

# Summit CWMA

## Yellow Toadflax and Spurge

### 2022 ISM Report

January 2023

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## Summit CWMA - Yellow Toadflax and Spurge 2022 Report Project Background

### SPECIES OF CONCERN

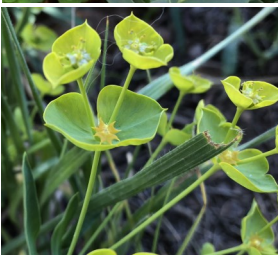
**YELLOW TOADFLAX**  
Class 1B  
Noxious Weed



**MYRTLE SPURGE**  
Class 3  
Noxious Weed



**LEAFY SPURGE**  
Class 2  
Noxious Weed



### PROJECT HISTORY

In the early 2010s, a multijurisdictional yellow toadflax program was established and implemented in Summit and Wasatch County. The program was put on hold for a few years until 2019, when increased capacity at the Summit CWMA and new ownership of a portion of the project area enabled the program to resume.

Yellow toadflax populations previously identified were revisited and mapped to guide treatment prioritization. While populations remain lower than pre 2010s, yellow toadflax is very common in Bonanza Flat and has spread into the wildlands leading into Wasatch State Park. Myrtle spurge was also thought to be gaining ground in the lower elevations of Wasatch State Park and adjacent Midway, however mapping efforts in 2021 indicate it is limited in the state park and not common in adjacent properties. Large populations of leafy spurge have been map (2021 and 2022) in both Wasatch State Park Campground and Dutch Hollow but it's extent expands far beyond that areas currently monitored.

With ISM funding, the Summit CWMA, in partnership with Wasatch State Park and Wasatch County is using GIS based mapping technological for monitoring and treatment tracking and weed control contractors to increase treatment efficiency. In addition, the Wasatch County Weed Supervisor, Quintin Lewis, in partnership with the Wasatch CWMA, directs control of additional locations of

these three noxious weeds.

Historic yellow toadflax data from Park City Municipal Corporation, Deer Valley Resort and Wasatch County (EDDMaps) was used to update the Summit CWMA noxious weed database. This data, along with direction from partners that have experience on the ground (Wasatch County Weed Control Division and Wasatch State Park), directed mapping efforts.

## METHODS

### Herbicide Application

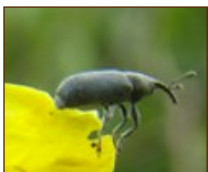
Herbicide treatment targeted yellow toadflax (Telar or 2,4D x Milestone combo) in the late vegetative and flowering stages, while Myrtle and leafy spurge were treated at all stages prior to holding seed (2,4D and Milestone).

### Mechanical Treatment

Three Myrtle spurge populations, Toll Canyon, UOP and Empire Pass were hand weeded then later treated with herbicide.

### Biological Control

Partnering with the Summit County Weed Supervisor, Utah Weed Supervisors Association and UDAF, we were able to use biological control agents for yellow toadflax and leafy spurge. Because biological controls act slowly and can not completely eradicate the weed, multiple control methods—particularly herbicide—are used alongside biological control.



*Mecinus janthinus* beetles are used for yellow toadflax control.



Leafy spurge flea beetle (*Apthona spp*) is used for Leafy Spurge Control

## PROJECT GOALS

Gain a more accurate map of yellow toadflax and Myrtle and leafy spurge distribution to direct adaptive management of these species that prevents further spread, eradicates them where possible and contains populations currently too large to eradicate.

## Mapping and Monitoring

### Invasive Species Inventory Mapping

Inventory efforts for new populations of yellow toadflax and Myrtle and leafy spurge were focused along roads, trails and areas adjacent to known populations. The goals of inventory are to track population statuses and identify population distributions and boundaries within the project area.

### Monitoring

Contractors monitored current populations and areas adjacent the known populations. The goals of monitoring are to track population statuses and treatment effects.

### Transects

Transects of 70 feet were established at Dutch Hollow and Wasatch State Park in leafy spurge populations. Yellow toadflax transects were unable to establish due to late flowering of the toadflax and the need to get treatment on the ground took priority. If funding permits, these transects will be revisited in 2023 and new transects will be established in Wasatch State Park Campground, Midway Reservoir and Bonanza Flat..

## RESULTS AND ACCOMPLISHMENTS

During the summer of 2022, 229 acres of additional land were monitored. Approximately 62 acres of leafy spurge and 0.4 acres of yellow toadflax were mapped. Small patches of both garlic mustard and yellow toadflax were also discovered in the

Known populations of the targeted noxious weeds. Each species known acres has increased, however, this increase is due to inventory work in new locations identifying additional populations.

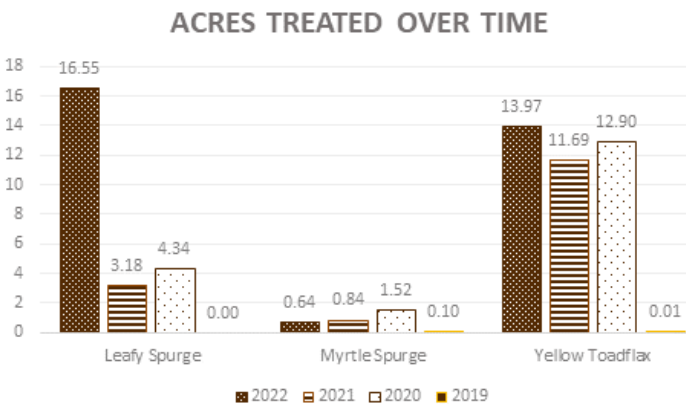
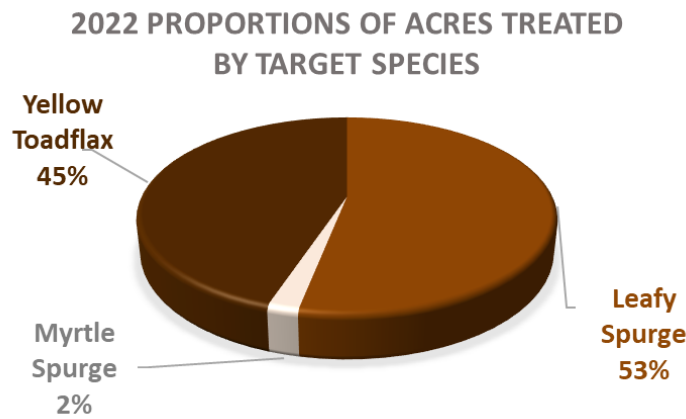
COMMON NAME	LATIN NAME	2019 ACRES	2020 ACRES	2021 ACRES	2022 ACRES
Leafy Spurge	Euphorbia esula	2.47	3.11	7.56	65.6
Myrtle Spurge	Euphorbia myrsinites	.42	0.708	1.64	1.52
Yellow Toadflax	Linaria vulgaris	12.82	13.79	9.22	21.97

Wasatch Mountain State Park campground and mapped. Herbicide treatment was completed for 24 acres of yellow toadflax, 1 acre of Myrtle spurge, and 4 acres of leafy spurge.

Additionally, the Ecker Hill Middle School leafy spurge population, along with the whitetop that has been replacing the spurge, was treated and the site revegetated. Myrtle spurge in the three known open spaces, Toll Canyon, UOP and Empire Pass area were hand weeded and then treated with herbicide.

New populations of Myrtle and leafy spurge were found in residential properties and treated where consent could be obtained.

Density of yellow toadflax at Bonanza Flat continues to decline in populations we have previously mapped and treated; however, new populations continue to be discovered and treated.



2022 % PROJECT GOALS COMPLETE



229 acres inventoried  
27 acres monitored  
62.4 acres of weeds mapped



29 acres herbicide treatment  
0.4 acres hand weeding

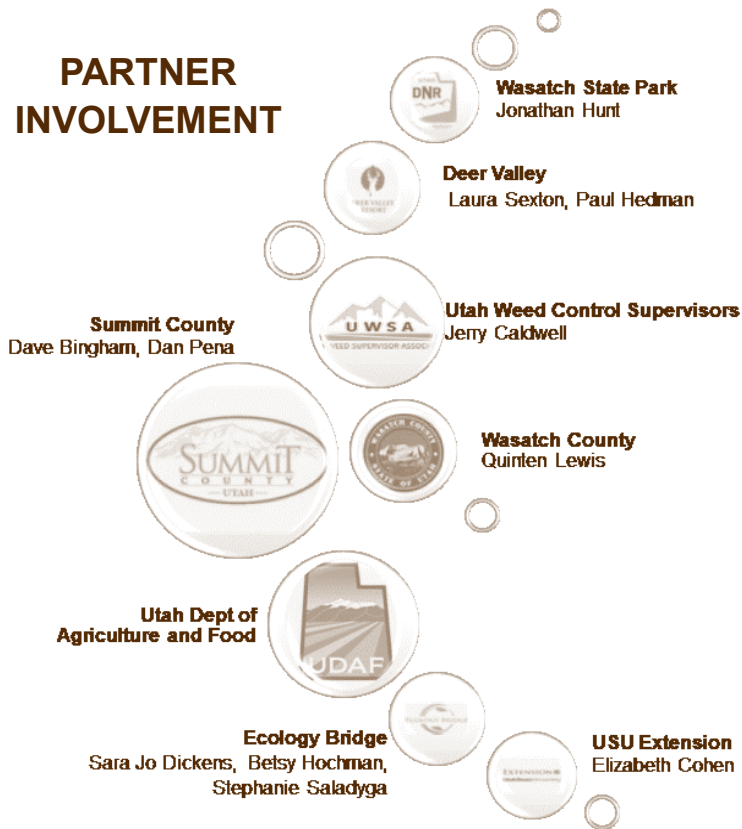


5 leafy spurge beetle releases  
2 yellow toadflax beetle releases



0.4 acres revegetated

## PARTNER INVOLVEMENT



Summit County acts as the project fiscal agent and Summit CWMA and Ecology Bridge coordinate and report on the project.

## CHALLENGES

The greatest challenge we face is the late flowering schedule of yellow toadflax at Bonanza Flat and in portions of the Wasatch State Park. Additionally, we often struggle to obtain biological control agents at the time that is appropriate for release in these locations. In 2023, we plan to discuss orders for biological controls with the UWSA.

Park City has maintained their discontinuation of herbicide use for Open Space lands. This decision is driven by their sustainability goals—specifically, reduction of chemical use. While this policy is in line with city goals, it has reduced their matching capacity. They have allowed the CWMA to continue to treat our funded species as we deem appropriate. In 2023, we intend to require Park City to cover more of the hand weeding costs associated with garlic mustard control; this strategy will free up funds to aid more residents with garlic mustard while we continue to assist



## Ecker Hill Leafy Spurge Control Project

The Summit County Weed division has been working on the control of a sizable leafy spurge population between the Ecker Hill Middle School and adjacent condominiums in Snyderville Basin. Biological control agents were released for three years and helped prevent spread. In order to reduce cover, the Summit CWMA treated the population with Tordon in 2020 and again in 2021. Percent cover has been reduced from 60-80% across the site to 0-10%. Whitetop was also present in very dense populations and treated at the same time. This species has been reduced overall, but patches with 50-80% remain. To help jumpstart the recovery of native plants, the site was seeded with native grasses fall of 2021. In areas of complete bare ground, a biochar/compost mixture was spread at approximately 1-2 inch depth to prep the area for seeding. Seeding was repeated in fall of 2022.

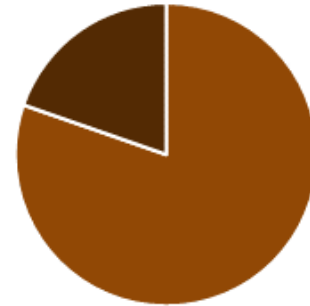
*Left: 2021 after several years of biocontrol and herbicide but before revegetation, Right: 2022 Spring*

Park City with yellow toadflax.

## DISTRIBUTION OF EXPENDITURES BY FUNDING SOURCE

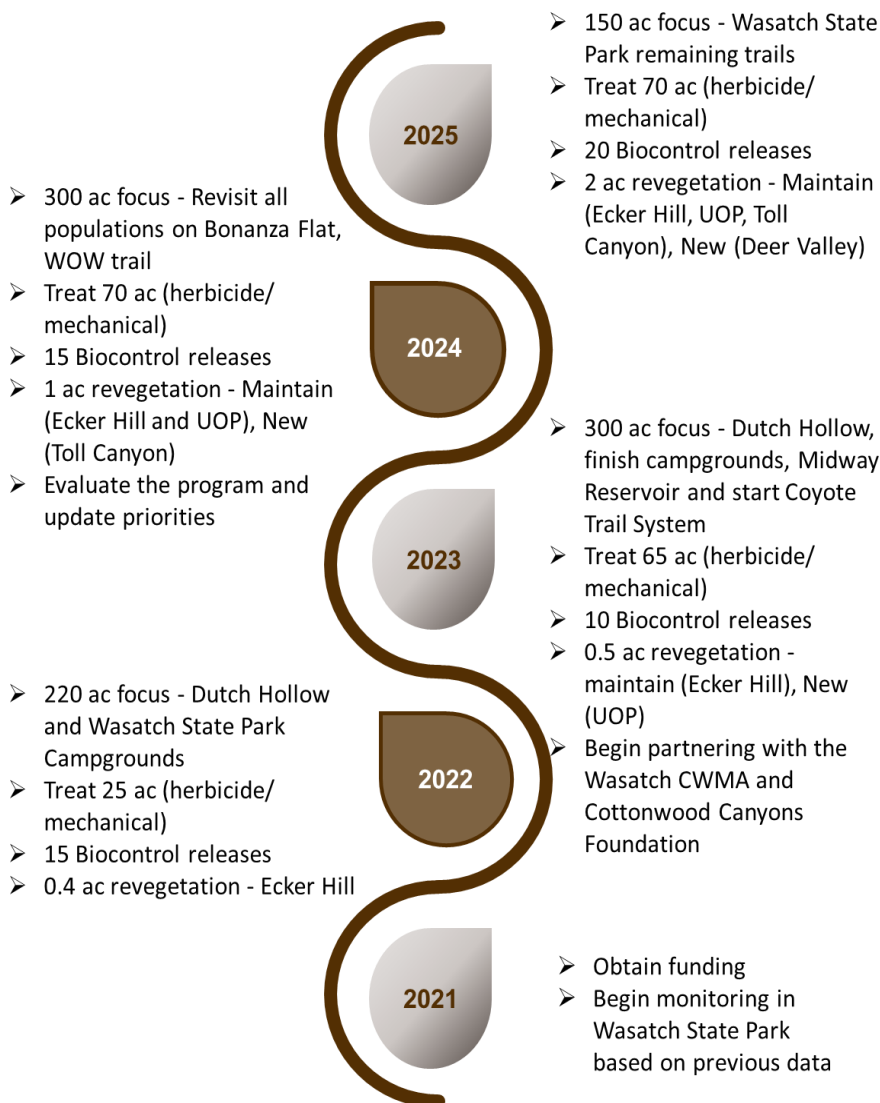
### FINANCIAL UPDATE

The Summit CWMA Yellow Toadflax and Spurge Program was awarded \$43,544.00 of which 8% was spent in 2022. The remaining 92% will be spent spring and early summer of 2023. The delay in expenditure of the grant is a result of the grant originally not being funded due to funding limitations, that changed and allowed for funding later in the grant cycle. This program was additionally funded by the Utah Weed Supervisors Association's Noxious Weed Control Grant (%15,000). This match funding was used to



■ Partner Match ■ ISM Funded

### PROJECT 5 YEAR PLAN



hire herbicide contractors for control of yellow toadflax and leafy spurge in 2022.

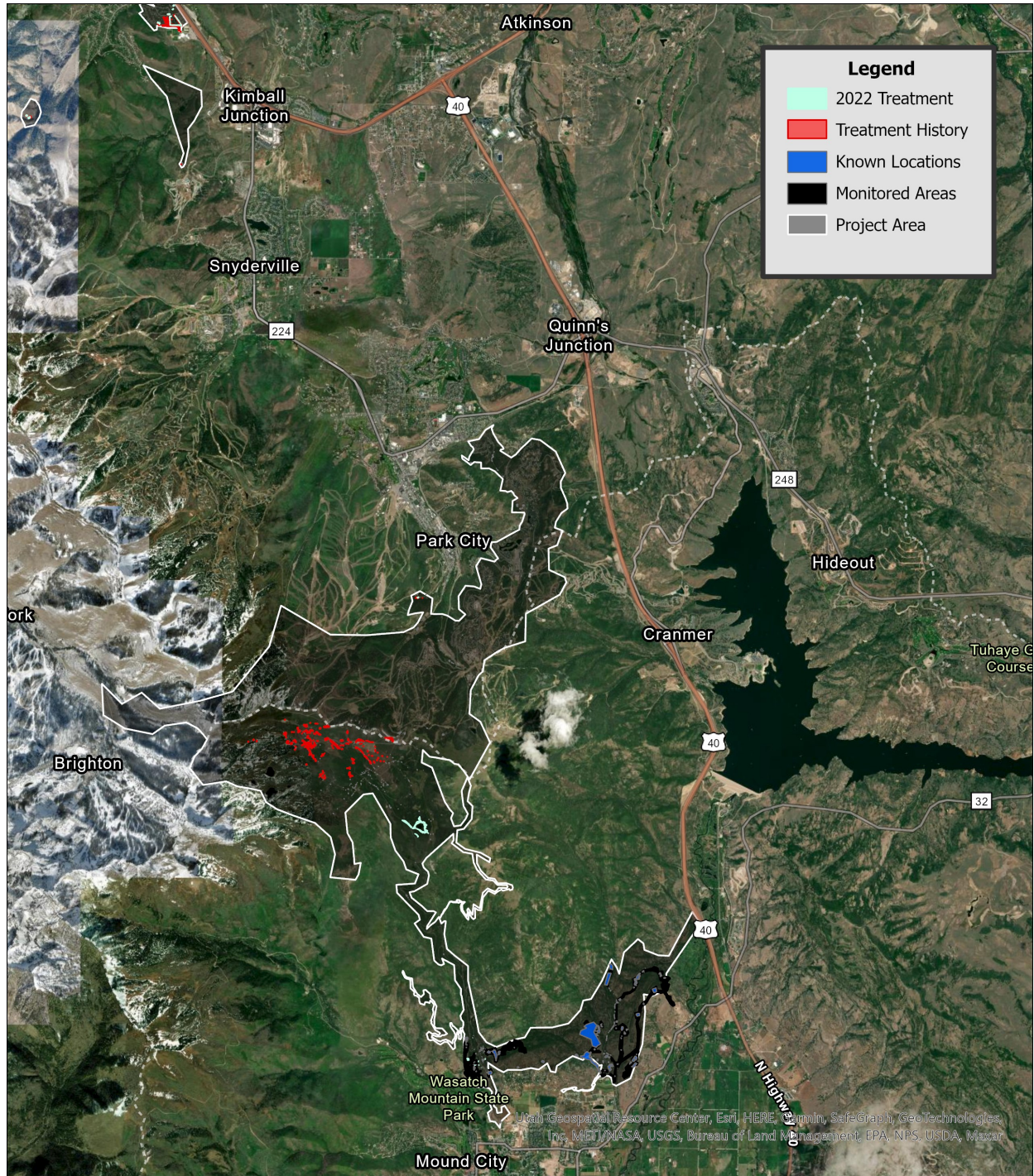
### ADAPTIVE MANAGEMENT PLANNING FOR 2023

Dutch Hollow and the Wasatch State Park Campground have extensive leafy spurge populations and in 2022, small populations of yellow toadflax and garlic mustard were found in the campground. Further monitoring is needed in these areas. In addition, reports of leafy spurge in the Coyote Trails area has caused resident and recreationalist concerns. If time and funding allow, we aim to start the inventory of this trail system in partnership with the Wasatch CWMA in 2023.

Treatment will focus on known areas using herbicide as the primary control. We would like to increase the use of biological control, however, obtaining the necessary bugs has been a challenge. We hope to work closer with the UWSA to expand this component of this program.

Restoration of the Ecker Hill leafy spurge population has proven difficult, but is making some progress. Whitetop replaced much of the leafy spurge and while this is being reduced, revegetation is slow. In 2023, we aim to expand the edges of the current revegetation area and maintain control efforts on the whitetop.

## 2021-2022 YELLOW TOADFLAX AND SPURGE PROGRAM INVENTORY AND TREATMENT MAPS

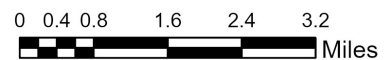


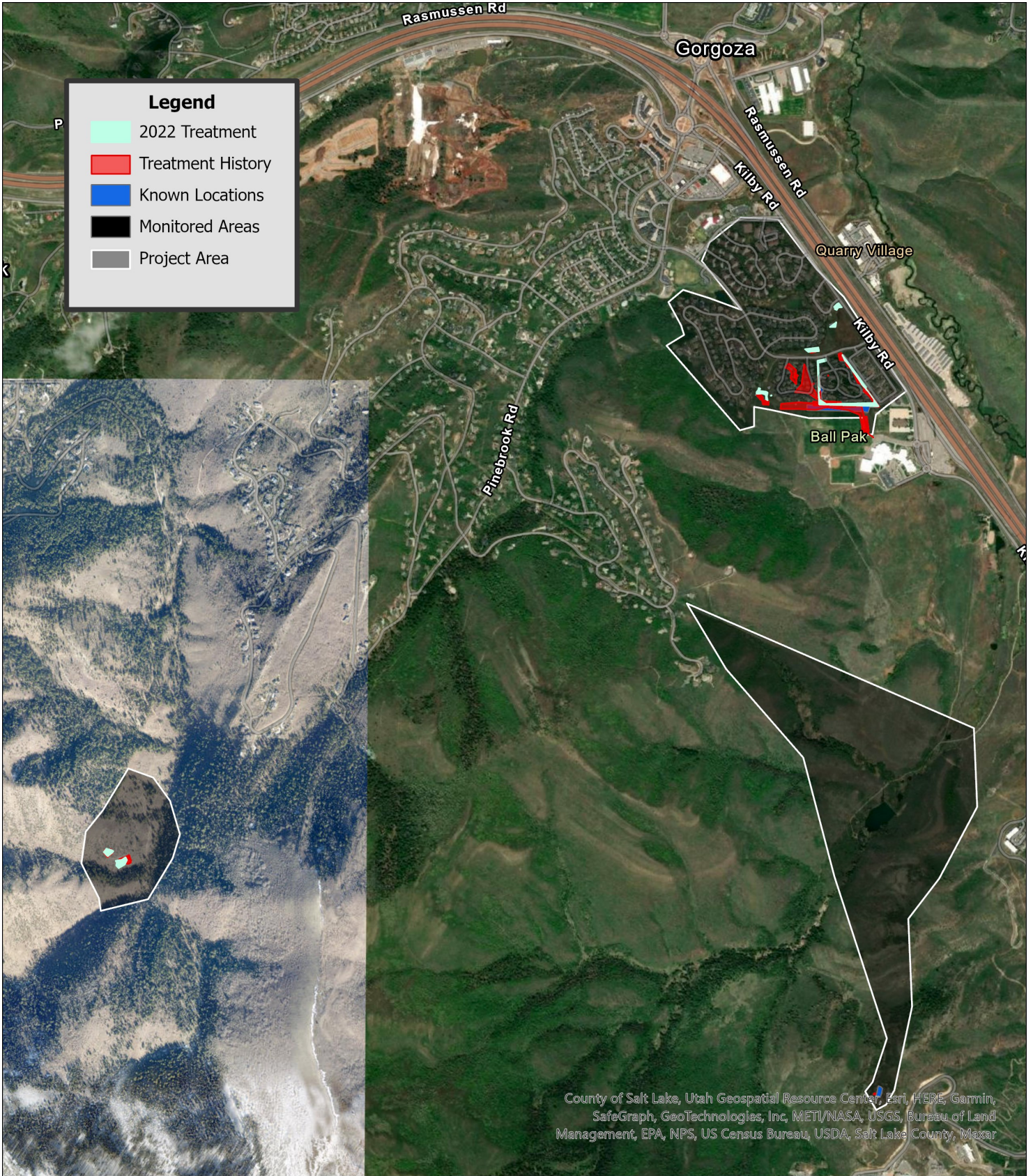
### 2022 Summit CWMA Yellow Toadflax & Spurge ISM Program

All known yellow toadflax, leafy spurge, and myrtle spurge populations, 2022 monitored areas, 2022 treatment areas, and treatment history for the full project area. Known populations displays a cumulation of data since 2018.



Created 1/5/2023  
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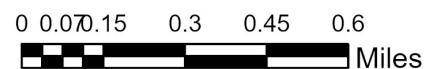
County of Salt Lake, Utah Geospatial Resource Center, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, Salt Lake County, Maxar

### 2022 Summit CWMA Yellow Toadflax & Spurge ISM Program

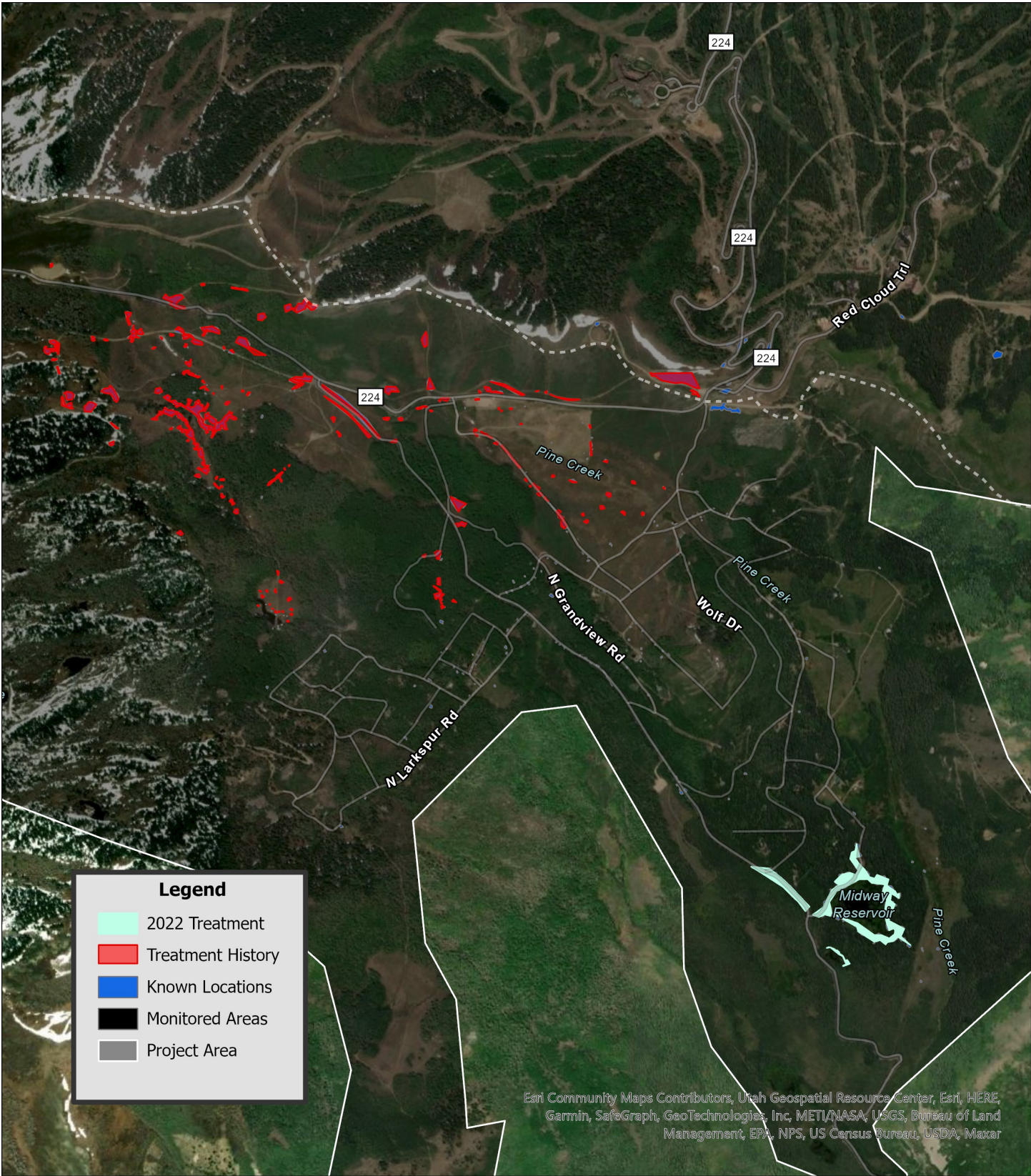
Known yellow toadflax, leafy spurge, and myrtle spurge populations, 2022 monitored areas, 2022 treatment areas, and treatment history in the Snyderville Basin portion of the project area. Known populations displays a cumulation of data since 2018.



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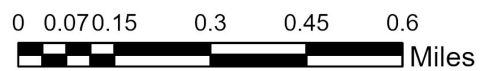


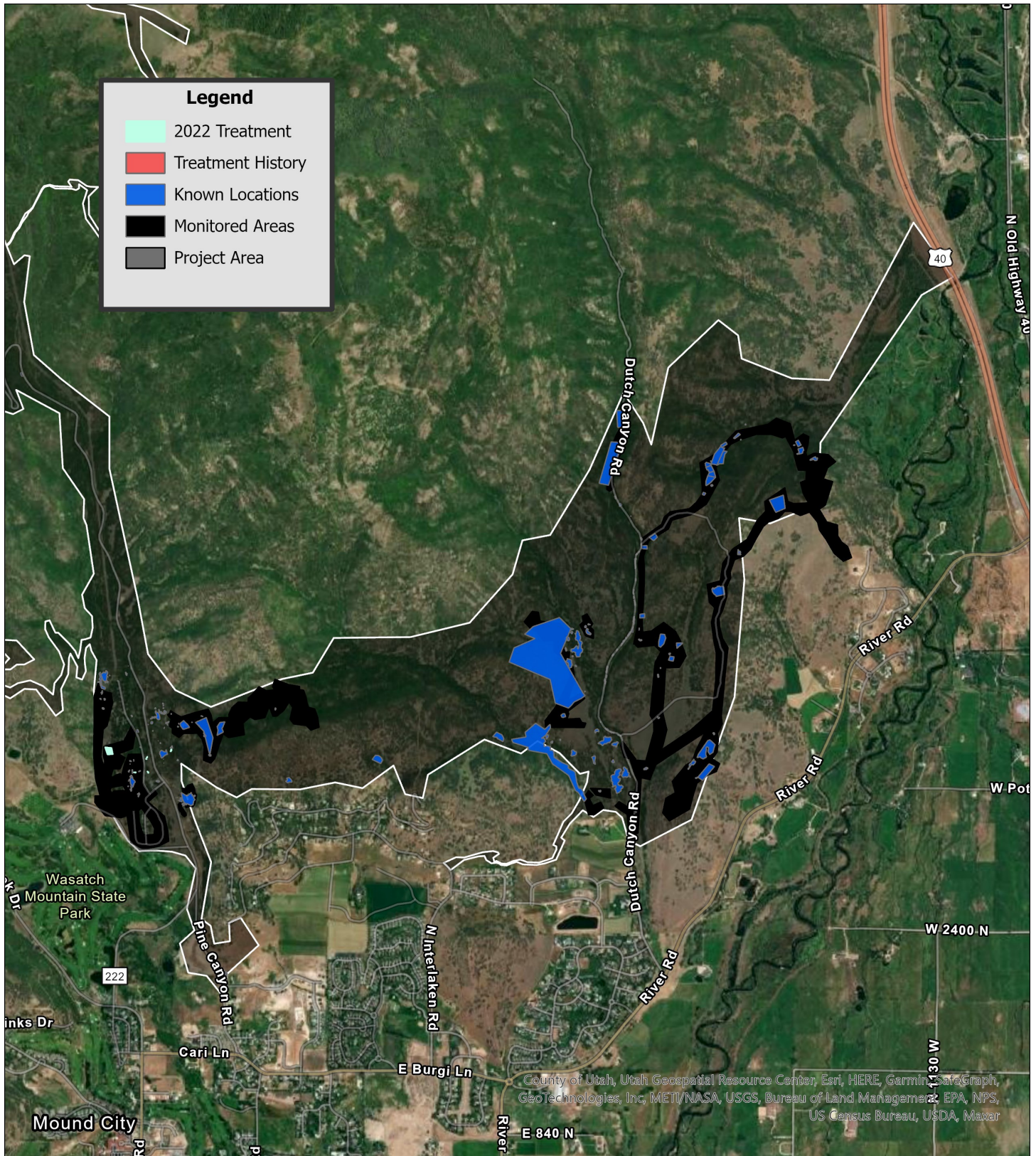
**2022 Summit CWMA Yellow Toadflax & Spurge ISM Program**

Known yellow toadflax, leafy spurge, and myrtle spurge populations, 2022 monitored areas, 2022 treatment areas, and treatment history on Bonanza Flat. Known populations displays a cumulation of data since 2018.



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 Betsy Hochman  
 Ecology Bridge LLC





**2022 Summit CWMA Yellow Toadflax & Spurge ISM Program**

Known yellow toadflax, leafy spurge, and myrtle spurge populations, 2022 monitored areas, 2022 treatment areas, and treatment history in Dutch Hollow. Known populations displays a cumulation of data since 2018.



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