

Specific Aims

The big question for this project is to see what plants deer have been ingesting and where they are eating most. The goal for this project is to find the areas in which deer are eating and determine whether they are moving towards suburban areas or staying in more rural areas.

Methods

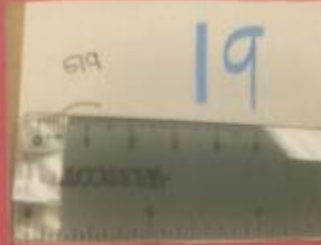
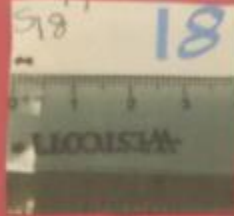
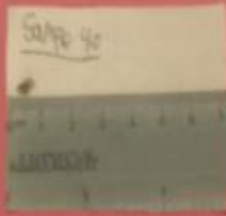
Deer was already collected and there was attempt to collect more samples in December and in the spring when there will be more scat. First plastic test tubes are brought to an area in which deer have been spotted. Then once a scat pile has been found the location is documented and photographed. A TPC is worn at all times. Then the pellets are placed into the test tube. Next take it back to the lab and discard it wearing full PPE and put out anything that appears to be plants from inside. Wash all the suspected materials in acetone to clean the sample. DNA from the plants will then be isolated using the fast DNA extraction method and will be amplified using a PCR reaction with rbcL plant primers, gel electrophoresis will be run to see if the amplification is successful. Successful amplifications will be sent to GeneSis for sequencing. Then it was analyzed by using DNA software to determine the identity of the plant.

Materials

- ◆ Gloves
- ◆ Goggles
- ◆ Mask
- ◆ Wood rod
- ◆ Test tubes
- ◆ Marker
- ◆ Cell phone
- ◆ Eppendorf
- ◆ Lysis solution
- ◆ TE Buffer
- ◆ Pencil
- ◆ Silica
- ◆ Tweezers
- ◆ Computer



Celastrus



Celastrus, also known as Bittersweet, is a native plant to Shelter Island. Currently in the Massiah Preserve on the island Bittersweet is over taking other plants and is now trying to be contained.



Festuca



Festuca are plants that are found in landscaping business. These are not native to Shelter Island, they are landscaping plants.



Data

Samples 18 (XKR-029), 19 (XKR-030), and 4 (XKR-015) are hypothesized to be a type of Celastrus.

Sample 6 (XKR-017) was left out from the tree for it messed up the DNA sequences due to it being really bad DNA.

Sample 8 (XKR-030) is not related to anything on the tree based on the tree.

After running all 20 samples on a gel the best results came from six out of the 20. The samples were sample 10 (XKR-021), sample 9 (XKR-020), sample 19 (XKR-030), Sample 4 (XKR-015), sample 18 (XKR-029), and lastly sample 6 (XKR-017).

Human Impact

Shelter Island is a barrier island that has inherited the brunt of Long Island's sea. It has endured many hurricanes and with the rising and falling of the tides has caused erosion along the banks of the island in which that is causing the deer to be pushed closer and closer to urban areas on the island. Their habitat is being destroyed and their food sources are dwindling, plants that they eat are being eroded away thus forcing the deer to find other sources of food. In this case they are migrating to urban areas all over the island in order to find food. On their journey to find food the deer cross streets all over the island and some of the times they get hit and killed. The migrating of deer closer to urban areas is not good for us or the deer. With deer crossing roads and with ticks crossing diseases, with the deer wandering closer to our homes we are at risk of catching a disease that a deer had that had been taken by a tick and injected into us. There is also the fact of the matter that with deer migrating closer they wander into roads which could cause an accident killing another injuring the deer or the people inside the car.