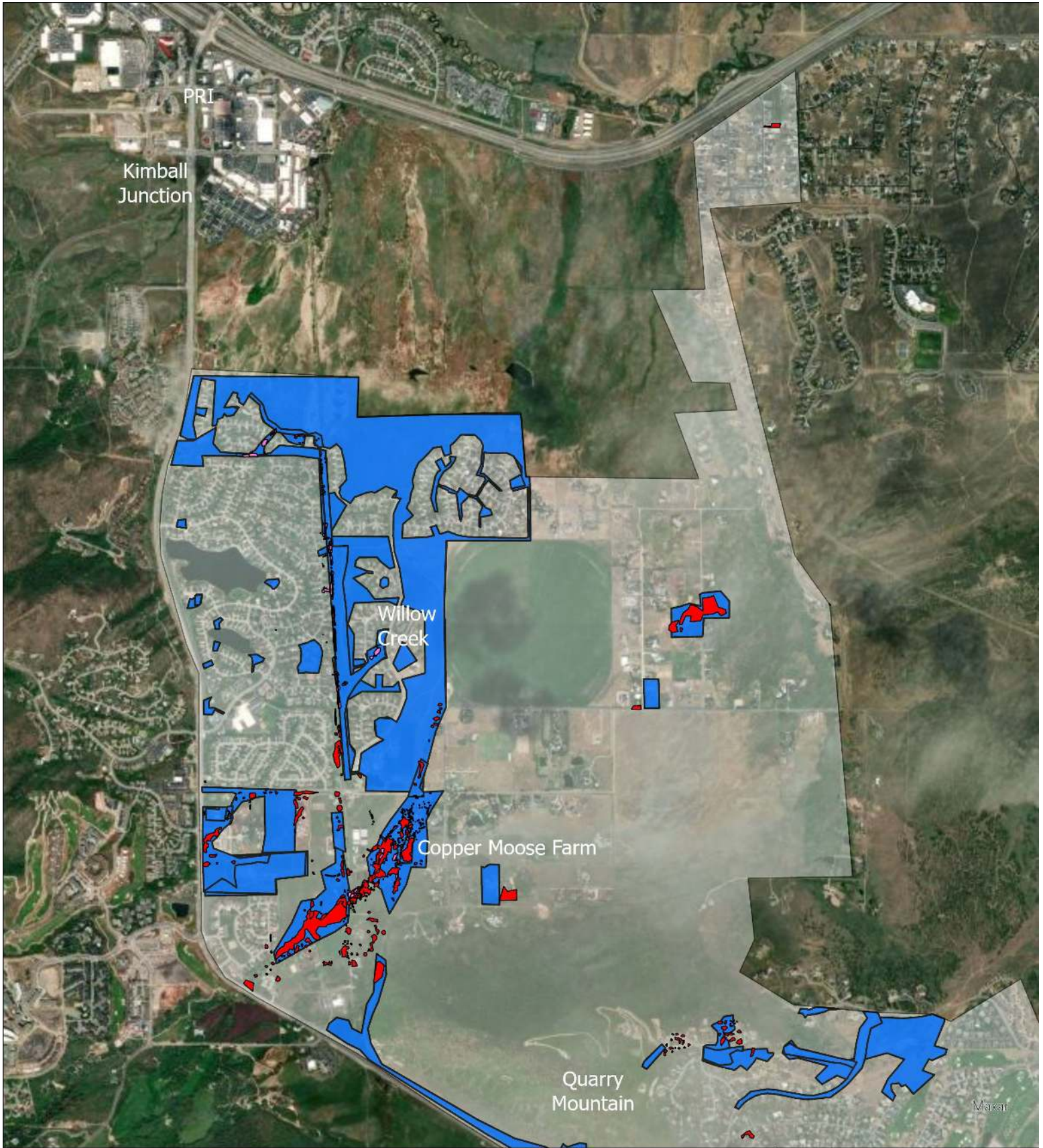
- Garlic Mustard
- Inventoried and Monitored to 2024
- 2024
- Prior Years

- Low Elevation GM Mgmt Area 2024**
- Low Elevation GM Mgmt Area 2024

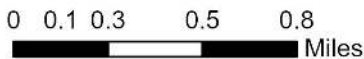


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Appendix 1 | Low Elevation Garlic Mustard Programs Maps



Low Elevation Garlic Mustard 2024 ISM Grant Treatment: Snyderville Basin Area



- 2024 Treated Noxious Weeds
- Common St Johnswort
- Garlic Mustard
- 2024 Known Noxious Weeds
- Common St. Johnswort

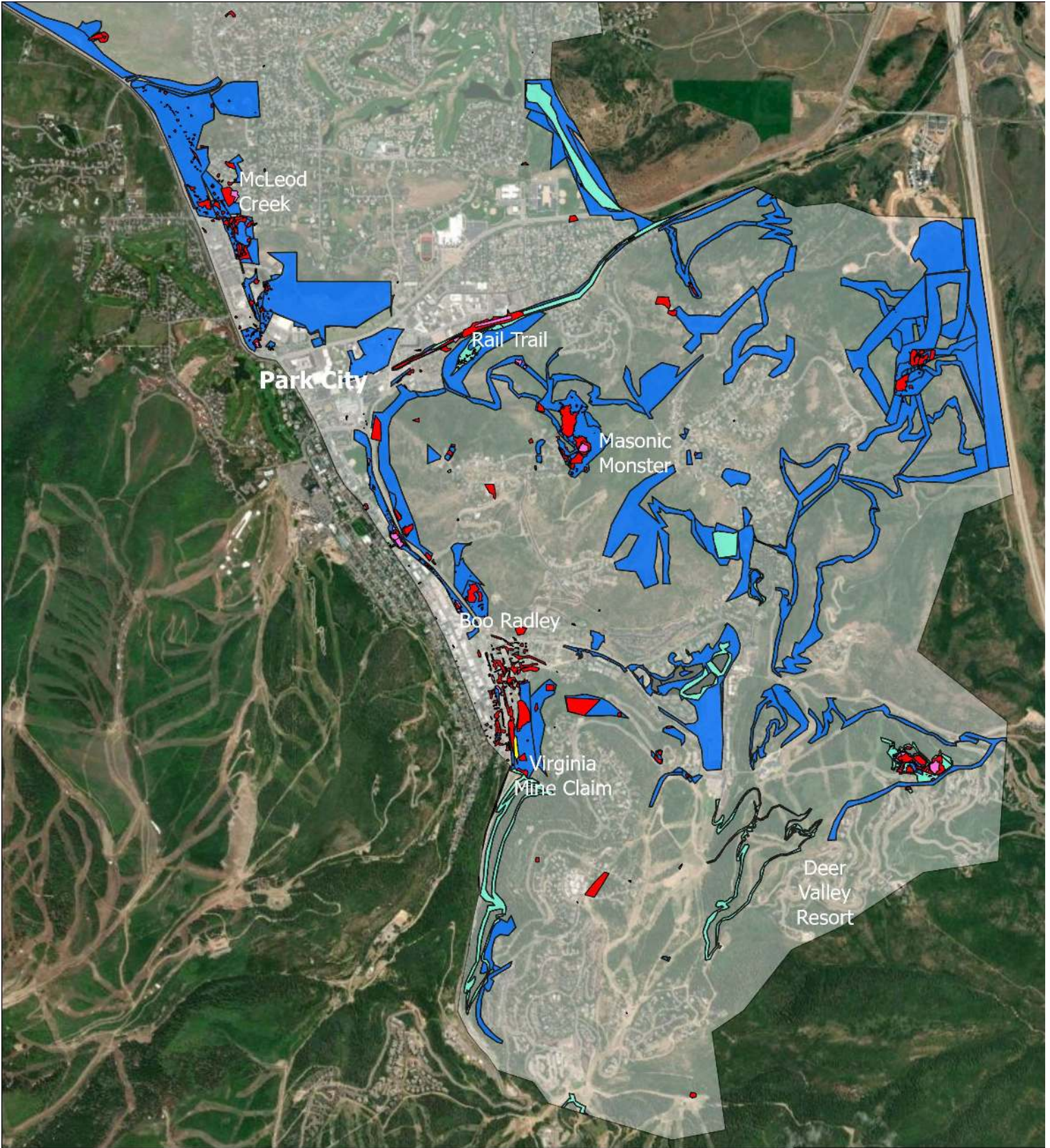
- Garlic Mustard
- Inventoried and Monitored to 2024
- 2024
- Prior Years

- Low Elevation GM Mgmt Area 2024**
- Low Elevation GM Mgmt Area 2024

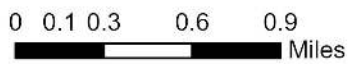


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**Low Elevation Garlic Mustard
2024 ISM Grant Treatment:
Park City Area**



- 2024 Treated Noxious Weeds
- Common St Johnswort
- Garlic Mustard
- 2024 Known Noxious Weeds
- Common St. Johnswort

- Garlic Mustard
- Inventoried and Monitored to 2024
- 2024
- Prior Years

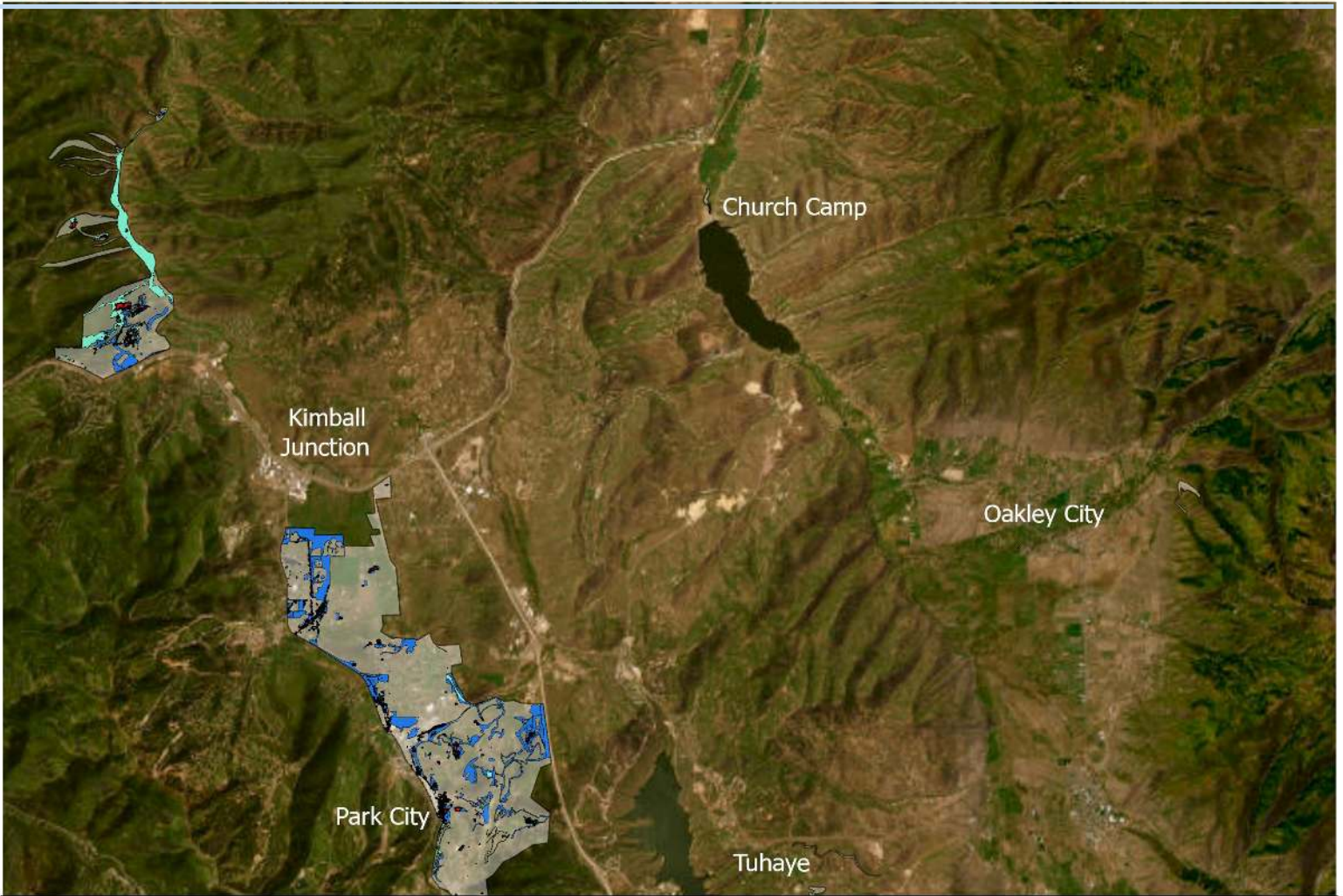
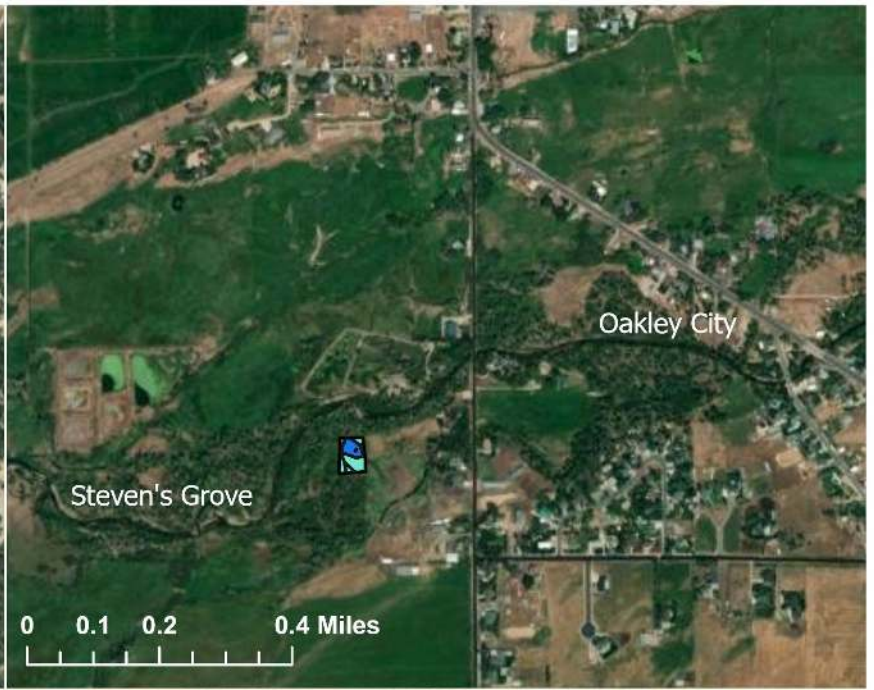
- Low Elevation GM Mgmt Area 2024**
- Low Elevation GM Mgmt Area 2024



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Appendix 1 | Low Elevation Garlic Mustard Programs Maps



Low Elevation Garlic Mustard 2024
Eastern Summit County ISM Grant Treatment

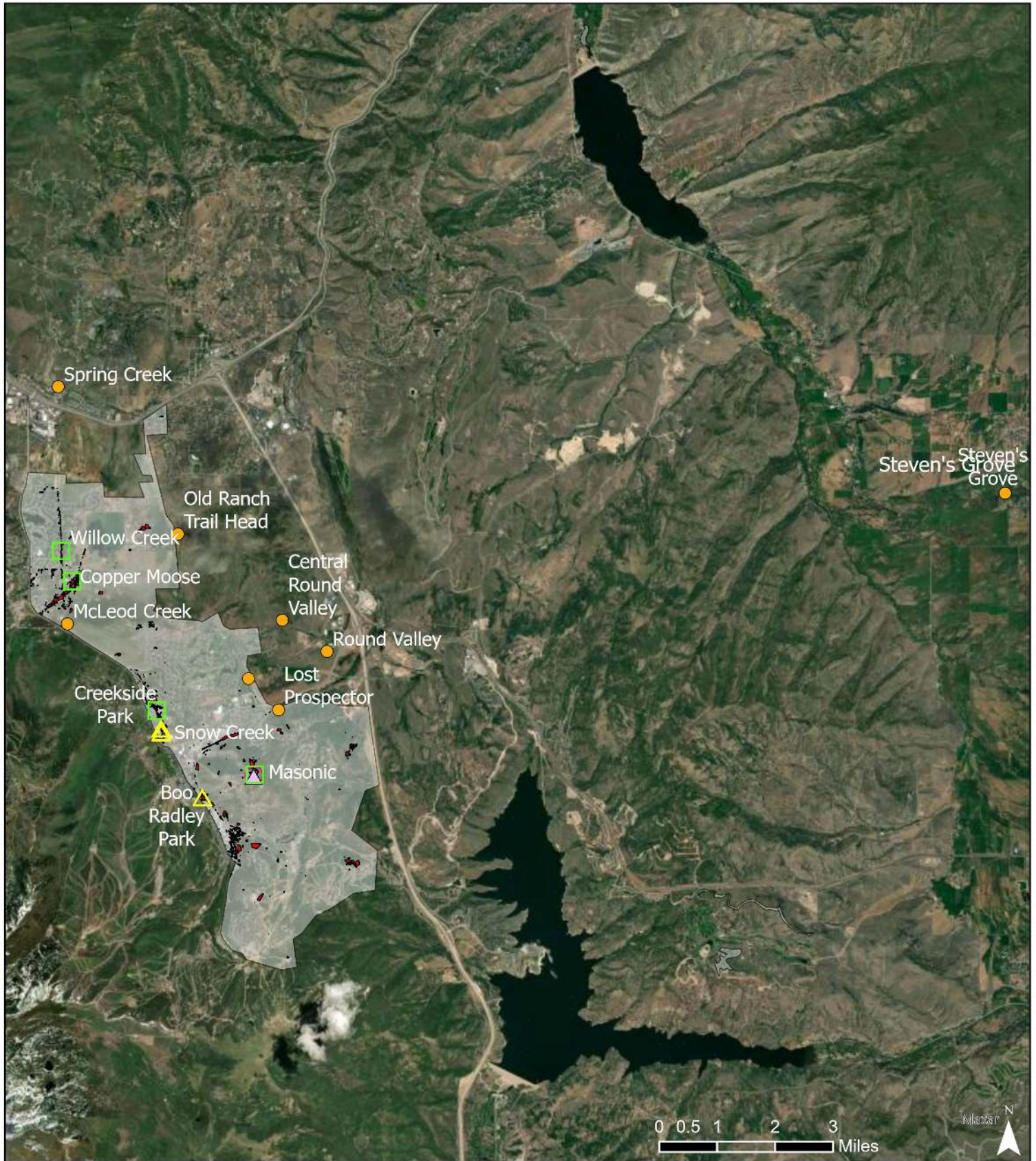
- 2024 Treated Noxious Weeds
- Common St Johnswort
 - Garlic Mustard
- 2024 Known Noxious Weeds
- Common St. Johnswort

- Garlic Mustard
- Inventoried and Monitored to 2024
- 2024
- Prior Years

- Low Elevation GM Mgmt Area 2024**
- Low Elevation GM Mgmt Area 2024



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**High Elevation Garlic Mustard
2024 Programs and Research**



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Garlic Mustard Games Locations 2024

- Event
- △ Volunteer Station
- Research Program Locations**
- Seeding Trial
- △ Transect

2024 Noxious Weed Ambassador Boxes

- 2024 Noxious Weed Ambassador Boxes

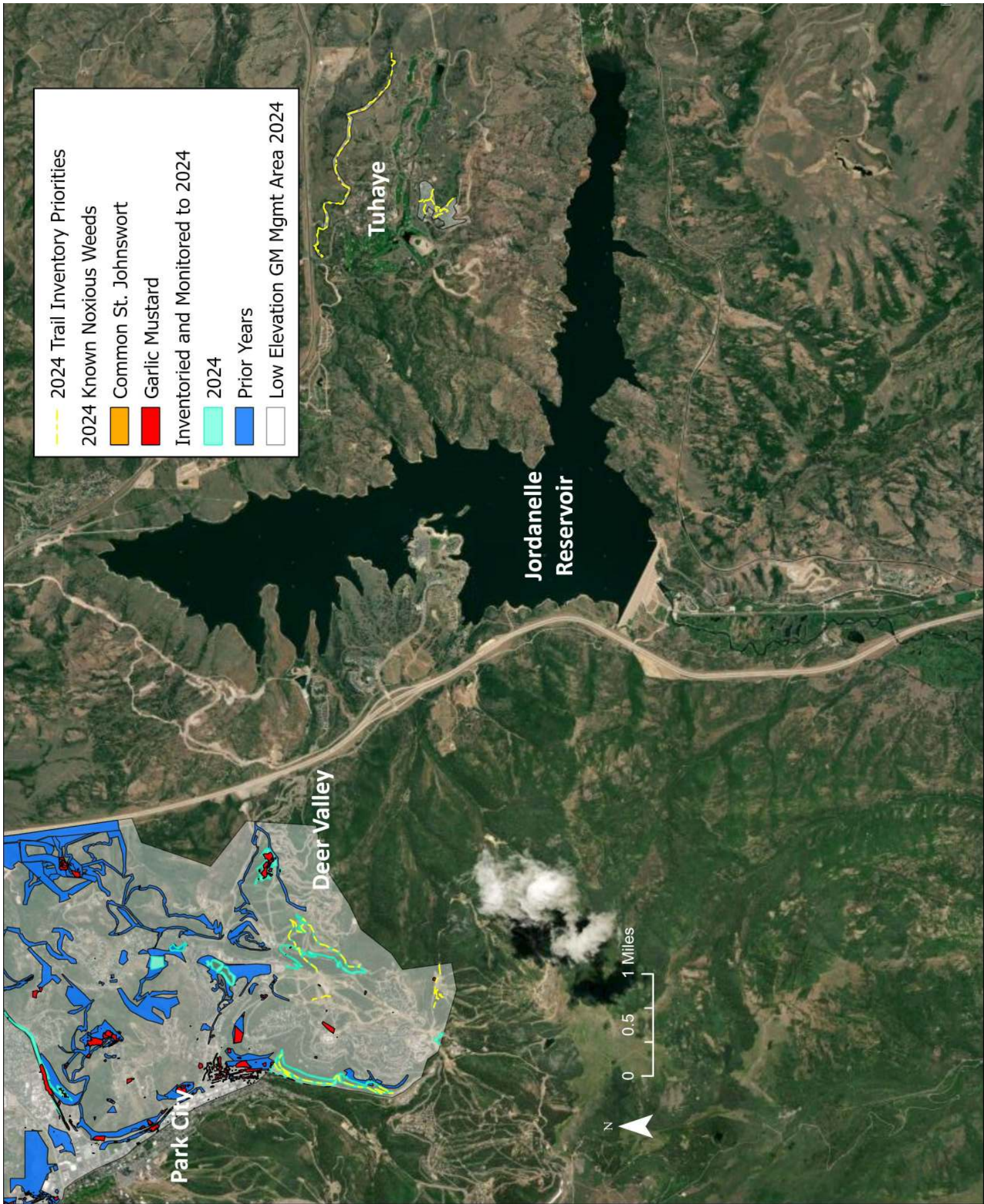
2024 Known Noxious Weeds

- Common St. Johnswort
- Garlic Mustard

Low Elevation GM Mgmt Area 2024

- Low Elevation GM Mgmt Area 2024

Appendix 1 | Low Elevation Garlic Mustard Programs Maps



Appendix 2 | Low Elevation Garlic Mustard Programs Seeding Trial Seed Mixes

Common Species Name	Latin Name	Seed Mix 1	Seed Mix 2	Seed Mix 3	Seed Mix 4
Alpine Bluegrass	<i>Poa alpine</i>	20			
Arizona Fescue	<i>Festuca arizonica</i>			5	10
Big/Sandberg Bluegrass	<i>Poa secunda</i>			9	10
Blue Wildrye	<i>Elymus glaucus</i>		20	14	30
Fringed Brome	<i>Bromus ciliates</i>	20			
Mountain Brome	<i>Bromus marginatus</i>	10	10	20	25
Prairie Junegrass	<i>Koeleria macrantha</i>		20	5	
Rocky Mountain Fescue	<i>Festuca saximontana</i>	20			
Slender Wheatgrass	<i>Elymus trachycaulus</i>	10	10	20	25
Spike Trisetum	<i>Trisetum spicatum</i>		20		
Streambank Wheatgrass	<i>Elymus lanceolatus</i>	20		20	
Tufted Hairgrass	<i>Deschampsia cespitosa</i>		20	5	