

Summit CWMA Yellow Toadflax and Spurge Control Program 2024 - 25 BIL Report

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PREPARED BY: SARA JO DICKENS, PHD
ECOLOGY BRIDGE LLC

PROJECT OVERVIEW

The Summit CWMA Yellow Toadflax and Spurge Control Program is a multijurisdictional effort to control yellow toadflax (*Linaria vulgaris*), a Class 1B noxious weed, Myrtle spurge (*Euphorbia myrsinites*), a Class 4 noxious weed, leafy spurge (*Euphorbia esula*), a Class 2 noxious weed, and to a limited degree in Wasatch County, garlic mustard (*Allaria petiolata*) a Class 1B. The project encompasses one large area stretching from Deer Valley Resort and Bonanza Flat to the base of Wasatch Mountain State Park, along with several smaller areas including Snyderville Basin, 910 Ranch, Toll Canyon,

Utah Olympic Park, King Road, and Chalk Creek in Summit and Wasatch Counties.

These invasive species outcompete native plants and degrade habitat quality, and once



Myrtle spurge at 910 Ranch

established, eradication becomes extremely difficult.

Because much of the project area consists of large, undeveloped wildland areas, the full extent of these species remains only partially known. Previous yellow toadflax mapping efforts have identified Upper Deer Valley mountain bike trails, Bonanza Flat, Midway Reservoir, and the WOW trail as the most heavily invaded areas, though populations are increasing throughout the recreational areas of Park City, Deer Valley, and Wasatch State Park. While leafy spurge is common in Wasatch Mountain State Park, it has been very limited in distribution in Summit County. Myrtle spurge is similarly limited to just a handful of populations in the project area. Garlic mustard is thought to be even more confined within the project area, with one population on Bonanza Flat and three in the Wasatch State Park campground totaling less than 0.2 acres.

The goal of this Summit CWMA program is to stop the spread of these four species by combining control and containment efforts across jurisdictional boundaries. A driving force for this dual county program is the

Project Partners

Summit County	David Bingham - Summit County Weed Supervisor
Wasatch County	Quintin Lewis - Wasatch County Weed Supervisor
Park City	Adam Smath - Trails and Open Space Ranger
Snyderville Basin	Maddie Nelson - Trails & Open Space
Deer Valley Resort	Laura Sexton - Manager Slope Maintenance Department
Ecology Bridge	Sara Jo Dickens - Principal Ecologist
Mountain Trails Association	Rick Fournier - Trails & Grooming Operations Manager
Pinebrook HOA	John Tracy - Property Manager
Park City School Dist.	Todd Hanson - Grounds Manager
Wasatch Mountain State Park	Johnathan Hunt - Park Manager, Tom Halladay

concern that extensive recreational trail use will carry yellow toadflax further into both Counties.

Collaboration between Summit and Wasatch counties is allowing us to identify and address the risks of trail associated noxious weed spread. Partnerships with a local trail association, Mountain Trails Foundation, and landowners such as Wasatch Mountain State Park, Park City and Deer Valley, are also helping us reduce weed spread by sharing weed data and adjusting trail alignments to avoid weeds or establishing BMPs for prevention of spread while crews work near or in weeds.

METHODS AND RESULTS

INVENTORY/MAPPING: Inventory efforts for new populations of yellow toadflax, Myrtle spurge and leafy spurge were focused along roads, trails, creeks and rivers, and areas adjacent to known populations. The goal of inventory is to identify population distributions and boundaries within the project area so strategic treatment plans can result in cost effective control. Weed distribution and percent cover data are collected in the field using ArcGIS Field Maps and used to direct control efforts and update EDDMaps. The 2025 goal was to inventory 150 acres, specifically along recreation trails.

The majority of inventory work targeted yellow toadflax in Bonanza Flat and Wasatch State Park, with five new trails connecting Bonanza Flat, Deer Valley East, and Wasatch Mountain State Park receiving assessment. Before August 2025, crews inventoried a total of 143 acres and 15 miles of trail. Within that 143-acre area, new populations of yellow toadflax, leafy spurge, and Myrtle spurge were mapped and documented for future treatment prioritization.

MONITORING: Previously mapped populations and long-term monitoring sites are monitored to track treatment progress and update EDDMaps data. Long-term monitoring sites include transects of 70 feet in length monitored with the line intercept method and, at some sites, 2x2 foot plots established every 10 feet along the transect to track changes in both weed cover and native plant cover. New EDDMaps points are added



Yellow toadflax transect at Midway Reservoir

as new populations of these four species are discovered, and older points are updated to the extent possible.

In 2025, transects for yellow toadflax at Midway Reservoir and leafy spurge at Wasatch Mountain State Park Campground were monitored, along with garlic mustard monitoring in the campground where no garlic mustard was found. Most EDDMaps points in the focus areas of Midway Reservoir and the campground were monitored, new locations on the trails have been added, and additional monitoring continued later into the season in Bonanza Flat. In general, sites receiving consistent treatment have smaller toadflax and spurge populations which are also less dense. Due to the extensive root systems of these species, control is a long-term commitment and consistency is critical to reach eradication.

HERBICIDE APPLICATION: Herbicide treatment targets yellow toadflax using Telar or a 2,4D and Milestone combination during the late vegetative and flowering stages, while Myrtle spurge and leafy spurge are treated at all stages prior to seed set using 2,4D and Milestone. In 2025, the goal was to treat 25 acres of yellow toadflax and spurge. Through the BIL and ISM grants,



Ecker Hill leafy spurge revegetation site had less than 10% cover of leafy spurge by 2021 (left) but white top was rapidly replacing the spurge. By 2022 (middle) the white top dominated the site, but continued herbicide treatments and revegetation reduced both noxious weed species to below 15% cover by 2024. In 2025 (right), patches of bare ground continue to be treated with soil amendment and native seeding annually to establish dense native cover.

crews exceeded this target by treating a total of 44 acres, including 3 acres of Myrtle spurge, 18 acres of leafy spurge, and 23 acres of yellow toadflax.

MECHANICAL TREATMENT: Six Myrtle spurge populations are now hand weeded annually due to their remote locations, small size, and minimal cover. With spurge cover at these sites below 5%, revegetation efforts are now in progress. For garlic mustard control, dead oak brush was thinned and removed to create access for spot spraying in the State Park, followed by herbicide treatment in 2024. By 2025, garlic mustard was no longer present at the site.

REVEGETATION: Once weed populations have been reduced to less than 20% or large weed-free patches develop, native bunchgrass seed mixes are broadcast seeded in the fall to take advantage of natural soil moisture during spring snowmelt. When funding allows and soils are poor or previous revegetation efforts have had poor results, soil amendments consisting of compost and/or topsoil (80%) mixed with biochar (20%) are applied prior to seeding to increase germination and seedling establishment.

At the Ecker Hill Middle School revegetation site, smaller patch-sized islands and patches near the edge of areas already showing reestablishment of natives were treated with soil amendment prior to seeding. Working from the edge of successful revegetation islands allows

for manageable annual efforts and enables rapid shifts in treatment if noxious weeds germinate in revegetated areas. Overall, leafy spurge at this site has been reduced to 10% of its original cover and hoary cress to 15% of its higher coverage level. Rocky Mountain penstemon is reestablishing on its own, and to increase diversity and pollinator habitat quality, individual wildflowers were seeded into bare ground areas along with native bunchgrass, 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 aristata*).

The Utah Olympic Park, Kings Road, and Toll Canyon Myrtle spurge revegetation sites show minimal increases in seeded native grasses, though natives from natural populations appear to be creeping in from adjacent areas at the Toll Canyon site. These sites experience drier conditions with more extreme sun exposure, making establishment of seeded species difficult. Given that Myrtle spurge is minimal and continues to decline and seeding has had limited impact regardless of soil amendments, future management will be limited to continued control of spurge and monitoring to ensure no new weeds establish.