

Advancing Awareness of Aquatic Invasive Plants

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Project Motivation & Goals

Water Quality and Community:

Poor water quality has been a concern since the Industrial Revolution. Invasive species (non-native species that harm their new local environment) have further degraded water quality by reducing water flow and transportation of nutrients or leading to hyper-eutrophication (Soka University). Poor water quality can affect our access to potable drinking water and food resources (e.g. fishing) or caused the spread of diseases to many organisms (World Health Organization), having serious impacts on people of the communities that depend on these bodies of water.

Purpose:

The purpose of my project is to educate my peers on aquatic invasive plant species, how they affect the health of aquatic ecosystems, & why this should matter to them.

Aquatic invasive plant species education is important because the health of aquatic ecosystems greatly impacts the health of organisms around it, including us, humans; and the future leaders of our generation will be more likely to work towards sustaining healthy aquatic ecosystems if they are educated about it.

Goals for the Aquatic Invasive Species Workshop:

- Increase awareness of aquatic invasive species and their impacts on humans.
- Participants will become more knowledgeable of aquatic invasive species.
- Provide participants with actionable steps to limit the spread of aquatic invasive species in their community.

Project Outcomes

Workshop - General Details:

- The workshop will take place on May 10th at Central High School in Bridgeport, CT.
- It will be done in collaboration with another NRCA CAP student's terrestrial invasive species workshop.

Workshop - What it Includes:

- A presentation on 11 aquatic invasive plant species and how community members could be mindful of bodies of water in their community (like popular ones in Bridgeport; see Fig. 2).
- Community Partner Summer Stebbins provided a pamphlet and powerpoint that the CAES used in their workshops as a template.
- Examples of aquatic invasive plant species prevalent in Connecticut and assess the students ability to identify the plants.
- I adjusted the materials provided by Summer to be more applicable to Bridgeport students (Fig. 3). I made the brochure mention ways that, as teenagers, the students could help their environment and in the workshop we highlighted an aquatic invasive plants they would see in their community specifically.
- A survey to record what the participants have taken away from the workshop.

Workshop - Goal

With the aquatic invasive species workshop, attendees are better equipped to become more involved in restoration efforts in Bridgeport.

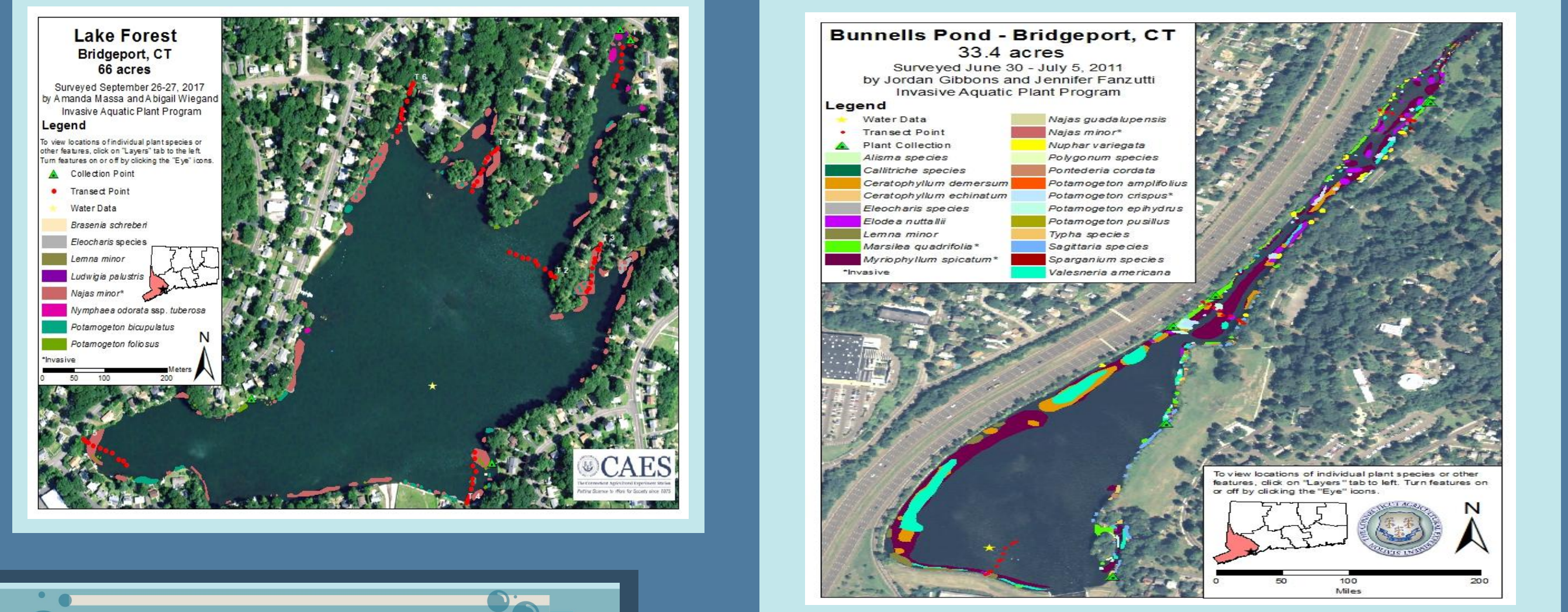


Fig 2. (Top Two Images) Maps showing aquatic plant species surveys conducted by the CAES on Lake Forest (left) and Bunnell's Pond (right) in Bridgeport, Connecticut. Invasives have asterisks.

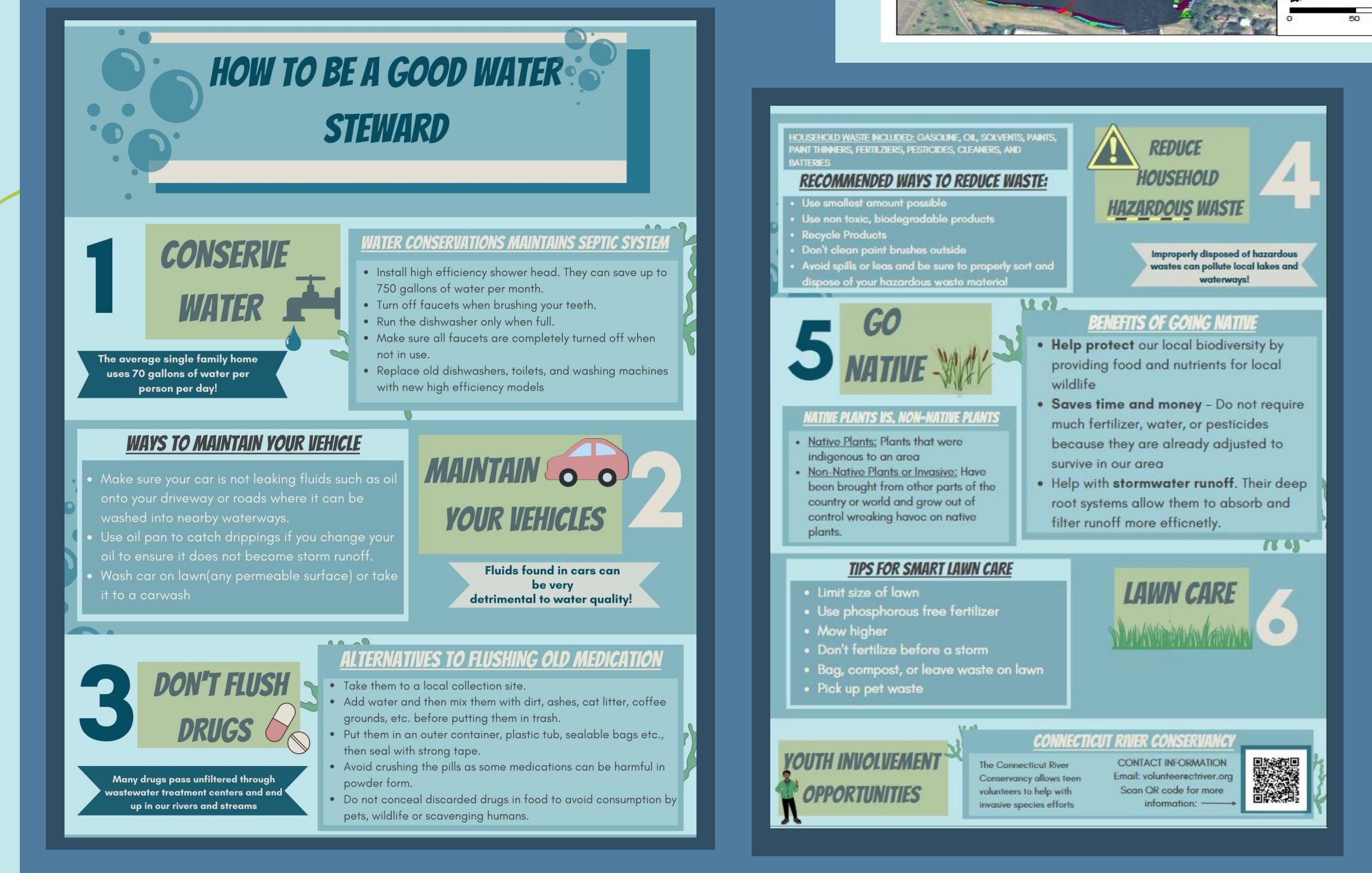


Fig 3. (Bottom Two Images) The handout on water stewardship that informs students on actionable steps to ensure the health of their water bodies.

Aquatic Invasive Species - What to Know

Aquatic Invasive Species: Generally, aquatic invasive species are non-native (from another state, country, or continent) organisms that primarily reside in aquatic habitats rather than terrestrial ones. Another characteristic of an invasive, is the ability to easily adapt to a new habitat and reproduce quickly (USDA).

In the case of my project, I focused on non-native plant species found in water because they are quite pervasive throughout Connecticut, with over 50% of lakes containing at least one invasive plant species (Fig. 1)!

What Makes Invasives a Harmful:

Invasive species have no natural predators and can reproduce quickly, a recipe for disaster as it allows the foreign species to completely overtake the environment they have been introduced to and inhabited. The invasive species overtake the living space and food in an aquatic habitat, leading to the deterioration and eventual deaths of native species who cannot compete. In addition to the death of native species, invasives also negatively impact water quality by inhibiting the transportation of nutrients and biodiversity (USGS).

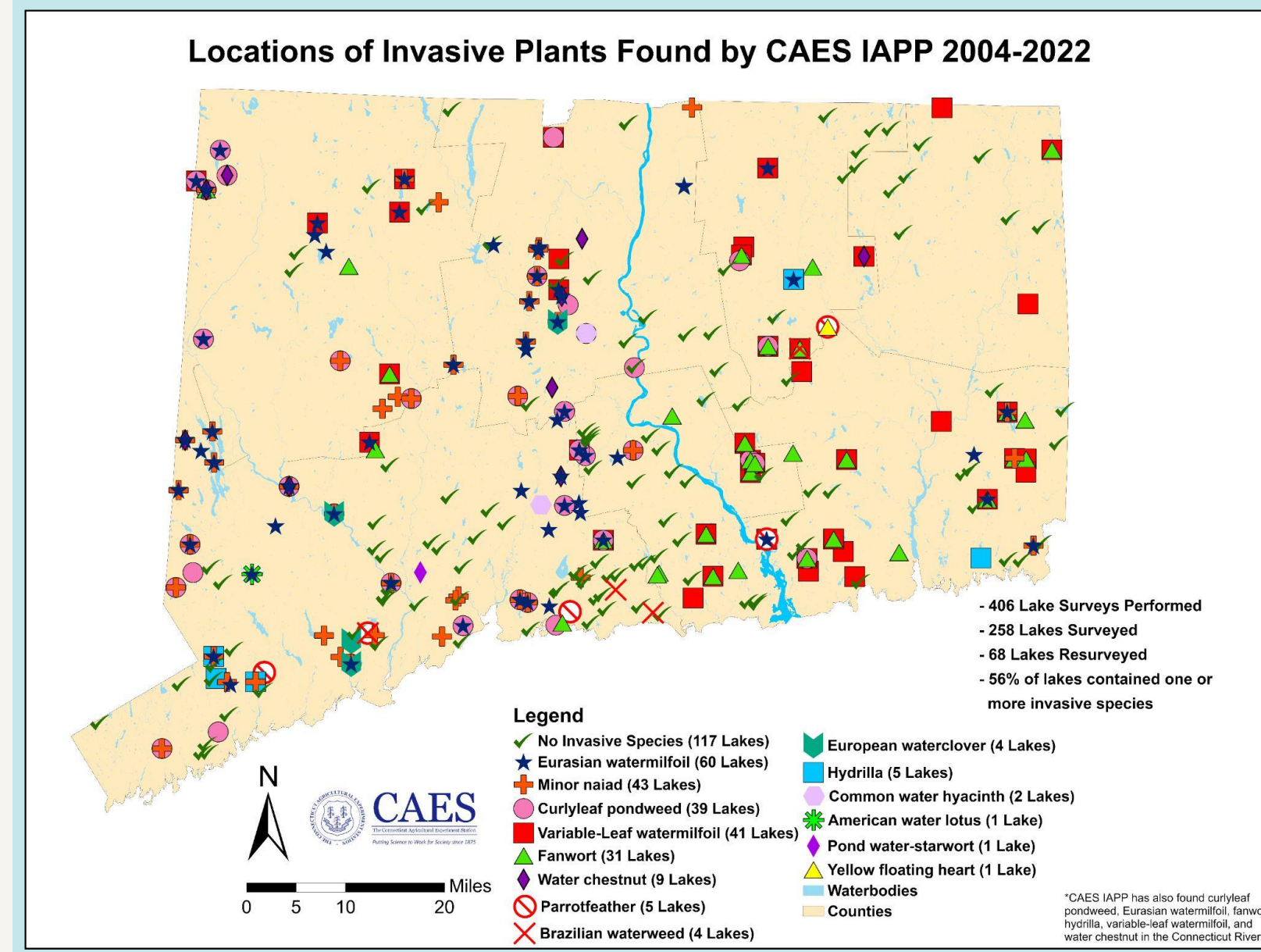


Fig 3. A map of the aquatic invasive plants the CAES has surveyed and found in various locations in Connecticut.



The Importance of Education



- I reached out to Summer and visited Connecticut Agricultural Experiment Station (CAES) where I was given a tour of the campus and aquatic invasive plant species resources to identify some in my community (pictures of the tour on the left). I learnt more about aquatic invasives throughout the trip, including how to maintain them and the risks associated with them, which helped me understand the value of education before taking action.
- Education is the foundation of our society, we learn so that we can do. Without the knowledge of how to do something we would not be able to do it. Can you bake a pie without having some knowledge of what a pie is and the necessary ingredients to make it? No! This can be applied to being an environmental steward. We cannot expect people to be active and positive forces for their environment if they do not know what is threatening it and how they can help. In the aquatic invasive plant workshop we will do just that, will educate students about what an invasive plant is, the dangers of it and steps they could take towards lessening the spread of them.

Bridgeport Aquatic Invasive Species:

A common aquatic invasive plant that can be found in Bridgeport lakes is the **Najas minor** or **Minor Niad** (see pictures to the right). The minor niad can be identified by its toothed leaf edges and the way it grows in a bushy, compact manner.



Conclusion & Next Steps

I plan on incorporating aquatic invasive species in my academia.

- I hope to continue working with CAES on aquatic invasive species by surveying local water bodies to understand how invasive species are removed on a large-scale.
- I will continue to research and learn more about aquatic invasive plants in my community and ways I could get involved in restoration efforts.

Acknowledgements & References

Acknowledgements:

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References:

1. Soka University, "Effects of Invasive Species on Water Quality in Freshwater Ecosystems by Laura Heller '20."
2. World Health Organization, "Drinking water"
3. USDA, "Aquatic Invasives"
4. USGA "What is an Invasive Species and why are they a Problem?"