

Summit CWMA Yellow Toadflax and Spurge 2025 ISM Control Program Report

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PROJECT OVERVIEW

The Summit CWMA Yellow Toadflax and Spurge Control Program is a multijurisdictional effort targeting yellow toadflax (*Linaria vulgaris*, Class 1B), Myrtle spurge (*Euphorbia myrsinites*, Class 3), and leafy spurge (*Euphorbia esula*, Class 2) noxious weeds. The project area spans Summit and Wasatch Counties, including one large area from Deer Valley Resort and Bonanza Flat to Wasatch State Park and several smaller sites: Snyderville Basin, 910 Ranch, Toll Canyon, High Ute Ranch, Utah Olympic Park, King Road, and Chalk Creek.

Yellow toadflax is widespread on Bonanza Flat and spreading into Wasatch State Park wildlands. Myrtle spurge occurs in small populations in the state park, Snyderville Basin, and Park City. Large leafy spurge populations exist in Wasatch Mountain State Park Campground, and Chalk Creek/South Fork, with smaller populations in Pinebrook and along East Canyon Creek.

This dual-county program addresses concerns that heavy

Myrtle Spurge at Treasure Hill below the historic lift tower after one year of treatment remains limited to under 20 plants.



recreational trail use will spread yellow toadflax and leafy spurge throughout both counties. Partners collaborate by sharing information and resources to stop the spread of these invasive species.

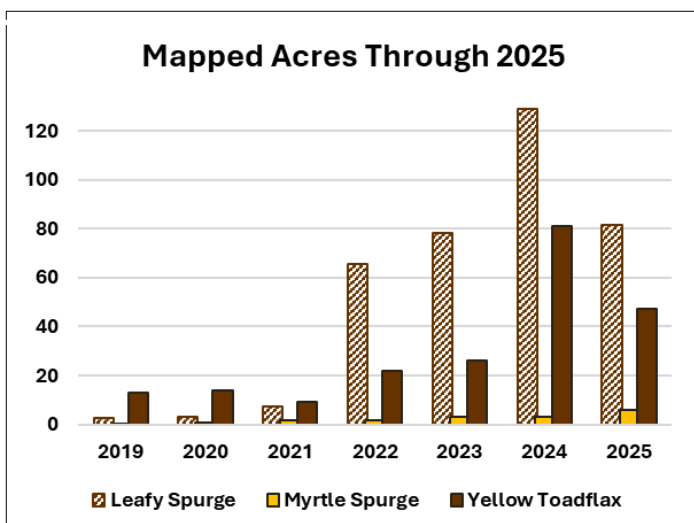
METHODS

Inventory/Mapping: In 2025, inventory efforts for yellow toadflax, Myrtle spurge, and leafy spurge focused on roads, trails, waterways, and areas near known populations. The goal is to identify population distributions and boundaries for strategic, cost-effective treatment plans. Weed distribution and percent cover data are collected using ArcGIS Field Maps to direct control efforts.

Monitoring: Contractors monitor current populations to track population status and treatment effects. Monitoring is used to update EDDMaps and ArcGIS Field Maps. Monitoring also includes 70-foot transects using the line intercept method and, at some sites, 2x2 ft plots every 10 feet along transects to track changes in weed and native plant cover in two toadflax and one leafy spurge populations.

Herbicide Application: Yellow toadflax is treated with Telar or 2,4D/Milestone during late vegetative and flowering stages. Myrtle spurge and leafy spurge are treated with 2,4D and Milestone at all stages before seed production.

Mechanical Treatment: Six Myrtle spurge populations at Toll Canyon, High Ute, Utah Olympic Park, Treasure Hill,



Total mapped acres of each noxious weed as of 2025. Leafy spurge and yellow toadflax have declined both due to control success but this data also reflects data maintenance that removed some duplicate and overlapped portions of polygons that accumulated over the five years of mapping.

2024 Yellow Toadflax and Spurge Control Program Partners

Deer Valley - Laura Sexton, Paul Hedman
Ecology Bridge - Sara Jo Dickens
Mountain Trails Foundation - Rick Fournier
Park City - Adam Smath
Park City School District - Todd Hansen
Pinebrook HOA - Stephen Herrera
Snyderville Basin Special Recreation District - Phares Gines, Maddie Nelson
Summit County - Dave Bingham, Dan Pena
Summit County Weed Board - Sam Blonquist, Robert Siddoway
Summit Soil Conservation District - Colby Pace
NRCS - Parker Wayment
USU Extension - Elizabeth Cohen
Utah Dept of Agriculture and Food
Wasatch County & CWMA - Quinten Lewis
Wasatch State Park - Jonathan Hunt, Tom Halladay



King Road and Wasatch State Park Campground are hand weeded annually due to remote locations, small size, and minimal cover (<5%). Revegetation has been implemented at all but the State Park site with varied success. Natural vegetation at the State Park site is recovering on its own.

Biological Control: We partner with the Summit County Weed Supervisor and Utah Weed Supervisors Association to use biological control agents for leafy spurge when possible. In 2025, leafy spurge agents were unavailable. Yellow toadflax biological controls are not used because flower timing doesn't align with biocontrol availability at these high-elevation sites.

Revegetation: Once weed populations drop below 20% or large weed-free patches develop, native bunchgrass seed mixes are broadcast seeded in fall to utilize spring snowmelt for grass establishment. When funding allows and soils are poor or previous efforts unsuccessful, soil amendments (80% compost/topsoil mixed with 20% biochar) are applied before seeding to improve germination and establishment. Native forb and woody species may be included to increase weed invasion resistance and habitat quality once weeds are nearly eradicated and where soil moisture will naturally be high enough to support the establishment of these native species.

RESULTS

The majority of inventory work targeted yellow toadflax in Bonanza Flat and Wasatch State Park, including the new trails connecting Bonanza Flat, Deer Valley East, and Wasatch



WOWZA trail installed by Mountain Trails in 2025 was inventoried by the Summit CWMA. Only one yellow toadflax population was found on the trail until it reaches the meadows by the WOW trailhead where historically large populations have been treated for many years. Partnering with Mountain Trails reduced the potential for future toadflax spread via this trail.

ACRES INVENTORIED

159 Acres Inventoried

13 Acres Monitored

ACRES TREATED

72 ACRES HERBICIDE TREATMENT

34 ac Leafy Spurge

.18 ac Myrtle Spurge

40 ac Yellow Toadflax

1.4 ACRES HAND WEEDING

.17 ac Leafy Spurge

1.2 ac Myrtle Spurge

.04 ac Yellow Toadflax

BIOCONTROLS RELEASES

0 Leafy Spurge Beetle Releases

0 Yellow Toadflax Beetle Releases

ACRES RESTORED

1 Restoration Sites

.05 Acres Revegetated

Mountain State Park. With the installation of these new trails, it is expected that yellow toadflax will spread with recreational use unless trails foundations begin implementing best management practices. In the case of the WOWZA trail, Mountain Trails Foundation partnered with the CWMA to ensure the trail was mapped for weeds so a plan could be established for control. Additionally, Mountain Trails Foundation staff have attended the Summit CWMA-Summit County weed training for the last three years and developed the skills to identify many noxious weeds and avoid parking and staging equipment in noxious weed populations. Unfortunately, new trails from the MIDA project being transferred to Deer Valley Resort have been routed through extensive yellow toadflax populations without established management plans for preventing spread. This issue is particularly acute near Midway Reservoir, where trails are currently under development by MIDA contractors and trail foundations other than Mountain Trails.

Trails between Wasatch State Park Campground and Dutch Hollow were inventoried for leafy spurge. Only small populations were detected and subsequently treated. A proposed campground expansion west of the current site



Yellow toadflax is declining in many areas of Bonanza Flat, Wasatch Mountain State Park and Deer Valley after years of treatment. However, some populations recovered including populations on the edge of the Midway Reservoir. Additionally, new trails in the area have gone through some of the largest populations at the Midway Reservoir from which toadflax will spread.



Myrtle spurge along the new High Ute trail is less than 20 plants.

represents a high priority area for 2026 inventory due to increased recreational use and development activities.

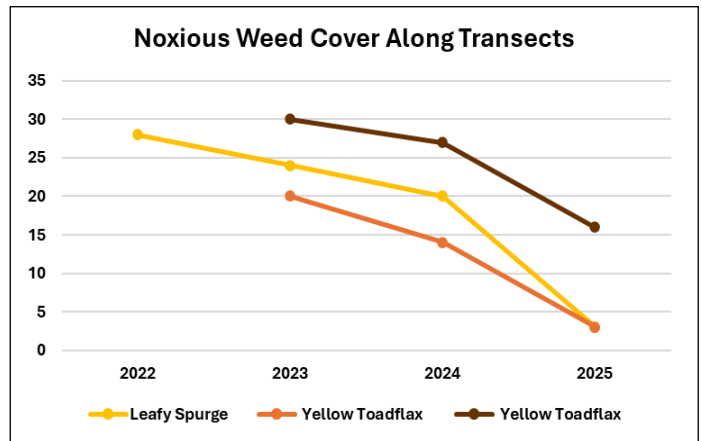
Additional trails were surveyed for Myrtle spurge, including the Olympic

trail connecting Canyons Resort and Olympic Park and the new Hi Ute Trail. The Olympic trail was spurge-free, though other noxious weeds were present where the trail crosses ski slopes. One Myrtle spurge population was observed along the Hi Ute Trail. Previously mapped during the High Ute Ranch conservation easement process, this population has shown minimal expansion and likely represents a satellite of a nearly quarter-acre infestation on two upslope private parcels. Additional populations are suspected between the private parcels and the trail population, but landowner access denial prevented comprehensive inventory. A total of 159 acres and 21 miles of trails were inventoried during this season.

Transects for yellow toadflax at Midway Reservoir and leafy spurge at Wasatch Mountain State Park Campground were monitored again in 2025, along with the small garlic mustard populations in the campground. Both toadflax and leafy spurge continue to decline along transects. No garlic mustard was found, but monitoring will continue for the next several years to ensure it doesn't return. Most EDDMaps points are being updated, including for populations of other noxious weeds observed in the project area.

Through the BIL and ISM grants and partner work, 73 acres of the three target weeds were treated. The Myrtle spurge populations at 910 Ranch, Toll Canyon, High Ute Ranch trail, Utah Olympic Park, King Road and Wasatch Mountain State Park Campground were hand weeded again in 2025. These populations continue to decline in the number of plants and rarely take more than an hour to complete after accessing the sites.

Treatment of leafy spurge in Chalk Creek was made possible this year through partnership with the North Summit Soil Conservation District, which directed ISM funds to ensure continuity of spurge treatment along important rangeland waterways. Response to treatment in the Chalk Creek area has been mixed. Populations in upper Elkhorn Canyon, where slopes are hotter and drier, show significant decline in percent cover, while populations near the creek at lower elevations demonstrate only minimal decline. In 2026, we plan to transition from the WeedMaster plus Milestone mix to Tordon in the lower elevations to see if we achieve



Transects in leafy spurge (Wasatch Mountain State Park Campground) and yellow toadflax (both at the Midway Reservoir) show consistent decline in percent cover



The leafy spurge transect in the Wasatch Mountain State Park Campground has recorded the decline of percent cover from 28 to 3% over 4 years.



One of the denser populations of leafy spurge in Chalk Creek.

better control. New populations continue to be discovered in both areas, though those nearest the creeks tend to be denser in spurge cover. Leafy spurge treatment in Wasatch State Park has substantially reduced long-treated populations within the campground and appears to be preventing spread while populations treated only within the last two years along trails above the campground show lower levels of thinning. The State Park sites are also hot and dry, which may be contributing to treatment success

Yellow toadflax treatment continues to be a slow process. Areas with the longest history of consistent treatment show reduced population size and significantly less percent cover, which is expected given the extensive root system of this species. Similar to leafy spurge, yellow toadflax populations in hot, dry, and exposed conditions generally respond better to treatment than those in forest shade or near Midway Reservoir, where cooler temperatures and moister soils may facilitate stronger plants. The greatest challenge lies in ensuring all populations receive annual treatment to prevent recovery of these perennials. The vast distribution of this species within the project area and the continuous discovery of new, often large populations make comprehensive annual treatment impossible. Remapping populations, particularly in hotter, drier habitats, would help clarify where progress is being made versus wetter areas that may need to be approached with containment rather than eradication as a management goal.

CONCLUSION

Our three target species continue to fit in different control categories. Myrtle spurge remains at an early stage EDRR status. The number and size of populations are small, particularly on public and semi-public open space lands making them the highest priority for control.

Leafy spurge remains limited in Summit County, though areas of extensive invasion exist along Chalk Creek, and substantial populations are present just across the county line in Wasatch County, where control efforts have been ongoing for many years. Prior to recent fires, Wasatch County had greatly reduced some of the largest populations in the State Park, but the fires released dormant seed and facilitated reinvasion.

Treatment of all the known populations is expensive making annual treatment at each population unlikely. Therefore a prioritization criterion is essential to determine which populations to treat and which must wait for other funding sources or actions by local landowners. Because known populations are on both private and publicly owned lands and the ISM funds are public funds, public lands will generally be prioritized over private property. Private lands will be prioritized based on the likelihood of eradication and the potential for population spread. Populations along creeks, trails and roads have the greatest likelihood for spread, therefore will be highest priority.

Yellow toadflax distribution is extensive and expanding as more natural lands are disturbed for recreation amenities such as expanded trailheads, rerouted trails, and new trails. Prioritization criteria for this species are more difficult than for the other two. Within Snyderville Basin and Park City, populations are small and ideal for EDRR, but many are remote trailside locations making treatment costly due to access. The larger populations of Bonanza Flat and Midway Reservoir are easier to access and allow for treatment of a far greater number of acres. Additionally, these larger population have a longer history of treatment where discontinued treatment would result in reinvasion and lost ground. Finding a balance in treating both situations is needed to protect progress and prevent further spread.

Also needed to prevent further spread via recreation are policies requiring weed management plans before, during, and for three - five years after installation of new trails. If trails are installed and maintenance continues to focus only on rebuilding trail features and removing down trees and brush overgrowth, containment and control of yellow toadflax will become impossible. Landowners with recreational trail systems need to develop policies to prevent weed spread and hold trail builders and maintenance crews accountable. Park City and Snyderville Basin Special Recreation District have policies other public landowners could reference, South Summit Trails contracts weed control crews annually and new policies being implemented by Mountain Trails Foundation are all examples of recreation associated noxious weed

management options.

FINANCIAL UPDATE

The Summit CWMA Yellow Toadflax and Spurge Program was awarded \$29,000 for the FY2026 state fiscal year (2025-26). In addition, \$4,658.41 was carried over into the spring from the 2025 state fiscal year grant funds. Of that budget, \$13,222.27 remains to roll over into spring of 2026 and be spent before June 30, 2026. In addition to the ISM Grant funding, this project was funded by a BIL grant totaling \$29,000, of which \$25,928.80 was spent in 2025 with the rest spent in 2024. Additionally, the North Summit Soil Conservation District ISM Grant contributed \$16,581.25 towards leafy Spurge treatment in Chalk Creek. Partner in-kind matches total \$47,610.06

Match - Partner or Funder	Description	Match
Summit Conservation Dist. - ISM Grant	Treatment of Leafy Spurge in chalk Creek and multiple species on the Swaner Preserve Uplands.	\$16,581.25
BIL Grant 2024-25 Yellow Toadflax and Spurge Program	Inventory and control of yellow toadflax and leafy spurge in Summit and Wasatch Counties.	\$25,928.80
Park City Municipal Corporation	Control of yellow toadflax in Bonanza Flat	\$ 4,500.00
Snyderville Basin Special Recreation Dist.	Control of Myrtle spurge at Toll Canyon, UOP and High Ute Trail	\$ 600.00

Total Match

\$47,610.05

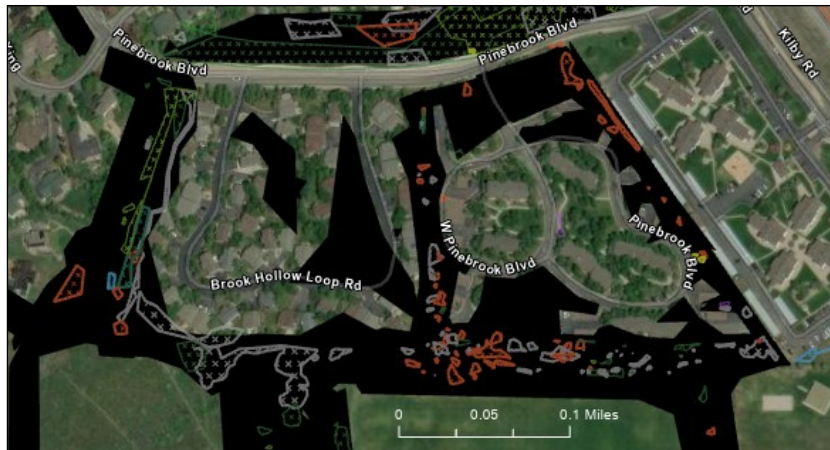
ON GOING, ACTIVE RESTORATIONS

Ecker Hill Leafy Spurge Project:



Control of leafy spurge and white top in the open space between Ecker Hill Middle School and Pinebrook HOA has reduced spurge cover to below 10% and white top cover to below 20%. Revegetation efforts have included soil amendments in areas of bare ground and seeding with native grass seed mixes. Wildflowers and limited woody species have also been seeded in areas where Rocky Mountain penstemon voluntarily expanded at the site. The individually seeded species include: needle and thread Grass (*Hesperostipa comata*), silvery lupine (*Lupinus argenteus*), Rocky Mountain bee plant (*Cleome serrulate*), prairie sage (*Artemisia ludoviciana*), Mexican hat (*Ratibida columnifera*), western yarrow (*Achillea millefolium var. occidentalis*), Lewis flax (*Linum lewisii*) and blanket flower (*Gaillardia aristate*).

Left Top: Bunchgrasses have replaced the majority of leafy spurge and white top populations on the west side of the site. Lower Left: Black areas are the historic distribution of spurge and white top, reddish orange areas are current leafy spurge, gray is white top and greens are thistles. Lower Right: soil amendment being applied to some remaining bare ground patches of the site.



PROGRAM REVEGETATION SEED MIXES

Revegetation uses seed mixes tailored to site conditions and soil amendments. The Dry Mountain Native Bunchgrass mix is most commonly used, often supplemented with the Foothills Native Bunchgrass mix.

Dry Mountain Native Bunchgrass Mix		
Common Name	Latin Name	% Mix
Mountain Brome	<i>Bromus marginatus</i>	25
Slender Wheat	<i>Elymus trachycaulus</i>	10
Western Wheat Grass	<i>Pascopyrum smithii</i>	15
Rocky Mt Fescue	<i>Festuca saximontana</i>	10
Thickspike Wheatgrass	<i>Elymus lanceolatus</i>	15
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i>	10
Sandberg Bluegrass	<i>Poa secunda</i>	10
Prairie Junegrass	<i>Koeleria macrantha</i>	5

Foothills Native Bunchgrass Mix		
Common Name	Latin Name	% Mix
Slender Wheatgrass	<i>Elymus trachycaulus</i>	10
Streambank Wheatgrass	<i>Elymus lanceolatus</i>	20
Arizona Fescue	<i>Festuca arizonica</i>	10
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i>	5
Switchgrass	<i>Panicum virgatum</i>	10
Big Bluestem	<i>Andropogon gerardii</i>	10
Yellow Indiangrass	<i>Sorghastrum nutans</i>	10
Blue Grama	<i>Bouteloua gracilis</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>	5

SUMMIT CWMA YELLOW TOADFLAX AND SPURGE CONTROL PROGRAM 5 YEAR PLAN

2026

In 2026, all Myrtle spurge populations on public lands will be the highest priority for treatment. Following a number of years of treatment since first observed, all of these populations will be remapped for updated distribution data and maps.

Given the significant distributions of both leafy spurge and yellow toadflax along with the suspicion that we have not identified the full extent of these species within our project area, the Summit CWMA is reassessing priorities in 2026. In order to effectively do this, monitoring and remapping of populations that have received 3 or more years of treatment. It is necessary to identify where the greatest progress has been made and update distribution maps to the extent funding allows.

With the new campground going in at Wasatch State Park, partnering with the park to map weeds and treat in areas of new disturbance and proposed recreation areas will be a priority to prevent future weed problems for the state park .

Treatment will focus on the farthest extent of species distributions, along trails and areas we know significant progress has been made.

GOALS:

Inventory: 50 ac

Monitor: 400 ac

Treat: 145

Revegetate: Maintain Current Revegetation Sites

2027 and Beyond...

Goals for 2027 and beyond will be determined after 2026 reassessments of species distributions and resulting reprioritizations. Treatment of all Myrtle Spurge will continue and vectors of spread and invasion fronts of these species will remain highest priority.

2021

Inventoried: 334 ac Wasatch State Park

Treated: 23 ac

New Partners: Wasatch County Weed Dept., Wasatch State Park

2022

Inventoried: 226 ac Wasatch State Park

Treated: 31 ac

Biocontrol: 5 leafy spurge agent releases

Revegetation: 2ac Ecker Hill

New Partners: Park City School Dist.

2023

Inventoried: 591 ac Wasatch State Park, Midway Reservoir, Coyote Trail System, Chalk Creek/Southfork Creek

Monitored: 5 transects

Treated: 26 ac

Biocontrol: 0 releases due to ant predation in 2022.

Revegetation: 2.5 ac Maintaining Ecker, New - Utah Olympic Park, Toll Canyon, King Rd

New Partners: Wasatch CWMA

2024

Inventoried: 261 ac & 39 miles trails: Bonanza Flat, Wasatch State Park Trails, 910 Ranch

Monitored: 5 transects and 98 ac monitored

Treated: 121 herbicide, 5 ac mechanical

Biocontrol: 0 releases

Revegetation: 1.2 ac Maintaining/enhance previous

New Partners: Mountain Trails Foundation, South Summit Trails Association , North Summit Soil Conservation Dist.

2025

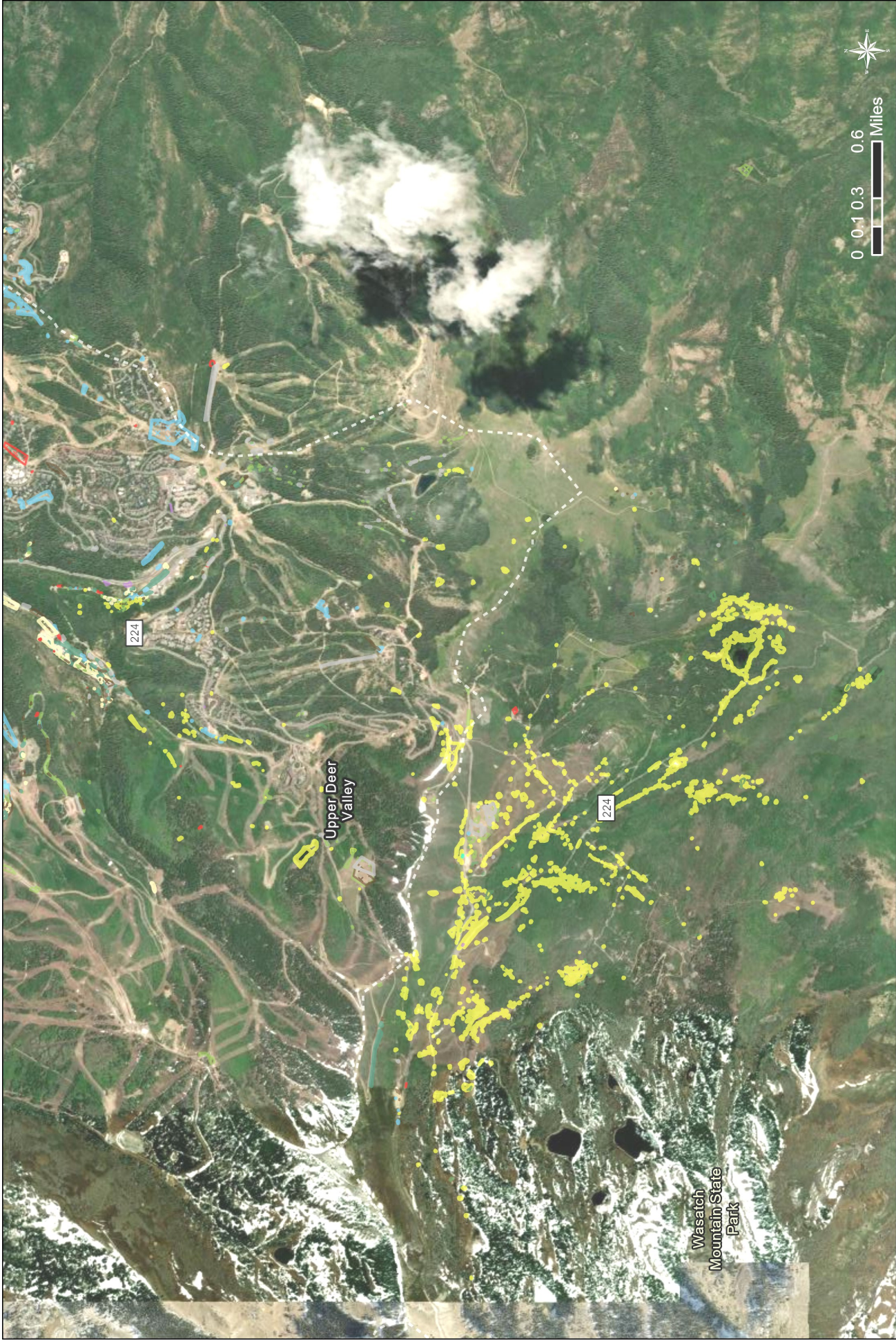
Inventoried: 159 acres 21 miles trails

Monitored: 3 transects and 13 ac monitored

Treated: 72 ac herbicide, 1.5 ac mechanical

Biocontrol: 0 releases

Revegetation: 0.05 ac Enhance previous



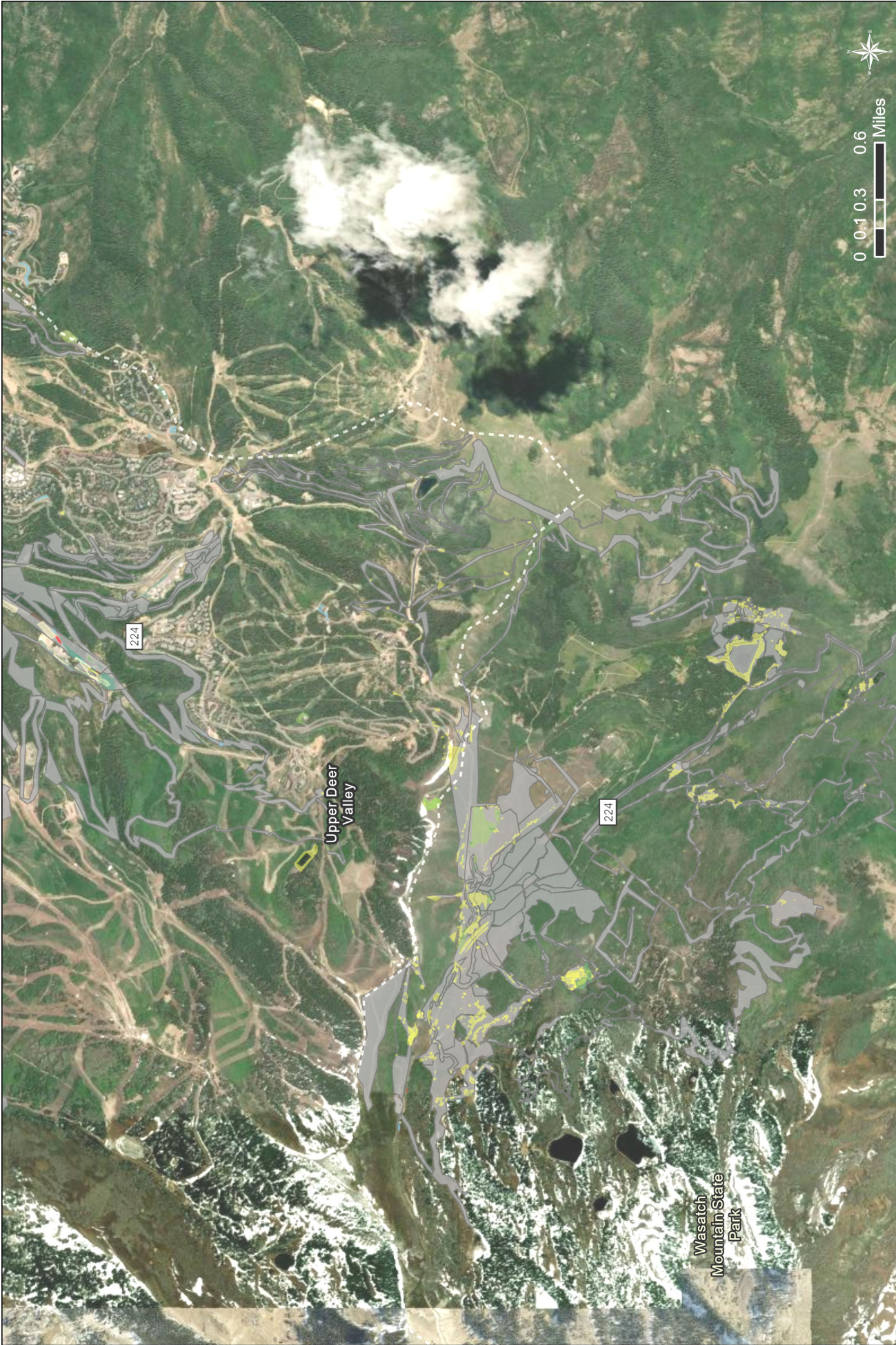
Summit CWMA 2025 ISM Report
Yellow Toadflax and Spurge Program
Deer Valley, Bonanza Flat and Midway Reservoir
 Noxious weeds mapped since the Summit CWMA programs expanded in 2019.

- CWMA 2025 Known Locations**
- Spotted Knapweed
 - Diffuse Knapweed
 - Yellow Starthistle
 - Yellow Toadflax
 - Dalmatian Toadflax
 - Musk Thistle
 - Canada Thistle
 - Dyers Woad
 - Yellow Starthistle
 - Yellow Starthistle

- Garlic Mustard
- Houndstongue
- Scotch Thistle
- Phragmites
- Other

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



Summit CWMA 2025 ISM Report
Yellow Toadflax and Spurge Program
Deer Valley, Bonanza Flat and Midway Reservoir
 Areas inventoried and noxious weeds treated in 2025.

- CWMA 2025 Treatment Areas**
- Canada Thistle
 - Garlic Mustard
 - Phragmites
 - Musk Thistle
 - Houndstongue
 - Dyers Woad
 - Dalmatian Toadflax
 - Yellow Toadflax
 - Spotted Knapweed
 - Russian Knapweed
 - Yellow Starthistle
 - Inventoried Areas

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



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Yellow Toadflax and Spurge Program
Wasatch Mountain State Park Campground
 Noxious weeds mapped since the Summit CWMA programs expanded in 2019.

- CWMA 2025 Known Locations**
- Yellow Toadflax
 - Leaty Spurge
 - CWMA 2025 Known Locations

- Myrtle Spurge
- Dalmation Toadflax
- Musk Thistle
- Canada Thistle
- Dyers Wood
- Garlic Mustard
- Houndstongue
- Other

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Summit CWMA 2025 ISM Report
Yellow Toadflax and Spurge Program
Wasatch Mountain State Park Campground

Areas inventoried and noxious weeds treated in 2025.

- CWMA 2025 Treatment Areas**
- Yellow Toadflax
 - Myrtle Spurge
 - Garlic Mustard
 - Leafy Spurge
 - Leafy Spurge
 - Inventoried Areas

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

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