



## 2023 Tivoli Lake Preserve Grazing Project Final Report November 10, 2023

**About Friends of Tivoli Lake Preserve and Farm:** Friends of Tivoli Lake Preserve and Farm, Inc (FTLPI) is a 501(c)(3) non-profit that facilitates conservation, environmental education, and outdoor recreation within Tivoli Lake Preserve (TLP), the second largest urban preserve in New York State. Our activities empower individuals and families to enjoy the natural world, promoting healthier and more peaceful communities. We collaborate with various organizations, governments, and individuals to provide programming and urban agricultural opportunities to people of all backgrounds and skills. Friends of Tivoli Lake Preserve has supported the City of Albany with invasive species management since 2017 (with a break in 2020). We have a license agreement to do work to support the Preserve, including using a flock of sheep to manage vegetation along the trail.

**Statement of Problem:** Tivoli Lake Preserve (TLP) encompasses 83 acres and is one of New York state's largest urban wildlife preserves—second only to Manhattan's Central Park. TLP has several tier-4 invasive species, including Common Reed (*Phragmites australis*). These invasive grasses trap and camouflage trash illegally dumped or blown into the preserve and grow in dense thickets that displace native plant species from thriving. While TLP may not be able to remove the tier-4 plants, there is an opportunity to provide education and outreach to those using the Preserve and the wider Capital Region.

**Proposed Solution:** We requested funding to continue using a flock of sheep for grazing Common Reed (*Phragmites australis*) and other tier-4 plants as a manual control to help suppress the plants along a portion of the trail in Tivoli Lake Preserve. These treatments were tracked in iMapInvasives to help support these studies. While the grazing project is located in Tivoli Lake Preserve, the messaging of invasive species awareness had a more significant impact through social media and other outreach efforts with our dedicated liaison, whom we hired with funds from this request.

### **Grazing Plan Overview**

We used an intensive rotational grazing system that allowed the sheep to be fenced into small paddocks in the target zones for approximately 4 to 5 days per week. Paddocks were created using portable, electric fencing (Electronet) and a fence charger.

The fence was moved within the target zone every 1-2 days to create a significant disturbance within the infested plant community. The sheep were rotated between target zones and the non-target zone area for parasite control, rest for forages, and to meet the nutritional requirements of the livestock (because Common Reed (*Phragmites australis*) could not provide the full spectrum of nutrients necessary alone).

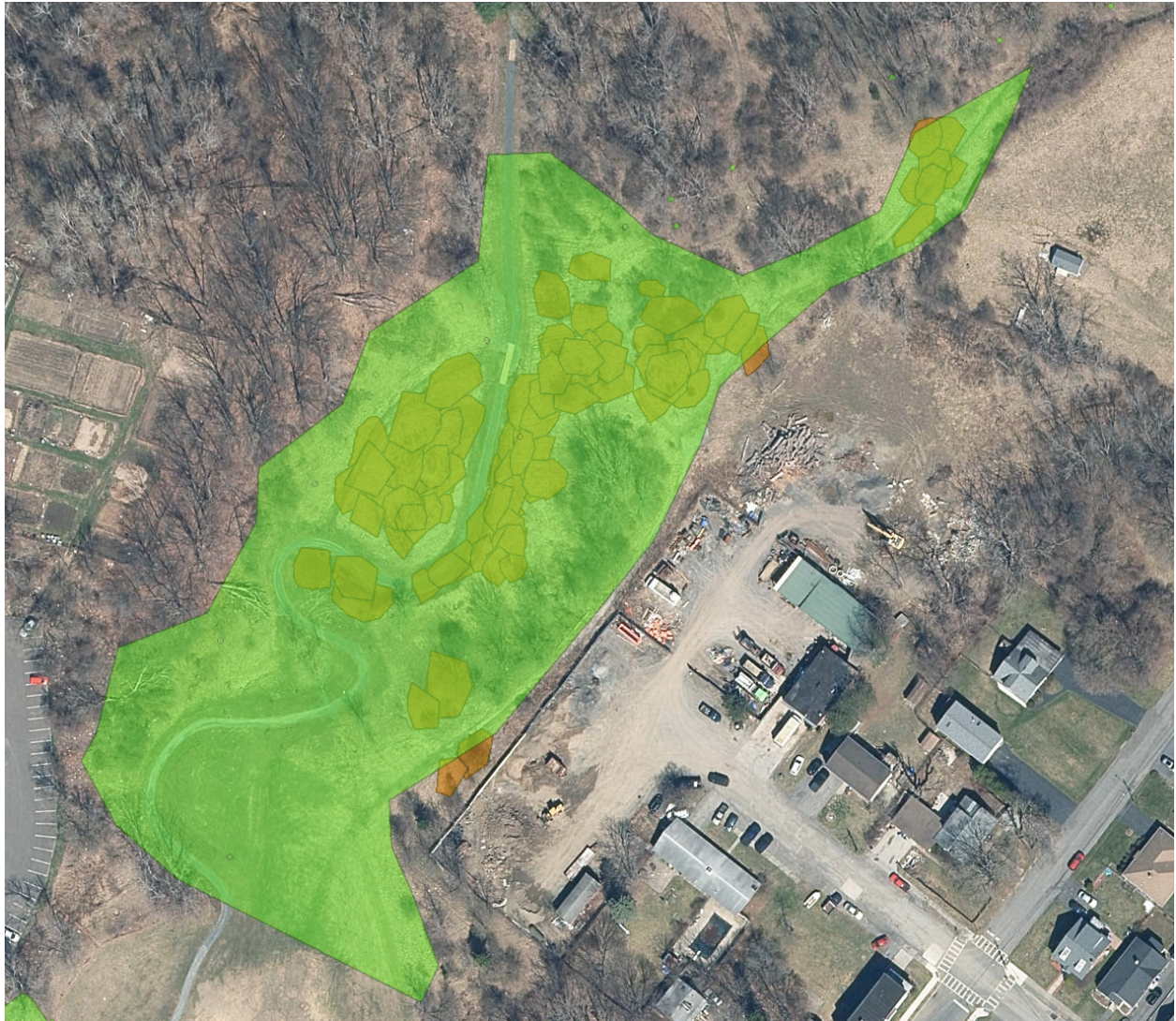
Rotational grazing practices also occurred in the ballfield for parasite control and rest for forages. Reserve pasture in the ballfield was used for days when the shepherd could not move the animals into the Preserve.

A bio-assessment was completed before grazing on July 7, 2023, which identified the variety of plant species, height, and biomass within target zones. The 15 sheep began grazing on July 10, 2023, and grazed for 50 days (306 hours). The second bioassessment was completed on October 5, 2023.

We have a flock of 19 total sheep, but 5 are part of a seasonal grazing project on Governors Island yearly. These animals are treated for ticks before returning to the larger flock. During this year's grazing season, one of our older sheep passed away, and so we went from a flock of 15 to 14 during the grazing.

### **Target Zone**

Here is a top-down view of the TLP grazing area, which contains Common Reed (*Phragmites australis*) and other invasive species, including autumn olive and wild parsnip. It also contains other mixed forage species for the flock.



## 2023 Outcomes

1. Suppression of tier-4 plants through a non-invasive management technique.
2. Increased awareness of rotational grazing to manage vegetation and invasive species.
3. Strengthen our relationship with PRISM and other collaborators doing invasive species management and help share the message of this important work.

## 2023 Educational Outreach Projects and Efforts

To help provide more educational experiences and context for the grazing sheep in the Preserve, we started having dedicated “sheep stewards” who would sit with the flock during their grazing to answer questions. We had a rotation of 10 volunteers who were part of the sheep stewardship team, and we hired Maggie Mang as our dedicated Education, Outreach, and PRISM Liaison.

Maggie’s focus was to help train the sheep stewards and guide them as needed. With Maggie’s help, we listed 7 “Meet the Sheep at Work” with Maggie” outreach events. These were dedicated walks for visitors to learn about PRISM and the grazing project. An event was canceled because of the rain. The planned sessions were as follows:

Friday, July 21  
Friday, July 28  
Friday, August 4  
Friday, August 18  
Friday, September 15  
Friday, September 22  
Friday, September 29

We use Eventbrite for our registrations, and this series had 63 page views, and 5 participants signed up, with one giving a small donation. These walks also accepted walk-ins. Given that this was the first year offering these walks, we anticipate that future years will have even more interest and response. We’ve often learned that it takes a season for people to get excited about what’s to come. Below is the text that was used to promote the events on the calendar:

*Join us and learn about Tivoli’s partnership with PRISM as we use a flock of sheep to manage Common Reed (*phragmites australis* and other vegetation along a portion of a trail in Tivoli Lake Preserve. Tivoli’s PRISM liaison, Maggie, will provide more information about Tivoli, PRISM, and non-invasive methods of managing vegetation.*

*This project is supported by Partnership for Regional Invasive Species Management (PRISM) (<https://www.capitalregionprism.org/>).*

*The sheep will be grazing along a portion of the trail. Come meet Maggie and learn more about the sheep and PRISM’s work. Use the main parking lot at Judson Street and Livingston Ave and walk along the trail until you see Maggie and the flock.*

*Please note that our animals are working animals, and we are not a petting zoo, and no dogs are allowed near the flock.*

*Pre-register here: <https://www.eventbrite.com/e/meet-the-sheep-at-work-with-maggie-tickets-673962278317>*

*If you have questions, please contact Kim (email: [kim@friendsoftivoli.org](mailto:kim@friendsoftivoli.org) (mailto:kim@friendsoftivoli.org) / phone: 518-417-1971).*

In addition to these specific events, a volunteer led guided walks in the Preserve to provide an “Introduction to Tivoli” and would always walk by the sheep and explain the project. Some of these guided walks were targeted for the “NatureBus,” a bus that brings people to natural places in the Capital Region, and Tivoli Lake Preserve was one of the stops.

The NatureBus events had 141 page views, with 13 participants signing up and one giving a small donation. The other walks are part of an ongoing series of guided walks, which occur throughout the year (so we can’t confirm how many page views were specific during the grazing season). However, the event page had 538 page views, and we’ve had 49 participants register for the walks to date and have also received donations for the walks. While we may not have had everyone attend the events, knowing they were still looking and signing up is encouraging.

A few anecdotal observations and comments from participants attending the outreach events. Two people were shocked that Tivoli was so close to them, and they had never heard of it before. One was a librarian, and another was a middle school teacher. They both really liked the educational opportunities of Tivoli and will likely partner with us in the future. This was the overall sentiment from most sheep stewards Maggie trained as well. Very few of them knew that the Tivoli Lake Preserve was there, and they all found semblances of peace, tranquility, and community volunteering to be a sheep steward. Folks came from all walks of life, too, and Tivoli and the sheep offered different versions of reprieve for them: one was a retired woman who had recently moved back to Albany after years away; another was a graduate student whose involvement with Tivoli was beneficial to not always being in front of the computer; there were two sets of families involved, and it was great seeing parents/care-takers do this with their kids.

Maggie also helped with entering the data into iMapInvasives.

## Bio-Assessment of Subject Area

### Initial observations before grazing

The height of the plants is shorter than in previous years, and some of the vegetation on the edges is more diverse.

The average height of the Common Reed (*Phragmites australis*) was 131.12 cm. This observation indicates that the previous years of grazing have impacted the re-growth (for example, last year’s average height was 179.70 cm).

### Grazing treatment updates

We were able to reduce the Common Reed (*Phragmites australis*) relative biomass by 17.42% after treatment.

<b>Grazing Reduced Density, Height, and Biomass of Common Reed</b>			
	<b>Before Treatment</b>	<b>After Treatment</b>	<b>Difference</b>
<b>Average Height</b>	131.12 cm	108.28 cm	-22.84 cm
<b>Biomass</b>	27.40 g	22.63 g	-4.774 g
<b>Relative Biomass</b>	<b>-17.42% reduction in biomass after treatment</b>		

Samples for the bioassessment were measured with a quadrat. A quadrat is a small square frame made from a lightweight material that outlines an area of .1 m<sup>2</sup> in a pasture. The quadrat is tossed randomly into the pasture, and then the plants inside the quadrat are measured. One sample is created every time the quadrat is tossed. The bioassessments took place before and after the grazing season and were completed by our high school interns. Data was collected and placed into our data tracking form.

### Selecting Samples for Bioassessment



Pictured here are two students assisting with measuring samples for the bioassessment. First, the quadrat is tossed randomly into the pasture. Then, measurements are taken from the area inside the quadrat. Plant density, plant height, and biomass are common measurements. Multiple samples are taken by tossing and measuring the quadrat multiple times. Then, the samples are analyzed to characterize the pasture. The process is repeated each season to document changes to Common Reed (*Phragmites australis*) and other plant life in response to the grazing treatment. Here, the quadrat landed in an area with a mixture of dead and a few standing regrowth strands.

### Progress through the Grazing Season in Target Zone 2

July 19, 2023



**July 21, 2023**



**August 1, 2023 (detail)**



**August 7, 2023**



**August 14, 2023 (detail)**



**August 28, 2023**



**September 11, 2023**



**September 26, 2023**



**September 29, 2023**



**The flock also ate autumn olive  
and helped clear under the trees.**





**The flock also ate autumn olive and helped clear under the trees.**



### **Lessons Learned**

- It takes approximately 2-3 months to clear the Common Reed (*Phragmites australis*) in our grazing area, which is the perfect amount of time given the grass in the ballfield.
- Losing one of the sheep was very sad, but our community rallied together.
- Sheep stewards will want to be part of the program for the entire summer, so just offer one set of shifts and have people be part of that day's "team" for the entire grazing season.
- Grazing treatments impact plant regrowth over time. Re-grazing treatment areas will be necessary to maintain and further reduce the Common Reed (*Phragmites australis*) population in the upcoming years and provide a unique opportunity for visitors.
- Having a dedicated Education, Outreach, and PRISM Liaison was super helpful and allowed us more opportunities for outreach and sharing the message.

### **Results**

- Common Reed (*Phragmites australis*) was suppressed using non-invasive treatment methods.
- Community members learned about invasive species and continued using the preserve. Kids, adults, college students, and seniors support the project.
- Continue to foster new environmental stewards.