Chinese Tallow Tree

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Abstract:

In many places across the south, Chinese Tallow trees are harassing the environment. The purpose of this study is to find an estimated number of trees and find a way to mitigate them in Gulfport, Mississippi. After interviewing scientists from Mississippi State University, it was discovered that the Chinese Tallow tree can grow almost entirely in water. The goal would be to eliminate or reduce the trees in these areas. If achieved, it would be possible to lessen the number of floods in areas at or below sea level by removing the blockade to the flood prevention systems. In conclusion, the Chinese Tallow tree is harmful to the environment and the objective is to remove the trees from inside the rivers and allow the flood precaution methods to work with fewer flaws.

Research Questions:

1. Is our goal to eliminate the species or to not make them harmful to the environment?
2. Where is the Chinese Tallow tree and where is it native?
3. What threats does the Chinese Tallow tree have on humans and the environment?
4. How do we stop the tree's fast reproduction rate?
5. How big of a problem is it?
6. Is the Chinese Tallow tree used for certain products?
7. How tall can the trees get to and is the height a concern?
8. Are the trees fine for the environment if dispersed in moderation?
9. Where are they located and how did they get there?
10. Is the Chinese Tallow tree good for firewood?

Introduction:

An invasive species is a species that is not native to its current environment. Some invasive species are good for the environment. They can contribute to the biodiversity of an area which can be a good thing, but for the most part all they do is harm the environment around them. Invasive species take over habitats and cause damages to some species, they can even cause extinction. This can happen in many ways such as competition for resources, messing up the food network of an ecosystem, etc. One world renowned invasive species is the Chinese Tallow tree.

The Chinese Tallow tree has a lot of history to get to where it is today. The Chinese Tallow was first discovered in the 1700's in southern Asia. Then it was sent to North America in 1770 by Benjamin Franklin. Benjamin Franklin introduced the plant in South Carolina and Georgia. In the 1900s the Chinese Tallow tree was being used for oil and soap as well. Texas started using the tree for wood. In Houston, Texas these trees were used so much that more needed to be grown, so they decided to grow between 200,000-300,000 trees. Eventually, the trees have spread to the whole bottom half of North America.

More biodiversity across the south sounds like a good thing, but these new non-native trees are causing problems. The Chinese Tallow tree can invade almost all habitats, from wet places to dry, and sun to shade. Once the tree is established the native species are crowded, and the leaves are toxic to cattle and cause nausea and vomiting to humans. The trees can grow between 20-50 feet which can knock out short species that need sunlight. In conclusion, this invasive species, although contributing to biodiversity on the gulf coast, is causing more harm than help.

Research Methods:

Measuring Tree Height from ground level:

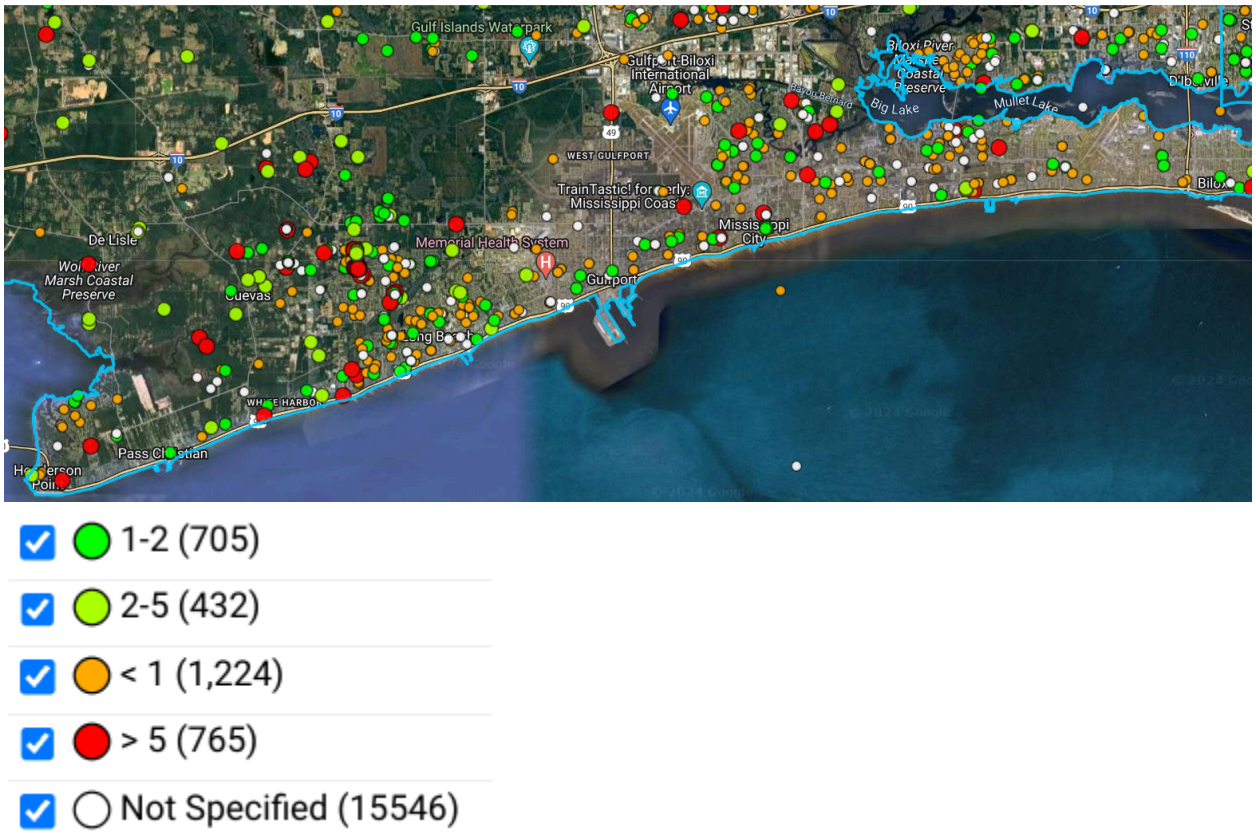
In the field:

1. With your partner, move away from the tree until your clinometer (a clinometer is a tool used to measure angles of slope, elevation, etc.) reads 45°. You should see the top of the tree through the straw.
2. The partner needs to stretch the 50 m measuring from the base of the tree to your feet. Once done, your partner will step on the tape and run it up to your eye level.
3. Then add the total length of the tape from the person to the tree, and then the person's height from the ground level to find the height of the tree.

Counting:

Examining an area and recording the number of trees identified in an area, add to MS Invasive Species App at www.HelpStopThePop.com.

Results: ***(Including GLOBE Data!***



This image shows us that there are a large number of Chinese Tallow trees along the Gulf Coast, but the majority of them are in Long Beach and along the Biloxi River. We tested how many Chinese Tallow trees are within 145-150 feet at our school Brickyard Bayou. Out of that we discovered up to 16 Chinese Tallow trees in the small area that we could count.

Interview Results:

We learned that Chinese Tallow trees cause a disruption in our watershed. Their ability to grow just about anywhere allows them to easily grow along a variety of waterways clogging up the natural flow of water. Since they can clog waterways they increase the area's amount of flooding potential. We also learned that the Chinese Tallow tree matures at a young age which means it can reproduce early and at a pretty fast rate.

Discussion:

This project has taught us many things about these trees. For example these trees came from southern Asia, and were traveled here by Benjamin Franklin. We learned that these trees were used for soap and oil as well as Texas using them for wood. The trees also cause nausea and vomiting in both humans and cows. These trees are located throughout Louisiana and Texas. We also learned that measuring tree height was not beneficial in this situation, since we were just trying to gather how invasive the tree was in our area. Our first goal to this issue would be to bring awareness of our concerns and then try to reduce the number of trees.

Conclusion:

In conclusion, the invasive species, the Chinese Tallow tree, is an environmental concern to the Mississippi area and it needs to be terminated. Once awareness is made, the goal would be to eliminate or reduce the trees from reproducing which in turn will help areas along the coast deal with environmental problems. Therefore, a more specific tracking system should be put in place in order to observe our progress against the plight the trees are creating. If the Chinese Tallow trees are eliminated or at least reduced, the ecological troubling situations could be alleviated.

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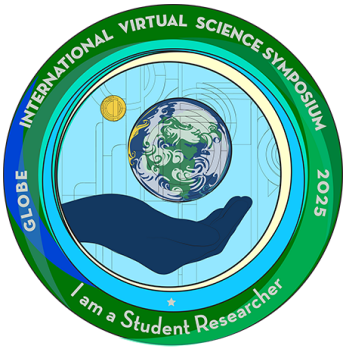
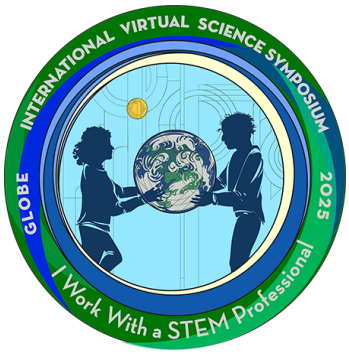
Badge Descriptions/Justifications:



The “I am a student research” badge was awarded to those who submitted a report to the IVSS. We earned this badge because we submitted said report and finished the report.



The “I Worked With a STEM Professional” badge was received because information was given with a stem professional. On December 9 2024, we video called Pat Shorter Wooden and Shelby to get information on the tallow trees with habitats, and ways to solve the problem on the trees. Since this badge was awarded to those who worked with stem professionals, we have earned this badge.