



Summit CWMA

2020 ISM 203795 & UWSA - USFS 202006DG18

Basin-Pinebrook Noxious Weed Control Report

Prepared November 2020

Prepared for

ISM Program

Division of Plant Industry and Conservation

Utah Department of Agriculture and Food

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Utah Weed Supervisors Association

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Summit CWMA : 2020 ISM Basin-Pinebrook Noxious Weed Control Report

PROJECT DESCRIPTION

One of the greatest challenges many of the Summit CWMA partners face in their weed control programs is the failure of adjacent landowners to control their weeds. Often this failure stems from a lack of awareness. The Snyderville Basin Special Recreation District (the District), a Summit CWMA partner, borders the Pinebrook Community. This community is known to have a number of noxious weeds and was not aware of most of them and therefore was not controlling them. Because the Pinebrook Community borders the District, noxious weed problems within Pinebrook have become a problem for the District and threaten the Forest Service and Salt Lake Watershed forested adjacent lands. Due to efforts by the Summit CWMA to include HOAs in their ISM Garlic Mustard Control Program, the Pinebrook Master HOA became aware of the many noxious weeds within their open space and residential properties which motivated them to take action. Without an in house weed control program, they requested assistance.

Monitoring and control work conducted in 2018-2019 by the District and the Summit CWMA had identified approximately 77 acres of known noxious weeds on District property and approximately 35 acres in the Pinebrook HOAs.

This project is a collaboration between the Summit CWMA, the District, Summit County (both partners in the Summit CWMA) and the Pinebrook Master HOA (which represents 13 individual HOAs and is one of the newest members of the Summit CWMA) to control populations of 18 noxious weeds species (See table in Results Section for a species list). Along with controlling known weed populations, this project monitored lands adjacent known weed populations and heavily used open space. The partnership grew to include the Utah Olympic Park, Summit Center, The Colony and Swaner EcoPreserve as additional weed populations were observed and access to treat these populations was provided. While the ultimate goal is to help these landowners adjacent District property establish their own control programs, some do not have budgets for weed control and it will take time to push

Common St Johnswort Control and Restoration

This Common St Johnswort population was discovered in 2019 along with populations of spotted knapweed, yellow toadflax, tamarisk, dames rocket and oxeye daisy. In 2019, the Summit County Weed Division worked with the Summit CWMA to educate the Pinebrook HOA about these species and the County treated the site. In 2020, Summit CWMA contractors treated the site in spring. Common St Johnswort and spotted knapweed were completely removed and all other species significantly reduced. The site was cleared of weed biomass and compost was applied to prepare the site for seed. The site was seeded at that time and again in October 2020.



Before: brown area was St Johnswort



Late summer: grasses are filling in and penstemon expanded and was in full bloom

Summit Center Weed Control

The Summit Center has had a sizable noxious weed issue for many years. In previous years, the Summit CWMA tried to contact the landowner with no luck. In 2020, the Summit County Weed Division obtained the necessary contact and facilitated this new partnership to address spotted knapweed, white top, Dyer's woad, and limited patches of musk, Scotch and Canada thistle. All of these species had spread into the adjacent District and Swaner Eco Preserve open space and had reached the banks of East Canyon Creek where their spread could be expanded to downstream lands including many range lands and forests.



this new expense and a plan through their boards. It is likely an additional year of funding will be needed to ensure continued forward movement.

METHODS

Seventeen noxious weeds were controlled using manual removal, herbicide, biological control agents and revegetation as appropriate depending on the species, growth stage and community/natural resource limitations. Hoary cress/white top, garlic mustard, common burdock and houndstongue were treated with 2,4D, spotted knapweed, the thistles and oxeye daisy were treated with Milestone and 2,4D, leafy spurge and Myrtle spurge were treated with Tordon and phragmites, and any other weed species present in aquatic situations were treated with Aquanet. Hand removal was limited to flowering plants of garlic mustard and thistle and houndstongue once seed developed.

Through a related project, the Summit County Weed Division provided *Aphthona spp* for the control of leafy spurge as they have for the last two years. However, herbicide treatment had killed the population normally treated with biological controls so the County released the *Aphthona spp* into a new adjacent population for which we did not have consent to use herbicide.

In areas where control efforts have shown significant success, reseedling of native grasses was conducted. Seed was hand broadcasted in October 2020 and gently raked into the soils (when steep slopes or patchy shrubs

Native Mountain Grass Seed Mix

- 20% Slender Wheatgrass (*Elymus trachycaulus*)
- 20% Streambank Wheatgrass (*Elymus lanceolatus*)
- 20% Mountain Brome (*Bromus marginatus*)
- 14% Blue Wildrye (*Elymus glaucus*)
- 9% Big/Sandberg Bluegrass (*Poa secunda*)
- 5% Arizona Fescue (*Festuca arizonica*)
- 5% Prairie Junegrass (*Koeleria macrantha*)
- 5% Tufted Hairgrass (*Deschampsia cespitosa*)

Project Partners

Utah Department of Agriculture and Food	Park City School District	Swaner Eco Center
Deer Valley Resort	Pinebrook Master HOA	The Colony HOA
Ecology Bridge	Ranch Place HOA	Utah State University Extension
Ecshenfelder Landscaping	Snyderville Basin Special Recreation District	Utah Olympic Park - Park City
Ground Solutions	Summit County	Utah Weed Supervisors Association
Park City Municipal Corporation	Summit Park and Timberline HOAs	Woodward School
Jeremy Ranch HOA		

did not prevent it). Where appropriate, a biochar/compost mixture was applied on top of the seed approximately a quarter inch deep. In the Pinebrook Common St Johnswort revegetation location, compost was applied at approximately 3 inches prior to seeding. This was also the only location that was seeded in the late spring and again in October and the only site that received irrigation as the Pinebrook HOA already had an irrigation system at the site prior to the weed control and revegetation.

Control actions and revegetation were mapped using Arc Collector to create digital maps and track data over time. In addition, EDDMaps data are updated manually for noxious weed populations treated through this project and a shapefile was provide to the Utah Department of Agriculture and Food for the ISM grant program.

RESULTS

In total, 18 noxious weeds species were treated through this project during the 2020 growing season. That included 75 acres of treatment, as well as, 11 acres reseeded. In addition, 974 acres were monitored and weeds mapped (See map). Most treatment areas showed high die off of noxious weeds, yet some areas needed more than one treatment due to the perennial nature of some species and establishment of new rosettes mid season by biennial species. Three local contractors were used to accomplish the work, Ground Solutions, EcoLawn and

Utah Olympic Park

Phragmites Control

The Olympic Park (UOP) has had several populations of Phragmites , but did not know the extent to which it was spreading and where its source populations was. Summit CWMA assisted in monitoring the phragmites along with other noxious weeds including spotted knapweed. This monitoring effort located what may be the source population on the UOP property and mapped over an acre of phragmites. Through this project, all phragmites populations along with 10 other noxious weeds were treated in the most disturbed portions of the UOP property. The UOP is planning to contact Ecology Bridge this winter to discuss developing an in-house control program.



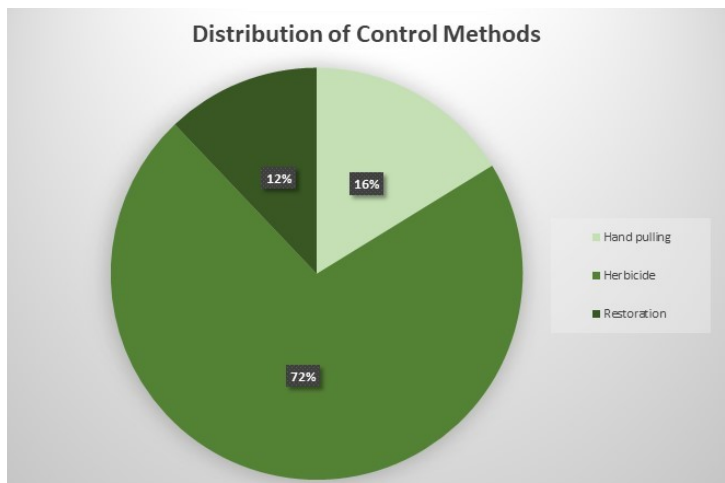
Pinebrook Leafy Spurge and White Top Weed Control

These leafy spurge and white top populations have been expanding for a number of years. Summit County Weed Division has been treating the leafy spurge with herbicide for 5 years and added biological control agents 2 years ago to help contain the population as herbicide treatment continues. In 2020, Summit CWMA contractors treated the leafy spurge and white top populations with herbicide. This treatment appears to have killed 90% of the above ground portions of leafy Spurge. Retreatment will likely be needed next year as this plant has a substantial root system that often requires several years of treatment. This treatment effort required participation from the Park city School District, two HOAs, three residents, the Summit County Weed Division and the Summit CWMA. These partners are committed to continuing these efforts into 2021.



Ecology Bridge, along with work completed by District and Summit County Weed Division staff.

The District also used grazing to treat 14.68 acres in Toll Canyon to address Canada thistle, musk thistle, common burdock and garlic mustard, as well as 60 acres in Willow Creek to control Canada thistle, Dyer’s woad, hoary cress/white top and garlic mustard. In addition to acres treated as a direct match to this grant, District crews have also treated over a 100 acres of noxious weeds in sagebrush and forested habitat. Summit County staff applied



Species	Acres Controlled
Canada Thistle	2.553
Chamomile sp.	0.523
Common Burdock	0.002
Common St. Johnswort	0.001
Dalmation Toadflax	0.037
Dyers Woad	2.970
Garlic mustard	32.954
Hoary Cress	15.246
Houndtongue	0.562
Leafy Spurge	2.171
Musk Thistle	9.372
Myrtle Spurge	0.710
Oxeye daisy	0.035
Phragmites	2.098
Russian Knapweed	0.432
Scoth Thistle	0.229
Spotted Knapweed	5.149
Yellow Toadflax	0.002
Total	75.092

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Goats grazing at Willow Creek were brought in to target the noxious weeds Canada thistle, Dyer's Woad, garlic mustard, Hoary cress/white top and also prickly lettuce which has become increasingly common in open space areas that had previously been in agriculture use. In the case of Willow Creek, the site had been historically grazed and cropped. Removal of grazing likely played a partial role in releasing many of these weeds.

herbicide to known priority populations and, as part of parallel projects to the Summit CWMA 2020 ISM Basin-Pinebrook Noxious Weed Control project, they released biological controls for leafy spurge and spotted knapweed.

Open and regular communication between the Summit CWMA crews and staff of the District and Summit County was critical to the success of this project. Knowing where new populations had been found along with who had treated what weeds and in what locations allowed for more populations to be treated and avoid double treatments. It also helped to direct fall season treatments as crews were all working to get to perennials one last time as they were going dormant. In addition, the Summit County Weed Enforcement Officer facilitated treatment in several new properties by contacting the land owner and connecting them to the Summit CWMA. These partnerships allow for a more efficient use of weed control dollars and shows a unified effort in weed control in Summit County.

FINANCIALS

This project received the majority of it's funding from two grants, \$22,000 through the ISM grant and \$8,000 from the Utah Weed Supervisor Association along with \$88,000 worth of grazing control and fire mitigation from the District. In addition, the District matched a portion of the grants with staff hours, chemical and equipment and the

Pinebrook HOA

Multiple Species Control and Reseeding

Near the top of the Pinebrook HOA a road cut had become invaded with black henbane, Dyer's Woad, hoary cress/white top, musk thistle and Scotch thistle. This site was treated once by Summit County crews and again by Summit CWMA contracted crews. The site was then reseeded with native grass in the fall. During this fall visit, there were significantly fewer rosettes of thistles and Dyer's woad, no regrowth of hoary cress and black henbane. This was a dry season so germination may also have been limited by a lack of precipitation, but there were rosettes of some species present so it is possible the low rosette number may be an indication of treatment success. The Summit CWMA will continue to watch this site and report on it in 2021.



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Summit Weed Control Division provided staff time to support project efforts. In addition, Summit County acted as the fiscal agent for the ISM grant and the District was the fiscal agent for the UWSA grant. Because the Summit CWMA is not a non-profit at this time, these partnerships with local government enable increased grant opportunities for noxious weed control locally.

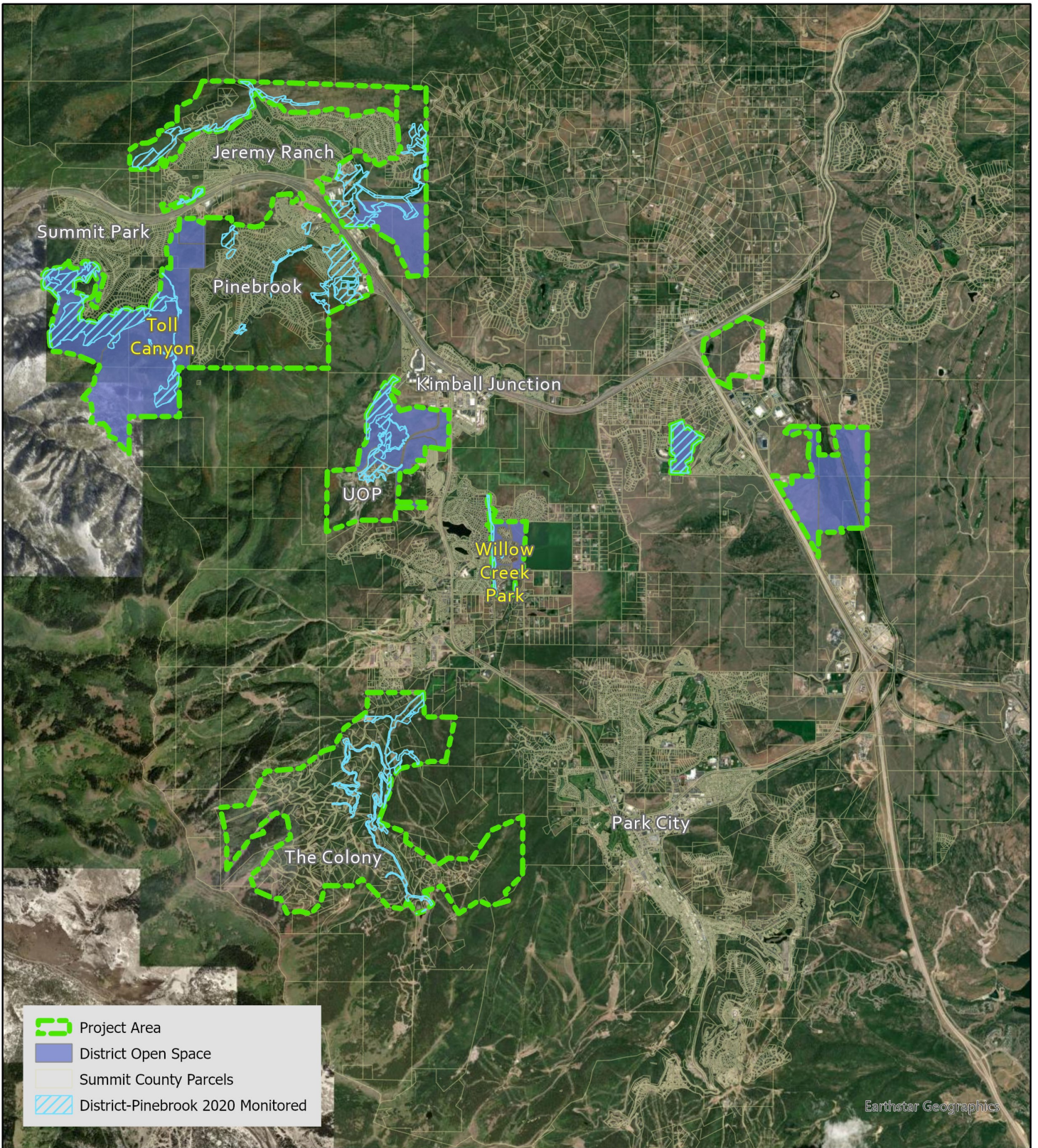
The project was funded through two grants, the Utah Department of Agriculture and Food's Invasive Species Mitigation Grant and the Utah Weed Supervisors US Forest Service Forest Protection Grant. Together, these two grants funded 26% of the project. The remaining costs were funded by Snyderville Basin Special Recreation District, Summit County Weed Division and Ecology Bridge LLC. In all the project cost \$120,614.25.

Labor	Services	Invoice Amount	Funding Source
Supplies (Treatment 3 - Revegetation)	Seed and Soil Amendments	\$2,192.50	ISM
Labor (Treatment 2 - Herbicide, Treatment 1 Weeding and Monitoring and Treatment 3- Revegetation)	Herbicide Contractor, Hand Weeding/Monitoring and Revegetation Contractor	\$17,602.50	ISM
Herbicide (Treatment 2 - Herbicide)	Milestone and Weedmaster	\$331.00	ISM
Administration (17 - Administration)	Project Management, Reporting and Fiscal Agent	\$2,192.00	ISM
Labor	Herbicide and mechanical control, Crew supervision, Mapping, Monitoring, Data analysis	\$6,225.50	UWSA USFS
Supplies	Seed, Soil amendment	\$976.50	UWSA USFS
Herbicide	Milestone	\$71.00	UWSA USFS
Administration	Project management, Reporting and Fiscal Agent	\$727.00	UWSA USFS
Administration	Project Management, Reporting and Fiscal Agent	\$1,856.25	Ecology Bridge
Labor	Control of Myrtle Spurge and Phragmites: Staff hours @\$22/hrs	\$440.00	Summit County
Grazing	Goat grazing of noxious weeds	\$88,000.00	Snyderville Basin Special Recreation District
Total		\$120,614.25	
ISM Funds		\$22,318.00	(19%)
UWSA USFS		\$8,000.00	(7%)
Government Match		\$88,440.00	(73)
Private Match		\$1,856.25	(2%)

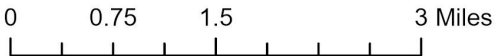
CONSLUSION

Due to the funding from the Utah Department of Agriculture and Food and the Utah Weed Supervisors Association, the Summit CWMA was able to leverage partner funds to identify and control 18 noxious weeds species bring on five new partners and provide outreach efforts to increase noxious weed awareness in the Snyderville Basin. The Summit CWMA will continue to monitor the Common St Johnswort revegetation area and report on it in one of the Summit CWMA 2020-21 ISM reports in a section reserved for smaller Summit CWMA projects. The District will continue to treat the noxious weeds on their property and monitor for new populations. The Summit CWMA will work with the Utah Olympic Park this winter to aid them in establishing a formal weed control program and both the Pinebrook Master HOA and Utah Olympic Park have committed to being active partners in the Summit CWMA.

In addition, in recent meetings with the Kamas and Summit Conservation Districts, the conservation districts voiced interest in increased communication with the Summit County Weed Division and Summit CWMA to identify opportunities to partner in addressing noxious weeds on the eastern side of the County. The Kamas Conservation District was particularly interested in the increasing Phragmites distribution and control plans. These conversations may offer opportunity to increase County wide assistance and the participation of the Summit County Weed Division can continue facilitate growing partnerships.



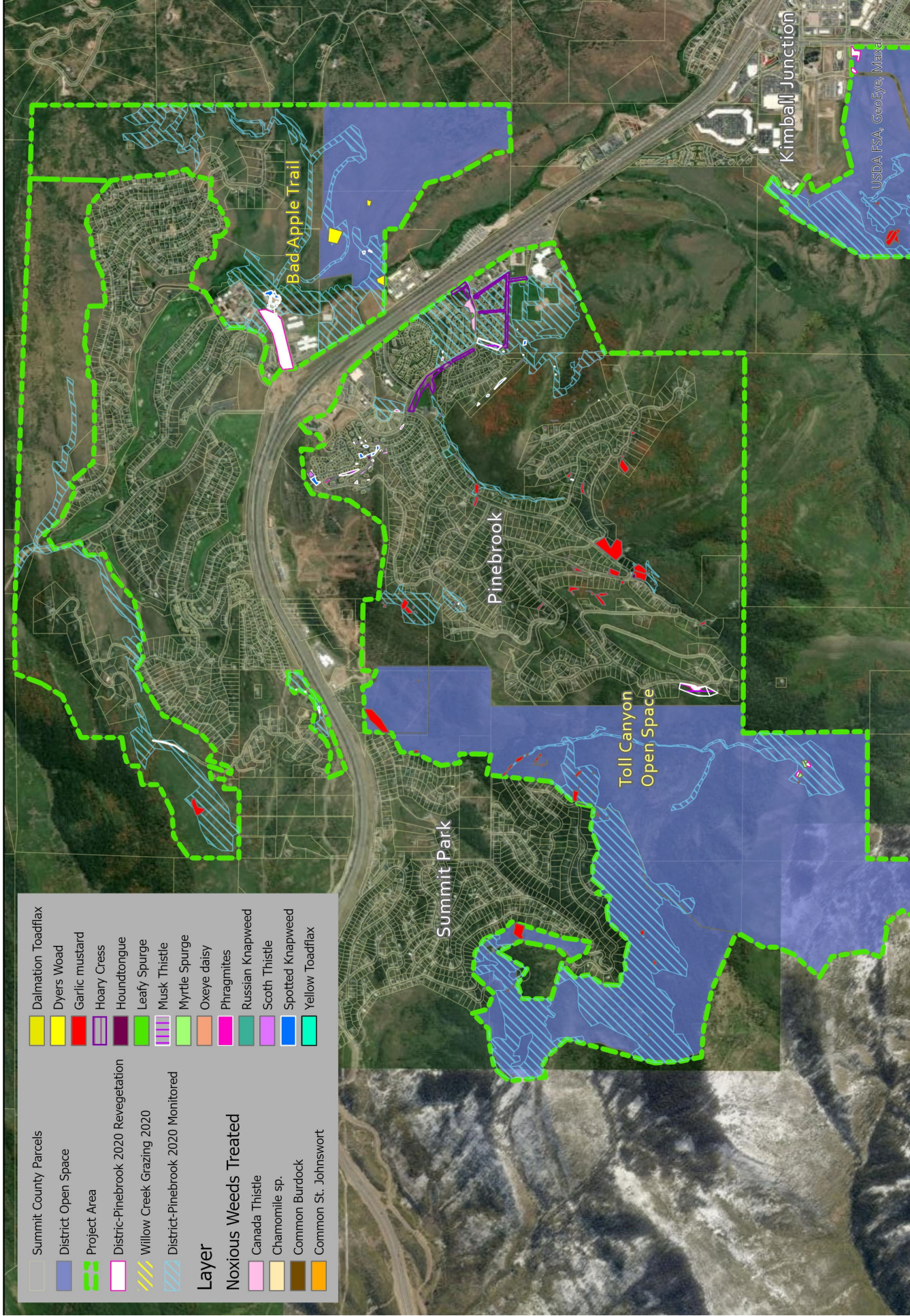
Snyderville Basin Special Recreation District and Pinebrook Noxious Weed Control Program Location Map 2020



The project site spans the width of the Snyderville Basin approximately 5 miles northwest of Park City, UT and 15 miles east of Salt Lake City, UT. The project encompasses the Snyderville Basin Special Recreation opens space lands, some of Summit County's property and right of ways and the lands of several adjacent private landowners.



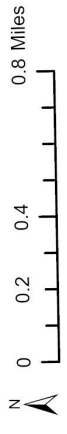
Map prepared: November 3, 2020; By Sara Jo Dickens PhD, Ecology Bridge LLC, jo@ecologybridge.com

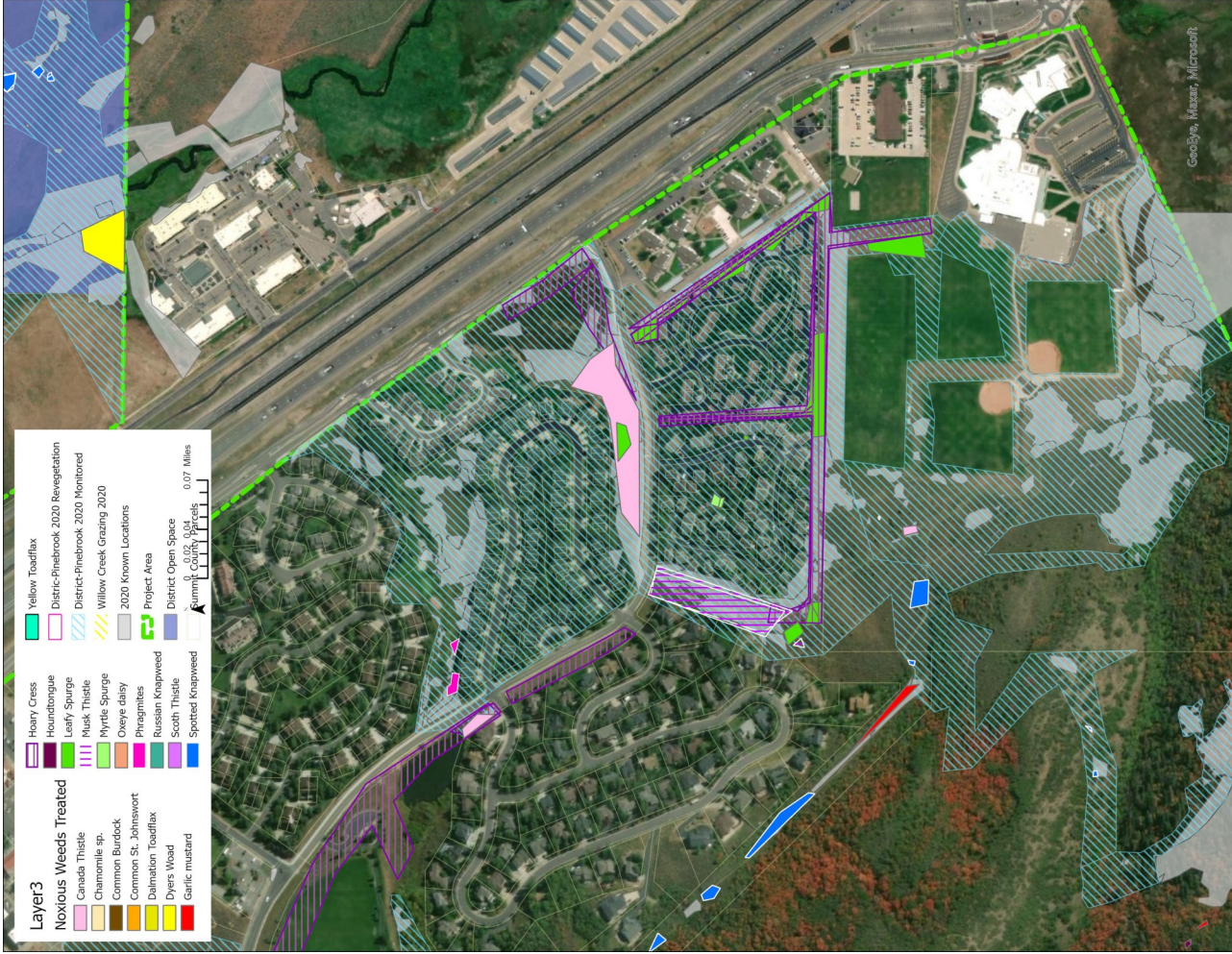
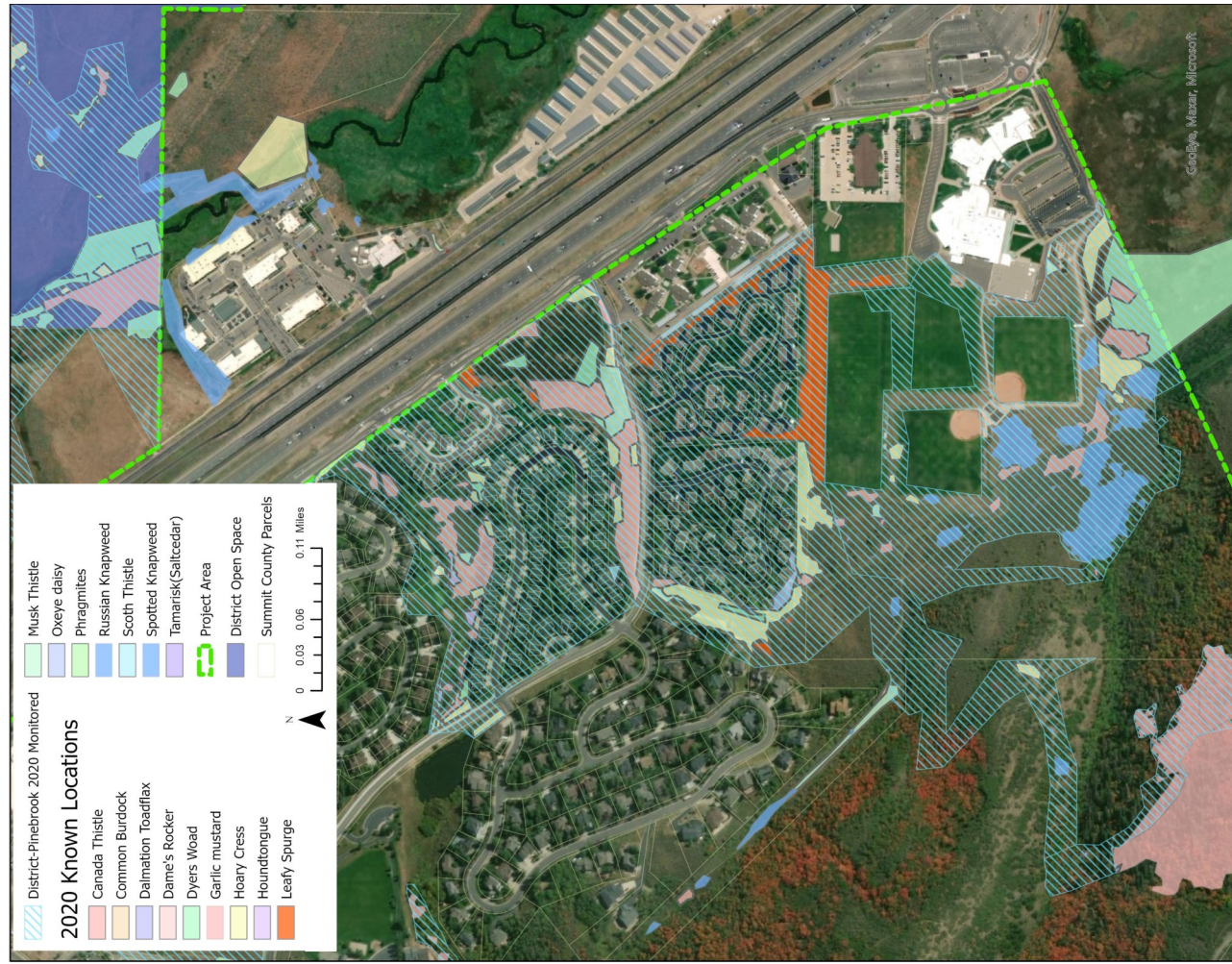


- | | |
|--------------------------------------|--------------------|
| Summit County Parcels | Dalmation Toadflax |
| District Open Space | Dyers Wood |
| Project Area | Garlic mustard |
| District-Pinebrook 2020 Revegetation | Hoary Cress |
| Willow Creek Grazing 2020 | Houndtongue |
| District-Pinebrook 2020 Monitored | Leafy Spurge |
| Layer | Musk Thistle |
| Noxious Weeds Treated | Myrtle Spurge |
| Canada Thistle | Oxeye daisy |
| Chamomile sp. | Phragmites |
| Common Burdock | Russian Knapweed |
| Common St. Johnswort | Scotch Thistle |
| | Spotted Knapweed |
| | Yellow Toadflax |

**Snyderville Basin Special Recreation District and Pinebrook Noxious Weed Control Program 2020:
Pinebrook-Summit Park Area**

Map prepared: November 3, 2020; By Sara Jo Dickens PhD, Ecology Bridge LLC, jo@ecologybridge.com

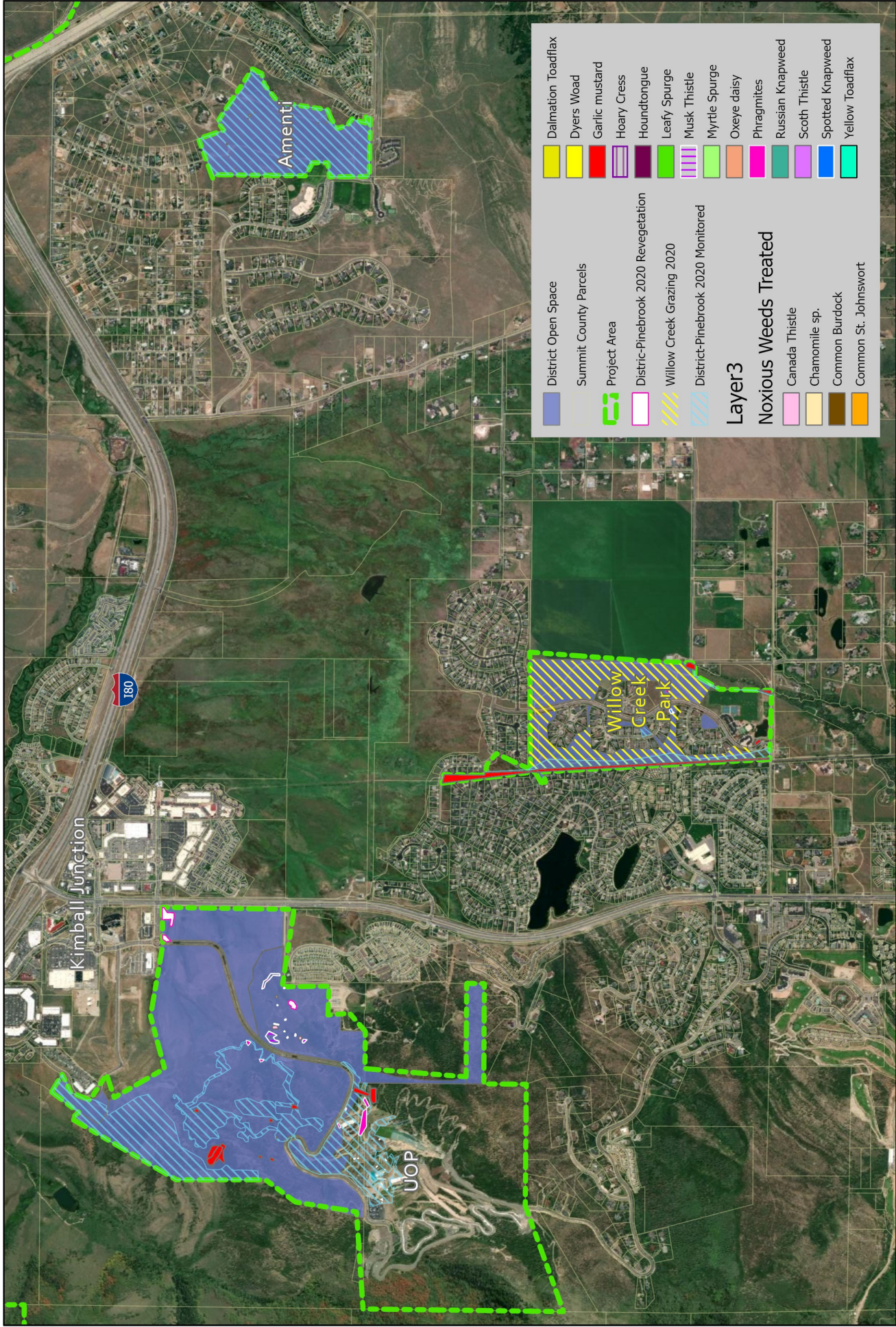




Snyderville Special Recreation District and Pinebrook Weed Control Program 2020 Lower Pinebrook Map

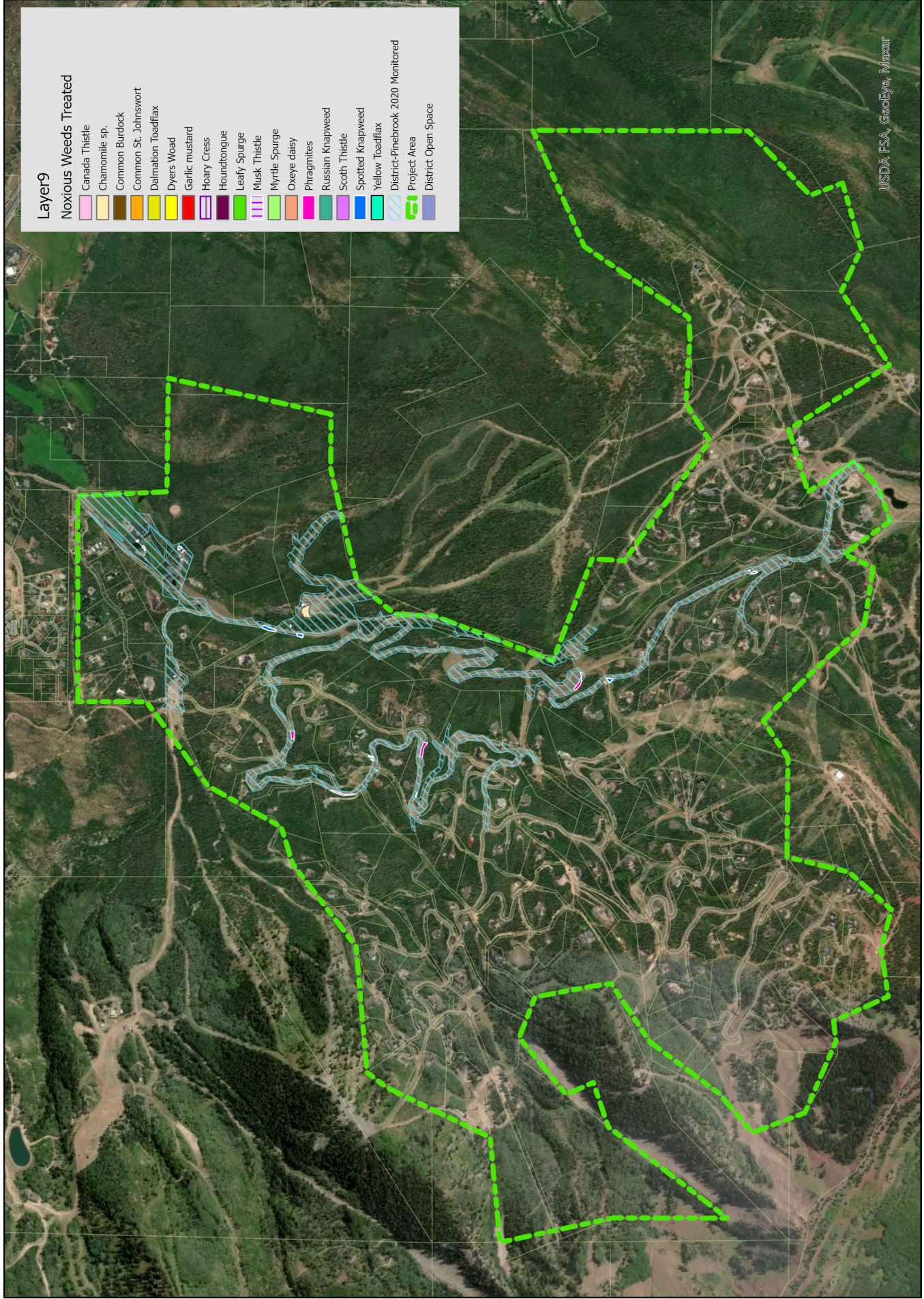
The above maps are a closer look at two of the more heavily invaded areas in the Pinebrook HOA and the Summit Center/Bad Apple Trail head across the freeway. The map on the left shows the newly mapped weeds within the 2020 monitored area and the map on the right shows the areas treated overlaid on a grey layer showing known population.

Map prepared on November 6, 2020
 By Sara Jo Dickens PhD, Ecology Bridge LLC, jo@ecologybridge.com



**Snyderville Basin Special Recreation District and Pinebrook Noxious Weed Control Program 2020
Central Snyderville Basin Section of the Project Area**

Map prepared: November 3, 2020; By Sara Jo Dickens PhD, Ecology Bridge LLC, jo@ecologybridge.com



Layer9
Noxious Weeds Treated

- Canada Thistle
- Chamomile sp.
- Common Burdock
- Common St. Johnswort
- Dalmatian Toadflax
- Dyers Woad
- Garlic mustard
- Hoary Cress
- Houndtongue
- Leafy Spurge
- Musk Thistle
- Myrtle Spurge
- Oxeye daisy
- Phragmites
- Russian Knapweed
- Scotch Thistle
- Spotted Knapweed
- Yellow Toadflax
- District-Pinebrook 2020 Monitored
- Project Area
- District Open Space

USDA FSA, GeoEye, Maxar

Snyderville Basin Special Recreation District and Pinebrook Noxious Weed Control Program 2020

The Colony Section of the Project Area

Map prepared: November 3, 2020; By Sara Jo Dickens PhD, Ecology Bridge LLC, jo@ecologybridge.com

