



Grassland Bird Trust, (GBT) Inc., 501 (c)(3) is a nonprofit land trust conserving critical habitat for endangered, threatened and rapidly declining at-risk grassland birds. Our project title is, *Establishing Research Study Plots for Local Control of Invasive Brown Knapweed, Reed Canary Grass, and Wild Parsnip on the Alfred Z Solomon Parcels A & B of the Grassland Bird Trust Properties in the Grasslands of Ft. Edward New York.* (Addendum g)

One of the most favorable outcomes of this work was developing a partnership with the Capital Region PRISM staff. CR-PRISM awarded funding for this project for \$12,469. GBT continued seeking advice during the planning and implementation from NYSDEC Region 5 staff and other CR-PRISM Partners. This final report will summarize the findings from this year's management and research. **Please refer to addendums a – g for:**

- a. A summary chart for *presence / treatment* numbers entered into the *iMapInvasives* NY data base
- b. Screens shots of the *iMapInvasives* NY *presence / treatment* points or polygons in our research areas
- c. Map Locations of 10 X 10 foot research study grids in the research areas AZS A and AZS B
- d. Example of our Research Study grid data collection sheets used for collecting plant species density
- e. Budget summary of the entire project and total volunteer hours
- f. Sample photos of research areas, plant treatments, and volunteers working doing plant management
- g. Map of GBT Properties for the invasive plant project

### What we set out to do:

The main goal of this project is to restore grassland habitat by suppressing three well established Tier 4 plants. This entailed an adaptive management approach that focused on learning to restore habitat through partnerships with Capital Region PRISM, Grassland Bird Trust, and other stakeholders. Integrated pest management practices using manual, cultural, and least restrictive chemical applications were considered and applied during the planning and action phases of the project. We asked CR-PRISM to fund the application of a selective herbicide (Milestone) to nine acres of research study plots, for local control of Brown / Hybrid Knapweeds (*Centaurea jacea*) in mid-September of 2022, and to study the possibility for applying the non-selective herbicide "Rodeo" for the control of Reed Canary Grass (*Phalaris arundinacea*) and Wild Parsnip (*Pastinaca sativa*) on Alfred Z. Solomon Parcel A (AZS A) and Alfred Z. Solomon Parcel B (AZS B) during 2022 growing season. GBT was granted funding to treat the field with agricultural lime and reseed small areas with native grasses and forbes in late fall. Washington County Soil and Water Personnel reviewed our soil samples. They recommended a lime supplement to improve soil PH and make growing conditions less suitable for Knapweed.

### How the Project Unfolded:

GBT stewards received training and educational resources from CR-PRISM. GBT used integrated pest management strategies for suppressing and monitoring existing invasive plant populations. Applying NYSDEC /CR-PRISM techniques to meet the challenges of managing Tier 4 medium / high threat invasive species on our properties (see Addendum b) GBT established research test plots in April 2022. GBT hired a NYS certified chemical application contractor **Trillium Co.** from New Paltz NY for this project. The non-selective herbicide

“Rodeo” is a glyphosate formula (safer for amphibians) was spot applied to areas in our study acres to control Reed Canary Grass, and Wild Parsnip. Following DEC staff recommendations, we used Aminopyralid (Milestone) a selective herbicide formulation to control knapweed species. This is to restore grassland habitat over nine acres while respecting the 100-foot buffer distance to DEC and Army Corp (AC) wetlands. GBT also hired **Carovail Corp.** from Salem NY to apply the agricultural lime the late fall of 2022.

**Methods of Capturing and Reporting Results:**

Documentation of the results were provided through photographs before and after plant management. Photo documentation continued throughout the growing season and treatment sessions. **iMapInvasive** data was entered (often with the help of CR- PRISM staff) during the establishment of each study plot and several times during the growing season. Density and species type was documented throughout spring and summer before brush hogging in July 2022 in the **AZS B** nine-acre and the **AZS A** one-acre study areas. Mark Janey and Ron Renoni; GBT Stewardship co – directors, facilitated the plant species counts and recorded the data to specifically designed paper data sheets. These sheets were scanned into computers for record keeping and results sharing (**addendum d**). Thirteen grids of 100 square feet (nine square meters) were randomly selected inside and outside the much larger ten acre study areas. A nylon string grid was placed on a wooden rack 10 foot wide by 10 foot deep. Red paint marked the string cross points. This indicated where plant species counts were taken. Each 10ft x 10 ft square has 121 data points. An Excel spreadsheet was developed to process the percentages of each species within each research grid. GPS coordinates were made for all thirteen grids. Aluminum plates were affixed to the ground with metal spikes to withstand the presence of trucks and tractors during the brush hogging, pesticide, and agricultural lime applications. We were successful in finding all these research grids after the brush hogging. (**Addendum c** - map of grid locations)

Table 1: Descriptions of Study Grids

AZS Parcel A 10 X 10 foot Study Grids	AZS parcel B 10 X 10 foot Study Grids
Grid #4.1 outside research acre with no treatment to compare plant density and diversity to #4.2 Grid #4.2 inside the research acre also with no treatment.* <b>Note:</b> The Reed Canary Grass covered the entire research acre which we had not anticipated and we chose not to use chemical treatment in the quantity required.	Grid # 1.1 and # 5.0 had no chemical or lime treatments, serving as controls in this parcel. Grid #1.3 and #1.4 were had “Milestone” but no lime. Grid # 2.1 and #3.1 had lime applied but no herbicide treatment. Grid # 1.2, #2.2, and #3.2 were treated with both “Milestone” and ag lime and located inside the research 9 acres.
Grid #4.3 represents reseeded areas with native grasses after “Rodeo” treatment for WP. No ag lime was applied to this study area.	Grid # 5.1 represent reseeded areas with native grasses after “Rodeo” and ag lime treatments.

**Specific Challenges:** Bird Breeding season presents challenges to invasive plant management. Region 5 DEC biologists granted GBT a variance for our grassland management practices. This allowed us to brush hog 40 acres at the end of July 2022 instead of the recommended no-mow period until August 15. The 40 acre section was brush hogged on July 29, 2022. The field had not been mowed for over three years which lead to degraded grassland habitat. The mowed plants require six weeks to regrow before the application of the selective herbicide to be the most effective. This timing was recommended by DEC staff to get the desired suppression of knapweed. The herbicides were applied on September 16, 2022.

**Volunteers Are Key:** M. Janey and R. Renoni coordinated volunteer workers to successfully complete each task throughout the growing season. CR- PRISM staff (Sam Schultz and Kris Williams) also visited the site on several dates helping with mapping plants and mechanical control of established infestations. They also provided us *iMapInvasives* training both in the classroom and in the field. GBT appreciates all the help from volunteers and the CR-PRISM staff. The development of our partnership with CR-PRISM is the main reason GBT was able to complete this project.

### **Brief Timeline of Project development, Management and Treatments:**

1. **April 4 and April 15:** GBT Stewardship Coordinators purchased necessary materials to begin this project. We established 3 distinct 3-acre research blocks within the 25-acre Brown Knapweed infestation on AZS parcel B and one acre plot on AZS A. We marked out seven 10 X 10 ft study grids within and outside the larger research blocks. markers were added to delineate corners of all plots. (four more were added later in the season). We also marked out other areas for management.
2. **April 20:** Sam Schultz and Kris Williams held an *iMapInvasives* training at our GBT office and then in the field. Kris and Sam’s help enabled GBS coordinates to be uploaded into *iMapInvasives* under project titled, Grassland Bird Trust Invasive Research Blocks
3. **April 25:** Volunteers worked 20 hours cutting invasive brush in AZS Parcel A and along access rd.
4. **May:** Management materials organized by building storage box built on land stewards’ property adjacent to project area making management activities more efficient.
5. **June 15 and June 30:** More photo documentation of June’s plant species growth within 100 sq ft research grids. As pre-arranged; Trillium Invasive Management Company treated large areas of Wild Parsnip in AZS Parcel A with “Rodeo”. Following Marcelo delPuerto’s (DEC Habitat Specialist) recommendation for comparing hand cutting patches of Wild Parsnip and chemically treating other patches before they established seed heads so we could assess which management technique worked best. Four Soil samples (from 10 locations) were collected from within AZS parcel B.
6. **July 1 – 11:** GBT developed a 121-point grid system to record species density within each research 100 square foot plot. Grid data points were recorded on 7 research grid plots. More photo documentation of chemically treated Wild Parsnip patches taken. More removal by hand of Wild Parsnip, and Steward hired to brush hog nearly two acres around our parking lot to remove the high concentration of Wild Parsnip growing there. Soil samples were submitted to *Diary One* in Greenwich for analysis. Brush hog and hand removal of Wild Parsnip patches continued in July along access road.
7. **July 12:** With Sam Schultz’s assistance we uploaded our polygons onto *iMapInvasives* for our chemically treated patches along with our wild parsnip patches cut by hand.
8. **July:** Approval by DEC to brush hog the 25 acres of knapweed in late July as an adjustment to our management plan was received in writing. (usually fields would not be cut until after Aug 15)
9. **July 29:** Brush hogging entire 42 acres in AZS B
10. **Aug 17:** Reestablished the GIS locations of study acres and research grid plots
11. **Sept 16:** Trillium treatment in AZS B for 9 acres of knapweed with “Milestone” and treatment of satellite infestations of Reed Canary Grass with “Rodeo”. Volunteers cut invasive brush on access rd.
12. **Oct 12:** Workday with CR-PRISM staff to check on 9 acre knapweed “Milestone” treatment and work cutting invasive brush along access road, and treatment of satellite infestation of Japanese Knotweed. Sam Schultz and Mark Janey investigated /documented adjacent property for invasive plants patches.

- 13. **Oct 21:** Reseeded fifteen previously treated areas with “Rodeo” in both AZS A and AZS B Fescue
- 14. **Nov 7 and 8:** Data entered *iMapInvasives* software of all “presence” and “treatment” locations.
- 15. **Nov 15:** Ag Lime applied to 20 acres of AZS B at the rate of one ton per acre.

**What We Observed and Learned Regarding the Three Targeted Invasive Species:**

**1. Wild Parsnip (WP):** We had a greater infestation on AZS A, and AZS B than initially assessed in November 2021. **WP** was also abundant along our half mile access road between fields. Following recommendations by DEC staff (Marcelo delPuerto) to compare chemical and mechanical treatment methods before the plant went to seed in June and early July. We treated many sections with ‘Rodeo’ (June 30, 2022) and harvested by hand many other sections. **The chemical treatment provided the most complete destruction of this plant.** Even next generation plant rosettes were not appearing in the treatment areas. The mechanically cut areas (over a thousand stems) had mixed results. In some areas there was regrowth of the stems several inches high which grew small flowers. The regrowth was cut again with a weed trimmer. There was still some regrowth of stems. Some research suggests that this regrowth after stem cutting produces seeds that are not viable. *“Plants may re-sprout, and still flower, but viable seed is rarely produced” Michigan Department of Natural Resources Michigan Natural Features Inventory, March 2018 p.4. “*

The chemical treatments by Trillium Company of several dozen patches which totaled about a half-acre cost \$3,500. Cutting done by volunteers with loppers or weed trimmer at a \$400 dollar investment in materials. Four volunteers using these hand tools also cut an area of about a half-acre taking two hours longer than it took to apply “Rodeo”. Brush hogging cost was \$650 for about 4 acres. We have learned that cutting plant window before they go to seed only lasts about 3 weeks. We will move the date of cutting / treating stems next year 2023 up by ten days earlier.

**2. Brown Knapweed (BK):** The largest infestation of all invasive plant targets was BK. It is estimated to cover 25 acres. After the brush hogging, we found this plant growing in more areas than assessed in 2021. The whole field was brush hogged on July 29,2022 to interrupt seed production. The GBT volunteers worked in this field over twenty times from April 2022 to November 2022. We learned about the growth rates of different plants before the brush hogging and the subsequent growth after the brush hogging. Plant species in various sections of the field were recorded in our 10 X 10 foot study grid squares. Knapweed was the major plant in most research grids in AZS B. The table below will give a summary of its percent presence compared to grasses and forbes of the nine grids that were specifically set up to monitor BK. Grid 5.1 (tenth grid) was created to monitor RCG, not BK and is not in the chart below.

Table 2: AZS B grid squares of 121 data points documenting plant species monitoring Brown Knapweed

Grid Plot	GPS Lat center of Grid	GPS Long center of Grid	Date	Grasses	Grasses %	Brown Knapweed	Brown Knapweed %	Sedge/Rus h	Sedge/Rus h %	Forbes	Forbes %
1.1	43,16,43	73,31,42	7/11/2022	35	29%	43	36%	24	20%	18	15%
1.2	43,16,38	73,31,40	7/11/2022	3	2%	104	86%	13	11%		0%
2.1	43,16,37	73,31,40	7/11/2022	69	57%	51	42%		0%	1	1%
2.2	43,16,34	73,31,45	7/11/2022	15	12%	95	79%	8	7%	3	2%
3.1	43,16,31	73,31,40	7/11/2022	11	9%	110	91%	0	0%	0	0%
3.2	43,16,30	73,31,43	7/11/2022	34	28%	45	37%	23	19%	19	16%
5	43,16,27	73,31,45	7/11/2022	63	52%	57	47%	0	0%	1	1%
1.3	43.27832	73.52868	10/21/2022	20	17%	85	70%	3	2%	13	11%
1.4	43.278	73.5278	10/21/2022	24	20%	80	66%	2	2%	15	12%

The nine-acre study area in AZS B was treated with selective “Milestone” (Aminopyralid formula) on Sept 16<sup>th</sup>. We were successful with following the recommendation to wait six weeks after brush hogging for chemical application to get the desired high absorption rate by the plant. Assessments in the field showed the knapweed highly impacted by the “Milestone” when compared to knapweed plants not treated. Follow up observations were over the next several weeks continued to show that the knapweed was shriveled and damaged by the chemicals.

Untreated BK plants outside treatment areas, photos taken on the same date.



BK impacted by treatment of “Milestone” (Aminopyralid) inside treatment area. Notice grasses appear to be healthy.

We continued to treat knapweed by spreading agricultural lime following the recommendation of the Washington County Soil and Water personnel. Their reasoning was that knapweed thrives in poor soils with low nutrients. Adding the lime would make more nutrients available and create less than ideal growing conditions for the knapweed. Upon review of our soil samples, they prescribed using a rate of one ton per acre. Twenty tons of lime was spread on November 15, 2022, over 20 acres, (**refer to addendum c**). The DEC (Region 5) allowed us to spread lime in areas within wetland buffer zones. We treated the knapweed with lime where we could not apply “Milestone”. We waited two months after “Milestone” treatment to let the knapweed absorb the herbicide before lime was spread.

**3. Reed Canary Grass (RCG):** When the growing season progressed, we discovered the one-acre AZS A study area we had marked out in the spring was amid nearly seven-acre RCG infestation. In the 10 x 10 study grid within the one-acre study plot (#4.2) we documented 100% RCG presence for all 121 data points. Compared to our other research grid (#4.1) outside the one-acre boundary we had 84% mixture of non-native Redtop Bentgrass (*Agrostis gigantea*) and native Switchgrass (*Panicum virgatum*) and 14 % forbes with 2% WP. No RCG was noted in #4.1.

The Bentgrass, most likely, was added as a pasture grass in the past but appeared to out compete the RCG in some sections of the field. Knowing the best management practice of using fire and or chemical treatments to control RCG are problematic in this case as the timeline for such actions would interfere with bird breeding season. We concentrated on chemically treating the satellite infestations in AZS B. Preventing a whole scale invasion of RCG in this larger AZS B habitat is the priority. The 40-acre field was brush hogged on July 29 2022. This won't prevent these plants from spreading by rhizome but allowed a more effective target for applying glyphosate. These satellites (12 patches in AZS B) were treated on Sept 16 and reseeded with native grasses six weeks later.

## ***iMapInvasives* Data Base:**

M. Janey and R. Renoni improved their skills uploading and detailing *presence* and *treatment* data during this project. We were also successful manipulating the *confirmed*, *unconfirmed*, and *treatment layers* along with using the measurement scales. Using this data bank we found that the map representation of *treatment* or *presence* inconsistent. We also need to increase our understanding of how to represent polygons with GIS data points. Continuing our training with the ***iMapInvasives*** tutorials is one of our goals for next year. We are becoming more comfortable utilizing this valuable data base in our project.

## **Brief Description of 2023 Management Goals for GBT Properties and their Challenges:**

Post treatment monitoring will occur in 2023 to better assess the effectiveness of the treatments applied in 2022 after the growing season has started. An addendum to this report will be provided to the CR-PRISM to highlight successes and areas of improvement to the treatment site. How to chemically treat the knapweed areas in the wetland buffer zones is not yet worked out. Investigation of the options is a priority topic for the future management. GBT will continue to utilize lime applications allowed in the buffer zones. The DEC has also given us permission to use some fertilizers to improve soil health in these buffer areas. The strategy is to make the growing conditions less suitable for knapweed or other invasive plants on our properties. Improving soil health is one technique.

The other option we are exploring is to cut and bale the brown knapweed on AZS B and Reed Canary Grass on AZS A at the end of July to remove it from the seed bank. We are working with a local person who has the necessary machinery to complete this task. GBT will also investigate the strategy of discing (slicing through the rhizomes) of the RCG and then reseeding (with seed drill not plowing) several acres of RCG on AZS parcel A to see if a fast-growing native grass can out compete the invasive species. The one-acre study plot on this parcel will be the logical place to start this experiment in 2023.

In January 2023 GBT will contact Dr. Blossey regarding biocontrol of Spotted Knapweed. Our field observations have given us encouragement to seek out this solution. This species of knapweed was found spread over several acres in AZS A. Last year we only documented its presence in an area of two hundred square meters. The extended occurrence of this species, though still sparse, will need Dr. Blossey's input to assess the possibilities of this management tool.

Working with Trillium Co. (PRISM Partner) as a certified chemical applicator was successful. Tom Lewis has agreed to return next year and treat another eight to ten acres of Brown knapweed. We will strategize with him plans to chemically treat WP in places where cutting by hand or with a tractor is not practical. RCG chemical treatments will continue in AZS B where satellite populations are discovered. We need to enforce local control to stop the spread of RCG in the larger field.

GBT identified and treated several satellite invasive populations along the access road to our properties. We will continue to monitor and do local control of these populations, especially the Japanese Knotweed.

**Addendum a – iMapInvasive Chart of Presence and Treatment Data Notes**

**2022 Grassland Bird Trust AZS parcel A and B Research Notes for Areas ID #s for Control of Wild Parsnip, Species of Knapweed, and Reed Canary Grass**

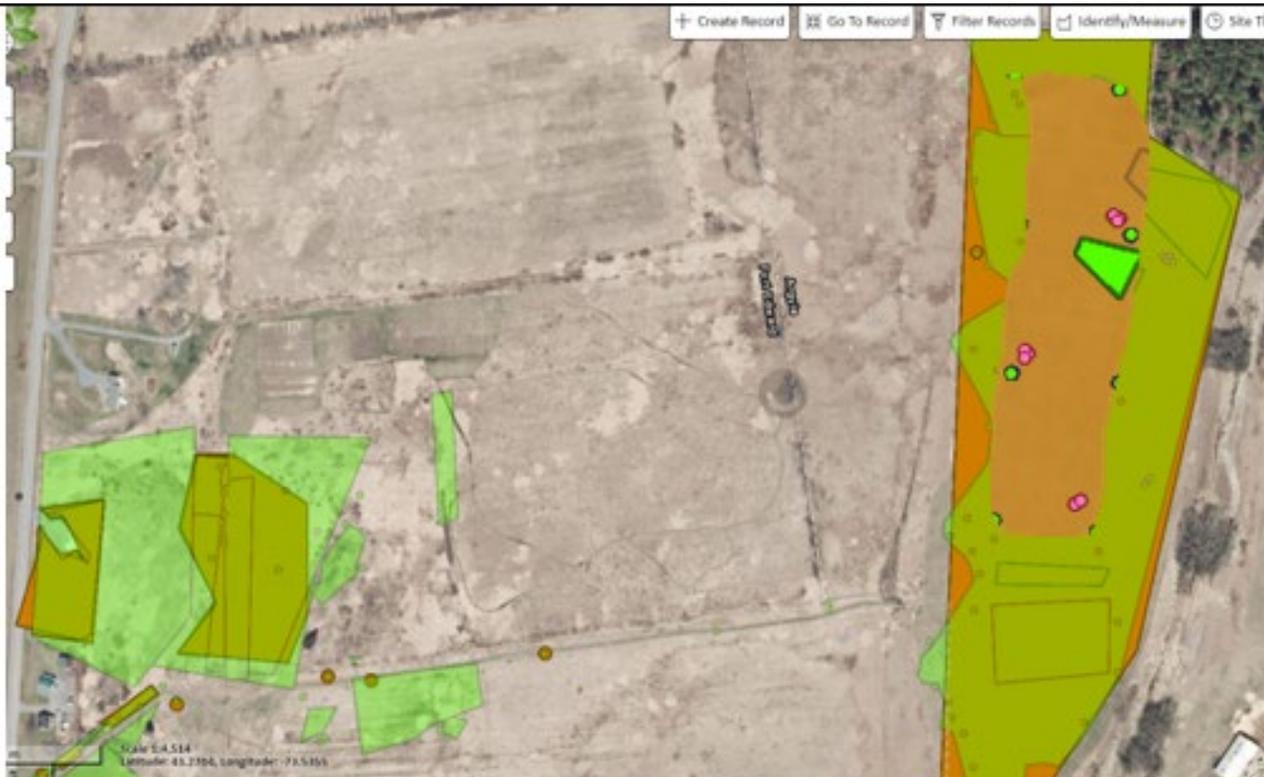
location of Invasive Infestations	GPS Coord boundaries	iMapInvasive Presence #s	iMapInvasive Treatment #s	Other notes:
Reed Canary Grass in AZS A	43.2750 / -73.5386	1306168	No Treatment	Polygons
Reed Canary Grass in AZS A	43.27498 / -73.53654	1306169	No Treatment	Polygons
Reed Canary Grass in AZS B – southern most edge section of 9 acres	43.27472 / -73.52883	1306170	27248 Chemical treatment	Polygons
Reed Canary Grass in AZS B – near top northern boundary of 9 acres	43.27686 / -73.52822	1306171	27249 Chemical treatment	Polygons
Brown Knapweed in AZS B – top polygon	43.27832 / -73.52832	1270594	27240 brush hogged	Point within control 1.1
Brown Knapweed in AZS B – large polygon	43.27572 / -73.52865	1210481	27240 brush hogged	Polygons
Brown Knapweed in AZS B – <b>only 9 acres</b>	43.27572 / -73.52865	1316785	27236 Chemical	Polygons
Japanese Knotweed along access rd	43.2733 / -73.5388	1306167	27247 Chemical treatment	points
Patch 1: Wild Parsnip along access rd closest to silo	43.2738 / -73.5375	1305387	27242 brush hogged	points
Patch 2: Wild Parsnip along both sides of access rd east of fence opening	43.2740 / -73.5360	1305890	27246 brush hogged	points
Patch 3: Wild Parsnip largest patch farther east down access rd	43.2742 / -73.5338	1305891	27244 brush hogged	points
Patch 4: Wild Parsnip farther east access	43.27397 / -73.53556	1305889	27245 brush hogged	points
Wild Parsnip AZS B by control grid square	43.27426 / -73.5882	1282117	27239 brush hogged	polygon
Wild Parsnip AZS A behind viewing blind and down slope to fence opening by silo.	43.27451 / -73.53777	1316787	27243 chemical	polygon
Wild Parsnip AZS A rte 42 along driveway to viewing blind to south property line	43.2747 / -73.53859	1316786	27238 Mowed and cut by hand	polygon
Wild Parsnip AZS B western edge of Wetland	43.2771 / -73.5296	1305886	27241 cut by hand	point
Wild Parsnip AZS B By Pine forest edge	43.27734 / -73.5275	1282118	27286 cut by hand	poly
Wild Parsnip AZS B northwest edge of Wetland	43.27824 / -73.5293	1282119	25649 cut by hand	point
Spotted Knapweed in <b>AZS A</b> Top west point Bottom west point Top east point Bottom East point	43.2752 / 73.5387 43.2743 / -73.5388 43.2752 / -73.5360 43.2739 / -73.5364	136880	No treatment occurred this year	polygon

## Addendum b

iMapInvasives screen of 2022 **Presence** polygons and points for GBT properties and access rd. for **Wild Parsnip, Spotted and Brown Knapweed, and Reed Canary Grass**



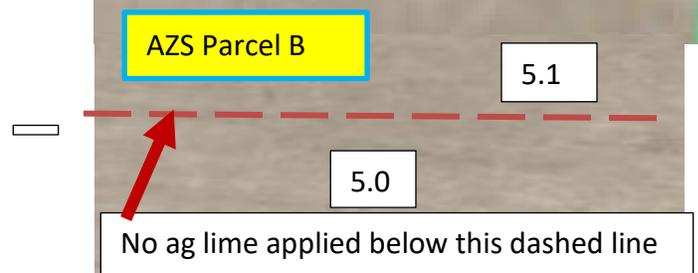
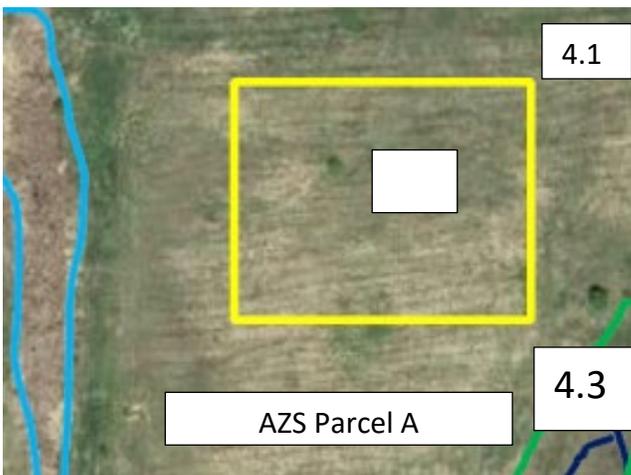
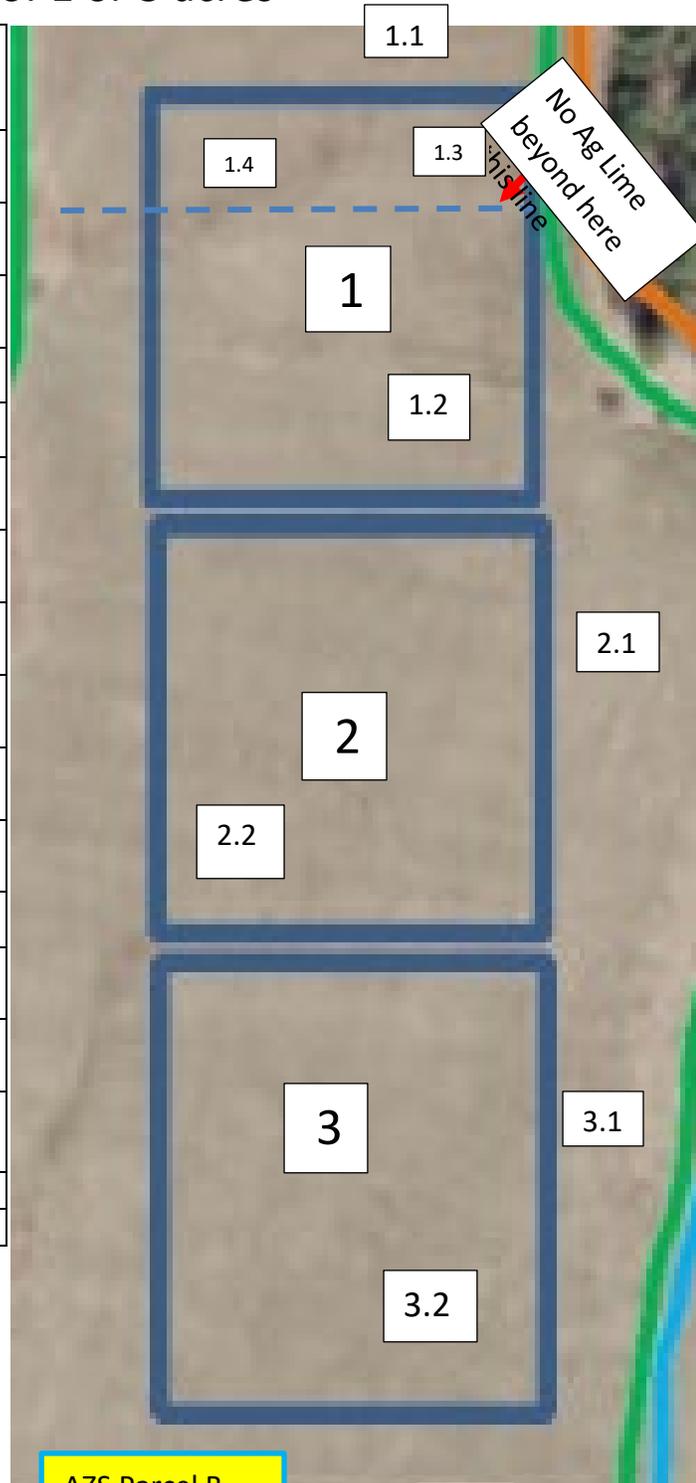
iMapInvasives screen of 2022 **Treatment** polygons and points for GBT properties and access rd. for **Wild Parsnip, Spotted and Brown Knapweed, and Reed Canary Grass**



**Addendum c – Research area locations**

GPS Locations for all 10 ft X 10 Ft (9 sq meters) research grid squares inside and outside each larger study block of 1 or 3 acres

Research 100 square foot or 9 sq meter grid locations			
GPS Study block	Lat of center of grid		Long of center of grid
	<b>one</b>	Outside Block 1 #1.1	43°16'42"
AZS B all 10ft X 10 ft	Inside Block 1 #1.2	43°16'38"	-73°31'40"
	# 1.3	43.27832	-73.52868
	# 1.4	43.2780	-73.5278
GIS of Study block	Lat of center of grid		Long of center of grid
	Outside Block 2 #2.1	43°16'37"	-73°31'40"
<b>two</b>	Inside Block 2 #2.2	43°16'34"/	-73°31'45"
GIS Study block	Lat of center of grid		Long of center of grid
	Outside block 3 #3.1	43°16'31"/	-73°31'40"
<b>three</b>	Inside Block 3 #3.2	43°16'30"	-73°31'43"
GIS Study block	Lat of center of grid		Long of center of grid
	Outside Block 4 #4.1	43°16'32"	-73°32'09"
<b>4</b>	Inside Block 4 #4.2	43°16'30"	-73°32'10"
<b>AZS A</b>	Control block 5.0	No Ag lime and no herbicide treatment in 2022	
		<b>latitude</b>	<b>longitude</b>
		43. 16'27"	-73.31'45"



Grids 4.3 and 5.1 are the locations of reseeding study grids with native seed after treatment of WP / RCG.

**Addendum d.**

Example of data sheet used for plant species counts, each plot had a fresh sheet.

**Grassland Bird Trust - Habitat Restoration Project  
Plant Species Grid Plot Counts - Invasive Plant Research 2022**

**Grid Plot #** 3.1 inside  or outside  3 acres blocks

Observers names K. Swenson, M. Jones, R. Renna date 7/11/22

Each Grid Plot size is 9 square meters (100 sq feet);

**Plant types noted at 30 cm intervals (1 ft) using the following codes.**

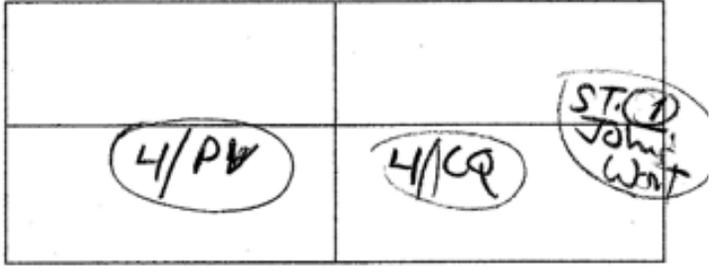
Plants counted are: (numbers are used in grid with abbreviations when needed)

1. Grasses. All species except for Reed Canary Grass
2. Brown Knapweed (BK)
3. Sedge/rush (Sd/Ru spp)
4. Forbs; Milkweed (MW), Stitchwort (SW), Cinquefoil spp (CQ), Ragweed (RW), Trifol (TF), Bell Flowers (BF), Purple vetch (PV)
5. Native Shrub spp: Dogwood (DW), Viburnum (VB), Sumac (S), Hawthorn (HT) Prickly Ash (PA)
6. Wild Parsnip (WP)
7. Reed Canary Grass. (RCG)
8. Invasive shrub spp; Buckthorn (BT), Asian Honey Suckle (AHS), Japanese Knotweed (JK), other
9. Other

Note: Wooden Edges of Grid squares always placed north / South

0 ft -TOP	1ft	2ft	3ft	4ft	5ft	6ft	7ft	8ft	9ft	10ft
2	2	2	2	2	2	2	2	2	2	2
1ft 2	2	2	2	2	2	2	2	2	2	2
2ft 2	2	2	2	2	2	2	2	2	2	1
3ft 2	2	1	2	2	2	2	2	2	2	2
4ft 2	2	2	2	2	2	2	2	1	1	1
5ft 2	2	2	2	2	2	1	2	2	2	1
6ft 2	2	2	2	2	2	2	2	2	2	1
7ft 2	2	2	2	2	2	2	2	2	2	2
8ft 2	2	2	2	2	2	1	2	2	2	2
9ft 2	2	1	2	2	2	2	2	2	1	2
10ft 2	2	2	2	2	2	2	2	2	2	2

**Notes:** Plant types not represented by data points but still present in 100 sq ft plot.  
Other observations in each quarter section of grid.



## Addendum e Summary Budget

Budget Items	actual cost	project budgeted amount	GBT Match	Amount covered by PRISM
Fiberglass markers	\$215.14	\$190.00		\$215.14
Al ground plates	\$260.00	\$225.00		\$260.00
Gal 10 + 8 in nails	\$69.56	\$81.00	\$69.56	
Flagging ribbons	\$0.00	\$54.00	donated	
100 meter meas tape	\$41.68	\$45.00	\$41.68	
<b>Subtotal for this section</b>	<b>\$586.38</b>	<b>\$554.14</b>	<b>\$111.24</b>	<b>\$475.14</b>
Liability Ins	\$610.00	\$200.00	\$610.00	\$0.00
Manual collection items costs				
Tarps	\$21.78	\$40.00	\$21.78	
100 Ft Black plastic Roll for tarps	\$139.99	\$0.00	\$0.00	\$139.99
Black Plastic bags	\$21.39	\$0.00	\$0.00	\$21.39
plastic bags + buckets	\$42.00	\$75.00	\$42.00	
gloves	\$42.50	\$85.00	\$42.50	
Loppers + clippers	\$155.83	\$50.00		\$155.83
String Trimmer with 2 extra batteries	\$351.89	\$250.00		\$351.89
Hand Trowels	\$63.00	\$60.00	\$63.00	
Eye / Ear Protection	\$33.43	\$0.00	\$0.00	\$33.43
<b>Subtotal for this section</b>	<b>\$1,481.81</b>	<b>\$560.00</b>	<b>\$779.28</b>	<b>\$702.53</b>
Hand Seed Applicators	\$68.00	\$110.00	\$68.00	\$110.00
Native plant seeds	\$236.35	\$210.00	\$0.00	\$236.35
Management Storage Box materials	\$159.97	\$0.00	\$0.00	\$159.97
Ag Lime Application	\$1,064.40	\$650.00	\$100.00	\$964.40
<b>Subtotal for this section</b>	<b>\$1,528.72</b>		<b>\$168.00</b>	<b>\$1,470.72</b>
Herbicide Treatment of WP	\$3,500.00	\$4,000.00	\$0.00	\$3,500.00
Herbicide Treatment for BK, WP, and RCG	\$5,162.50	\$5,750.00	\$0.00	\$5,162.50
Wild Parsnip Brush hog top of trail and around driveway	\$350.00	Anticipated extra cost	\$0.00	\$350.00
Wild Parsnip Brush hog Access Rd Trail	\$300.00	Anticipated extra cost	\$0.00	\$300.00
Cost of plant disposal at County Fac	\$36.00		\$0.00	\$36.00
<b>Subtotal for this section</b>	<b>\$9,348.50</b>			<b>\$9,348.50</b>
<b>Totals</b>	<b>\$12,945.41</b>		<b>\$1,058.52</b>	<b>\$11,996.89</b>

Estimated v. Actual Total Costs			
	Total	GBT Match	PRISM Funds
Estimated Costs	\$13,484.00	\$1,015.00	\$12,469.00
Actual Costs	\$12,945.41	\$1,058.52	\$11,996.89

*Project logged 255 in-kind volunteer hours provided by GBT volunteers at a value of \$7,292 @ \$28.54/hour rate*



Consultation with CR-PRISM staff, Saratoga Battlefield Nat'l Park Ranger and GBT volunteers Nov. 2021 in AZS B, documenting Brown Knapweed which frames the background behind Ron, Linda, Kris, and Mark.



Measuring out the 9-acre study area in AZS B in April 2022, placing six foot markers inside aluminum ground plates.



GBT volunteers (Ron and Tom) cut 100s of WP stems near Dead Creek and placed on tarp to be solarized at edge of field, plants on tarp were covered with another tarp. The entire patch of a thousand square feet was cut on June 30, 2022.



Workers from Trillium Co. chemically treating Wild Parsnip in AZS A on June 30<sup>th</sup> with backpack sprayers containing nonselective "Rodeo", a special formula with glyphosate.

Addendum f – annotated photos p. 2 of 4



Ron evaluating and photographing in July 2022 the impact of the chemical treatment on WP in AZS A by Trillium Co. that was applied on June 30, 2022.



Chemically (Rodeo) treated WP 3 weeks after treatment – no leaves, flowers or seeds look viable.



Keith and Ron collecting plant species data within 10 X 10 ft nylon grid system in place on AZS B. Each grid has 121 data points.



Documenting plants inside AZS A study grid # 4.2 where 100 % of the data points showed Reed Canary Grass growing.

Addendum f – annotated photos p. 3 of 4



Photo of Brown knapweed 3 weeks after being treated with Milestone” showing selective damage from herbicide, the grass appears still growing.



Photo of untreated study grid #3.1 showing healthy Brown Knapweed in AZS B compared to treated areas of BK taken on the same day.



Reed Canary Grass satellite patch nearly 4 weeks after treatment with glyphosate in AZS B . This patch was reseeded with Fescue and perennial rye five weeks after treatment.



Seeding with Fescue and perennial Rye on Oct 2022 in areas that were chemically treated for WP in June and RCG in in Sept. Mark using a battery operated seed spreader with the above seed mix.

**Addendum f – annotated photos p. 4 of 4**



Marked WP (grid 4.3) area treated with “Rodeo” that was seeded with fescue and rye Oct 2022 in AZS A that will be re-evaluated in spring of 2023 for regrowth of native plants.



Northern edge of lime application in AZS B study area. North of this boundary are 3 control study grids; #1.1, # 1,3 and #1.4



Photo documenting Study Grid #1.3 where BK has been treated with “Milestone”, but no agricultural lime applied.



Carovail Co. applying ag lime at a rate of one ton per acre based upon soil tests and recommendation of Wash. Co. Soil and Water personnel.

**Addendum g – Grassland Bird Trust properties in Washington County Grasslands**

