SATURN

Science and Technology Undergraduate Research Notes

http://www.saturnjournal.org

ISSN: 2328-3092

Volume 7 | Number 1

February 2018

ISSN: 2328-3092

Saturn Journal
http://www.saturnjournal.org

Vol 7, No. 1, February 2018

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Editorial

The purpose of the *Science and Technology Undergraduate Research Notes (SATURN) Journal* is to provide a venue for publication of undergraduate research. This research may include any novel findings of note while providing an opportunity for undergraduates to experience dissemination of their findings to the scientific community. Our goal is for the *SATURN Journal* to serve as both an educational and research tool. Each publication in this issue of the *SATURN Journal* has been reviewed by the professor for the course and by an outside scientist. Worthwhile data from embedded research in laboratory course curricula can be disseminated to the world community. By contributing their own novel findings for the greater good, students can be engaged in science through embedded research pedagogy more than through conventional pedagogy, and a source of large scale cataloging information can be developed by many students contributing novel data.

The *SATURN J.* Tree Survey pedagogy is an ongoing, cost competitive method of including embedded research in a non-majors science course, and has been successfully implemented at SCCC since the Spring Semester of 2012. It easily fits into the curriculum of contemporary Principles of Biology non-major science courses. Also, it has evolved into an instructed, crowd sourcing method for research that can readily be adopted by other institutions. This pedagogy has the capacity to provide valuable and long term undergraduate research experience nationwide. The *SATURN J.* began its' first issue with students from a Principles of Biology class at Suffolk County Community College (SCCC) in New York contributing their findings from a research project embedded in the laboratory curriculum. Specimens of each tree found on residential properties were brought to class. The species of each tree was identified by using a traditional dichotomous key. Students collaborated in groups to develop hypotheses based on the locations of the properties where the trees were found, the distribution of species, circumferences of trunks and population densities. The students followed the instructions for authors at the web site for the *SATURN Journal* (www.saturnjournal.org), and submitted their manuscripts to their instructor who acted as a peer reviewer. Those students whose manuscripts were accepted upon revision received a grade of 'A' and were given extra credit for the revision and publication. This has been a cost effective exercise that has resulted in enthusiastic student engagement, and is building a catalogue of the distribution of tree species on residential properties in Suffolk County, New York. There was also a publication in this issue by a group of students who were enrolled in a statistics course. They compared the growth rates of different cultivars of the American Elm (*Ulmus americana*) planted on campus at SCCC.

In the second issue of the *SATURN Journal* there was a continuation of student publications pertaining to the embedded research project analyzing tree species distribution. Students found it helpful to compare their findings to the findings of student investigators who have published previously in the *SATURN Journal*, which resulted in citations of previously published students. The second issue also contained publications from a research project embedded in a microbiology course from which students reported their findings from tests of the antimicrobial properties of spices.

In the third issue of *SATURN J*. there was continuation of research projects that produced publications in the previous journals. New publications compared findings to a larger battery of previously identified trees. Students used the web site from the United Stated Geological Survey (www.usgs.gov) to report the latitude and longitude of properties included in the studies. Additional web based tools used by students included online dichotomous keys such as vTree at Virginia Tech located in Blacksburg, Virginia (http://dendro.cnre.vt.edu/dendrology/idit.htm).

The fourth issue of *SATURN J.* included an article published by students at Molloy College regarding sweeteners and inflammation in macrophages, three additional articles from the microbiology course at SCCC, and a continuation of the *SATURN J.* tree survey. In addition, the abstracts from the 5 2014 Northeast Regional Sigma Xi Conference held at SUNY Old Westbury were presented.

In the fifth issue of the *SATURN Journal* we presented an additional article from the microbiology course at SCCC that compares soil bacterial communities on Long Island, and multiple articles that continue the *SATURN J.* Tree Survey.

In the sixth issue of the *SATURN Journal* we presented additional articles from the microbiology course at SCCC that compares soil bacterial communities on Long Island. We also presented multiple articles that compare soil composition, and multiple articles that continue the *SATURN J.* Tree Survey. Both are from a Principles of Biology course at SCCC. In addition, we presented two articles from students at Molloy College that test the effects of teratogens on *Planeria*.

In the seventh issue of the *SATURN Journal* we present an additional article from a microbiology course at SCCC that compares soil bacterial communities on Long Island. We also present multiple articles that continue the *SATURN J.* Tree Survey from a Principles of Biology course at SCCC, and an article that compares soil composition from a Chemistry course.

In the eighth issue of the *SATURN Journal* we presented multiple articles that continue the *SATURN J.* Tree Survey from a Principles of Biology course at SCCC. We also present an article on the effect of carboplatin on tadpole and planarian regeneration, and an article on the effects of dopamine and serotonin on bacterial growth.

In this ninhth issue of the *SATURN Journal* we presented multiple articles that continue the *SATURN J.* Tree Survey from a Principles of Biology course at SCCC. We also present an article on the identification of a housekeeping gene for use in inflammatory studies, and an article pertaining to the water quality of a lake in in a developing watershed in Minnesota.

We encourage instructors to have their students participate in the *SATURN Journal.* The publications in the journal are a source of embedded research project designs that instructors may include in their curricula. The journal serves as a venue for dissemination of student research and a source for students to compare their work to the work of others. Instructors are welcome to design additional projects from which their students can submit manuscripts.
Louis Roccanova, Ph.D.
Editor in Chief *SATURN Journal*

Maples are Dominant Trees in Deer Park, New York

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Keywords: Deer Park, Trees, Species, Leaves, Branches, Maple

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Abstract:

A total of 47 samples of trees from 4 different residences in Deer Park, New York were collected. The branches were then identified by using two different dichotomous keys Tree Finder: A Manual for the Identification of Trees by Their Leaves by May Theilhaard Watts, (1998) and a mobile application called Leafsnap (2017) designed to help users identify trees found in Northeastern United States and Canada. Maples are the most dominant of trees seen throughout each residence.

Introduction:

According to NYS Dept. of Environmental Conservation (2017), Silver Maple (*Acer saccharinum)* was one of the most dominant trees identified during this study. This tree is a deciduous tree, it has a fast growth rate and the site requires sun and moist well drained soil, but can withstand a wide range of site conditions including periodic flooding. The average height for Silver Maples are 15 to 23 meters and a width of 12 to 18 meters. On young trees the bark is smooth and light gray. On older trees, the bark becomes shaggy and furrowed. These trees have leaves 5 to 12 centimeters wide and very deeply lobed with coarse teeth.

Method:

47 samples of trees were gathered from four different residences in Deer Park, New York. Two of the residences are in west Deer Park, while the other two are in east Deer Park. Utilizing the mobile application Leafsnap (2017) and the dichotomous key (Watts, 1998) the student identified the common and scientific names for the trees surveyed. The longitude and latitude of each property was found using EarthExplorer (USGS 2016). The first property studied was in west Deer Park (40.755235, -73.340096) and 13 trees were surveyed. Second property located in west Deer Park (40.754763, -73.340438) and 7 trees were surveyed. The third property studied was in east Deer Park (40.773569, -73.325342) and 16 trees were surveyed. The fourth property located in east Deer Park (40.775210, -73.321829) and 11 trees were surveyed.

Results:

Based on all the data collected between the four properties in Deer Park, I concluded that the most dominant type of tree was Maple (Acer), comprising 23 of the 47 (49%) specimens. Out of the 23 Maple trees found, 11 (47.82%) of them were Silver Maple's, 7 of them were Sugar Maple's (30.43%) 3 of them Norway Maple's (13.04%) and 2 of them Crimson King Maple's (8.70%).

Table 1: Trees identified at property 1 - west Deer Park (40.755235, -73.340096)

Common Name	Scientific Name	Quantity
Silver Maple	*Acer saccharinum*	4

Sugar Maple	*Acer saccharum*	2
Pin Oak	*Quercus salustris*	2
Scarlet Oak	*Quercus coccinea*	1
Austrian Pine	*Pinus nigra*	3
Black Walnut	*Juglans nigra*	1

Table 1: Trees identified in 2017 at Property 1 by common name, scientific name, and quantity. Silver Maple (*Acer saccharinum*) was dominant on this property.

Table 2: Trees identified at property 2 - west Deer Park (40.754763, -73.340438)

Common Name	**Scientific Name**	**Quantity**
Norway Maple	*Acer platanoides*	3
Pin Oak	*Quercus palustris*	2
Arbor Vitae	*Thuja occiendtalis*	1
Silver Maple	*Acer saccharinum*	1

Table 2: Trees identified in 2017 at Property 2 by common name, scientific name, and quantity. Norway Maple (*Acer platanoides*) was dominant on this property.

Table 3: Trees identified at property 3 – east Deer Park (40.773569, -73.325342)

Common Name	**Scientific Name**	**Quantity**
Pin Oak	*Quercus palustris*	1
Red Cedar	*Juniperus virginiana*	2
Sugar Maple	*Acer saccharinum*	5
Austrian Pine	*Pinus nigra*	1
Silver Maple	*Acer saccharinum*	3
Crimson King Maple	*Acer platanoides*	2
Star Magnolia	*Magnolia stellata*	2

Table 3: Trees identified in 2017 at Property 3 by common name, scientific name, and quantity. Sugar Maple (*Acer saccharinum)* was dominant on this property.

Table 4: Trees identified at property 4 – east Deer Park (40.775210, -73.321829)

Common Name	**Scientific Name**	**Quantity**
Silver Maple	*Acer saccharinum*	3
Red Cedar	*Juniperus virginiana*	3
Austrian Pine	*Pinus nigra*	4
Arbor Vitae	*Thuja occiendtalis*	1

Table 4: Trees identified in 2017 at Property 4 by common name, scientific name, and quantity. Austrian Pine *(Pinus nigra)* was dominant on this property.

Discussion:

Lasot et al. (2017) discovered the Norway Maple *(Acer platanoides)* was one of the most dominant trees identified in Deer Park along with Arbor Vitae *(Thuja occidentalis)* and Austrian Pine *(Pinus nigra).*

In another study by Orto et al. (2017), Maple trees were very common in Deer Park and Brentwood. After comparing results, I found that the Silver Maple (*Acer saccharinum*) was dominant in these locations.

Conclusion:

After identifying and collecting data from four different properties in Deer Park, 23 out of 47 (49%) trees in this study were Maple *(Acer).*

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Deciduous Trees are Dominant to Coniferous and the Norway Maple is Invasive in Suffolk County, New York

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Keywords: Deciduous, Coniferous, Dominant, Long Island

Abstract:

A total of 46 tree samples were gathered from four different residential locations in Suffolk County, New York. Ten from East Islip, fourteen from North Babylon, ten from Huntington, and twelve from Central Islip. The species of each tree was identified by using two different dichotomous keys and confirmed by the mobile app "*Picturethis"*. The trees were identified by their common name, scientific name, and whether they were deciduous or coniferous. Deciduous trees were found to be dominant to coniferous, and the Norway Maple *(Acer platanoides)* was found to be the dominant species.

Introduction:

The classification and study of living organism is known as Taxonomy. A tool that is used to classify plants, trees, and many other parts of nature is a dichotomous key. The dichotomous key is a series of observations that are used for identification. "The use of a dichotomous key for plant identification is today so pervasive in botany that it is often taken for granted, as a natural part of the plant sciences, rather than as a heuristic construct developed by someone specifically to aid in learning" (Griffing 2011). This key breaks down the characteristics of the plant sample, organism, or specimen to clarify and determine the specific scientific name using binomial nomenclature. Also known as the "two name" system, binomial nomenclature starts with the genus and is followed by the species. The genus is capitalized while the species is lowercase. Throughout this investigation, all samples are classified using binomial nomenclature which was determined using dichotomous keys.

Long Island, NY, has a climate similar to other coastal areas of the Eastern Seaboard; it has warm, humid summers and cold winters. The island is surrounded by water, with sandy beaches on the south shore, and rocky beaches on the north shore. Generally, Long Island has very low elevations throughout the region, with its highest point only being 118 meters (387 feet) above sea level (Taylor 1927). The tree samples found on four Long Island properties were either deciduous or coniferous. According to Reitberger (2008), Deciduous trees are any trees that drops their leaves in the fall and go dormant during cold weather. When the weather warms, deciduous trees produce new leaves. Most deciduous trees are broadleaf trees, however, some trees with needles are also deciduous trees. Coniferous trees are often referred to as evergreens, and the name is associated with trees that have needles instead of broad, flat leaves. Although this is true in many cases, it isn't always true. A coniferous tree is any tree that reproduces through cones.

Method:

Four students individually collected samples from each tree on their property in their respective towns of East Islip, North Babylon, Huntington and Central Islip. The amount of samples varied from each location being 10, 14, 10, and 12 respectively coming to a total of 46 trees. Following this, the coordinates were taken of their location using compass app on the iPhone. Next, using different dichotomous keys including *Tree Finder* (Watts 1991) and the app on mobile devices *Picture This* (Hangzhou Dana Technology 2013) the students then classified each sample into a specific species.

Once each sample was organized into specific and common names the students then determined whether they were coniferous or deciduous. Finally the students examined their results and confirmed which type of tree is most prevalent on the four properties with the conclusion that deciduous trees are the dominant tree type.

Results:

The four towns include East Islip, North Babylon, Huntington, and Central Islip. The tree count is as listed, 10 samples from East Islip, 14 samples from North Babylon, 10 samples from Huntington, and 12 samples from Central Islip, which totals to 46 samples. Each sample was identified as either being a Deciduous or Coniferous tree. The results show that deciduous was dominant compared to coniferous. Out of the 46 tree samples collect, 72% were defined as deciduous and 28% were coniferous.

Table 1: Location of towns and coordinates and counts of trees

	Town 1	**Town 2**	**Town 3**	**Town 4**
Address	Connetquot Ave, East Islip NY 11730	Lombard St, North Babylon NY 11703	Lantern St, Huntington NY 11743	Oakdale Ave, Central Islip NY 11722
Coordinates	N 40° 44’41” W 73° 10’41”	40 44’ 50” N 73 19’ 17” W	40 50’ 44” N 73 22’ 17” W	40° 47’41” N 73° 12’9”W
Town	East Islip	North Babylon	Huntington	Central Islip
Tree count	10	14	10	12

(Table 1 consists of the exact location and address of each property within each town and exact coordinates in which each sample was collected and gathered).

Table 2: Listing of tree samples, common name, scientific name in which were categorized between two types of tree (deciduous or coniferous).

	Town 1	**Town 2**	**Town 3**	**Town 4**
Tree 1	Tree of Heaven (*Ailanthus altissima)* ***Deciduous***	Lilacs *(Syringa oleaceae)* ***Coniferous***	Japanese Maple *(Acer Palmatum)* ***Deciduous***	Black Locust *(Robinia pseudo-acacia)* ***Deciduous***
Tree 2	Chinese Privet (*Ligustrum sinense*) ***Deciduous***	Euonymus Oxyphyllus *(Euonymus oxyphyllus)* ***Deciduous***	Chinese Arborvitae *(Platycladus orientalis)* ***Coniferous***	Washington Hawthorn *(Crataegus phaenopyrum)* ***Deciduous***

Tree 3	Norway Maple *(Acer platanoides)* ***Deciduous***	Korean Spice Viburnum *(Viburnum carlesii)* ***Deciduous***	English Oak *(Quercus robur)* ***Deciduous***	Japanese Maple *(Acer palmatum)* ***Deciduous***
Tree 4	Black Locust *(Robinia pseudoacacia)* ***Deciduous***	Winged Euonymus *(Euonymus alatus)* ***Deciduous***	Fortune's Spindle *(Euonymus)* ***Deciduous***	White Mulberry *(Morus alba)* ***Deciduous***
Tree 5	Norway Maple *(Acer platanoides)* ***Deciduous***	Uncaria Rhynchophylla *(Uncaria rhynchophylla)* ***Deciduous***	Jack Pine *(Pinus banksiana)* ***Coniferous***	Peace-leaved Willow *(Salix amygdaloides)* ***Deciduous***
Tree 6	China Root *(Smilax china)* ***Deciduous***	Norway Maple *(Acer platanoides)* ***Deciduous***	Formosan Juniper *(Juniperus formosana)* ***Coniferous***	Serviceberry Juneberry *(Amelanchier arborea)* ***Deciduous***
Tree 7	Oriental Bittersweet *(Celastrus orbiculatus)* ***Coniferous***	Norway Maple *(Acer platanoides)* ***Deciduous***	Sugar Maple *(Acre saccharum)* ***Deciduous***	Siberian Elm *(Ulmus pumila)* ***Deciduous***
Tree 8	Chinese Hemlock *(Tsuga chinensis)* ***Coniferous***	Norway Maple *(Acer platanoides)* ***Deciduous***	Chinese Juniper *(Juniperus chinensis)* ***Coniferous***	Norway Maple *(Acer platanoides)* ***Deciduous***
Tree 9	Norway Maple *(Acer platanoides)* ***Deciduous***	Yulan Magnolia *(Yulania denudata)* ***Deciduous***	English Oak ***Coniferous***	Norway Maple *(Acer platanoides)* ***Deciduous***
Tree 10	Chinese Privet *Ligustrum sinense)* ***Deciduous***	Chinese Red Pine *(Pinus massoniana)* ***Coniferous***	Taxus Wallichiana *(Var. chinensis)* ***Deciduous***	Norway Maple *(Acer platanoides)* ***Deciduous***
Tree 11	-	Chinese Red Pine *(Pinus massoniana)*	-	Sweet Cherry *(Prunus avium)* ***Deciduous***

		Coniferous		
Tree 12	-	Chinese Red Pine *(Pinus massoniana)* ***Coniferous***	-	Chinese Wild Peach *(Amygdalus davidiana)* ***Deciduous***
Tree 13	-	Symplocos Lucida *(Symplocos lucida)* ***Coniferous***	-	-
Tree 14	-	Japanese Andromeda *(Pieris japonica)* ***Coniferous***	-	-

(The table above indicates a total of 46 sample of trees and scientific names. Each are categorized either in the deciduous or coniferous group. Deciduous seems to be the more dominant type of tree found in each town compared to coniferous).

It was discovered that one tree species appeared dominant. This tree species was identified as Norway Maple (*Acer platanoides*). The Norway Maple was dominant within three out of four properties. The towns include East Islip, North Babylon, & Central Islip. East Islip, North Babylon, and Central Islip each contained three samples of the Norway Maple tree. This totals nine Norway Maple trees altogether. 20% of the tree samples collected were Norway Maple.

Discussion:

Norway Maple is considered to be an invasive plant in Long Island. Norway Maple tree "can be tremendously invasive...the fact that it can grow in heavy shade makes it a 'sneaky' invasive plant. Norway Maple *(Acer platanoides)* is a European species…the reasons for its popularity are clear: vigorous early growth rate, tolerance of urban conditions, ease of transplant, and tolerance of many different soil conditions" (Scamardella 2015). Although no Norway Maples were found in Huntington in this study, other Maples were identified being the Japanese Maple tree *(Acer palmatum)* and Sugar Maple *(Acre saccharum).* The Japanese Maple was also found in Central Islip. The towns of East Islip and Central Islip had another identical tree as well, the Black Locust *(Robinia pseudoacacia).* The Black Locust (*Robinia pseudoacacia*) is also an invasive species (Rather 2003)

Rizo et. al (2017) also found that deciduous trees were dominant on a Long Island location over coniferous as well. Out of their 51 tree samples collected, 22% were coniferous and 78% were Deciduous.

Conclusion:

Norway Maple was identified in three towns of the four surveyed in this study in Suffolk County, New York. 25% of the trees identified in the South Shore towns in this study were Norway Maples. This species of Maple tree seems to be the most dominant tree species in this study, and it is known to be an invasive species. Deciduous trees were dominant to coniferous with a total number of 33 out of 46 trees surveyed. Therefore, 72% of the trees surveyed were deciduous.

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Chinese Arborvitae Trees are Dominant in Kevin Ver Pault Memorial Park and Heckscher Park, While Oak Trees are Dominant in Residential Areas

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Keywords: West Babylon, Wheatley Heights, Chinese Arborvitae, Oak and Maple Trees

Abstract:
Sixty-six tree samples from two residential properties and two parks in Suffolk County, Long Island were collected. We were able to identify them using a dichotomous key, an IPhone and Android application. We discovered that nine out of the sixty-six trees belong to the Oak family and three trees belong to the Maple tree family. Also, Pin Oak tree was found in two different properties, West Babylon, New York and Kevin Ver Pault Memorial Park. Another result, is that Chinese Arborvitae tree was the most common with a 55.5% in Kevin Ver Pault Memorial Park. Out of the sixteen trees from the two residential properties 55% were Oak trees.

Introduction:
The Chinese Arborvitae (*Platycladus orientalis*), grows in fertile, well-drained soils in full sun (Missouri Botanical Garden 2017). The Sycamore Maple (*Acer pseudoplatanus*) could tolerate any kind of soil (Missouri Botanical Garden 2017). Scarlet Oak (*Quercus coccinea*) was usually grows in dry, sandy soils. White Cedar (*Thuja occidentalis*) grows where there is usually moist soil (Missouri Botanical Garden 2017). Bigleaf Maple (*Acer macrophyllum*) usually grows in moist soils in cool summer temperatures (Missouri Botanical Garden 2017).

Methods:
The samples collected for this experiment came from various parts of Long Island, New York. The towns included are, Wheatley Heights, East Islip, and West Babylon which all had various tree species, some different and some similar. With the help of the dichotomous keys *vTree* (Peterson 2016) and *Leafsnap* (Belhumeurand and Jacobs), we were able to identify the correct names of the trees and their scientific names.

The three samples were taken from one public park in Wheatley Heights, one state park in East Islip, two residential areas one located in Wheatley Heights and the other in West Babylon. From Kevin Ver Pault Memorial Park, thirty-four sample trees were taken and sixteen from Heckscher State Park. From the two residential areas, sixteen sample trees were collected. In total, we collected sixty-six sample trees. To help us identify the different tree species a dichotomous key was used (Jacobs D. 2016). We also used a cell phone device application that allowed us to take pictures of the trees and we were able to identify the tree species. With the help of the dichotomous key and the iPhone and Android application, we were able to identify the correct names of the trees and their scientific names. Also, we identify the longitude and latitude of the four different areas with the help of (Google Maps 2017.)

Results:
There were 34 tree samples taken from Kevin Ver Pault Memorial Park (40.754875, -73.31542) The trees founded in this area 4 Swamp White Oak (*Quercus bicolor*), 6 Japanese Zelcoba (*Zelcoba serreta*), 5 Pin Oak (*Quercus palustris*), and 19 Chinese Arborvitae (*Platycladus orientalis*). The most

popular tree found in this park is Chinese Arborvitae (*Platycladus orientalis)* which contained 55% of the trees on the property.

Another location was the residential property located in Wheatley Heights, New York (40.7584, -73.3884). The were 7 trees found in this area, which were: 1 Scarlet Oak (*Quercus coccinea*), 1 Swamp Spanish Oak (*Quercus palustris*), 1 Japanese Maple (*Acer palmatum*), 2 Sycamore Maple *(Acer pseudoplatanus*), Platanus x Hispanica (*Platanus acerifolia*), and 1 Paper Mulberry (*Broussonetia papyrifera*). The most prevalent tree found in this residential area was Sycamore Maple (*Acer pseudoplatanus*) which was 29% of the trees on this property.

There were 9 trees found in West Babylon, New York (40.7064, -73.3399). The trees are 1 Red Oak (*Quercus rubra*), 2 Scarlet Oak (*Quercus coccinea*), 2 White Cedar Tree (*Thuja occidentalis*), 1 Live Oak (*Quercus virginiana*), 1 Pin Oak (*Quercus palustris*), and 1 Black Locust (*Robinia pseudoacacia*). The most dominant three in this property is White Cedar Tree (*Thuja occidentalis*) and Scarlet Oak (*Quercus coccinea*) which contains 22% of the trees in this property.

The last property was located in Heckscher State Park, East Islip, New York. (40.715322, -73.167422). There were 16 trees founded in this property which are, 6 Bigleaf Maple (*Acermacrophyllum*), 4 Oak (*Quercus*), Vine Maple (*Acercircinatum*), Ponderosa (*Pinus Ponderosa*), 1 Blue Ash (*Fraxinus quadrangulata*), 1 Eastern Cedar (Juniperus virginiana), and 1 White Pine (*Pinus strobus*). The most common tree on this property is Bigleaf Maple (*Acermacrophyllum*) which contains 37.5 % of the trees in this property.

The Oak tree family is the most common in these properties. They are identified by different names but they belong to the same family. Pin Oak was found in two of the properties Kevin Ver Pault Memorial Park (40.754875, -73.381542) and West Babylon, New York (40.7064, -73.3399). Out of the 66 sample trees, 9 of the trees were related to the Oak tree family.

Although all the properties being compared are in different places, when we compare Kevin Ver Pault Memorial Park and West Babylon, New York, they have Pin Oak Tree species in common. The distance between these two properties is of 5.88 kilometers (Google Maps 2017). The two residential properties located in Wheatley Heights, New York and West Babylon, New York have the Scarlet Oak Tree species in common within 7.09 kilometers of distance. In the 22.73 kilometers of distance among the four properties it can be seen that there are different types of tree species around Long Island, New York.

Table 1: Trees founded from Kevin Ver Pault Memorial Park, Wheatley Heights, New York (40.754875, -73.381542)

Name of Tree	Scientific Name	Number of Tree Property	Percentage Founded in Property
Swamp White Oak	*Quercus bicolor*	4	12%

Japanese Zelcoba	*Zelkova serrata*	6	18%
Pin Oak	*Quercus palustris*	5	15%
Chinese Arborvitae	*Platycladus orientalis*	19	55%

Table 1 contains each tree in the area of Wheatley Heights, New York.

Table 2: Trees from Wheatley Heights, New York (40.7584, -73.3884)

Name of Tree	*Scientific Name*	Number of Tree Property	Percentage Founded in Property
Scarlet Oak	*Quercus coccinea*	1	14%
Swamp Spanish Oak	*Quercus palustris*	1	14%
Japanese Maple	*Acer palmatum*	1	14%
Sycamore Maple	*Acer pseudoplatanus*	2	29%
Platanus × Hispanica	*Platanus acerifolia*	1	14%
Paper Mulberry	*Broussonetia papyrifera*	1	14%

Table 2 contains each tree in the area of Wheatley Heights, New York.

Table 3: Trees from West Babylon, New York (40.7064, -73.3399)

Name of Tree	Scientific Name	Number of Tree Property	Percentage Founded in Property
Red Oak	*Quercus rubra*	1	11%

Scarlet Oak	*Quercus coccinea*	2	22%
White Cedar Tree	*Thuja occidentalis*	2	22%
Shumard Red Oak	*Quercus shumardii*	1	11%
Live Oak	*Quercus virginiana*	1	11%
Pin Oak	*Quercus palustris*	1	11%
Black Locust	*Robinia pseudoacacia*	1	11%

Table 3 contains each tree in the area of West Babylon, New York.

Table 4: Trees found in Heckscher State Park, East Islip, New York. (40.715322, -73.167422)

Name of Tree	Scientific Name of Tree	Number of Trees	Percentage of Trees Found in Area
Bigleaf Maple	*Acer macrophyllum*	6	37.5%
Oak	*Quercus*	4	25%
Vine Maple	*Acercircinatum*	2	12.5%
Ponderosa	*Pinus ponderosa*	1	6.25%
Blue Ash	*Fraxinus quadrangulata*	1	6.25%
Eastern Cedar	*Juniperus virginiana*	1	6.25%
White Pine	*Pinus strobus*	1	6.25%

Table 4 contains each tree in the area of East Islip, New York.

Discussion:
We compared the tree samples gathered from Wheatley Heights, New York, East Islip, and West Babylon with the report from Valencia et al. (2017). They collected the trees from North Bay Shore, West Bay Shore, North Brentwood and Southeast Brentwood. These areas might not be the same as the ones being study in this report, but they are around the same area of Long Island. According to the other surveyors, the Maple tree species and the Pine tree species were fairly common throughout the island. Their results are similar because we also found that Pine species are dominant in Long Island. However, the results also differ because based on our study the Oak trees are more dominant than Maple trees.

Conclusion:
It can be concluded that the dominant trees from the areas, Wheatley Heights, New York, East Islip, and West Babylon are the Oak trees and the Chinese Arborvitae. Also, it can be concluded that although the distance is so close, the makeup of the landscape is more different than similar, resulting in a large diversity of species.

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Identification of an Ideal Housekeeping Gene to Use in Quantitative RT-PCR for Inflammatory Studies Using the LADMAC Cell Line

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Keywords: housekeeping genes, qPCR, LADMAC cells, gene expression

Abstract:
It is necessary to have reliable housekeeping genes in quantitative Polymerase Chain Reaction (qPCR) experiments. Housekeeping genes are constitutively expressed in the cell and should not vary based on physiological conditions. Few studies have identified housekeeping genes for use in inflammatory studies and none has been found for LADMAC cell line. Therefore, we cultured LADMAC cells, a macrophage cell line, and induced inflammation using lipopolysaccharide (LPS) as well as exposed cells to phosphate-buffered saline (PBS) as a control. We chose five common housekeeping genes: Beta-Actin (Actin), glyceraldehyde 3-phosphate dehydrogenase (GAPDH), hydroxymethylbilane synthase (HMBS), beta-2-microglobulin (B2M), and beta- glucuronide (GUSB). We used qPCR to identify a gene which was reliable across replicates, did not vary between the positive control (cells in which inflammation was induced) and the negative control, and had high expression levels. Using this criteria we identified an ideal housekeeping gene to be GAPDH. Interestingly GAPDH was not shown to be an ideal candidate gene in other studies using macrophages. Therefore, our result may be cell line specific.

Introduction:

Inflammation is defined as a localized physical condition in which part of the body becomes reddened and often painful especially as a reaction to injury or infection (REF). It involves a cascade of events, also known as an inflammatory pathway. An inflammatory pathway comprises of the coordinated communication of different immune cells and blood vessels through an intricate cascade of molecular signals. There are four phases involved in order for an inflammatory pathway to be turned on. First, inflammatory stimuli such as an infection or injury occurs. Next inflammatory sensors such as white blood cells flood the scene. Inflammatory mediators, called cytokines, are then created in response to the white blood cells. Cytokines are small proteins that bind to specific receptors and send a signal down the inflammatory pathway turning on different genes (Punchard, *et al*., 2004.) They are responsible for interactions and communications between cells (Zhang et al., 2007). Lastly, once the inflammatory pathway is turned on the tissues become infected, thus causing inflammation. When inflammation is induced, it triggers changes in gene expression within a regulated set of genes (Medzhitov *et al*., 2009). To identify such changes in gene expression in inflammatory pathways, it is important to identify an internal regulatory gene known as a housekeeping gene which then functions as a control. (Stephens *et al.*, 2011).

Choosing a housekeeping gene is an important part for normalization of experimental data. The expression of this gene should not vary due to experimental conditions. Housekeeping genes should not show any variation in gene expression because they would pose a potential problem by distorting experimental data (Stephens *et al*., 2011). There is evidence that housekeeping genes can be cell line, or tissue specific. Our aim is to identify a set of primers, which could be used in inflammatory studies as housekeeping genes that are unchanged after inflammation is induced in LADMAC cells.

The LADMAC cell is a transformed cell line from bone marrow mouse cells with a human oncogene similar to human c-myc. The cells are enriched for macrophages but have monocyte like morphology (Sklar *et al*., 1985). Macrophages are important cells in the immune system. This cell line was chosen because in previous experiments it tested positive for inflammation after stimulation by lipopolysaccharide (LPS) and is readily available labs as they are used to produce LADMAC conditioned media. LPS is a polysaccharide found on gram negative bacteria which elicits a strong immune response in exposed cells and tissues (Wu *et al*., 2017). As a negative control, we exposed a second set of cells to phosphate-buffered saline (PBS), which is not expected to cause any change.

In order to to identify the best housekeeping gene as reference for the LADMAC cell line. we identifed the gene expression levels by performing qPCR on five candidate housekeeping genes beta-Actin (Actin), glyceraldehyde 3-phosphate dehydrogenase (GAPDH), hydroxymethylbilane synthase (HMBS), beta-2-microglobulin (B2M), and beta- glucuronidase (GUSB), after exposing cells to LPS and exposure to PBS. qPCR is the most reliable method for detection and quantification of cDNA and RNA levels. We chose these five genes as they are common internal controls used in previous studies. (Stephens *et al., 2011; Nihon*-Yanagi *et al.,* 2013*;* Yamaguchi *et al*., 2013).

Materials and Methods:

Cell culture:

LADMAC cells were cultured in Dulbecco's Modified Eagles Medium (DMEM) (Invitrogen, Carlsbad, CA) with 10% Fetal Bovine Serum (FBS) (Atlanta Biologicals, Flowery Branch, GA.), 1% Penicillin-Streptomyosin (Invitrogen) , 1% Non-Essential amino acids (MEM) (Invitrogen), and 1% Glutamax (Invitrogen). Cells were passaged 8 times before the experiment and the media was changed every 2-3 days or when the pH indicator in the medium changed color (phenol red). The concertation of the cells were maintained at $1x10^5$-$1x10^6$ cells/ml and incubated at 37°C in 5% CO_2. Cells were exposed to LPS to induce inflammation and PBS as the negative control for 48 hours. There were three biological replicates for each.

RNA extraction

RNA extraction was performed using RNAeasy Minikit (Qiagen, Valencia, CA.) from a total of $5x10^6$ cells LADMAC cells following the manufacturer's protocol "Purification of Total RNA from Animal Cells using Spin Technology" with an extra drying step added after adding RLT buffer, and an extra minute after placing elution buffer to increase yield. RNA quality and quantity was measured using Nano-drop.

Primers

Five primer sequences were chosen from the primer bank for common housekeeping genes (https://pga.mgh.harvard.edu/primerbank/). All primer pairs are sequences found in mouse and can be found in Table 1.

Primer Name	Primer Sequence Forward	Primer Sequence Reverse	Primer Bank ID
Actin	5' GGCTGTATTCCCCTCCATCG 3'	5' CCAGTTGGTAACAATGCCATGT 3'	6671509a1
GAPDH	5' AGGTCGGTGTGAACGGATTTG 3'	5' TGTAGACCATGTAGTTGAGGTCA 3'	6679937a1
HMBS	5' AAGGGCTTTTCTGAGGCACC 3'	5' AGTTGCCCATCTTTCATCACTG 3'	30794512a1
B2M	5' TTCTGGTGCTTGTCTCACTGA 3'	5' CAGTATGTTCGGCTTCCCATTC 3'	31981890a1
GUSB	5' GGCTGGTGACCTACTGGATTT 3'	5' GGCACTGGGAACCTGAAGT 3'	6754098a1

Table 1. Primer forward and reverse sequences for mouse Actin, GAPDH, HMBS, B2M, and GUSB

Reverse transcription:

mRNA was converted to cDNA using BIORAD "iscript reverse transcriptase supermix for RT-qPCR" (BIO-RAD, Hercules, CA.) following the protocol exactly to yield 100ng/ul of cDNA per sample.

Quantitative PCR

We set up three biological replicates of LADMAC cells exposed to LPS, and three samples of LADMAC cells exposed to PBS. Each biological replicate was tested as a technical triplicate for each primer pair. The protocol for 2X SYBR Green qPCR Master Mix (BiMake, Houston, TX.) for the 25ul reaction with 10ng/ul of cDNA was followed without using ROX using the CFX96 Touch Real time PCR detection system (BIO-RAD). qPCR was performed by preheating at 95°C for 3 minutes, followed 39 rounds at 95°C for 10s, 55°C for 10s, 72°C for 30s, with a final step of 95°C for 10s, 65°C for 5s 95°C for 5s.

Calculations:

Variations were minimized by averaging the biological and technical triplicates. ΔCt value for each sample was determined for reactions for that sample, and averages across replicates.

Results:

B2M showed high levels of variation of relative quantity of qPCR product between the cells exposed to PBS and cells exposed to LPS as well as within the different replicates of samples exposed to LPS. Ideally, a good qPCR primer shows reproducibility across trials and the B2M primer used was highly variable. The primer pair for GUS also showed variability within the three replicates exposed to LPS. Both HMBS and Beta-Actin showed higher levels of expression in cells exposed to LPS than PBS. GAPDH was the only primer which showed low levels of variation between samples and replicates, as well as very little difference between cells exposed to PBS and those exposed to LPS **(Figure 1).** In addition to GAPDH demonstrating a low level of variation between samples and replicates it also had the lowest Cq value which correlates with high expression levels. **(Table 2)**

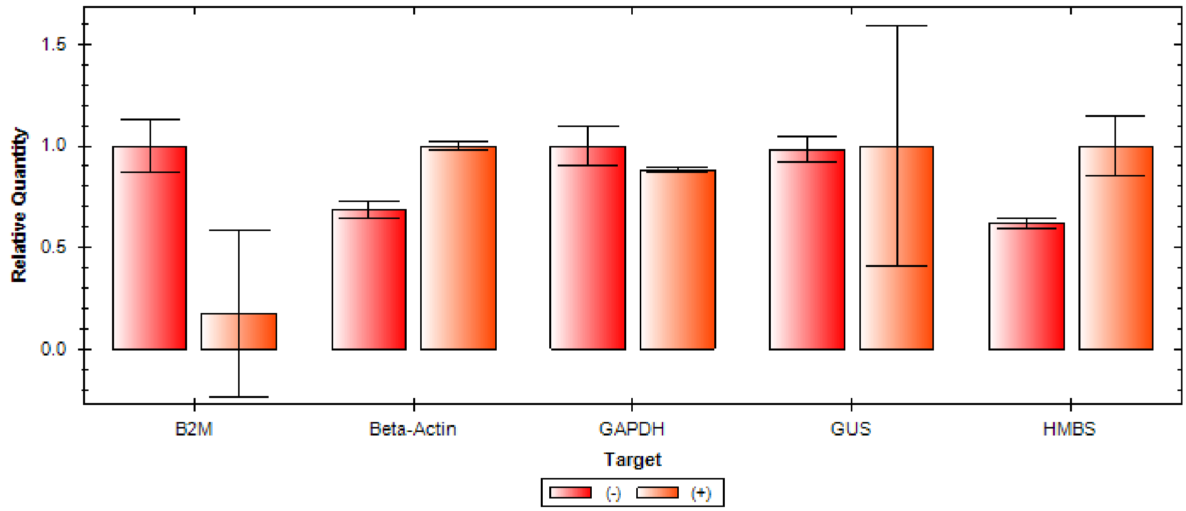

Figure 1: The relative quantity for B2M, GUS, HMBS, GAPDH, and Beta-Actin for cells exposed to PBS (negative control) and LPS (positive control).

Target	Mean Cq	Std.Dev
GAPDH	24.4	0.1864004
B2M	28.08	3.9608647
HMBS	28.94	0.443237
Beta Actin	29.48	0.3167727
GUS	31.56	0.9408132

Table 2: The average qPCR Cq values and the standard deviation for each housekeeping gene tested.

Discussion:

Good housekeeping candidate genes ideally have low Cq values because low Cq scores indicate high expression within cells regardless of cellular activities. Cq values are the number of cycles that fluorescence increases above background. The primer we used for GAPDH had the lowest Cq values, and showed the least variation between the biological and technical replicates. This indicated that GAPDH is an ideal housekeeping gene for inflammatory studies using LADMAC cells. Although the Cq values were not as low as expected for a good housekeeping gene, it was the lowest found from our list of genes. The genes we chose are among most commonly chosen housekeeping genes, but it is a non-exhaustive list. It is possible that there is another housekeeping gene which has even higher expression within LADMAC cells but was not one of the ones we tested. Interestingly this finding is different from one previously published by Stephens *et al*., (2011) in which GAPDH was found to be the most variable gene in macrophages and two other cell types.

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The Relation between Age, Race/Ethnicity, Gender and the Opinion on Gun Control in the Suffolk County

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Keywords: Statistics, Confidence Intervals, Gun Control, Race, Gender, Suffolk County

Abstract:

The recently active mass shootings in the United States have brought about a heated debate among Americans as to whether there should be stricter gun control laws or not. A survey realized in Suffolk County demonstrated that race/ethnicity, and gender played a role in the decision of responses, whether age did not while using Chi-Square Test with 5% and 10% levels of significance.

Introduction:

During this past few years, the United States has witnessed how the wrong use of firearms, has taken the lives of many American citizens. In the wake of the deadliest mass shooting in U.S. history (Oct 1, 2017, Las Vegas, NV), it would be expected that more Americans support tighter controls on guns. Due to such events, there has been a heated debate between Americans wether there should be stricter gun control laws or not. We surveyed 360 Suffolk County residents to find out, if they think that there should be stricter gun control laws or not.

Method:

360 people residing only in Suffolk County were surveyed about the need for stricter gun control laws or not. The participants, were surveyed via face to face interviews and phone calls. The data, then was analyzed and tabulated in Two-Way Contingency Tables according to age, race/ethnicity, and gender. Lastly, we calculated the 95% Confidence Intervals for the general proportion of A and B responses ("support stricter gun control laws", "support less strict gun control laws" respectively) for the with regard to gender and race/ethnicity.

Results:

In the following two way contingency tables, the results of each group (age, race/ethnicity, and gender), are placed side by side with their survey responses. Observed values are represented as O and Expected values as E. Also, the 95% confidence intervals are arranged such as A-proportion and B-proportion are separated in different tables.

Two-Way Contingency Tables

	18-29	**30-44**	**45-64**	**65+**	**Total**
Stricter O	70	48	49	33	200
E	69.25	52.54	46.57	31.64	

Less Strict	**O**	18	15	10	7	50
	E	17.31	13.13	11.64	7.91	
No Opinion	**O**	28	25	19	13	85
	E	29.43	22.33	19.79	13.45	
Total		116	88	78	53	335

Table 1: Responses Related by Age

		Caucasian	African American	Hispanic	Asian	Other	Total
Stricter	**O**	82	25	78	11	21	217
	E	88.96	33.06	63.72	9.02	22.24	
Less Strict	**O**	19	12	11	3	5	50
	E	20.50	7.62	14.68	2.08	5.12	
No Opinion	**O**	47	18	17	1	11	94
	E	38.54	14.32	27.60	3.91	9.63	

Table 2: Responses Related by Race/ethnicity

		Male	Female	Total
Stricter	**O**	92	125	217
	E	109.10	107.90	
Less Strict	**O**	37	13	50
	E	25.14	24.86	
No Opinion	**O**	52	41	93
	E	46.76	46.24	
Total		181	179	360

Table 3: Responses Related by Gender

Stricter Law Control (A-proportion)		
Characteristic	Percent	(95% CI)
Gender		
Male	50.8	(43.5-58.1%)
Female	69.8	(63.1-76.6%)
Race/ethnicity		
Caucasian	55.4	(47.4-63.4%)
African American	45.5	(32.3-58.6%)
Hispanics	73.6	(65.2-82.0%)
Total	60.3	(55.2-65.3%)

Table 4: Confidence Intervals

Less Strict Law Control (B-proportion)		
Characteristic	Percent	(95% CI)
Gender		
Male	20.4	(14.6-26.3%)
Female	7.3	(3.5-11.0%)
Race/ethnicity		
Caucasian	12.8	(7.4-18.2%)
African American	21.8	(10.9-32.7%)
Hispanics	10.4	(4.6-16.2%)
Total	13.9	(10.3-17.5%)

Table 5: Confidence Intervals

We collected the data and calculated their p-values using Chi-Square Tests to see whether there was any relation between the groups and their preferences about the need of stricter gun control laws or not. The results were somewhat surprising. We thought that age could have a relation with the responses, its P-value at 0.8981 demonstrated that that was not the case. On the other hand, gender with a P-value of 0.0001, and race with a P-value of 0.0128, showed that there was a significant relation between these groups and their responses.

Discussion:

Based on the results we analyzed, there is a clear and measurable preference for stricter gun control laws in Suffolk County. 60.3% of the population supported the idea that there should be stricter gun control laws. In fact, we are 95% confident that the true mean of the general population that would support stricter legal control over firearms lingers between 55.2-65.3%. Actually, according to a Megan Brenan [**2**], “60% of Americans think laws covering the sale of firearms should be stricter.” If we compared Brenan’s findings with ours, we can clearly see that the numbers match. On the other hand, even though almost 14% of population in our surveyed responded that there should be less strict gun control laws, according to Brenan, about 71% of the population of United States, do not want a ban on the possession of guns. We did not analyze this topic in our survey.

Additionally, the findings show that between gender, women are more likely to support the increase of stricter gun control laws with 69.8% support than men with 50.8% support. However, it was not surprise that men would have higher rates of support for less strict gun control with 20.4% support than women with 7.3% support.

Furthermore, among race/ethnicity, Hispanics with 73.6% support, were nearly 30% more supportive of stricter gun control laws than African Americans with about 45.5% support. Caucasians support was just almost 10% more supportive than African Americans and just about 20% less supportive than Hispanics with 55.4% support. Likewise, African Americans' support for less strict gun control laws was 9% higher than such a support among Caucasians and 11.4% higher than such a support among Hispanics.

We did not calculate the confidence intervals for the age groups due to insignificant relation to responses as demonstrated by the high P-value of Chi-Square Test noted ealier.

Conclusion:

In the present study, where we surveyed 360 residents of Suffolk County, we found out that just above 60% of the general population were of opinion that there should be stricter gun control laws whereas nearly 14% of the population supported less strict gun control laws. Also, we found out that there was a significant relation between race/ethnicity or gender on one hand and the response preference on the other. We also found that there was no significant relation between the age and the response preference.

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Red Maple and Native Trees are Dominant on Residential Properties in Suffolk County, New York

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Key words: Suffolk County, Native, Trees, Residential

Abstract:

Tree branches from every tree on four residential properties located in Suffolk County were collected for comparison. Once the samples were collected, two dichotomous keys were used to identify their species. The following Native species were found: Red Maple (*Acer rubrum*), Red Cedar (*Juniper virginiana*), False Cyprus (*Chamaecyparis*), Flowering Dogwood (*Cornus florida*), Pin Oak (*Quercus palusteris*), Sour Wood (*Oxydendrum arboretum*), Fringe Tree (*Chionanthus virginicus*), Pitch Pine (*Pinis rigida*), Arbor Vitae (*Thuja*), Scarlet Oak (*Quercus coccinea*), Northern White Cedar (*Thuja occidentalis*), Wild Rose Tree (*Rosa acicularis*), Ley Land Cypress (*Cupressus leylandii*), Norway Spruce (*Picea abies*). The non-native species found were as follows: Tea Crab Apple (*Malus Hubehensis*), Water Oak Tree (*Quercus Nigra*), Brewer Spruce (*Picea breweriana*), Engleman Spruce (*Picea engelmannii*), Japanese Maple (*Acer palmatum*), Colorado Spruce (*Picea pungens*), European Pear (*Pyrus communis*). A total of forty-five specimens were sampled from the Suffolk County properties. In this investigation native trees appeared to be dominant in Suffolk County as they accounted for 82% of trees identified. Within the native trees examined 25% were Red Maple (*Acer rubem*).

Introduction:

There are many distinct species of trees throughout Suffolk County. The population of Suffolk County was 1.5016 million in 2015 (Google Public Data 2017). The average temperature where the trees specimens were acquired in West Islip, East Islip, and Commack is 11.6 °C, and the average temperature of Huntington is 8.6 °C (Areavibes 2016). The elevation of the property in West Islip is 6.09 m., the elevation of the property in East Islip is 4.87 m., the elevation of the property in Huntington is 41.14 m., and the elevation of the property in Commack is 39.92 m. (Worldwide Elevation Finder 2017). All areas investigated were in climate zone 4 (Open EI 2009). Native trees are defined as "A plant that is a part of the balance of nature that has developed over hundreds or thousands of years in a particular region or ecosystem, and only plants found in the United State before European settlement are considered native" (USDA 2017). Non-native trees are defined as "A plant introduced with human help (intentionally or accidentally) to a new place or new type of habitat where it was not previously found" (USDA 2017). Invasive trees are defined as "A plant that is both non-native and able to establish on many sites, grow quickly, and spread to the point of disrupting plant communities or ecosystems" (USDA 2017).

Method:

45 samples of trees were taken from 4 residential properties in Suffolk County, Long Island. 17 samples were found in West Islip, 14 were found in East Islip, 7 were taken from Huntington, and the last 5 were from Commack. The dichotomous keys, "Tree Finder" (Watts, 1991) and "Eastern Trees" (Petrides, 1998), were used to identify the trees by observing the shapes, sizes, colors, textures, and

locations of the trees. The latitude and longitude of each of the residential properties were found through the U.S. Geological Survey website, (USGS 2017).

Results:

Table 1: Residential Locations Observed

Locations	Latitude	Longitude
Residence 1	40.7264	-73.1700
Residence 2	40.844496	-73.390241
Residence 3	40.6990	-73.2898
Residence 4	40.8527	-73.2892

Table 1 references the latitude and longitude of the residential properties where tree samples were identified. The locations were found using EarthExplorer.

Table 2: Native Trees

Tree Name	Scientific Name	Quantity	Percentage
Red Maple	*Acer rubum*	11	25%
Red Ceder	*Juniperus virginiana*	1	2%
False Cyprus	*Chamaecyparis*	1	2%
Flowering Dogwood	*Cornus florida*	2	5%
Pin Oak Tree	*Quercus palustris*	2	5%
Sourwood	*Oxydendrum arboretum*	2	5%
Fringe Tree	*Chionanthus virginicus*	2	5%
Pitch Pine	Pinis *rigida*	1	2%
Arbor Vitae	Thuja	1	2%
Scarlet Oak	*Quercus coccinea*	4	9%
Northern White Cedar	*Thuja occidentalis*	1	2%
Wild Rose Tree	*Rosa acicularis*	1	2%
Leyland cypress	*Cupressus leylandii*	7	16%
Norway Spruce Tree	*Picea abies*	1	2%

Table 2 shows the native tree species found on the residential properties. Thirty-seven trees in total are sorted by tree name, scientific name and quantity. Tree samples include Red Maple Tree (*Acer rubum)*, False Cyprus (*Chamaecyparis*), Flowering Dogwood (*Cornus florida*), Pin Oak Tree (*Quercus palustris*), Sourwood (*Oxydendrum arboretum*), Fringe Tree (*Chionanthus virginicus*), Pitch Pine Tree (Pinis *rigida*), Arbor Vitae(Thuja*)*,Scarlet Oak (*Quercus coccinea*) Northern White Cedar Tree (*Thuja occidentalis)*, Red Ceder Tree (*Juniperus virginiana*), Leyland cypress (*Cupressus leylandii*), Wild Rose Tree (*Rosa acicularis*)., and the Norway Spruce Tree (*Picea abies*).

Table 3: Non-Native Trees

Tree Name	Scientific Name	Quantity	Percentage
Tea Crabapple	*Malus hubehensis*	1	2%
Water Oak Tree	*Quercus nigra*	1	2%
Brewer Spruce	*Picea breweriana*	1	2%
Engleman Spruce	*Picea engelmannii*	1	2%
Japanese Maple	*Acer palmatum*	1	2%

Colorado Spruce Tree	*Picea pungens*	2	5%
European Pear	*Pyrus communis*	1	2%

Table 3 shows the non-native samples collected on the properties during this research. Included are their tree name, scientific name and quantity. Samples include Tea Crabapple (*Malus hubehensis*), Water Oak Tree (*Quercus nigra*), Brewer Spruce (*Picea breweriana*), Engleman Spruce (*Picea engelmannii*), and the Japanese Maple (*Acer palmatum*), Colorado Spruce Tree (*Picea pungens*).

Forty-five samples were collected from four properties on Long Island, NY. Majority of the trees sampled were examined and found to be native trees.

Discussion:

Maple trees makeup a large part of Long Island's trees population. Red Maples (*Acer rubum*) were taken in three of the four residential properties sampled. 5 were taken in West Islip, 3 from East Islip, and 3 were located in Commack. 11 out of the 45 trees sampled from West Islip, East Islip, Huntington, and Commack were Red Maple (*Acer rubum*). Cardinale (2017) reported having 1 Red Maple (*Acer rubum)* from a residential property in East Northport. According to Matarazzo and Italiano (2016) 1 Red Maple (*Acer rubum*) was also found in Huntington Station. Another study, from (Castro et al. 2017), reported finding 2 Red Maples (*Acer rubrum*) in Commack. One study from (Brown and Cosar 2016) found a Japanese Maple (*Acer pulmatum*) in Commack, while one was recorded in the East Islip residential property. Perez and Fuentes (2015) found a Flowering Dogwood (*Cornus florida*) located on the north shore of Long Island, corresponding to the Flowering Dogwood (*Cornus florida*) found on the Commack property. Pagnotta (2017) also found a flowing Dogwood (*Cornus florida*) in Northport.

Conclusion:

Native tree species were the majority of our specimens. Out of a total of forty-five samples from the Suffolk County properties, 37 were native Atlantic tree species. Native trees appear to be dominant in Suffolk County as they account for 82% of trees identified. The Red Maple Tree (*Acer rubem*) made up 25% of the 37 native Atlantic trees making it the most dominate native tree found in this test.

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