Chinese Tallow Tree

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THE GLOBE PROGRAM
Global Learning and Observations to Benefit the Environment

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 Question

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

Planning Investigations

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.

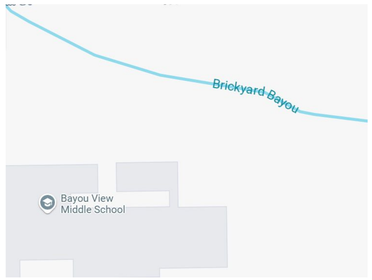
Counting:

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

Carrying Out Investigations

- We counted the number of trees we could identify on the Brickyard Bayou on our school grounds. We recorded the number and measured the area we counted.

This map shows our school with the Brickyard Bayou running through it.



Area on our school ground we counted trees.

Results

Analyzing Data

- **Figure 1** 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.
- **Figure 2** shows the number recorded on the Mississippi forestry app.
- We also counted how many Chinese Tallow trees are within 145-150 feet at our school Brickyard Bayou which was a small selected area compared to how large the Brickyard Bayou is at our school. Out of that we discovered up to 16 Chinese Tallow trees in the small area that we could count.

Figure #1

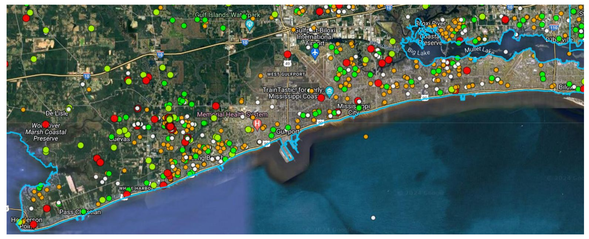


Figure #2

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 the southern states. 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. After interviewing, Mrs. Wooden and Mrs. Grice from MSU, we learned that the Chinese Tallow must be addressed within the first three years of it's life before it reaches maturity and can reproduce. We also learned that the Tallow tree clogs our waterways causing additional issues for area. It is a clear concern for our school watershed. From this interview we decided that our first goal to this issue would be to bring awareness of our concerns and then try to reduce the number of trees. We would love to work with the Mississippi Fostery to help spread awareness and reduce the amount of invasive species in our area.

Below are examples of Chinese Tallow Trees

Conclusions

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 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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