

# TRACKING THE SPREAD OF INVASIVE SPECIES IN THE BINGHAMTON UNIVERSITY NATURE PRESERVE

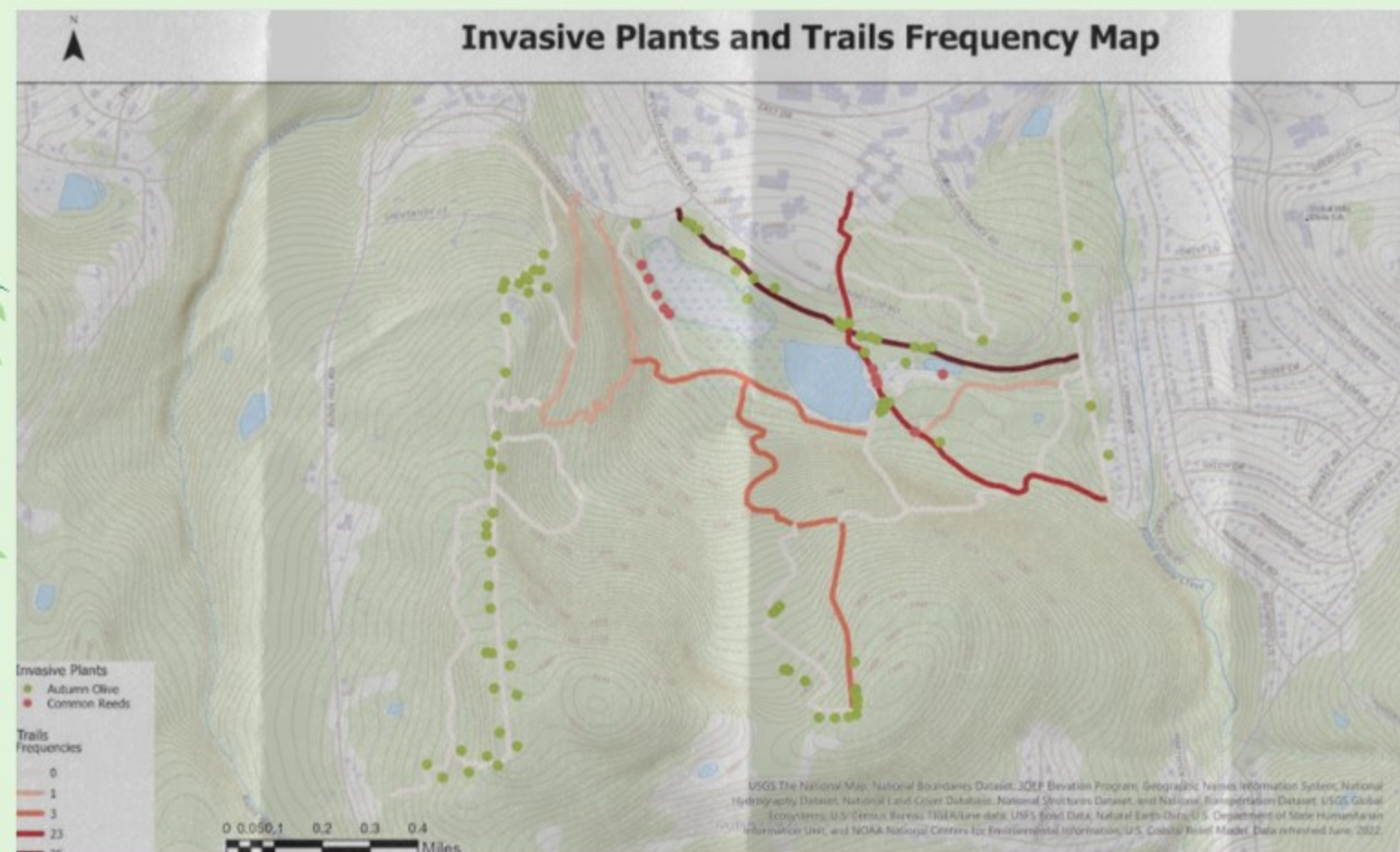
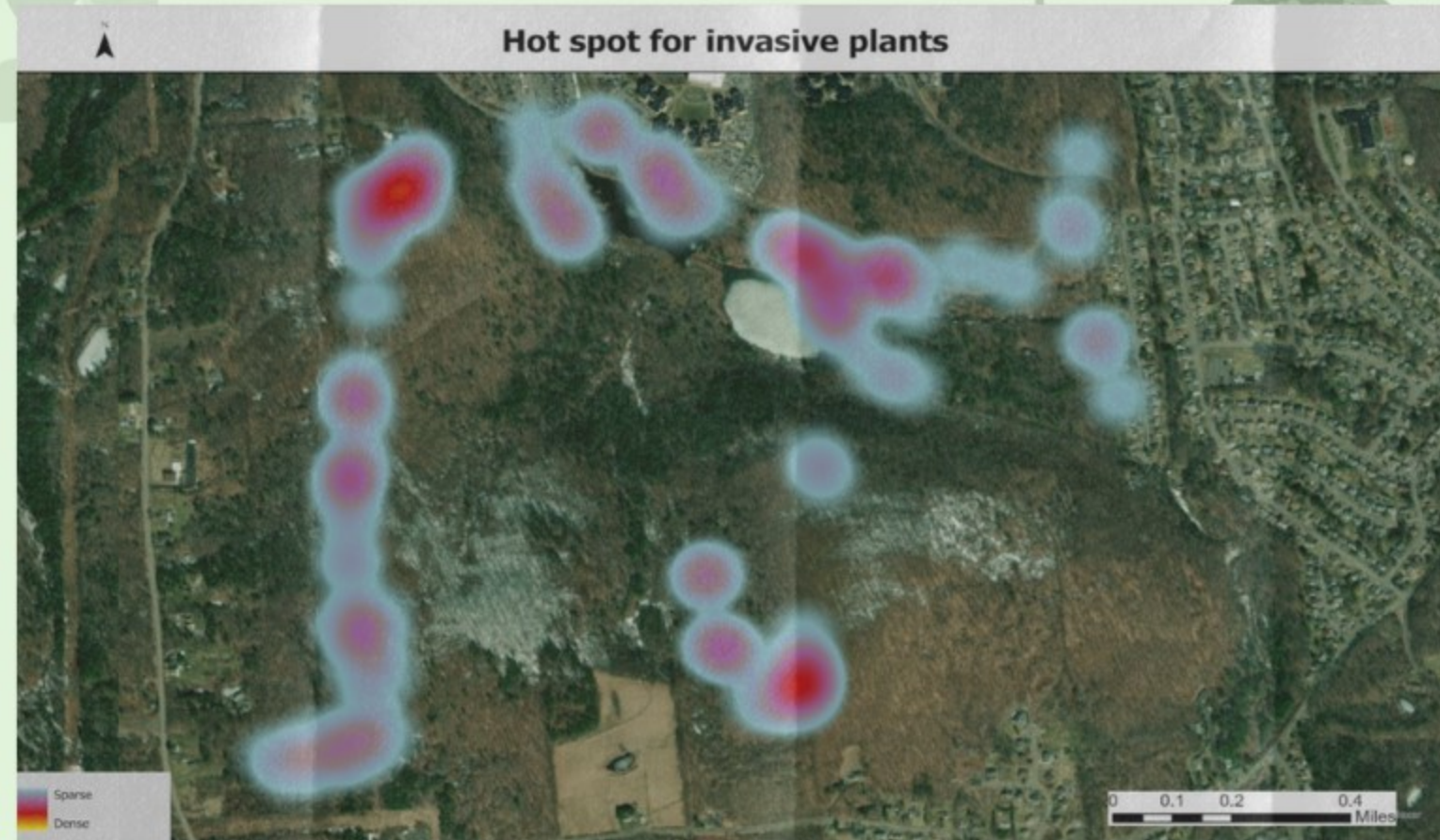
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## INTRODUCTION

- In the late 1960's there were plans put in place to turn the area that composes the Nature Preserve into playing fields and parking lots until university students performed protests to stop the development of the land, some even going as far as to lay down in front of bulldozers. The University ended up respecting these wishes and leaving the Nature Preserve in its natural state.
- The current lands that comprise the Nature Preserve used to be a dairy farm
- College in the Woods contains the oldest trees in the Nature Preserve. Most of the Preserve forest ranges from 50-70 years old.
- Common Reed
  - Common Reed was introduced to the Nature preserve during renovations to campus as waste was dumped in the Preserve. It has been prevalent here since the 1990s but is now contained by the wetlands.
  - It can be identified by its thin flat leaves and long stems.
- Autumn Olive
  - Autumn Olive is an invader of fields and disturbed areas. New York State's Department of Environmental Conservation gave Autumn Olive out to the public for free to protect hillsides and combat the deer overpopulation.
  - It can be identified by its alternating leaves and red berries. It is normally large in size.

## METHODOLOGY

- We used Survey123 to collect campus community members' opinions and their educational background on invasive species at nature preserve on campus.
- We distributed it through the Environmental Science listserv, the Friends of the Nature Preserve Group, the Ecology class groupme, and by QR code at entrances to the preserve.
- We interviewed different faculty members, staff, graduate students in the Geography and Environmental Science department to get the background information about invasive plants around campus.
- We collected field data using ArcGIS fieldMap to map two invasive plants near the trail roads in the nature preserve.
- We analyzed the field work data and survey results and integrated them together.



## RESULTS

- Autumn Olive were mainly concentrated at the Marsh Trail and Pond Trail
- Common Reed's distribution pattern was primarily near the wetland areas and Harpur Pond
- The trails most frequently used by hikers from our survey data corresponds with this pattern
- Less invasive species are in the forest region
- Majority of the survey respondents claimed a basic education level on invasive species but a large percentage still listed they do not know how to identify Common Reed and Autumn Olive, the most common invasive species

## DISCUSSION

### Solutions:

- Dylan considered doing a controlled burn or bringing in goats (fence them in to eat in a circle) to eradicate common reeds
- Putting up educational signs and guidelines in problem areas (hot spots).
- Allowing hikers to report invasive species that they come across.
- The Nature Preserve is not totally secure from further development. Student, local and academic pressure could be utilized to "codify" the Nature Preserve's existence
- Lead nature preserve tours that emphasize the effects of invasive species.
- Spreading the cause to Binghamton University clubs (Outdoors club, environmental change club, audubon club, etc) that frequent the nature preserve

### Social Aspects:

- There is debate over whether we should worry about invasive species or not with bigger issues surrounding the environment like climate change.
- When do invasive species become native?
- How long does it take an environment to adapt?

### Further research

- Using drone flight, remote sensing technology to continue monitoring the invasive species spread around the University community
- Using ArcGIS interactive Dashboard to inform the invasive species activities and spread ways to Campus and nearby communities

## REFERENCES

- Hellmann, J. J., Byers, J. E., Bierwagen, B. G., & Dukes, J. S. (2008). Five potential consequences of climate change for invasive species. *Conservation biology*, 22(3), 534-543.
- About Nature Preserve - Nature Preserve | Binghamton University. (n.d.). Nature Preserve - Binghamton University. <https://www.binghamton.edu/nature-preserve/about/index.html>