

# Summit CWMA 2025 ISM Report

## Low Elevation Garlic Mustard Control Program

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### PROJECT BACKGROUND

The Low Elevation Garlic Mustard ISM Weed Control program in Summit County targets garlic mustard (*Alliaria petiolate*), a Class 1B state-listed noxious weed that has been monitored for over 12 years in Western Summit County. It also maps and addresses Common St Johnswort, also a Class 1B noxious weed, currently limited to one population within this program area. The program area lies predominantly within the Wildland-Urban Interface, where noxious weed invasion from residential lands into forests and riparian habitats has become an escalating concern.

Garlic mustard rapidly invades both disturbed and undisturbed areas, displacing native plants and altering soil microbial communities, which leads to wildlife habitat loss and increased wildfire risk. The project focuses on removing garlic mustard and restoring natural ecosystems to protect natural lands, watersheds, and waterways while enhancing pollinator and wildlife habitat through outreach and strategic revegetation. Given the growing number of homes

bordering natural lands, residential participation is essential to safeguarding adjacent forests and riparian corridors from further invasion.

### INVENTORY AND MONITORING

Inventory focuses on areas not previously mapped for garlic mustard and Common St Johnswort and vectors of spread such as trails, roads, and streams. ArcGIS Field Maps is used to capture the species name, percent cover, dominant growth stage, control method, herbicide rates, and the contractor or partner responsible for treatment. Previously mapped sites are monitored to assess noxious weed status and control effectiveness and to update EDDMaps data.

In 2025, 73 acres were inventoried and 187 acres monitored, revealing that many garlic mustard populations had decreased in size and density. Surprisingly, most populations had few or no flowering plants. The long-term Masonic garlic mustard transect, monitored for eight years, showed cover levels similar to 2024. Inventory efforts focused on new sections along the southwestern boundary of 910 Ranch and the

*Masonic Monster was originally found 2017 and treated in 2018 with hand thinning followed by herbicide summer and fall. A combination of herbicide and weeding have been used annually since.*

Year	% Cover
2018	100
2019	5
2020	10
2021	13
2022	16
2023	64
2024	23
2025	25



perimeter of previously mapped interior patches. Monitoring confirmed that interior populations at 910 Ranch remained similar to 2024 levels. Several other populations showed significant reductions: Willow Creek declined to less than 5% cover, Copper Moose decreased by 70%, and McLeod Creek also showed substantial reduction. Populations along the Silver Creek portion of Poison Creek continue to decline, while Rossi Hill and Virginia Mine populations are now limited to smaller areas. The Deer Valley Keetley population, though unchanged in size, experienced over 50% reduction in cover. The Common St. Johnswort population maintained its 2024 distribution and cover, which remains 80% lower than when first discovered.

Notable exceptions to this progress include pockets along McLeod Creek where dense woody vegetation prevented access for treatment. These populations have 100% cover of both flowering and rosette stage plants. In 2025, Park City funded the removal of dead woody material to create access points that allowed volunteers and contractors to treat the areas. Additionally, Trailside populations are increasing in number on April Mountain, though they remain small. The main Masonic Monster population's percent cover has been reduced to just over 20%, though the northern and eastern boundaries appear to be expanding in size and density, likely due to inadequate treatment in past years. These boundaries will be

prioritized for treatment in 2026 if funding allows.

## TREATMENT

Garlic mustard is controlled with a combination of hand weeding and herbicide application, while Common St Johnswort is removed by hand and paid for by Park City. Hand removal is used to thin dense flowering garlic mustard populations and remove plants in sensitive habitat. Hand weeding is also employed for very small, remote populations. All herbicide application is completed by partner staff and commercial contractors using 2,4D (Amine 64 oz/ac) plus MSM 60 (1.5 oz/ac) or WeedMaster (2,4D + Dicamba). In 2025, 71 acres of garlic mustard and 3 acres of Common St. Johnswort were treated, with 24 acres of garlic mustard hand weeded and 48 acres treated with herbicide. A considerable proportion of the hand removal is provided by volunteers in order to keep per acre costs manageable and meet outreach goals.

## REVEGETATION

Revegetation introduces native plant competition to prevent further invasion and reinvasion, with native grasses primarily used to allow for continued herbicide treatment as needed. No additional revegetation occurred in 2025, though previously seeded areas at Willow Creek and Virginia Mine were monitored. At



*Volunteers pulling garlic mustard along McLeod Creek trail in one of the last dense populations on the creek. Left: Allison, the Garlic Mustard Games Champion volunteer for two years running and Right: all the volunteers for the second McLeod Creek event including the Mountain Trails Foundation crew and Ecology Bridge staff.*

Virginia Mine, where Common St. Johnswort dominated the looser slopes of the historic mine site in 2017, a combination of soil amendment, erosion matting, and seeding was applied based on soil and slope conditions to reintroduce native grasses. Dense native grasses that established by 2024 began to thin that year and continued thinning in 2025. The harsh site with mine-impacted soils may benefit from future revegetation tests with different grass species if funding allows.

## OUTREACH

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 and volunteer events and competitions.



Rotary Club volunteers were thrilled to find the garlic mustard at Creekside Park on McLeod Creek was so dramatically reduced that they had to hunt for flowering plants.

## **Garlic Mustard Games**

The Summit CWMA Garlic Mustard Games incentivizes volunteer participation through a community-wide competition combining organized events and trailside volunteer stations. Prizes, opportunity drawings, and a food truck party for individuals and teams that pull the most garlic mustard drive participation. Volunteers who weed independently using trailside stations report their pounds of garlic mustard via QR codes on station signs. The program reduces herbicide use in sensitive habitats and along trails while successfully controlling garlic mustard and facilitating ecosystem recovery. In 2025, volunteer boxes were placed at multiple locations along the McLeod Creek trail, and three events were held, two at McLeod Creek and one at Copper Moose Farms. A total of 5,084 pounds of garlic mustard were removed from the two CWMA program areas, bringing the overall program total since 2022 to 37,391 pounds. The pounds removed were considerably lower in 2025 due primarily to limited flowering plants project wide.

## **HOA Partnership Program**

In Summit County, many HOAs own open space or are adjacent to public open space. The Summit CWMA engages these HOAs at the Wildland-Urban Interface to educate residents and prevent or control noxious weeds on residential parcels and HOA open space. Partnering HOAs assist with member outreach and provide access to HOA lands. In 2025, HOA participation within the Low Elevation Garlic Mustard Program was low, though Ranch Place HOA continued to facilitate resident participation and requested assistance with their open space lands adjacent to Swaner Eco Preserve and along the creeks.

## CONCLUSIONS

Treatment over nearly 20 years has reduced garlic mustard density within the project area overall, but the extent of invasion remains too great to consider eradication. In 2025, the program shifted focus to vectors of spread and no longer provided treatment to residents whose lands are not associated with these vectors or adjacent to open space. Due to substantial

funding reductions for garlic mustard control, only the highest priority areas were treated in 2025.

## FUTURE TREATMENT PLANS

The 2026 program will continue focusing on major vectors of spread and public open space. Eradication of garlic mustard along Willow Creek, Poison Creek, and McLeod Creek remains viable and high priority. Control efforts along the edges of the Masonic Monster and Keetley populations will aim for containment and gradual reduction. Treatment at 910 Ranch will continue as a partnership with Summit County, and the CWMA will work with the County Lands & Natural Resources Department to encourage residents of the Woods and Moose Hollow HOAs to control garlic mustard and other noxious weeds on their properties, as populations associated with these HOAs are invading into 910 Ranch.

Continued work with HOAs will be crucial to preventing residential lands from serving as weed seed sources for adjacent open space. Spring outreach through HOA board and member meetings and newsletters will increase communication, and the CWMA will continue

attending HOA community events. The Summit CWMA website, along with Facebook, Instagram, and Nextdoor, will be used to advertise events. The Garlic Mustard Games will be held again in 2026, with events beginning in May and continuing through September, culminating in the annual Food Truck Party.

## FINANCIALS

The Low Elevation Garlic Mustard control Program did not receive funding from ISM for the 2026FY. Work conducted in 2025 was accomplished via the \$31,085.20 remaining from the 2025FY ISM grant, expanded partner in-kind efforts and volunteers. Partners provided approximately \$97,738.00 to control garlic mustard, Common St Johnswort and other noxious weeds within the control sites and adjacent lands. Volunteers provided \$2,200 in in-kind match through the Garlic Mustard Games.

## 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**

## Low Elevation Garlic Mustard ISM Grant Expenses in the 2025 Growing Season

Summit CWMA Low Elevation Garlic Mustard ISM Program January 1, 2025 - June 30, 2025				
Line Item	Description	Invoice #	Invoiced Amount	
Administration	Organizing field and research sit photos, editing of initial report documents	2024-074	\$1,563.30	
Crew Supervision	Creating maps for contractors to begin work in May and June, directing herbicide crews.		\$262.50	
GIS Specialist	GIS data verification and clean up		\$402.08	
Outreach	Organizing Garlic Mustard Games event dates for the low elevations sites, portion of costs for preparing/updating outreach material for Garlic Mustard Games, Hounds Against Houndstongue and Noxious Weed Ambassador Program, Portion of costs for outreach emails and call to resident to inform them of cancelation of the assistance program and providing them with resources to control weeds on their own, Portion of cost to create HOA newsletter blurb to enable HOAs to direct residents to resources, Portion of cost of material development for the Mountain Trails Trail Mixer outreach even, Attending National Trails day to teach about weeds and pulling weed with them.		\$2,650.90	
Inventory	Inventory and mapping of garlic mustard on 910 Ranch, Virginia Mine Claim and a portion of McLeod Creek near Top Stop		\$5,042.24	
Monitoring	Monitoring and updating GIS data at previously mapped areas of Willow Creek. Ranch Place, Virginia Mine Claim and Masonic Trail		\$2,761.92	
Mechanical	Dead woody vegetation thinning at McLeod Creek by fire station		\$139.10	
Mechanical Removal	Hand removal of garlic mustard at McLeod Creek, McPollin Farm, Richards Ranch, and Willow Creek		\$1,853.15	
GIS Data Services	A portion of the GIS Specialist Contractor to move all Summit CWMA GIS data and maps and create all 2025 Summit CWMA shared map Apps		SCWMA-25-01	\$3,345.28
Herbicide Treatment	Herbicide treatment at Deer Valley and Copper Moose		Part of EB253	\$4,170.00
	Willow Creek Park	41720	\$1,600.00	
	Private property adjacent	41721	\$550.00	
Supplies	Biochar	1256	\$322.38	
Equipment	Dump Trailer rental for collecting and hauling weed for garlic Mustard Games, Noxious Weed Ambassador Program and weeds residents pull and need help disposing of.	Part of 1508-1	\$807.09	

Low Elevation Garlic Mustard Control Program Expenses Continued

Summit CWMA Low Elevation Garlic Mustard ISM Program January 1, 2025 - June 30, 2025			
Line Item	Description	Invoice #	Invoiced Amount
Outreach Supplies	Printing costs for fliers, posters for Garlic Mustard Games and Trails Outreach Events	NA	\$180.75
	Gloves for volunteers	NA	\$134.61
	Luggage scales to weigh garlic mustard and bags from NWAP volunteer stations	NA	\$29.98
	Outreach supplies: pouches to hold scales with notebooks and pens, freezer bags for seed, and misc. rubber bands, clips for holding materials and updating signs.	NA	\$69.63
Administration	Project management, budget management and coordination with partners.	2025-076	\$768.40
Crew Supervision	Management of crews for herbicide treatment		\$182.77
GIS Specialist	Correction and addition of data to GIS maps and datasets		\$305.93
Monitoring	Monitoring for spread of garlic mustard downslope from the Keetly population in Deer Valley.		\$657.44
Mechanical Removal	Hand removal of garlic mustard in several locations in eastern Snyderville Basin and Park City		\$3,285.75
<b>Total</b>			<b>\$31,085.20</b>

**Low Elevation Garlic Mustard Control Program Partner and Donor Match in 2025**

Funding Source	Descriptions	Match Value
Deer Valley Resort	Labor - garlic mustard control	\$ 3,200.00
Deer Valley Resort	Downhill Mountain Bike Passes - GMG prizes	\$ 360.00
Park City Municipal Corporation	Inventory and control of garlic mustard and other noxious weeds with in the Low Elevation Garlic Mustard Program Areas	\$ 80,000.00
Snyderville Basin Special Rec Dist	Inventory and control of garlic mustard and other noxious weeds with in the Low Elevation Garlic Mustard Program Areas	\$ 2,995.00
Summit County Noxious Weed Division	Labor for garlic mustard control, County weed books, Presenting at weed trainings,	\$ 2,425.00
Summit County Lands and Natural Resources	Inventory and Control of garlic mustard and other noxious weeds adjacent known garlic mustard populations of 910 Ranch	\$ 5,358.00
Volunteer Hours	Treatment by volunteers	\$ 2,200.00
Misc Businesses	Volunteer program prizes and food donated by several businesses.	\$ 1,200.00
<b>Total</b>		<b>\$97,738.00</b>

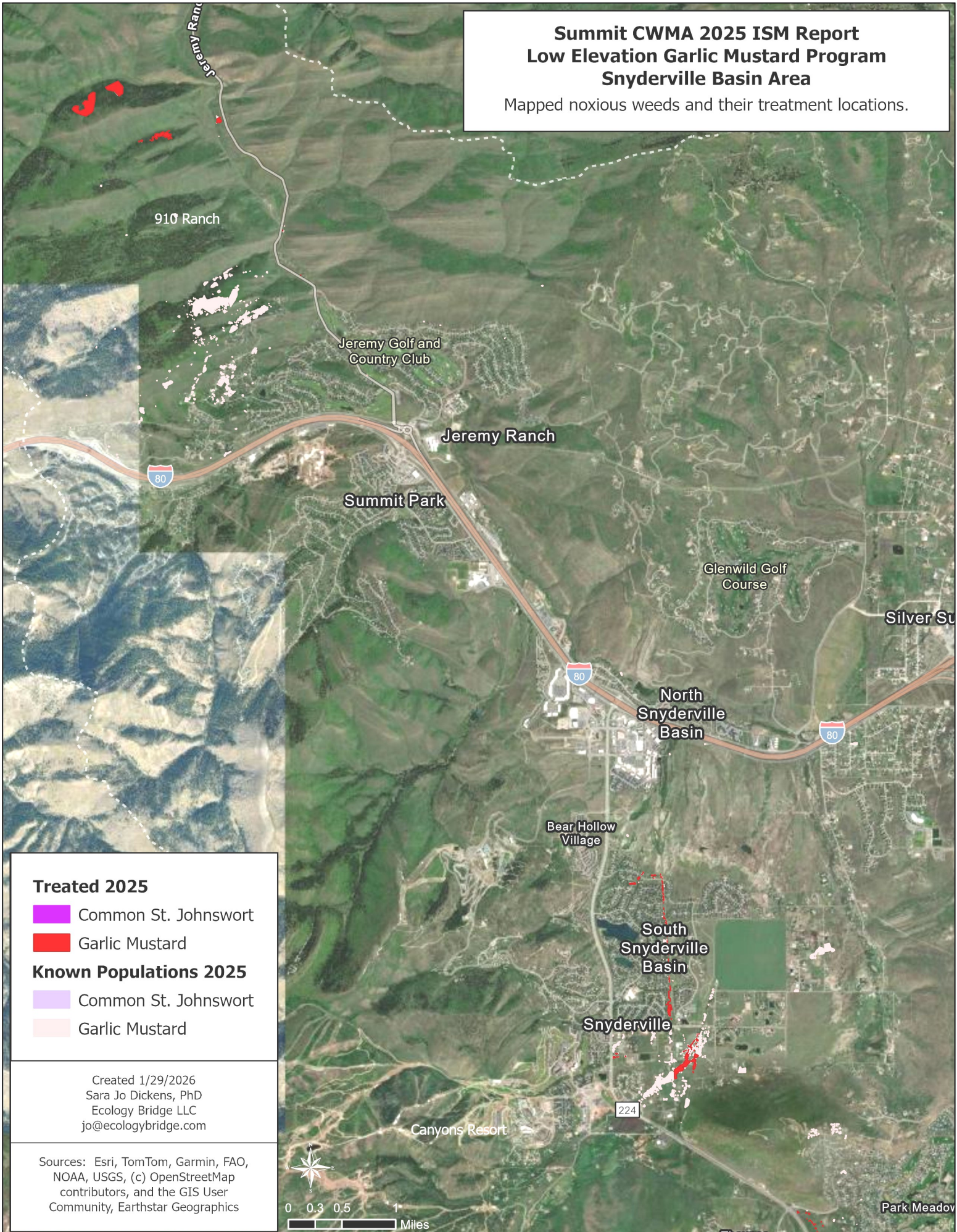
## LOW ELEVATION GARLIC MUSTARD ISM PROGRAM FIVE YEAR PLAN

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 1877 acres have been inventoried and 44 acres revegetated/restored. Each year we anticipate needing to control more acres as more populations are found, but we also anticipate the treatment efforts can be reduced in areas that have been treated for more than 10 years.

2021	<p><b>Acres Revisited / Controlled:</b> 407 / 221</p> <p><b>Acres Inventoried:</b> 146</p> <p><b>Acres Revegetated:</b> 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><b>Acres Revisited / Controlled:</b> 46.4</p> <p><b>Acres Inventoried:</b> 12.75</p> <p><b>Acres Revegetated:</b> 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><b>Acres Revisited / Controlled:</b> 74</p> <p><b>Acres Inventoried:</b> 242</p> <p><b>Acres Revegetated:</b> 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><b>Acres Controlled:</b> 26</p> <p><b>Acres Inventoried:</b> 693</p> <p><b>Acres Revegetated:</b> 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><b>Acres Controlled:</b> 71 GM, 3 CSJ</p> <p><b>Acres Inventoried/Monitored:</b> 73/187</p> <p><b>Acres Revegetated:</b> 0</p>	<p>Control efforts were reduced due to funding reductions, however did focus on public lands and vectors of spread. The Garlic Mustard Games ran as it has in previous years and continued to have of 100 volunteers participating in both organized event and through use of the trailside volunteer stations.</p>
2026	<p><b>Acres Control Goal:</b> 140</p> <p><b>Acres Inventory Goal:</b> 150</p> <p><b>Acres Restoration Goal:</b> Maintain</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><b>Acres Control Goal:</b> 150</p> <p><b>Acres Inventory Goal:</b> 300</p> <p><b>Acres Restoration Goal:</b> Maintain</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>

# Summit CWMA 2025 ISM Report Low Elevation Garlic Mustard Program Snyderville Basin Area

Mapped noxious weeds and their treatment locations.



### Treated 2025

- Common St. Johnswort
- Garlic Mustard

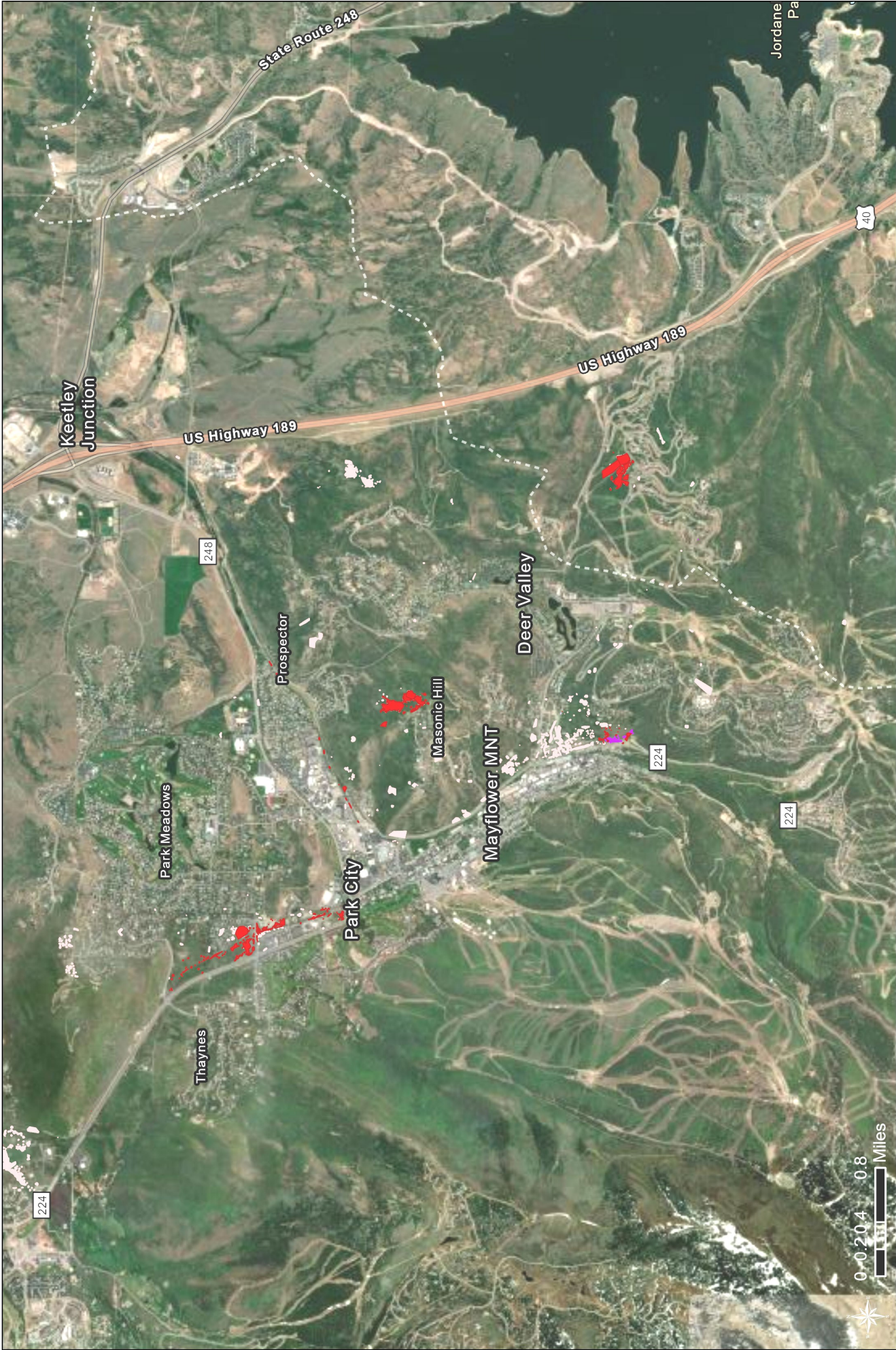
### Known Populations 2025

- Common St. Johnswort
- Garlic Mustard

Created 1/29/2026  
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Sources: Esri, TomTom, Garmin, FAO,  
NOAA, USGS, (c) OpenStreetMap  
contributors, and the GIS User  
Community, Earthstar Geographics





**Summit CWMA 2025 ISM Report**  
**Low Elevation Garlic Mustard Program**  
**Park City Area**  
 Mapped noxious weeds, their treatment locations.

Treated 2025	Known Populations 2025
<span style="color: purple;">■</span> Common St. Johnswort	<span style="color: purple;">■</span> Common St. Johnswort
<span style="color: red;">■</span> Garlic Mustard	<span style="color: pink;">■</span> Garlic Mustard

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Earthstar Geographics

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