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# **Table of Content**

Editorial	4
Papers:	
<b>Comparison of Native and Invasive Trees of Long Island, NY</b> Jillian Alcindor and Marissa DiNapoli	5
<b>An Identification of Tree Species from Suffolk County New York</b> <i>Robert Cutrone, Alisa Burdish, Marissa Suger, and Kathleen Fitzpatrick</i>	11
<b>A Tree comparison from Western to Eastern Suffolk</b> Arniel M. Deorag, Anthony Birgandi, and Coral Caro	13
<b>A Comparison of Tree Species in Centerport and North Babylon in New York</b> Jaclyn LeGodais and LeaMarie Weiss	16
<b>A Comparison of Tree Species from Northern and Eastern Brentwood</b> <i>Ronnie S. Leiva and Diana C. Fernandes</i>	19
<b>Comparing Tree Sample for Brentwood, New York and East Patchogue New York</b> Jessica Lennon and Ana Palacios	22
<b>A Comparison of Tree Species from the North and South Shores of Long Island</b> <i>Stephanie Marino, Joe Mason, and Adam Kobus</i>	27
A Comparison of Coniferous and Deciduous Trees Relative to Location on Long Island Anabel Miranda, Adam Mercado, and Dan Walsh	29
<b>A Comparison of Coniferous and Deciduous Trees Relative to Location on Long Island</b> <i>Alexandra Rivera, Yvonne Passaro, Adam Grodin, and Jordan Chicas</i>	32
A Comparative Analysis of Coniferous, Deciduous, and Evergreen Trees Relative to Location a Tree Trunk Circumference on Long Island	ınd
	35

An Identification of Native and Invasive Tree Species in Bay Shore, New York	
Cassandra Garistina	39
	• •
A Comparison of First Season Growth of DED Resistant American Elm Cultivars Joseph Jout Delvis Ambrosio Jairon Hernandez	
oseph oom, Dervis rindrosio, ourion riernanaez	41
Notes:	
An Identification of Tree Species in Bay Shore, New York	
Victoria Prince	44
A Comparison of Tree Species identification Between Central Islip and Hauppauge Cristing Romero and Francisco Flores	
	46

# Editorial

Welcome to the *Science and Technology Undergraduate Research Notes (SATURN) Journal*. The purpose of this 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.

The National Science Foundation recommends that undergraduates receive research experience during their freshman and sophomore years. The data from most laboratory exercises is discarded. The data that is produced from embedded research in the curriculum of a laboratory course is novel and therefor can be worthwhile to disseminate to the world community. This approach to pedagogy engages students in science courses through the experience of contributing their own novel findings for the greater good. Many students contributing novel data to the world community can also provide a source of valuable, large scale screening and cataloging information.

In this first issue of the *SATURN Journal*, students from a Principles of Biology class at Suffolk County Community College in New York have contributed their findings of a research project embedded in the laboratory curriculum. Students brought specimens of each tree found on the property where they reside to class. They also measured the circumference of the trunk of each tree at its base. During the laboratory period they identified the species of each tree. They collaborated in groups of up to six students, and developed a hypothesis based on the locations of the properties where the trees were found, the distribution of species, sizes of trees and their density.

The students then followed the instructions for authors at the *SATURN Journal* web site (<u>www.saturnjournal.org</u>). Their manuscripts were submitted to the 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 is a cost effective exercise that has resulted in enthusiastic student engagement, and can provide a large catalogue of the distribution of tree species on residential properties over time.

Instructors wishing to have their students participate in the *SATURN Journal* are welcome. The publications of the embedded research projects in the journal are a source of embedded research project designs that instructors may include in their curricula, and instructors are encouraged to design additional projects from which their students can submit manuscripts. Since manuscripts from each college may represent the quality of work at the college, we encourage participating institutions to form a peer review board made up of their faculty to review the quality of work from their institution before submission to *SATURN Journal*.

Louis Roccanova, Ph.D. Editor in Chief SATURN Journal

# Comparison of Native and Invasive Trees of Long Island, NY

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Keywords: Biology, native, invasive, tree, Long Island

# Abstract:

Branches of twelve trees, split evenly between two sites; one in Nassau County and one in Suffolk County, were collected, identified and confirmed using a dichotomous key. It was discovered that approximately half of sampled trees were invasive species. Although the six trees were not indigenous to Long Island, their natural habitat is similar to this climate. The Southern Magnolia (*Magnolia grandi flora*), Weeping Juniper (*Juniperus flaccida*), Flowering Plum (*Prunus mume*), Weeping Cherry (*Prunus subhirtella pendula*), and Bradford Pear (*Pyrus calleryana*) were all verified to be invasive, while the White Spruce (*Picea glauca*) (two in total, one from each county), Red Maple (*Acer rubrum*), Arbor Vitae (*Thuja occidentalis*), an unknown species related to White Oak (*Quercus alba\**), and Flowering Dogwood (*Cornus florida*) were all confirmed to be native.

# **Introduction:**

Long Island is an island located in the southeast part of the U.S. state of New York, just east of Manhattan. Stretching northeast into the Atlantic Ocean, Long Island contains four counties, two of which are boroughs of New York City (Queens and Brooklyn), and two of which are mainly suburban (Nassau and Suffolk). Long Island has a climate similar to other coastal areas of the Northeastern United States; it has warm, humid summers and cool wet winters. Long Island is classified as humid subtropical by some definitions. "There are approximately 88 species of trees believed to be native to Long Island" (Karpen 1999). The use of native plants in landscapes and gardens has increased markedly on Long Island in recent years. "The trend is occurring not only because of federal, state and in some cases local regulations" (Paquette 2001) intended to protect fragile environments but also because some homeowners are looking to reduce time-consuming maintenance on their properties and to cut the high cost of heavy landscaping. While native plants sometimes do not flower or are not as colorful as their nonnative counterparts, they do not require heavy fertilizing and watering.



# Figure I: Geography of Long Island with Site Locations

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The Southern Magnolia (*Magnolia grandi flora*,) "is moderately tolerant of shade. It can endure considerable shade in early life but needs more light as it becomes older." (Glitzenstein et al., 1986). "Southern Magnolia will invade pine or hardwood stands and is able to reproduce under a closed canopy. It will not reproduce under its own shade. Once established, it can maintain or increase its presence in stands by sprouts and seedlings that grow up through openings, which occur sporadically in the canopy." (Adams, 1972). "Southern magnolia has been migrating onto mesic upland sites and establishing itself, along with associated hardwoods, as part of the climax forest." (Olsen et al. 1974).

The Weeping Juniper (*Juniperus flaccida*) "is named for its pendent, "weeping" branchlets and needles. It grows natively in Texas only in Big Bend National Park's Chisos Mountains, at high elevations on igneous soils. It usually grows to 25 to 30 ft., although it can be up to 55 ft. It grows slowly, is long-lived and very drought resistant, traits common to most junipers." (Adams, 2008).

The White Spruce (*Picea glauca*) has a transcontinental range, from Newfoundland and Labrador west across Canada along the northern limit of trees to Hudson Bay, Northwest Territories, and Yukon. "White spruce has been described as a 'plastic' species because of its ability to repopulate areas at the end of glaciation. It grows under highly variable conditions, including extreme climates and soils"; but to achieve the best development it is generally more demanding than associated conifers. (Sutton, 1969).

Because Flowering Plum (*Prunus mume*) "trees will grow in any soil as long as it has adequate water and the required amount of sun, it is grown worldwide. In Asia, plums are often pickled as a preserve. Plums in the United States are most often consumed as a hand held fruit." (Rehder 1977).

The Weeping Cherry (*Prunus subhirtella pendula*) is native of Japan and is a member of the huge Rose family, *Rosaceae*, and a member of the same genus as Plum, Apricot, Peach, Almond and Nectarine. "The Higans Weeping Cherry Tree prefers moist, well-drained soils of average fertility in full sun, but is adaptable to poor soils, compacted soils, dry soils, and heat." (Gilman & Watson 1994)

The Bradford Pear (*Pyrus calleryana*) is "a very commonly planted ornamental tree species, is documented as an escape from cultivation in the District of Columbia and 152 counties or parishes in 25 states, and is reported as new to California, Michigan, Missouri, New Jersey, and West Virginia. Evidence is presented that the species is rapidly becoming invasive in much of its horticultural range in at least the eastern United States. Some of the escaped individuals (from 14 counties or parishes in 11 states) appear to be of hybrid origin, perhaps between callery pear and *P. betulifolia* or *P. bretschneideri*." (Vincent 2004).

"The Red Maple (*Acer rubrum*) is one of the most abundant and widespread trees in eastern North America." (Hutnick & Yawney 1961). "It grows from southern Newfoundland, Nova Scotia, and southern Quebec to southern and southwestern Ontario, extreme southeastern Manitoba, and northern Minnesota; south to Wisconsin, Illinois, Missouri, eastern Oklahoma, and eastern Texas; and east to Florida. It has the greatest continuous range along the Atlantic Coast of any tree found in Florida-an extent of 2575 km (1,600 mi). The species is native to all regions of the United States east of the 95th meridian, with three exceptions: Prairie Peninsula proper of the Midwest, the coastal prairie of southern Louisiana and southeastern Texas, and the swamp prairie of the Florida Everglades. " (Little, 1978).

The Arbor Vitae (*Thuja occidentalis*): "More than 120 named cultivars of Northern White Cedar have been named and used as ornamental trees and shrubs, where the name "arborvitae" is usually applied. Selections offer variety in habitual form, color, cold hardiness, heat tolerance. It is often used for hedges and other types of border or shelter plantings. The species was introduced into Europe for cultivation i the 16th century." (Nesom 2002). The primary range of Northern White Cedar is in eastern-southeastern Canada (west to Manitoba) and adjacent states of New England and the Great

Lakes region (west to Minnesota); south of the main range, it occurs in scattered stands and southward along the Appalachians into North Carolina and Tennessee, where it is generally rare or extirpated." (Johnston 1990).

The White Oak (*Quercus alba*) is "one of the pre-eminent hardwoods of eastern North America." It is a long-lived oak of the *Fagaceae* family, native to eastern North America and found from southern Quebec west to eastern Minnesota and south to northern Florida and eastern Texas. "The white oak is fairly tolerant of a variety of habitats, and may be found on ridges, in valleys, and in between, in dry and moist habitats, and in moderately acid and alkaline soils." (Seymour 1969).

The Flowering dogwood (*Cornus florida*) is usually included in the dogwood genus *Cornus* as *Cornus florida*, although it is sometimes treated in a separate genus as *Benthamidia florida*. It is native to eastern North America. Its growth spread ranges from southern Maine, west to southern Ontario, Illinois and eastern Kansas. Its habitat also includes northern Florida and eastern Texas. When in the wild, they can typically be found at the forest edge and popular on dry ridges.

## **Methods:**

In April 2012, samples of trees local to two addresses were collected. The first site was 94 Bucket Lane in Levittown. The second was 116 Erlanger Blvd in North Babylon. Levittown is located in Nassau County while North Babylon is a Suffolk town. They are approximately 14 miles away from each other, North Babylon being further east. Each site contained approximately 10 trees each with a few aesthetically overlapping species. Five inches of branch were removed from each tree, while the trunks were measured and heights were approximated using local structures. On April 23<sup>rd</sup>, these samples were cataloged, identified and confirmed using a dichotomous key (Watts 1991).

#### **Results:**

From the 116 Erlanger Blvd in North Babylon location, with a lot size of 75 x 175; the first tree identified was Southern Magnolia (*Magnolia grandi flora*). Its trunk width was 15.24 cm and was approximately 5.18 m tall. The second tree identified was a Weeping Juniper (*Juniperus flaccida*). Its trunk width was 17.8 cm and was approximately 5.49 m tall. The third tree identified was a White Spruce (*Picea glauca*). Its trunk width was 61 cm and was approximately 12.19 m tall. The fourth tree identified was a Flowering Plum (*Prunus mume*). Its trunk width was 10.16 cm and was approximately 4.57 m tall. The fifth tree identified was a Weeping Cherry (*Prunus subhirtella pendula*). Its trunk width was 10.16 cm and was approximately 1.83 m tall. The sixth and final tree from the Suffolk county location was a Bradford Pear (*Pyrus calleryana*). Its trunk width was 12.7 cm and was approximately 4.27 m tall.

From the 94 Bucket Lane in Levittown location, with a lot size of 80 x 100; the first tree identified was a Red Maple (*Acer rubrum*). Its trunk width was 127 cm and was approximately 6.10 m tall. The second tree identified was an Arbor Vitae (*Thuja occidentalis*). Its trunk width was 43.2 cm and was approximately 4.57 m tall. The third and fourth trees identified were White Spruce (*Picea glauca*). The width of the third tree was 191 cm, and it was approximately 15.24 m tall. The width of the fourth tree was 216 cm, and was approximately 15.24 m tall. We were unable to identify the exact species of the fifth tree, but the dichotomous key (Watts, 1991), placed it closely related to a White Oak (*Quercus alba*). Its trunk width was 28 cm and it was approximately 2 m tall. The sixth and final tree from the Nassau County location was identified as a Flowering Dogwood (*Cornus florida*). Its trunk width was 56 cm and was approximately 2.44 m tall. With the exception of one tree, all of the trees sampled from the Suffolk county site were invasive species. Additionally, with the exception of one tree in the Nassau county site, all of the trees were native species.

Location	Property Size	Date of Collection	Trunk Width	Approximate Height of Tree	Species	Native or Invasive?
116 Erlanger Blvd, North Babylon	75 x 175	04/21/12	15.24 cm	5.18m	Southern Magnolia Magnolia grandi flora	Invasive
116 Erlanger Blvd, North Babylon	75 x 175	04/21/12	17.8 cm	5.49 m	Weeping Juniper Juniperus flaccida	Invasive
116 Erlanger Blvd, North Babylon	75 x 175	04/21/12	61 cm	12.19 m	White Spruce Picea glauca	Native
116 Erlanger Blvd, North Babylon	75 x 175	04/21/12	10.16 cm	4.57 m	Flowering Plum Prunus mume	Invasive
116 Erlanger Blvd, North Babylon	75 x 175	04/21/12	10.16 cm	1.83 m	Weeping Cherry Prunus subhirtella pendula	Invasive
116 Erlanger Blvd, North Babylon	75 x 175	04/21/12	12.7 cm	4.27 m	Bradford Pear Pyrus calleryana	Invasive
94 Bucket Lane, Levittown	80 x 100	04/22/12	127 cm	6.10 m	Red Maple Acer rubrum	Native
94 Bucket Lane, Levittown	80 x 100	04/22/12	43.2 cm	4.57 m	Arbor Vitae Thuja occidentalis	Native
94 Bucket Lane, Levittown	80 x 100	04/22/12	191 cm	15.24 m	White Spruce Picea glauca	Native
94 Bucket Lane, Levittown	80 x 100	04/22/12	216 cm	15.24 m	White Spruce Picea glauca	Native

Table I: Tree Species Results from Nassau & Suffolk Sites with Collected Data

Ĭ	94 Bucket Lane, Levittown	80 x 100	04/22/12	28 cm	2.0 m	Related to White Oak <i>Quercus alba</i> *	Native
	94 Bucket Lane, Levittown	80 x 100	04/22/12	56 cm	2.44 m	Flowering Dogwood <i>Cornus</i> <i>florida</i>	Native

# **Discussion:**

There has been much speculation about the native and invasive tree species on Long Island. "In this day in time, some tree species introduced since 1600 are now widespread." (Buckstrup & Bauuk 1998) "Some natives can be invasive and some invasiveness depends on favorable and available site." (Buckstrup & Bauuk 1998). "However, a native tree in one region may easily not be native in another, much less in the entire country." (Buckstrup & Bauuk 1998). According to the aforementioned results, approximately half of the selected area contained invasive trees that share similar zones to Long Island's native trees. "Ms. Talmage, whose family has owned H. R. Talmage & Son nursery on 400 acres on Long Island Sound in Riverhead since 1882, said that native plants make up 7 percent, or more than \$75,000, of the nursery's \$1.1 million-a-year perennial plant business." (Paquette 2001). Keeping this in mind, it can be deduced that human intervention is the primary cause of the flourishing exotic population. Additionally, according to the Association of Professional Landscape Designers, people who love native plants are still a minority, they are mostly interested in attracting wildlife.

# **Conclusion:**

The collection of 12 tree species, six from Suffolk County and six from Nassau County were observed and confirmed using a dichotomous key. From the Suffolk County site; the Southern Magnolia (Magnolia grandi flora), Weeping Juniper (Juniperus flaccida), Flowering Plum (Prunus mume), Weeping Cherry (Prunus subhirtella pendula), and Bradford Pear (Pyrus calleryana) were all verified to be invasive. Additionally, from the Nassau County site; the White Spruce (Picea glauca), Red Maple (Acer rubrum), Arbor Vitae (Thuja occidentalis), an unknown species related to White Oak (Quercus alba\*), and Flowering Dogwood (Cornus florida) were all confirmed to be native.

# **References:**

Adams, D. L., "Natural Regeneration Following Four Treatments of Slash on Clearcut Areas of Lodgepole Pine: A Case History". Idaho: College of Forestry, Wildlife and Range Sciences, 1972. Adams, Robert Perry., "Junipers of the World: The Genus 'Juniperus'". Vancouver: Trafford Publishing, 2008.

**Buckstrup, Michelle J., and Nina L. Bassuk.,** "Native For Native's Sake?". Wisconsin Urban & Community Forests Vol.187.10. Madison (WI): Wisconsin Department of Natural Resources, Bureau of Forestry, 1998.

**Gilman, Edward F., and Dennis G. Watson.** "*Prunus Subhirtella* 'Pendula': Mature Weeping Higan Cherry". U.S. Department of Agriculture, USDA Forest Service. Washington D.C.: U.S. Government Printing Office. 1994.

**Glitzenstein, Jeff S.; Harcombe, Paul A.; Streng, Donna R.,** "Disturbance, Succession, and Maintenance of Species Diversity in an East Texas Forest". Ithaca (NY): ESA Publications. 1986. **Google Inc.** "Map of Long Island." Map.Maps.google.com. Google, 2012. Web. 3 May 2012.

**Hutnick, Russell J., and Harry W. Yawney.** "Silvical Characteristics of Red Maple (*Acer Rubrum*)". Station Paper NE-142. Newtorn Square (PA): Northern Research Station. 1961.

**Johnston, W.F.** *"Thuja occidentalis* - Silvics of North America. Volume 1. Conifers." U.S. Dept. of Agriculture Handbook 654. U.S. Department of Agriculture, USDA Forest Service. Washington: D.C.: U.S. Government Printing Office. 1990.

**Karpen, Daniel.** "Trees of the Long Island Pine Barrens." Long Island Botanical Society Newsletter, Vol. 9.2. East Norwich (NY): Long Island Botanical Society. 1999.

Little, Elbert L., "Checklist of United States Trees (Native and Naturalized)" U.S. Department of Agriculture, USDA Forest Service. Washington: D.C.: U.S. Government Printing Office. 1979.

Nesom, Guy. "Northern White Cedar." Natural Resources Conservation Service.

U.S. Department of Agriculture, USDA Forest Service. Washington, D.C.: U.S. Government Printing Office. 2002.

Olsen, David F.; Barnes, R. L.; Jones, Leroy. "Seeds of Woody Plants in the United States."

U.S. Department of Agriculture Handbook No. 450. U.S. Department of Agriculture,

USDA Forest Service. Washington: D.C.: U.S. Government Printing Office. 1974.

**Paquette, Carole.** "In the Region/Long Island; Native Plants Are Increasing in Popularity." The New York Times. New York:11 Mar. 2001.

**Rehder, Alfred.** "Manual of Cultivated Trees and Shrubs Hardy in North America, Exclusive of the Subtropical and Warmer Temperate Regions". New York: Macmillan, 1940.

**Seymour, Frank Conkling.** "The Flora of New England; A Manual for the Identification of All Vascular Plants, including Ferns and Fern Allies and Flowering Plants Growing without Cultivation in New England". Rutland (VT): C. E. Tuttle, 1969.

Sutton, R. F. "Silvics of White Spruce (Picea Glauca (Moench) Voss)." U.S. Department of Agriculture, USDA Forest Service. Washington, D.C.: U.S. Government Printing Office, 1969.
Vincent, Michael A. "On the Spread and Current Distribution of Pyrus Calleryana in the United States." Castanea Vol. 70.1. West Virginia: The Southern Appalachian Botanical Club, 2005.
Watts, May Theilgaard. "Tree Finder: A Manual for the Identification of Trees by Their Leaves." Rochester (NY): Nature Study Guild, 1991.

# An Identification of Tree Species from Suffolk County New York

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Keywords: Biology, tree, species, Suffolk, New York

# Abstract:

Four students collected samples from each tree on their properties in Brentwood, Commack, and West Islip. The species of trees were identified and confirmed using two dichotomous keys. The species found are Norway Maple (*Acer platanoides*), Eastern Hemlock (*Tsuga canadensis*), Northern White Cedar (*Thuja occidentalis*), and Red Maple (*Acer rubrum*).

# Introduction:

The weather throughout Long Island has changed drastically over the years; therefore it may change the types of trees that grow on Long Island. The annual climate of Suffolk County, NY is around 53 degrees. (Acee 2011)

# Methods:

A sample of each tree was taken from four residential properties in Brentwood, Commack, and West Islip. Two dichotomous keys helped determined the species of the trees.

# **Results**:

Table 1, Trees on Long Island

Lab Partner	Town	Type of tree(s)	
14 Seneca Dr.	Commack	Norway Maple (Acer platanoides)	
59 Kingston St.	Brentwood	Eastern Hemlock (Tsuga canadensis),	
		Norway Maple (Acer platanoides)	
277 George St.	West Islip	Northern White Cedar (Thuja	
		occidentalis)	
662 Hyman Ave.	West Islip	Northern White Cedar (Thuja	
		occidentalis),Red Maple (Acer	
		rubrum)	

# Figure 1: Photo of the Norway Maple Leaf



Figure 2: Photo of the Eastern Hemlock Leaf



Figure 3: Photo of the Northern White Cedar Figure 4: Photo of the Red Maple





The trees identified in this study were: the Norway Maple (*Acer platanoides*) in Commack. The Eastern Hemlock (*Tsuga canadensis*) in Brentwood, and the Northern White Cedar (*Thuja occidentalis*), and the Red Maple (*Acer rubrum*) in West Islip. On both residential properties in West Islip, the Northern White Cedar (*Thuja occidentalis*) was found.

#### **Discussion**:

Many trees that currently inhabit Long Island are not native to the island but of other regions of the world. The Norway Maple (*Acer plantanoides*) is native to eastern Europe and Southwest Asia. The Eastern Hemlock tree (*Tsuga Canadensis*) is found in the French speaking areas of Canada. The Northern White Cedar Tree (*Thuja occidentalis*) is native in North America. The Red Maple (*Acer rubrum*) is native to Long Island.

# **Conclusion**:

The trees found in the study were: the Norway Maple (*Acer platanoides*)in Commack and Brentwood, the Eastern Hemlock (*Tsuga Canadensis*) in Brentwood, the Northern White Cedar (*Thuja occidentalis*) in West Islip, and the Red Maple (*Acer rubrum*) in West Islip.

#### **References:**

Browne, D.J., 1846. The Trees of America, Native & Foreign, Pictorially and Botanically, New York: Harper & Brothers
Strathe, Sterling, 2001. Wisconsin's K-12 Forestry Lesson Guide, Stevens Port: University of Wisconsin.
Simon, E.J., Reese, J.B., & Dickey, J.L., 2010. Campbell Essential Biology, New York: Pearson Learning Solutions.

# A Tree comparison from Western to Eastern Suffolk

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Keywords: Biology, tree, species, Suffolk, New York

#### Abstract:

Tree species found from Amityville to Brentwood were the: Norway Maple (*Acer platanoides*), American Mountain-Ash (*Sorbus americana*), Eastern Hemlock (*Tsuga canadensis*), Red Cedar (*Juniperus virginiana*), Atlantic White Cedar (*Chamaecyparis thyoides*), and Arbor-Vitae (*Thuja*). A tree such as the Norway Maple (*Acer platanoides*) that grows in Brentwood also grows in Amityville, the American Mountain-Ash (*Sorbus americana*) grows in all three areas, and the Eastern Hemlock (*Tsuga canadensis*) grows in Amityville and West Babylon.

#### **Introduction:**

The three tree species found in Amityville Suffolk County were: Norway Maple (Acer *platanoides*) can grow 40-60 ft. in height. The leaf this tree usually has more than one vein running through the leaf. It also has a milky sap (ODNR Division of Forestry). American Mountain-Ash (Sorbus americana) it has compounded leaves. The leaves can be about 10 inches long. Eastern Hemlock (*Tsuga canadensis*) the leaves or also called needles of this tree are .2-.9 inches long. They are two-ranked. The trees found in Brentwood Suffolk County were: Red Cedar (Juniperus *virginiana*) the leaves or needles of this tree are scaly and they are prickly. They can grow from 1/16 inches (ODNR Division of Forestry). Norway Maple (Acer platanoides) can grow 40-60 ft. in height. The leaf this tree usually has more than one vein running through the leaf. It also has a milky sap (ODNR Division of Forestry). Eastern Hemlock (Tsuga canadensis) the leaves or needles of this tree are .2-.9 inches long. They are two-ranked. Atlantic White Cedar (Chamaecyparis thyoides) has a scaly leaves or needles that can be 1/16-1/18 inches long. It has an aroma when you crush its leaf. Arbor-Vitae have 4-ranked leaves. The leaves or needles are scaly, and grow 1-10mm. The Norway Maple is native to eastern and central Europe. The American Mountain-Ash is native to northern North America and Eastern Canada (ODNR Division of Forestry). Eastern Hemlock extends to a vast distance it starts from northeastern Minnesota and western of Wisconsin, eastward throughout New England, New York, Pennsylvania, and some Atlantic States, and throughout many more parts of the region. Red Cedar is native to North America and southeast from Canada to the Gulf of Mexico and then covers east of the Great Plains. Arbor-Vitae are native through eastern Canada and northeast from the United States. The Atlantic White-Cedar is native to the Atlantic Coast and North America (ODNR Division of Forestry).

#### Method:

Two dichotomous keys were used to identify trees that were picked from residential properties in Western to Eastern Suffolk. The first group of trees came from 145 Justice Street West Babylon, New York 11704. The branches off the tree were measured with a tape ruler and for the circumference of the tree trunks. The second group of trees came from 52 First Street Brentwood, New York 11717 and they too were measured with a tape ruler. The last group of trees came from 15 Geraldine Ave Amityville, New York 11701 and this too was measured with a tape ruler.

# **Results:**

In Brentwood the Red Cedar, Norway Maple, American Mountain-Ash, and Arbor-Vitae were found. The Red Cedar is also known as the Jumiperus virginiana. The Norway Maple is also known as the Acer platanoides. The American Mountain-Ash is also known as the Sorbus americana, and the Arbor-Vitae are also known as the Thuja.

In West Babylon the tree species that were found are the Eastern Hemlock, Atlantic White Cedar (*Chamaecyparis thyoides*), Arbor-Vitae (*Thuja*), and the American Mountain Ash (*Sorbus americana*). In Amityville the tree species that were found are the Norway Maple (*Acer platanoides*), Eastern Hemlock (*Tsuga canadensis*), and the American Mountain-Ash (*Sorbus americana*).

What was found throughout Long Island was there are many different types of trees. In these different locations we've found that many of the same trees do grow in these areas. A tree such as the Norway Maple (*Acer platanoides*) that grows in Brentwood also grows in Amityville, the American Mountain-Ash (*Sorbus americana*) grows in all three areas, and the Eastern Hemlock (*Tsuga canadensis*) grows in Amityville and West Babylon. For more information on the different trees in the different area please refer to the chart below.

Areas	Common Name	Scientific name
Drantrus od		
Brentwood	• Red Cedar	<ul> <li>Juniperus virginiana</li> </ul>
	<ul> <li>Norway Maple</li> </ul>	Acer platanoides
	American Mountain-Ash	• Sorbus americana
	Arbor-Vitae	• Thuja
Amityville	Norway Maple	Acer platanoides
	Eastern Hemlock	• Tsuga canadensis
	American Mountain-Ash	• Sorbus americana
West	Eastern Hemlock	Tsuga canadensis
Babylon	• Atlantic White Cedar	• Chamaecyparis thyoides
	Arbor-Vitae	• Thuja
	American Mountain-Ash	• Sorbus americana

## Table 1: Tree Species in Long Island

# **Table 2: Properties on Long Island**

1 0				
	Property 1	Property 2	Property 3	
Address	145 Justice Street	52 First Street	15 Geraldine Ave	
Town	West Babylon	Brentwood	Amityville	
Lot Size (in acres)	0.147	0.151	0.298	
Tree Count	4	4	3	

# **Discussion:**

Many trees that currently inhabit long island are not native to the area. The Norway Maple (*Acer platanoides*) is not native to Long Island. The Norway Maple is a species of maple native to eastern and central Europe and southwest Asia, from France east to Russia, north to southern Scandinavia and southeast to northern Iran (Taylor, 1993). Another tree that isn't native to Long Island is the Easter Hemlock (*Tsuga Canadensis*). The Eastern Hemlock is native to eastern North America. It ranges from northeastern Minnesota eastward through southern Quebec to Nova Scotia, and south in the Appalachian Mountains to northern Georgia and Alabama (Taylor, 1993). Trees that are native to long island are the American Mountain-Ash (*Sorbus americana*). All findings in this study are from an

extremely small sample of trees on Long Island and in no way constitute a complete picture, but can be combine with other small works to support a catalogue

# **Conclusion:**

It was found that tree species in Amityville to Brentwood were the Norway Maple (*Acer platanoides*), American Mountain-Ash (*Sorbus americana*), Eastern Hemlock (*Tsuga canadensis*), Atlantic White Cedar (*Chamaecyparis thyoides*), and the Arbor-Vitae (*Thuja*). Tree species found in the West Babylon areas are the Eastern Hemlock, Atlantic White Cedar, Arbor-Vitae, and the American Mountain Ash. We also found out that the American Mountain-Ash grew in all three areas. The Norway Maple only showed up in the Brentwood and Amityville areas. The Eastern Hemlock was found in Amityville and West Babylon, but did not show up in the Brentwood area.

# **References:**

**Watts, Theilgaard, May**. *Tree Finder A Manual For The Identification of Trees by Their Leaves*. Rochester: Nature Study Guild Publishers, 1998.

Watts, Theilgaard, May. *Winter Tree Finder A Manual For The Identification of Trees by Their Leaves*. Rochester: Nature Study Guild Publishers, 1998.

**Strathe, Sterling**. 2001. Wisconsin's K-12 Forestry Lesson Guide, Stevens Port: University of Wisconsin.

**ODNR Division of Forestry**. *Ohio Department of Natural Resources Division of Forestry*. Ohio Legislature, 1949.

Taylor, Ronald J. 1993. Flora of North America Vol. 2, Oxford University Press.

#### A Comparison of Tree Species in Centerport and North Babylon in New York

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Keywords: Biology, tree, species, Babylon, New York

#### Abstract:

Tree branches with leaves on them were picked from a residential property in Centerport, and two residential properties in North Babylon. Each sample was identified using two dichotomous keys.

Three tree species were found in North Babylon, and four tree species were found in Centerport. The square footage of the Centerport residential property was 0.21 acres, and the square footage of North Babylon residential properties were 0.20 acres and 0.17 acres. The tree species from North Babylon were identified as Red Maple (*Acer rubrum*), Flowering Dog Wood (*Cornus florida*), and Japanese Dwarf Red Maple (*Acer palmatum*). The tree species from Centerport were identified as Red Maple (*Acer rubrum*), English Holly (*Ilex aquifolium*), and Douglas Fir (*Pseudotsuga menziesii*). The Red Maple was found in both Centerport and North Babylon area.

#### **Introduction:**

New York State alone has more than 125 native tree species. Leopold and other environmental experts encourage the public to recognize "Arbor Day", a nationally celebrated observance that encourages tree planting, tree care, and highlights the importance of trees to our environment (Leopold, 2012).

Tree shape can change with age. The leaf shape may depend in part on its position on the tree. (Watts 1998). Douglas Fir (*Pseudotsuga menziesii*) has needles that are not 2-ranked, branchlets drooping, buds red-brown, and pointed. English Holly (*Ilex aquifolium*) has a surface of the leaf is glossy, edge is wavy, and tips are pointy. Blue Ash (*Fraxinus quadrangulata*) has leaflets that are regularly toothed, twig is square, or with two long lines from leaf scars. Red Maple (*Acer rubrum*) has leaf margins, double-toothed, and 3-5 lobes. Japanese Dwarf Red Maple (*Acer palmatum*) is 2-4 inches long and wide, 7-11 shallowly to deeply divided, long pointed lobes, and double-toothed margins. Flowering Dog Wood (*Cornus florida*) is when the leaf tapers to both ends, and the veins curve to follow the margin.

#### Method:

Two students took part in this investigation. Branches approximately 25cm long with leaves were picked off each tree located on following three properties 4 Kent Lane North Babylon NY 11703, 7 Kent Lane, North Babylon NY 11703 and 12 Martha Ct, Centerport NY 11721.Two dichotomous keys were used to identify and confirm tree species (Watts 1998, Strathe 2001).

#### **Results:**

The trees that were identified in this study are: Red Maple (*Acer rubrum*), Japanese Dwarf Red Maple (*Acer palmatum*), Flowering Dog Tree (*Cornus florida*), Douglas Fir (*Pseudotsuga menziesii*), English Holly (*Ilex aquifolium*), and Blue Ash (*Fraxinus quadranqulata*). Three of the tree species are from North Babylon. They are identified as Red Maple (*Acer rubrum*), Flowering Dog Wood (*Cornus florida*), and Japanese Dwarf Red Maple (*Acer palmatum*). Four of the tree species are from Centerport, which were identified as Red Maple (*Acer rubrum*), Blue Ash (*Fraxinus quadrangulata*),

English Holly (*Ilex aquifolium*), and Douglas Fir (*Pseudotsuga menziesii*). (Table 1) The square footage of the Centerport residential property was 9,147 sq. ft., and the square footage of North Babylon residential properties were 8,670 sq. ft., and 7,469 sq.

Table 1 shows that in the North Babylon and Centerport residential areas that the species Red Maple is present in both areas. The other six tree species are only seen in either North Babylon or the Centerport Residential areas. These tree species are native on Long Island.

Species of Trees	North Babylon Residence	Centerport Residence
Red Maple (Acer rubrum)	Х	Х
Japanese Dwarf Red Maple (Acer palmatum)	Х	
Flowering Dog Wood (Cornus florida)	Х	
Douglas Fir (Pseudotsuga menziesii)		Х
English Holly ( <i>Ilex aquifolium</i> )		Х
Blue Ash (Fraxinus quadranqulata)		Х

Table 1: Identification of Tree Species on Long Island

(The trees that are listed in this table include their common name, scientific name in parenthesis, and check marks indicating which trees are present in North Babylon or Centerport Residences)

## **Discussion:**

An invasive species is an organism that is not native to the ecosystem, which can cause harm to the environment, and human health. Non native plants turn into Invasive plants because they did not develop with the local flora. In 2007, Nassau and Suffolk

County passed a law that banned the sale, transport, and distribution of invasive species. This list of invasive species is called the "Do Not Sell" List (Alvey 2009).

Red Maple's native habitat is on cool, moist, and acidic soils. It's adjacent to swamps and marshes (Benvie, 2000, pg. 33-34). Flowering Dogwood ranges from Southern most Maine, South to Northern Florida, West to Eastern Texas, and North to Southern Ontario. It's the most highly valued native flowering trees (Benvie 2000). English Holly is introduced in North America; Naturalized and invasive from British Colombia to California, Native to Southern Europe, Northern Africa, and Western Asia (Kershner et al. 2008). Japanese Dwarf Red Maple is introduced in North America; Occasionally escapes cultivation. Native to Japan, Chine, and Korea. It is also usually seen in parks and gardens (Kershner et al. 2008). Blue Ash's habitat is limestone outcrops, woodlands. Blue Ash grows largest in the lower Wabash River basin (Illinois) and in the Great Smoky Mountains (Kershner et al. 2008). Douglas-Fir is the most utilized timber tree in North America, particularly the coastal variety. In it's natural setting it provides shelter for many mammals and birds (Benvie 2000).

#### **Conclusion:**

In this study it was found that only one of the tree species that wear picked seemed to be common in both areas, identified as the Red Maple (*Acer rubrum*). It was also found that the trees that were picked are mostly trees from North America. In the North Babylon residence the tree species that were found are Red Maple (*Acer rubrum*), Flowering Dog Wood (*Cornus florida*), and Japanese Dwarf Red Maple (*Acer palmatum*). In the Centerport residence the tree species that were identified are Red Maple (*Acer rubrum*), Douglas Fir (*Pseudotsuga menziesii*), Blue Ash (*Fraxinus quadranqulata*), and English Holly (*Ilex aquifolium*).

# **References:**

**May Theilgaard Watts**. 1998. Tree Finder Books A Manual for the Identification of Trees, Nature Study Guild Publishers, Rochester, NY.

**Sterling Strathe**. 2001. Wisconsin K-12 Forestry Lesson Guide, Stevens Point: University of Wisconsin.

**Alvey, Alexis**. 2009. Invasive Plants Frequently Asked Questions for Long Island's Horticulture Professionals: Cornell Cooperative Extension of Suffolk County.

Benvie Sam. 2000. The Encyclopedia of North American Trees. Buffalo: Firefly Books LTD.

Kershner Bruce, Mathews Daniel, Nelson Gil, and Spellenberg Richard. 2008. Field Guide to Trees of North America. New York: Sterling Publishing Co., Inc.

#### A Comparison of Tree Species from Northern and Eastern Brentwood

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## Keywords: Biology, tree, species, Brentwood, New York

#### Abstract:

Tree branch samples from Brentwood were selected from two residential properties. One property on the East end and another property on the North end of Brentwood. First a thirty centimeter branch sample was selected. Utilizing a measuring tape (cm) the trees were measured by their circumference. The branch samples selected were analyzed using two dichotomous key. The tree species found in Northern Brentwood were a Bald Cypress (*Taxoduim distichum*), Arbor Vita (*Thuja occidentalis*), American Mountain-Ash (*Sorbus americana*) and a Douglas Fir (*Pseudotsuga menziesii*). The tree species found in Eastern Brentwood were Staghorn Sumac (*Rhus typhina*), another Staghorn Sumac (*Rhus typhina*), a Silver Maple (*Acer saccharinum*) and a White Pine (*Pinus strobes*).

#### **Introduction:**

Throughout Long Island there is an abundance of different species of trees. The tree species identified were a Bald Cypress, a native tree to the North America which has borne leaves. The leaves are arranged in a spiral pattern on the branch, Arbor Vita, a native to North America and Eastern Asia. The leaves of the tree are scale like and fanned out. American Mountain-Ash with slender, dark green leaves. This tree is native to the Eastern North America, it has alternate branching with compound leaves; its leaflets are thirteen to seventeen. A Douglas Fir which has needle like leaves, this tree is native to the Western North America; it has spiral arranged leaves that circle the branch to more or less lie flat. (East Brentwood) has two Staghorn Sumac trees which contain simple leaves, native to Eastern North America, that has alternate branching and compound leaves. A Silver Maple which contain leaves, which contain deep notches and five lobes. It is native to the Eastern North America; is part of the maple species, contains opposite branching and three to five lobes separated by deep angular openings. Finally a White Pine which have needle like leaves in bundles of five or less. It is native to the Eastern North America, which contains five needles per bundle.

#### Methods:

The trees were measured first from thirty centimeters off their base to obtain a tree branch sample. A tape measuring ruler was utilized to measure the circumference of the tree trunks, thirty centimeters from the roots. With the branch samples chosen from each tree, the types of tree specimens were categorized; that were found on the property. Dichotomous keys were used to verify the specific type of trees that were on each property. All the data recorded is placed in Tables 1 and 2.

The residence of North Brentwood, where the tree species are located are at 185 Suffolk Avenue, Brentwood, NY and the residence of East Brentwood, where the tree species are located is 207 Broadway, Brentwood, NY.

#### **Results:**

Tree species found at 185 Suffolk Avenue Brentwood have two coniferous trees and two deciduous trees. The tree species found at the 207 Broadway Brentwood have three deciduous trees. Tables 1 and 2 show that Arbor Vitae (*Thuja occidentalis*) and the Douglas Fir (*Pseudotsuga menziesii*)

# Saturn Journal, Vol. 1, No. 1, August 2012

are the only coniferous trees with the rest of the tree species are deciduous. Also, the circumference of the tree trunks ranged from 14 cm to 48.9 cm. The Douglas Fir had the largest circumference of 48.9 cm. The lowest circumference is the White Pine (*Pinus strobus*) at 12.5 cm. The tree at 185 Suffolk Avenue Brentwood had a much greater tree trunk circumference than that of 207 Broadway Brentwood. There are no similarities between North and East Brentwood.

Tree number	Tree Species	Circumference of the tree
Tree 1	Bald Cypress	20.4 cm
	(Taxoduim distichum)	
Tree 2	Arbor Vitae	43.3 cm
	(Thuja occidentalis)	
Tree 3	American Mountain-Ash	47.7 cm
	(Sorbus americana)	
Tree 4	Douglas Fir	48.9 cm
	(Pseudotsuga menziesii)	

Table 1: Tree species found at 185 Suffolk Avenue, Brentwood, NY

(In Northern Brentwood on a 75x 100 lot, the tree species found were the Bald Cypress: circumference of 20.4 cm, Arbor Vital: circumference of 43.3 cm, American Mountain-Ash: circumference 47.7 cm, and Douglas Fir: circumference 48.9 cm. There are no similarities between North and East Brentwood trees.)

Table 2: Tree species found at 207 Broadway, Brentwood, NY

Tree number	Tree species	Circumference of the tree
Tree 1	Staghorn Sumac	14 cm
	(Rhus typhina)	
Tree 2	Staghorn Sumac	14 cm
	(Rhus typhina)	
Tree 3	Silver Maple	29 cm
	(Acer saccharinum)	
Tree 4	White Pine	12.5 cm
	(Pinus strobus)	

(In Eastern Brentwood on a 75x100 lot, the tree species found were the Staghorn Sumac: circumference 14 cm, Staghorn Sumac: circumference 14 cm, Silver Maple: circumference 29 cm, and White Pine: circumference 12.5 cm. There are no similarities between North and East Brentwood trees.)

# **Discussion:**

All of the trees that are currently found on the two properties are native to North America. The Bald Cypress (*Taxoduim distichum*) Bald Cypress is native to Southern North America (Petrides, 1998). Arbor Vitae (*Thuja occidentalis*) Native to Eastern North America (Petrides, 1998). American Mountain-Ash (*Sorbus americana*) One of the most ornamental northern trees (Petrides, 1998) It has a mainly northern distribution, extending south long the Appalachian Mountains to North Carolina and Georgia (Coombes, 2010)

Douglas Fir (Pseudotsuga menziesii) Western North America

Staghorn Sumac (Rhus typhina) Is cultivated in Europe and the West (Petrides, 1998). Silver Maple

# Saturn Journal, Vol. 1, No. 1, August 2012

(Acer saccharinum) Is a fast-growing deciduous tree and is normally the earliest maple to flower in North America and is Native to Eastern North America (Coombes, 2010). White Pine (*Pinus strobus*) Are the only native five-needle pine in the eastern U.S. and Canada (Petrides, 1998).

# **Conclusion:**

Trees Bald Cypress (*Taxoduim distichum*), Arbor Vitae (*Thuja occidentalis*), American Mountain-Ash (*Sorbus Americana*), and Douglas Fir (*Pseudotsuga menziesii*) were found in North Brentwood and Staghorn Sumac (*Rhus typhina*), Staghorn Sumac (*Rhus typhina*), Silver Maple (*Acer saccharinum*), and White Pine (*Pinus strobus*) were found in Eastern Brentwood. North Brentwood and East Brentwood were not found to have common tree species in this study.

# **References:**

**Coombers J. Allen.,** 2010. "The Book Of Leaves": The University of Chicago Press **Petrides A. George.,** 1988. "Eastern Trees": Boston, NY: Houghton Mifflin Company **Sterling, Strathe.,** 2001. "Wisconsins K-12 Forestry Lesson Guide," Stevens Port: University of Wisconsin

**Watts, May Theilgaard.**, 1998. "Tree Finder: A Manuel for the Identification of Trees by their Leaves", Rochester: Nature Study Guild Publishers

# Comparing Tree Sample for Brentwood, New York and East Patchogue New York

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**Keywords:** Biology, tree, species, Brentwood, New York

## Abstract:

Six tree samples were collected altogether, three from a property in Brentwood, New York and three from a property East Patchogue, New York. The tree samples were identify by using three different dichotomous keys. The Brentwood, New York property had Flowering Dogwood or (*Cornus florida*), Sugar Maple or (*Acer saccharum*) and an Atlantic White Cedar or (*Chamaecypairs thyoides*). The East Patchogue, New York property had Red Ash or (*Fraxinus pennsylvania*), Hardy Catalpa or (*Catalpa speciosa*) and Sour Gum or (*Nyssa syluatica*).

# **Introduction:**

A tree is defined as a plant having a permanently woody main stem or trunk, ordinarily growing to a considerable height and usually developing branches at some distance from the ground. There are estimated 100,000 tree species on earth today (Robbins 2010). Trees are estimate to be 25% for the world living plant species (Robbins 2010). Long Island, New York is best known for its Pine Barrens. Long Island, New York is in the North East of North America and has water on all sides (Robbins 2010).

East Patchogue, New York is located in the south-east of Long Island, New York. East Patchogue is four mile from the Great South Bay. East Patchogue goes through all four season. Brentwood, New York is located in Central Long Island, New York. Brentwood, New York is not located by any major body of water. Bentwood, New York also goes through all four season.

# Methods:

Three tree samples were collected from property in East Patchogue and three samples from Brentwood, New York. The address where the East Patchogue tree samples were collect is, 9 Pondview Drive, East Patchogue NY 11772. The address where the Brentwood tree samples were collect is, 237 Crooked Hill Rd, Brentwood NY 11717. The samples were 30cm long and had at least ten (10) leaves on it. Then, the tree samples were identify by using three different dichotomous keys. The first dichotomous key that was used was Tree Finder –A Manual for identification of Trees by their Leaves (Watts 1991). The second dichotomous key that was used was Leaf Guide Wisconsin's K-12 Forestry Education Program (Strathe 2001). The last dichotomous key that was used was Dichotomous Key for Identifying Common Landscape Trees in Arkansas (Robbins 2010).

# **Results:**

Sample 1, was from the property in Brentwood, New York. The Tree Finder-A Manual for the Identification of trees (Watts 1991) dichotomous key shown the tree was a Flowering Dogwood or (*Cornus florida*). The Leaf Guide (Strathe 2001) which stating the tree was Ironwood Tree. The Dichotomous Key for Identifying Common Landscape Trees in Arkansas (Robbins 2010) shown that the tree was a Eastern flowering dogwood or (*Cornus florida*).

Figure one: (*Cornus florida*)



Photograph: by Jessica Lennon

Sample 2, was from the property in Brentwood, New York. Tree Finder shown the tree was a The Tree Finder-A Manual for the Identification of trees (Watts 1991) dichotomous key shown the tree was a Sugar Maple or an (*Acer saccharum*). The Leaf Guide (Strathe 2001) shown that the tree sample was a Sugar Maple. The Dichotomous Key for Identifying Common Landscape Trees in Arkansas (Robbins 2010) shown that the tree was a Sugar Maple (*Acer saccharum*).

Figure two: (Acer saccharum)



Photograph: by Jessica Lennon

Sample 3, was from the property in Brentwood, New York. The Tree Finder-A Manual for the Identification of trees (Watts 1991) dichotomous key showed the tree was an Atlantic White Cedar tree *(Chamaecyparis thyoides)*. The Leaf Guide (Strathe 2001) shown that the tree sample was a Northern White Cedar tree. The Dichotomous Key for Identifying Common Landscape Trees in Arkansas (Robbins 2010) shown that the tree was a White Cedar (*Chamaecyparis thyoides*).

Figure three: (*Chamaecyparis thyides*)



Photograph: by Jessica Lennon

Sample 4, was from the property in East Patchogue New York. The Tree Finder-A Manual for the Identification of trees (Watts 1991) dichotomous key shown the tree was a Red Ash tree (*Fraxinus pennsylvania*). The Leaf Guide (Strathe 2001) shown that the tree sample was a Mountain Ash Tree. The Dichotomous Key for Identifying Common Landscape Trees in Arkansas (Robbins 2010) shown that the tree was a Green Ash (*Fraxinus pennsylvania*).

Figure Four: (Fraxinus pennsylvania)



Photograph: by Jessica Lennon

Sample 5, was from the property in East Patchogue, New York. The Tree Finder-A Manual for the Identification of trees (Watts 1991) dichotomous key shown the tree was a Sour Gum tree (*Nyssa syluatica*). The Leaf Guide (Strathe 2001) shown that the tree sample was a Black Locust tree. The Dichotomous Key for Identifying Common Landscape Trees in Arkansas (Robbins 2010) shown that

the tree was a Black Tupelo (Nyssa syluatica)

Figure Five: (Nyssa syluatica)



Photograph: by Jessica Lennon

Sample 6, was from the property in East Patchogue, New York. The Tree Finder-A Manual for the Identification of trees (Watts 1991) dichotomous key showed the tree a Hardy Catalpa tree (*Catalpa speciosa*). The Leaf Guide (Strathe 2001) shown that the tree sample was a Black Cherry tree. The Dichotomous Key for Identifying Common Landscape Trees in Arkansas (Robbins 2010) shown that the tree was a Northern Catalpa (*Catalpa speciosa*).

Figure Six: (Catalpa speciosa)



Photograph: by Jessica Lennon

Out of the three tree samples that were collected for East Patchogue, New York the only tree that was

shown to not be native to the area was the (*Catalpa speciosa*) which is native to the Midwestern of North America. The trees that were found to be native to the area are, (*Fraxinus pennsylvanica*) and the (*Nyssa syluatica*), which are both native to Eastern and Central North America. All the tree sample collect from Brentwood, New York where all Native to the area. The trees that were find in Brentwood, New York are (*Cornus florida*), (*Acer saccharum*), and, (*Chamaecyparis thyoides*).

# **Discussion:**

The three trees sample that were collected on the Brentwood, New York property were *Cornus florida*, *Acer saaccharu*) and *Chamaecyparis thyoides*. All are native to the area. The three tree samples that were collected on the East Patchogue, New York were *Fraxinus pennsylvania*, *Catalpa speciosa*, and *Nyssa syluatica*. The *Fraxinus pennsylvania*) and *Nyssa syluatica* are both native to the area but the *Catalpa speciosa* is not native to the area. The *Catalpa speciosa* is native to the Midwestern of North America.

# **Conclusion:**

On both, the East Patchogue, New York and Brentwood, New York properties there were no tree samples that were the same species of tree. From all six samples that were collect five were native to the areas which are the *Cornus florida, Acer saccharum, Chamaecypairs thyoides, Fraxinus pennsylvania,* and *Nyssa syluatica. Catalpa speciosa* is the only tree sample not native to the area.

# **References:**

**Watts, May Theilgaard**, 1991. Tree Finder –A Manual for identification of Trees by their Leaves, Rochester NY: Nature Study Guild Publishers.

Strathe, Sterling, 2001. Wisconsin's K-12 Forestry Lesson Guide,

Port: University of Wisconsin.

**Robbins, James**, 2010. Dichotomous Key for Identifying Common Landscape Trees in Arkansas, Arkansas: University of Arkansas.

# A Comparison of Tree Species from the North and South Shores of Long Island

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Keywords: Biology, tree, species, Long Island

## Abstract:

Ten North shore trees and three South shore trees all from residential properties on Long Island, New York had their species identified and verified using two dichotomous keys. The trees identified were a Red Maple (*Acer palmatum*), an Arbor Vitae (*Thuja occidentalis*), two Silver Maples (*Acer saccharinum*), a Flowering Dogwood (*Cornus florida*), a Common Pear (*Pyrus communis*) two Weeping Cherry Trees (*Prunus subhirtella var. pendula*,) a Pin Cherry (*Prunus pensylvanica*) a Black Ash (*Fraximus nigra*,) a Tulip Tree (*Lirodendron tulipifera*,) a Chokecherry (*Prunus virginiana*) and a White Oak (*Quercus alba*).

## **Introduction:**

The Japanese Red Maple (*Acer palmatum*) is an invasive species in the United States. They can grow up to thirty feet tall. They grow fast at their early stage, but slow down when they reach about ten years old.

The Arbor Vitae (*Thuja occidentalis*) are a member of the cypress family. They have soft yet scaly leaves and prefer cold weather. These are common throughout Canada and the northeastern United States.

The Silver Maple (*Acer saccharinum*) are fast-growing trees are most common in the midwest US, but can be found in other areas as well. Their rapid growth causes their wood to form less densely, so it is not very strong. The bark of these trees is light grey and smooth to the touch.

A Flowering Dogwood (*Cornus florida*) bears fruit which is poisonous to humans, but a favorite of many bird species. This tree's flowers have onion-shaped buds, and their fruit occurs in clusters. Its bark resembles the hide of an alligator.

A Common Pear Tree (*Pyrus communis*) requires a winter chill in order to produce fruit. They are the third most valuable tree in the US behind only apple and cherry trees. These trees typically take ten or more years to reach full maturity and production levels.

A Weeping Cherry Tree (*Prunus subhirtella*) is native to japan and can grow between 20 to 30 feet tall. These trees can are prone to disease and pest problems.

The Pin Cherry Tree (*Prunus pensylvanica*) can grow anywhere from 15 to 50 feet tall and some have been found as tall as 100 feet tall.

The Black Ash tree (*Fraximus nigra*) grows from 40 to 70 feet tall. It's trunk diameter can usually grow to be about 2 feet wide.

The Tulip tree (*Lirodendron tulipifera*) can grow anywhere from 18 to 32 meters tall and have a columnar trunk.

The Chokecherry tree (*Prunus virginiana*) can grow up to 5 meters tall and its fruit is known for its sour taste.

The White Oak (*Quercus alba*) can grow anywhere from 65 to 85 feet tall and flowers in May usually.

# Methods:

Small branches approximately 30 centimeters long each were cut from each tree on the

properties investigated. These properties included 12 Woody Lane, Northport, New York 11768, 9 Westwood Lane, Kings Park, NY 11754 and 45 Muncy Avenue, West Babylon, New York 11704. These samples were then identified and then verified using two dichotomous keys. (The Weeping Cherry Blossom was identified using one key and a verifying source.)

# **Results:**

On the North shore the trees identified were a Japanese Red Maple (*Acer palmatum*), an Arbor Vitae (*Thuja occidentalis*), a Silver maple (*Acer saccharinum*), a Flowering Dogwood (*Cornus florida*), a Common Pear (*pyrus communis*) a Pin Cherry (*Prunus pensylvanica*,) a Black Ash (*Fraximus nigra*) and a Tulip Tree (*Lirodendron tulipifera*). Two Weeping Cherry Trees (*Prunus subhirtella var. pendula*) were also found on the North shore and were identified by two separate tree directories.

On the South shore property the trees were identified as a Silver Maple (*Acer saccharinum*), a chokecherry (*Prunus virginiana*) and a White Oak (*Quercus alba*.)

# **Discussion:**

The Japanese Red Maple (*Acer palmatum*,) the Arbor Vitae (*Thuja occidentalis*,) and the Common Pear Tree (*pyrus communis*) are all invasive species to these locations. The Silver maple (*Acer saccharinum*,) the Flowering Dogwood (*Cornus florida*) the Pin Cherry Tree (*Prunus pensylvanica*,) the Black Ash (*Fraximus nigra*,) the Tulip Tree (*Lirodendron tulipifera*,) the Chokecherry (*Prunus virginiana*) and the White Oak (*Quercus alba*) are native to these properties.

# **Conclusions:**

Nine North shore species were identified as a Japanese Red Maple (*Acer palmatum*) an Arbor Vitae (*Thuja occidentalis*) a Silver Maple (*Acer saccharinum*) a Flowering Dogwood (*Cornus florida*) a Common Pear (*Pyrus communis*) two Weeping Cherry Trees (*Prunus subhirtella*,) a Pin Cherry (*Prunus pensylvanica*) a Black Ash (*Fraximus nigra*) and the Tulip Tree (*Lirodendron tulipifera*).

Three South shore species were identified as a Silver Maple (*Acer saccharinum*), a chokecherry (*Prunus virginiana*) and a White Oak (*Quercus alba*). The Silver Maple tree appeared on both shores.

# **References:**

**May Theilgaard Watts**, "Tree Finder a Manual for the Identification of Trees by Their Leaves", Nature Study Guild. 1963 rev. 1998

**Strathe, Sterling,** Wisconsin's K-12 Forestry Lesson Guide, Stevens Port: University of Wisconsin. 2001.

**Ohio State University**. Prunus subhirtella var. pendula - Weeping Higan Cherry, Plantfacts Database, Ohio State University Department of Horticulture and Crop Science, 2002 < http://plantfacts.osu.edu> USDA. PLANTS Database, USDA- United States Department of Agriculture, May 8, 2012 < http://plants.usda.gov/java/>

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# A Comparison Of Tree Species From Deer Park, Brentwood and Hauppauge New York

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Keywords: Biology, tree, species, Dear Park, Brentwood, Hauppauge, New York

# Abstract:

Nine branches were collected from three residential properties approximately 25 centimeters in length from Brentwood, Hauppauge, and Deer Park New York. A dichotomous key was used to determine the species of the trees. The tree species collected from Brentwood were Norway Maple (*Acer platanoide*), a Red Maple (*Acer rubrum*), and a Cherry Blossom (*Prunus serrulata*). Tree species that were collected from Hauppauge are Box Elder (*Acer negundo*), Tamarack (*Larix laricina*) and a Red Maple (*Acer rubrum*). The tree samples that was collected from Deer Park were Red Maple or (*Acer rubrum*), a Scarlet Oak (*Quercus coccinea*) and a Cut Leaf Japanese Dwarf Maple (*Acer palmatum*). We all used a Tree identifying book that allowed us to identify what tree each branch came from. The branches that weren't found in the book we identified by using an online website. We also recorded how many of the same trees that we sampled were on our property. The tree species that was found in all three properties was the Red Maple (*Acer rubrum*).

## **Introduction:**

Long Island New York experiences each of the season's weather changes. A 25 centimeter branch from three trees was collected from three residential properties. The Norway Maple (*Acer platanoide*) is a deciduous tree that grows 40-60 feet tall. The opposite leaves are palmately lobed with 5-7 lobes. The Red Maple (*Acer rubrum*) is an eastern North American deciduous tree known for its red foliage and is one of the first trees to change color. The Cherry Blossom (*Prunus serrulata*) is a deciduous variety that flowers in the spring and loses its leaves in the fall. Flowers are typically white or pink. The Scarlet Oak (*Quercus coccinea*) has alternate leaves that are 3 to 7 inches long, oval in shape with bristle-tipped lobes, shiny green above, paler and generally hairless below but may have tufts in vein axils. The Cut Leaf Japanese Dwarf Maple (*Acer palmatum*) grows six to ten feet tall and ten to twelve feet wide. The Box Elder (*Acer negundo*), is a deciduous tree native to flood plains, swamps and stream banks in the United States. The Tamarack (*Larix laricina*) leaves are needle-like, 2–3 cm short, light blue-green, turning bright yellow before they fall in the autumn, leaving the pale pinkish-brown shoots bare until the next spring.

# Methods:

Each of us gathered a foot long branch from each tree that is on our yard. We also took a count of how many of the same trees were in our yard. We identified the trees using a dichotomous key (Watts 1998)

# **Results:**



In Brentwood the Norway Maple (*Acer platanoide*) (Figure3), a Red Maple (*Acer rubrum*) (Figure 1), and a Cherry Blossom (*Prunus serrulata*) (Figure2) was found. In Deer Park the species that was found were Red Maple or (*Acer rubrum*) (Figure 6) a Scarlet Oak (*Quercus coccinea*) (Figure 4) and a Cut Leaf Japanese Dwarf Maple (*Acer palmatum*) (Figure 5). In Hauppauge the species that were found are Red Maple (*Acer negundo*) (Figure 9), Tamarack (*Larix laricina*) (Figure 7) and a Red Maple (*Acer rubrum*) (Figure 8). The species that we found on all three properties is the Red Maple (*Acer rubrum*) (Figure 1, 6, 9).

# **Conclusions:**

In this study the Red Maple (*Acer rubrum*) was found in Deer Park, Hauppauge, and Brentwood. One of the nine species samples collected was an invasive species which is the Norway Maple (*Acer platanoide*).

# **References:**

Murray, Frank Morton, 2009. *The New Students Reference Work for Teachers, Students, and Family*, Vol. 4, Chicago: General Books LLC Alvey, Alexis. *Invasive Plants*. Diss. Cornell University, 2009. Print.

May, Watts. Tree Finder A Manual for the Identification of Trees by Their Leaves. Rochester : Nature Study Guild Publishers, 1998.

# A Comparison of Coniferous and Deciduous Trees Relative to Location on Long Island

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Keywords: Biology, coniferous, deciduous, tree, Long Island

#### Abstract:

Six trees were identified from four properties in four different towns on Long Island. They were the American Mountain-Ash (*Sorbus americana*) and the Balsam Poplar (*Populus balsamifera*) in Bay Shore, the Balsam Fir (*Abius balsam*) in East Northport, the Sugar Maple (*Acer saccharum*) and Tamarack (*Larix laricina*) in Islandia, and the Northern Pin Oak (*Quercus ellipsoidalis*) in Brentwood. The trees were identified and confirmed using two dichotomous keys. The circumference of the tree trunks was also measured. The results suggest that northern Long Island is more hospitable to coniferous trees, while central and southern Long Island are hospitable to deciduous trees.

#### **Introduction:**

There are a plethora of trees that exist on Long Island today. There are large populations of both conifers and deciduous trees. Coniferous forests cover much of North America, and there are about 190 million acres of coniferous forests in the U.S. (Simon et.al, 2010). There are trees that bear cones and have needles (Wisconsin's K-12 Forestry Education Program). Pines, firs, and cedars are popular examples of this tree type. Conifers retain their leaves throughout the year, meaning nearly all of them are evergreens (Simon et.al, 2010). This is a characteristic that drastically separates the conifers from deciduous trees. Unlike evergreens, deciduous trees lose their leaves during the cold or dry season, and grow new leaves each spring. These trees are also called broad-leafed trees (Wisconsin's K-12 Forestry Education Program), due to the leaves being much larger than those of conifers, which by characteristic have much smaller leaves. Many varieties of deciduous trees are native to North America. The more popular varieties include Poplars, Birches, Ashes, Maples, and Oaks. A dichotomous key is a modeling method used for categorizing species, and is a tool that allows its user to determine the identity of an item. Dichotomous keys were used to identify trees species in this study. It is also known as a "sequential key". Dichotomous keys consist of couplets, or paired descriptions.

#### Methods:

Four students partook in this study. Each student recorded his or her address, town, and lot size as shown in Table 1. In total there were 4 properties in this study that were located across Long Island. These towns are Bay Shore, Brentwood, East Northport, and Islandia. After this information was recorded, the students counted how many trees were on each property. Then, the circumference of each tree trunk was taken approximately 30 cm. away from the ground (Table 3). Dichotomous keys were used to find the identity of the tree species. From this, trees were identified as coniferous or deciduous. This was recorded in Table 3. Once the common name was identified with the dichotomous key, it was recorded with regard to the location of the tree (Table 2). Finally, the common and scientific names of the tree were recorded in Table 3. These were both found in the dichotomous keys used.

#### **Results:**

The tress identified in this study was as follows: The deciduous American Mountain-Ash (*Sorbus americana*), the deciduous Balsam Poplar (*Populus balsamifera*), the coniferous Balsam Fir (*Abius balsam*), the deciduous Sugar Maple (*Acer saccharum*), the deciduous Tamarack (*Larix* 

*laricina*), and the deciduous Northern Pin Oak (*Quercus ellipsoidalis*). The Bay Shore property had two trees, the East Northport property only had one tree, the Islandia property had two trees, and the Brentwood property had one tree. The circumference of the trees ranged from 23 centimeters to 506 centimeters. Property one consisted of deciduous trees; Property 2 consisted of a conifer tree; Property 3 consisted of deciduous trees; Property 4 had a deciduous tree. Property 1 is home to the American Mountain-Ash (*Sorbus americana*) and the Balsam Poplar (*Populus balsamifera*) trees, property 2 contained a Balsam fir (*Abius balsam*) tree, property 3 contained a Sugar Maple (*Acer saccharum*) and Tamarack (*Larix laricina*) tree, and property 4 contained the Northern Pin Oak (*Quercus ellipsoidalis*) tree. Only *Abius balsam*, or the Balsam fir, was coniferous – the rest of the sample trees were deciduous.

	Property 1	Property 2	Property 3	Property 4
Address	77 Harrisburg St.	305 10 <sup>th</sup> Ave.	157 Serpentine Ln.	234 Sherman St.
Town	Bay Shore	East Northport	Islandia	Brentwood
Region	Southern L.I.	Northern L.I.	Central L.I.	Central L.I.
Lot Size	75 x 100	70 x 175	75 x 100	75 x 110
Tree Count	2	1	2	1

Table 1 – Properties on Long Island

(This table reports the locations used on Long Island. This is helpful in discovering if there is a trend regarding location of trees. It also shows where the properties were located with regard to the island, and the amount of trees there were on each property. This could possibly help determine tree densities around Long Island).

Table 2 – Location of Trees (	with regard to	property)
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	Property 1	Property 2	Property 3	Property 4							
Tree 1	American Mountain-Ash	Balsam Fir	Sugar Maple	Northern Pin Oak							
Tree 2	Balsam Poplar		Tamarack								

(This table organizes the species with regard to property).

#### Table 3 – Tree Analysis

Common Name	Scientific Name	Ту	/pe	Circumference of Trunk		
		Conifer	Deciduous			
American Mountain-Ash	Sorbus Americana		$\checkmark$	241.3 cm		
Balsam Poplar	Populus Balsamifera		$\checkmark$	71.12 cm		
Balsam Fir	Abius Balsam	$\checkmark$		22.86 cm		
Sugar Maple	Acer saccharum		$\checkmark$	203.2 cm		
Tamarack	Larix laricina		$\checkmark$	304.8 cm		
Northern Pin Oak	Quercus ellipsoidalis		$\checkmark$	505.5 cm		

(The trees are listed in this table with their common name, scientific name, type (coniferous or deciduous), and with their circumference of the trunk in metric units (cm).

On the Islandia property, the Tamarack tree was identified or *Larix laricina*, as a deciduous tree. Deciduous trees seem to have a greater occurrence on the island, according to this study. Only one out of the six trees was a conifer (*Abius balsam*).

Also, the circumference of the trunks varied with the tree types. All deciduous trees had a much larger circumference than the Balsam fir. However, this could also be due to the tree ages: perhaps this tree was a lot younger than the others. While its circumference was only 22.86 cm, the other samples ranged from 71.12cm to 505.5 cm. It is also interesting to note that the most popular types of trees in the U.S. were found in this study (i.e. Ashes, Firs, Maples).

# **Discussion:**

Many trees that currently inhabit long island are not native to the area. Those that are not native include the *Larix laricinia*, Tamarack (Peattre, 2007). This source also reports that the Balsam Fir is a native of Long Island. The Sugar Maple is native of Canada (Aronin, 1953) as is the American Mountain Ash, which according to (Browne, 1846) is a "native of Canada, Newfoundland and North America." The Balsam Poplar is also a native to the North America. (Murray 2009). All findings in this study are from an extremely small sample of trees on Long Island and in no way constitute a complete picture, but can be combine with other small works to support a catalogue.

# **Conclusions:**

In this study there was no relation between tree density and location on long Island; there were a similar number of trees on the four properties. Tree species and location on Long Island appear to have a correlation in this study. Northern Long Island was home to the only coniferous tree in the sample. Deciduous trees inhabited central and southern Long Island. This suggests that conifers are more likely to exist in northern parts of the island, and deciduous trees inhabit the rest of Long Island. Coniferous trees keeping their leaves all season being much more able to withstand colder temperatures for longer periods of time are found on the North Shore. Since deciduous trees, shed their leaves during the cold seasons, they tend to inhabit the lower parts of the island.

# **References:**

Simon, E.J., Reese, J.B., & Dickey, J.L., 2010. Campbell Essential Biology, New York: Pearson Learning Solutions.

**Strathe, Sterling**, 2001. Wisconsin's K-12 Forestry Lesson Guide, Stevens Port: University of Wisconsin.

**Cross, Donald**, 2007. A Natural History of North American Trees, New England: Houghton Mifflin Harcourt.

**Browne, D.J.,** 1846. The Trees of America, Native & Foreign, Pictorially and Botanically, New York: Harper & Brothers.

**Murray, Frank Morton,** 2009. The New Students Reference Work for Teachers, Students, and Family, Vol. 4, Chicago: General Books LLC

Aronin, Jeffrey Ellis, 1953. Climate & Architecture, New York: Reinhold.

# A Comparative Analysis of Coniferous, Deciduous, and Evergreen Trees Relative to Location and Tree Trunk Circumference on Long Island

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Keywords: Biology, coniferous, deciduous, evergreen, Long Island

## Abstract:

Branches were removed from nine trees and each tree was identified via dichotomous keys. The various trees were from three different properties spread throughout western, central, and northeastern Long Island. The trees were the Red Maple (*Acer rubrum*), Atlantic White Cedar (*Chamaecyparis thyoides*), Chestnut Oak (*Quercus prinus*), and the Norway Maple (*Acer platanoides*) from Wantagh, White Ash (*Fraxinus americana*), Red Pine (*Pinus resinosa*), and the Virginia Pine (*Pinus virginiana*) from Smithtown, and Black Cherry (*Prunus serotina*) and Balsam Poplar (*Populus balsamifera*) from Hauppauge. The circumference of each tree was taken via tape measure and identified with two dichotomous keys and the United States Department of Agriculture Plants Service Database. The results suggest that there were more native species of trees in Long Island and that there was a much higher concentration of deciduous trees than evergreens, with only one tree being coniferous. In addition, western Long Island was more hospitable to coniferous trees, central Long Island more hospitable to deciduous, and northeastern to evergreen.

# **Introduction:**

Long Island is an island almost completely surrounded by water in the Atlantic Ocean. It is roughly parallel to Connecticut and separated to the north by the Long Island Sound (Britannica, 2012). It is somewhere between twelve to twenty miles wide and has an area of fourteen hundred and one square miles (Britannica, 2012). Out of the three properties with tree samples, Wantagh is the most western location that is fairly close to the Atlantic Ocean, Smithtown the most northeastern property that too is close to the Ocean, and Hauppauge is almost directly in the center of the Island, with roughly equidistant distances from the ocean on either sides.

There are a variety of different tree species that inhabit Long Island. General categorizations of a large number of the trees are coniferous, evergreen, and deciduous trees. Coniferous trees are conebearing tree plants that have vascular tissue and needles that may or may not keep their needles all year long (Campbell, 2005). These trees are very similar to the evergreen trees, except evergreens normally keep their needles throughout the year. However, these two trees differ greatly from deciduous trees, most notably from their leaves. Though coniferous and evergreen usually do not lose their leaves seasonally, deciduous trees lose and regrow their leaves (Campbell, 2005).

A dichotomous key is "a tool that allows the user to determine the identity of items in the natural world, such as trees, wildflowers, mammals, reptiles, rocks, and fish. Keys consist of a series of choices that lead the user to the correct name of a given item. Dichotomous keys always give two choices for each step" (Zahler, 2012).

# Methods:

One student completed the experiment with the help of a neighbor who allowed the use of his land for tree samples. The student recorded the three addresses, towns, regions, number of trees, and samples collected from each location (Table 1). Then the student measured the circumference of each tree via tape measure and removed a branch from each tree. This branch was used to identify the

various trees via two dichotomous keys, and the common and scientific names were recorded (Table 2). Finally, via the use of the USDA plant data base and dichotomous keys, the trees were further classified as deciduous, coniferous, or evergreen, native or non-native to Long Island, and if they were endangered (Table 3).

# **Results:**

The trees identified were the Red Maple (*Acer rubrum*), Atlantic White Cedar (*Chamaecyparis thyoides*), Chestnut Oak (*Quercus prinus*), and the Norway Maple (*Acer platanoides*) from Wantagh, White Ash (*Fraxinus Americana*), Red Pine (*Pinus resinosa*), and the Virginia Pine (*Pinu svirginiana*) from Smithtown, and Black Cherry (*Prunus serotina*) and Balsam Poplar (*Populus balsamifera*) from Hauppauge (Watts, 1998). The tree with the smallest circumference was the Atlantic White Cedar with a circumference of 75.5 cm, while the Norway Maple tree was the largest at 628.3cm. The Atlantic White Cedar was the only coniferous tree that was native to Long Island. The Norway Maple tree was the only non-native tree from Europe and was deciduous. The other deciduous trees were the White Ash, Red Maple, Balsam Poplar, Chestnut Oak, and Black Cherry. The evergreen trees were the Red Pine and Virginia Pine.

	Location 1	Location 2	Location 3			
Address	17 Opal Court	500 Lincoln Blvd	34-17 Lufberrry Ave			
Town	Smithtown	Hauppauge	Wantagh			
Region	Northeastern	Central	Western			
Total Tree Count	5	4	4			
Number of Tree	3	2	4			
Samples Taken						

Table 1: Tree Sample Locations on Long Island

This table reports the location of each tree, the region they were in and the number of tree samples taken. The total numbers of trees on the property were also reported to prevent biased data. Not all of the trees from each property were accounted for due to them being behind fences and therefore inaccessible.

Table 2: Species of Trees Relative to their Location

	Location 1	Location 2	Location 3
Tree 1	White Ash (Fraxinus	Black Cherry (Prunus	Red Maple (Acer rubrum)
	Americana)	serotina)	
Tree 2	Red Pine (Pinu	Balsam Poplar	Atlantic White Cedar
	sresinosa)	(Populus balsamifera)	(Chamaecyparis thyoides)
Tree 3	Virginia Pine (Pinus		Chestnut Oak (Quercus
	virginiana)		prinus)
Tree 4			Norway Maple (Acer
			platanoides)

This table lists the trees common names and their respective scientific name.

Tree Common	Origin		Circumference of		
Name		Conifer Deciduous Evergreen		Trunk	
White Ash	Native		X		132.2 cm
Red Pine	Native			Х	122.3 cm
Virginia Pine	Native			Х	126.6 cm
Black Cherry	Native		X		152.2 cm
Balsam Poplar	Native		X		144.2 cm
Red Maple	Native		X		140.2 cm
Atlantic White	Native	Х			75.5 cm
Cedar					
Chestnut Oak	Native		X		420.2cm
Norway Maple	Non-		X		628.3cm
	Native				

Table 3: Analysis of Tree Samples

This table lists the common names of the trees and their origin as either native to Long Island or nonnative. It categorizes the trees as coniferous, deciduous, evergreen trees, and states their circumferences.

## **Discussion:**

After identifying the trees, their origin was confirmed via the USDA plant database (USDA, 2012). According to this source, eight trees, aside from the Norway Maple all originated from the Northeastern region of the United States. The Norway Maple originated from Europe (USDA, 2012).

Out of nine trees, eighty-nine percent were native while only eleven percent was non-native. According to one source, a possible reason for this is that while non-native plants may be more aesthetically pleasing, they are harder to maintain than their native counterparts (Paquette, 2012). In conjunction to New York laws that protect the endangered native species and the allure of not needing to water, fertilize, and maintain heavily the native plants verses the heavy maintenance requiring non-native plants, this may be why there are much more native species in Long Island today (Paquette, 2012).

After comparing the circumferences of the trees, though overall deciduous trees were the largest trees, due to the small sample size, this cannot be deferred. In addition, though the general trend was a higher concentration of coniferous, deciduous, and non-native tree species in the western region of Long Island, native evergreen trees in the northeastern region, and native deciduous trees in the central region, this inference too cannot be made due to the small sample size. Such a small sample size may lead to random errors resulting from misreading the dichotomous key to misreading the circumference due to the unknown variable, the ages of the trees.

# **Conclusion:**

Based on solely the data from the study, there seemed to be a connection between large circumferences and deciduous trees. The largest trees were deciduous and smallest coniferous. In addition, out of the nine tree samples, an overwhelming eighty-nine percent were native while eleven percent was non-native.

There was a direct correlation between location and types of trees clearly visible in the data. In the western region of Long Island, there had the highest concentration of coniferous trees. In the central location, the deciduous trees were of the largest population while in the northeastern, the evergreen trees populated the area. This suggests that the evergreen trees, with its ability to retain its needles all year long were better adapted for the colder environments associated with being in the northern region. In addition, the central and southern regions contained deciduous trees, which suggest that the warmer climates were more hospitable to these species of trees that lose their leaves seasonally, and therefore were not able to sustain and adapt to the winter climate as well as their evergreen counterparts.

# **References:**

**Campbell, Reece**, "Phylum Coniferophyta". Biology. 7th. 2005. Page 595 **United States Department of Agriculture**, "Fact Sheets and Plant Guides", 23 June 2012. Web. 23 June 2012.<<u>http://plants.usda.gov/java/factSheet></u>

**Encyclopædia Britannica**. "Long Island". *Encyclopædia Britannica Online*. Encyclopædia Britannica Inc., 2012. Web. 23 Jun. 2012

<a>http://www.britannica.com/EBchecked/topic/347278/Long-Island>.</a>

**Paquette, Carole**. "In the Region/Long Island; Native Plants Are Increasing in Popularity." *The New York Times*. The New York Times, 11 Mar. 2001.

**Watts, May Theilgaard**, 1998. "Tree Finder: A Manuel for the Identification of Trees by their Leaves", Rochester: Nature Study Guild Publishers

Zahler, David. "Dichotomous Identification Key: Common Trees of the Pacific

Northwest." *Dichotomous Identification Key: Common Trees of the Pacific Northwest*. Oregon Forest Resource Institute, n.d. Web. 23 June 2012. <a href="http://oregonstate.edu/trees/dichotomous\_key.html">http://oregonstate.edu/trees/dichotomous\_key.html</a>.

# An Identification of Native and Invasive Tree Species in Bay Shore, New York

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Keywords: Biology, native, invasive, tree, species, New York

# Abstract:

The species of twenty nine trees were identified on a property in Bay Shore, New York. There were eleven species identified. The species are White Pine (*Pinus stroba*), Sugar Maple (*Acer saccharum*), Red Cedar (*Juniperus virginica*) or Atlantic White Cedar (*Chamaecyparis thyoides*), Blue Ash (*Fraxinus quadrangulata*), Flowering Dogwood (*Cornus florida*), Eastern Hemlock (*Tsuga canadenis*), White Birch (*Betula papyrifera*), White Oak (*Quercus alba*), and Arbor Vitae (*Thuja occidentalis*). These trees are all native to North America. Also identified were two White Mulberry (*Morus rubra*) and two English Oak (*Quercus robur*) which are a non-native species.

# Introduction:

Invasive species can have a harmful effect on its' location depending. The tree species can be planted somewhere and completely take control of the region endangering the already native species of trees found there. Invasive tree species can also take away the region's biodiversity there killing off the native ones. By documenting the types of trees that were found, the impact of invasive versus native trees in my area can be shown for future references used by placing it in a catalog for others to study. By documenting this along with other people's work we can find a pattern and even track any endangered species to see if and how they're surviving in that found environment.

# Methods:

Tree samples were taken from residential properties. The location of the property is 1322 Manor Lane, Bay Shore New York which sits on a little over three fifths of an acre. A small branch with leaves was cut off from every tree and the trees were then counted. Each branch was examined and identified using a dichotomous key.

# **Results:**

One tree was identified as White Pine (*Pinus stroba*). Three were found to be Sugar Maple (*Acer saccharum*), Three trees were identified as being either Red Cedar (*Juniperus virginica*) or Atlantic White Cedar (*Chamaecyparis thyoides*). Blue Ash (*Fraxinus quadrangulata*) was found five times on the property. White Mulberry (*Morus rubra*) was discovered three times as well. Only two Flowering Dogwood (*Cornus florida*) were discovered. Three English Oak (*Quercus robur*) were found. Two Eastern Hemlock (*Tsuga canadenis*) were pinpointed in the front of the property, along with three White Birch (*Betula papyrifera*). White Oak (*Quercus alba*) were identified twice as well as Arbor Vitae (*Thuja occidentalis*).

# of Species	Tree	Native	Non-Native
1	White Pine- Pinus stroba	Х	
3	Sugar Maple- Acer saccharum	Х	

 Table 1: Identification of Trees

3	Red Cedar- Juniperus virginica / Atlantic	X	
	White Cedar-Chamaecyparis thyoides	Х	
5	Blue Ash- Fraxinus quadrangulata	X	
3	White Mulberry – Morus rubra		Х
2	Flowering Dogwood- Cornus florida	X	
3	English Oak- Quercus robur		Х
2	Eastern Hemlock- Tsuga canadenis	X	
3	White Birch- Betula papyrifera	X	
2	White Oak- Quercus alba	X	
2	Arbor Vitae- Thuja occidentalis	X	
29	: TOTAL		

# **Discussion:**

Almost all of the trees found on the property, out of twenty-nine, were native to the eastern North America region. Three trees couldn't be exactly identified, but were narrowed down to a Red Cedar, *Juniperus virginica*, or an Atlantic White Cedar, *Chamaecyparis thyoides*. *Juniperus virginica* are mostly found more towards the west coast while *Chamaecyparis thyoides* are found on the east coast. Two non-native species to North America were identified on the property. The White Mulberry, *Morus rubra*, which sprouts berries each summer, is native to China. English Oak, *Quercus Robur*, is most commonly native to the European region. Using another dichotomous key, "Wisconsin's K-12 Forestry Lesson Guide", was not helpful either to help identify if the three trees were either Red Cedar, *Juniperus virginica*, or Atlantic White Cedar, *Chamaecyparis thyoides*.

# **Conclusions:**

White Mulberry (*Morus rubra*) and English Oak (*Quercus robur*) are invasive species found on a property in Bay Shore, New York. White Pine (*Pinus stroba*), Sugar Maple (*Acer saccharum*), Red Cedar (*Juniperus virginica*) or Atlantic White Cedar (*Chamaecyparis thyoides*), Blue Ash (*Fraxinus quadrangulata*), Flowering Dogwood (*Cornus florida*), Eastern Hemlock (*Tsuga canadenis*), White Birch (*Betula papyrifera*), White Oak (*Quercus alba*), and Arbor Vitae (*Thuja occidentalis*) are all native to North American region were found on the same property. It can be useful for this type of information to be recorded from properties in the United States to show common trees in certain areas and to help identify endangered species.

# **References:**

**Theilgaard Watts, May** 1963, 1991. Tree Finder: A manual for the Identification of Trees by Their Leaves, New York: Nature Study Guild

**Strathe, Sterling**, 2001. Wisconsin's K-12 Forestry Lesson Guide, Stevens Port: University of Wisconsin.

# A Comparison of First Season Growth of DED Resistant American Elm Cultivars

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Keywords: Statistics, Biology, Elm, Dutch Elm Disease, New Harmony, Jefferson, Princeton

#### Abstract:

The growth of twenty-four, one year old seedlings by height was recorded over a period of two hundred and twelve days (May 19, 2011 - Dec. 3, 2011). The American Elm (*Ulmus americana L.*) was the specie evaluated. Of the total, twelve individual recorded growths compared were the American Elm cultivar "Princeton" and the other twelve were the American Elm cultivar "New Harmony". The site of these seedlings is located in Brentwood, New York. The results of our evaluation showed that the growth was not significantly different.

#### **Introduction:**

Dutch Elm Disease (DED) is caused by a member of the sac fungi category affecting Elm (*Ulmus*) trees and is spread sexually by the Elm Bark Beetle. DED triggered specifically by the fungi *Ophiostoma ulmi* (which afflicted Europe from 1910, reaching North America on import timber in 1928) and *Ophiostoma novo-ulmi* (on extremely virulent species which was first described in Europe and North America in the 1940's and has devastated elms in both areas since the late 1960's), which still remains a major impediment to the survival of freshly planted and established trees of the American Elm (*Ulmus americana L.*)

The American Elm (U*lmus americana L.*) is a species native to eastern North America, occurring from Nova Scotia west to Alberta And Montana, and south to Florida. The American Elm is an extremely hardy tree that can withstand winter temperatures as low as -44F (-42.2C). Thus, as aforementioned by the USDA, it is prized for its adaptability, vigor, growth rate, ease of transplanting, and tall, vase-shaped crown which provide a beautiful arching canopy along many American streets (Townsend et al. 2005).

The American Elm cultivar "Princeton" was originally selected in 1922 by New Jersey nurseryman William Flemer for its aesthetic merit. By coincidence, "Princeton" was later found to have a resistance to DED, which has prompted renewed interest in its cultivation on both sides of the Atlantic. The tree is distinguished by its dense, symmetrical upright form and dark green foliage, ultimately forming a broad umbrella crown. The Princeton cultivar grows quickly. As young trees they can increase in height by over 5.24ft (1.6m) per annum as found in an assessment at UC Davis as part of the National Elm Trial (National Elm Trial, 2012).

The American Elm cultivar "New Harmony" was raised by the Maryland Agricultural Research Service and released by the United States National Arboretum in 1995. "New Harmony" is considered by some to be desirable as it grows vertically on its own with a minimum of early training.

The two above-mentioned cultivars were planted as three years old seedlings on the campus of Suffolk County Community College at Brentwood, New York. The study objective is the comparison of their growth in the first season.

# Methods:

The two cultivars compared were "New Harmony" and "Princeton", both which are considered resistant (Hartman & Eshenaur, 2004). As stated above, these two cultivars were planted at SCCC Grant Campus located in Brentwood, New York. The area used is right next to Loop Road, on the left

side of the southern entrance to the college. A total of twenty-four cultivars were planted (12 "New Harmony and 12 "Princeton") in two individual rows approximately 20ft (6.1m) apart, formed in an arc from the Kid's Cottage to the eastern parking lot, an approximately 500ft (152.4m). Preparations of these three year old seedlings were planted on April 19, 2011. The first data on tree heights were recorded on May 19, 2011 and the preceding data on tree height were recorded on December 3, 2011. All submission of tree height data were recorded in (ft.). The subtraction of each individual tree heights recorded on Dec. 3<sup>rd</sup> to the individual tree heights recorded on May 19<sup>th</sup> were used in the comparison of the first season growth. Listed below in the table are the recorded heights of each individual seedling.

# **Results:**

Analyses of standard deviation for "Princeton" was 0.5784 ft with a point estimate for growth as 0.6 ft and the standard deviation for "New Harmony" was 0.3942 ft with a point estimate for growth as 0.358 ft. The point estimate for difference of growth of "Princeton" and "New Harmony" was 0.242 ft. and the maximum error of the estimate with an assumption of a 95% confidence was 0.445 ft With the assumption that the growth was normally distributed for both cultivars, a test using a T-test was conducted to determine the difference of growth of "Princeton" and "New Harmony" with a 5% significance showed that the growth was not significantly different.

Table - Growth of Individual S	eedlings (ft)
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					/							
Princeton	1.3	1.3	0.2	0.3	0.1	0.8	0.1	0.5	1.6	0.1	1	-0.1
New Harmony	0.2	0.1	0.7	0.1	0.3	0.2	1.2	0.3	0	0.2	0	1

# **Discussion:**

To the best of our knowledge, at no time has there been any data collected on Long Island, New York or any equivalent comparisons to compare our finds with.

# **Conclusion:**

The T-test used to determine the comparison of first year growths in three year old seedling on Long Island of "Princeton" and "New Harmony" DED resistant American Elm cultivars with a 5% significance showed that the growth was not significantly different. Hence, our sample size was small and confirming that the main reason why our difference of mean growth was not significant. It should be noted that in a separate hypothesis conducted using a T-test comparing the two cultivars with a sample size of one hundred total trees (assuming normal growth) would conclude a significant difference. Thus, suggesting that the sample size be increased and the growth compared on a longer time interval.

# **References:**

Hartman John, Brian and Eshenaur, Brian. 2004, "Dutch Elm Disease" University of Kentucky Cooperative Extension Service, PPFS-OR-W-02.

# National Elm Trial

http://treehealth.agsci.colostate.edu/research/nationalelmtrial/NationalElmTrial.htm

Santamour, Jr., Frank S., and Bentz, Susan E. "Updated Checklist of Elm (Ulmus) Cultivars for Use in North America," *Journal of Arboriculture*, 21:3 (May 1995), 122-131.

Townsend, A. M., Bentz, S. E., and Douglass, L. W. "Evaluation of 19 American Elm Clones for Tolerance to Dutch Elm Disease," *J. Environ. Hort.* 23(1):21–24. March 2005.

Notes

# An Identification of Tree Species in Bay Shore, New York

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Keywords: Biology, tree, species, Bay Shore, New York

## Abstract

Five species of trees were identified from a residential property in Bay Shore, New York using a dichotomous key. They are the Gingko (*Gingko biloba*) Hackberry (*Celts occidentals*), Serviceberry (*Amelancher arborea*), Sugar Maple (*Acer saccharum*) and the Silver Maple (*Acer saccharinum*)

# Introduction

The town of Bay Shore is located on the south of Long Island. The Gingko (*Gingko biloba*), has leaves that are "fan shaped, have two lobes with many veins, fanning out from the base" (Watts, 1998). The second tree, the Hackberry (*Celts occidental*), are "long pointed leaves that have no teeth at the end of the base and they're narrow" (Watts, 1998). The Serviceberry (*Amerlancher arborea*) has "1/3-1/2 stems which are as long as the blade of the base. They're also broadly rounded but slightly heart shaped underneath the surface" (Watts, 1998). The Silver Maple tree (*Acer saccharinum*) has an "end lobe which is narrow towards the base. It notches between the lobes and are deep underneath the surface and they're white downy leaves" (Watts, 1998). The final leaf, the Sugar Maple; (*Acer saccharum*) has "no milky juice; has a curve to it and have long stems" (Watts, 1998).

# Methods

Five Samples of tree leaves were taken from 111 Queen Street in Bay Shore. The five leaves were then inspected for identification of the species using a dichotomous key (Watts, 1998).

# Results

The five trees that were identified for this study were the Gingko (*Ginko biloba*), Hackberry (*Celts occidentals*), Serviceberry (*Amerlancher arborea*), the Sugar Maple (*Acer saccharum*) and the Silver Maple (*Acer saccharinum*).

# Discussion

The Gingko tree (*Gingko biloba*) is not a native tree in New York. Originally from China, it's the "oldest tree growing up to 70-110 feet tall" (Sego, 2007). The Gingko has been used for "medicinal purposes" (Sego, 2007) for thousands of years. The Hackberry tree (*Celts occidentals*) is a native tree in New York. The Hackberry tree (*Celts occidentals*) is originally in the western of New York State and they grow "30-70 feet tall, but can grow to 130 feet" (Kaiser, 2004.) They also belong in the "Elm Family tree line" (Kaiser, 2004). The Serviceberry (*Amelancher arborea*) is a native tree in New York. They grow 15-20 feet in the eastern United States and in Canada as well (Hayward, 1999). The Sugar Maple (*Acer saccharum*) is not a native from New York. They are harvested mostly in "North America and Russia" (Kline, 2005) growing up to 75-100 feet tall (Ball, 2005). The last tree; the Silver Maple (*Acer saccharinum*) is not a native in New York. Their leaves are ragged which makes the great shades from the sun (Nix, 2008). It also grows up to 50-70 inches tall in height.

# Conclusion

#### Saturn Journal, Vol. 1, No. 1, August 2012

In this study, the following species have been identified in Bay Shore, New York were the Gingko (*Gingko biloba*), Hackberry (*Celts occidentals*), Serviceberry (*Amelancher arobrea*) Sugar Maple (*Acer saccharum*) and the Silver Maple (*Acer saccharinum*). Each has different traits about them which makes them different in their own way.

# References

Watts, Theigaard May. Tree Finder Manual for Identification of Tree by their Leaves Rochester New York, Nature Study Guild, 1998
Kline, Eric. Encyclopedia of New York State, Syracuse New York, Syracuse University Press, 2005
Sego, Sherrli. Clinical Advisor, New York, New York Haymarket Media Inc, 2007
Hayward, Pat. Birder's World, Waukesha, Wisconsin, Kalmbach Publishing Company, 1999
Kaiser, Jo-Ann. Wood and Wood Products, Lincolnshire, IL, Vance Publishing Corp, 2004

# A Comparison of Tree Species identification Between Central Islip and Hauppauge

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Keywords: Biology, tree, species, Islip, Hauppauge

## Abstract:

Different tree species were compared in Central Islip and Hauppauge. The experiment was done to identify the different tree species located in the central part of Suffolk County and the Northern part. We obtained different leaves from every tree in each location and we used two dichotomous key to identify what type of tree species they belonged to. We found out that there was no common tree species in the two areas.

# **Introduction:**

This experiment was done to identify the tree species in different location which were in Central Islip and Hauppauge. During the research we found that Central Islip is three miles closer to the South Shore of Long Island. The weather in Central Islip is very similar to the weather in Hauppauge. Hauppauge is four miles away from the Long Island Sound. Depending on the location can mean what type of trees will grow there. In a dichotomous key there are a series of questions to answer that will conclude to the type of tree you obtained the leaf from. The series of questions were answered depending on the texture of the leaf or the branch.

# Method:

A dichotomous key was used to identify the different tree species in two locations, 18 Brightside Avenue in Central Islip and 356 Vanderbilt Motor Parkway in Hauppauge.

# **Results:**

In Central Islip we found a Willow species (common species include weeping and Black Willow), White Pine (Pinus strobus), and White Birch (Betula papyrifera). In Hauppauge we found a Northern White Cedar (Thuja occidentalis), Red Pine (Pinus resinosa), Black Oak (Quercus velutina), and Silver Maple (Acer saccharinum). And we found that there was no species in common.

# **Discussion:**

There are many maple tree species in Long Island. The most common trees are Red maple and Sugar maple. We can see that it was very likely to find a Silver maple species as we found in Hauppauge.

# **Conclusion:**

Tree species that were identified in Central Islip were Willow Species, White Pine (*Pinus strobus*), and White Birch (*Betula papyrifera*). The tree species at Hauppauge were Northern White Cedar (*Thuja occidentalis*), Red Pine (*Pinus resinosa*), Black Oak (*Quercus velutina*) and Silver Maple (*Acer saccharinum*). In either location there was no common species found.

# **References:**

Watts, May Theilgaard. Tree finder: a manual for the identification of trees by their leaves.

Rochester, N.Y.: Nature Study Guild, 1991.

**Wisconsin Center for Environmental Education.** *LEAF: learning, experiences & activities in forestry: the Wisconsin K-12 forestry education program.* Stevens Point, WI: University of Wisconsin-Stevens Point, Wisconsin Center for Environmental Education, 2004