Innovating the Nantucket Tree Inventory

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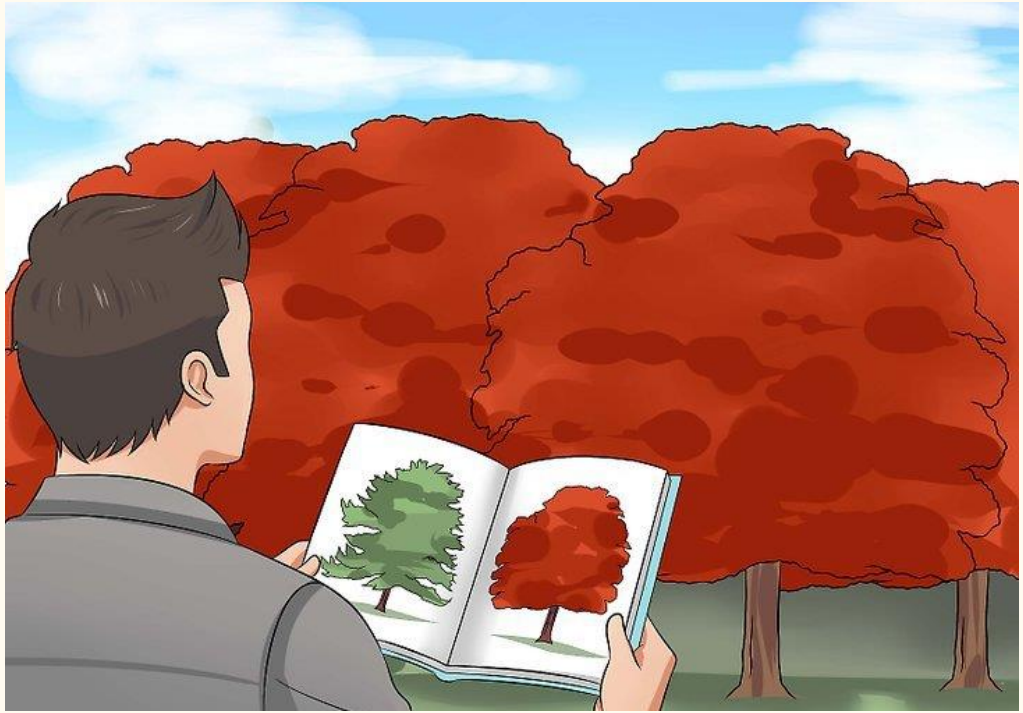
We often take trees for granted.

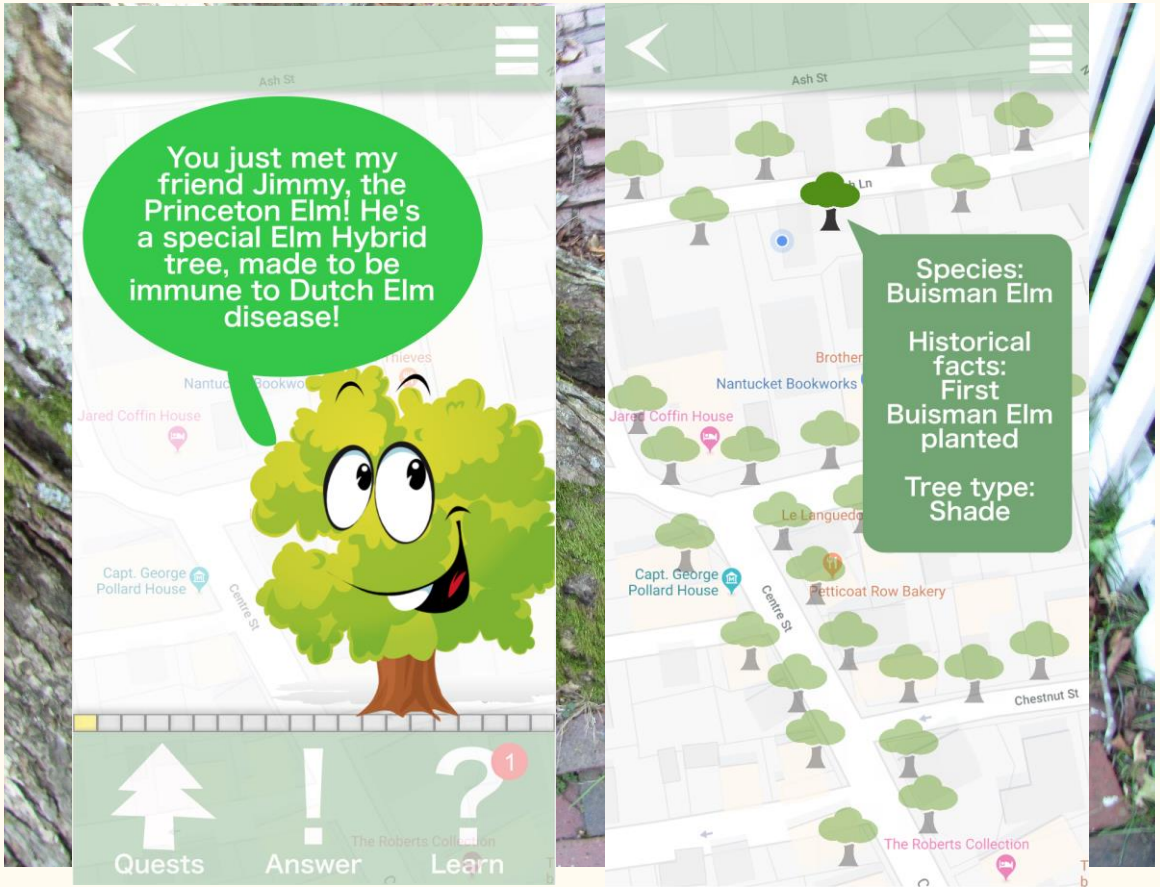
After the impact of Dutch Elm Disease
(Gillet Avenue, Waukegan, Illinois, *1972*)

What is a tree inventory?



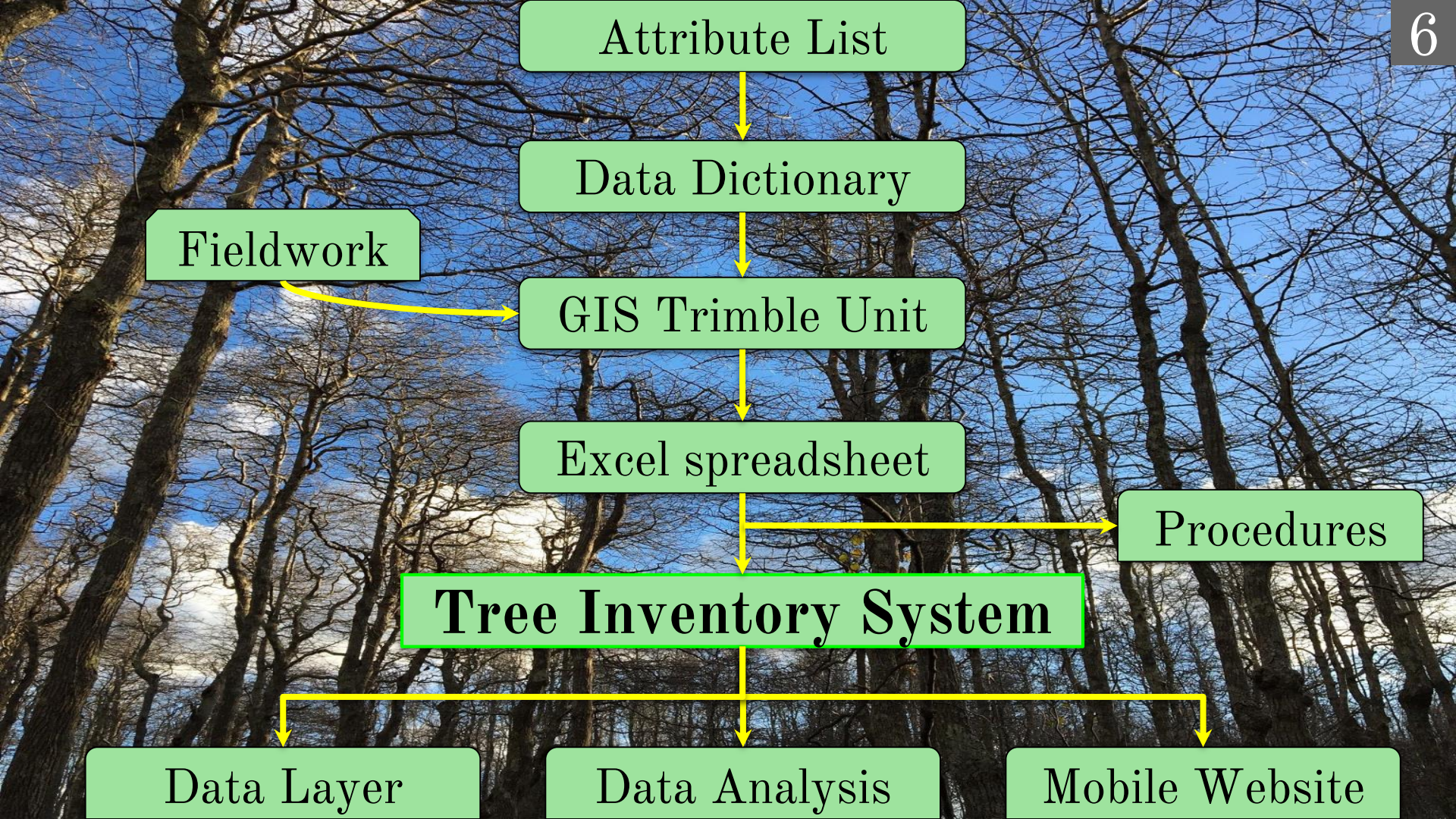
Why do we need a tree inventory?

- Every tree is different!
- Maintenance
- Education



Project Goal: Enhance urban tree appreciation and maintenance records in downtown Nantucket

1) Review previous tree inventory
2) Create new attribute list
3) Update tree inventory data
4) Create an educational mobile website


Attribute List
Data Dictionary
Fieldwork
GIS Trimble Unit
Excel spreadsheet
Procedures
Tree Inventory System
Data Layer
Data Analysis
Mobile Website

Tree Attributes

Primary

- New/Existing ID Numbers
- Common Name
- Genus/Species
- Location
- Height
- Diameter at Breast Height
- Tree Condition
- Damage/Maintenance
- Other Comments

Secondary

- History
- Sidewalk Condition
- Diseases
- Date Planted
- Last Sprayed
- Last Fertilized
- Last Trimmed

+4 additional attributes!

Data Dictionary

Trial Data Collection

Final Tree Data Spreadsheet

EDUCATION

MAINTENANCE

New ID Number	Historical ID Number	Elm ID Number	Common Name	Genus	Species	Date Planted	History	Location	Height (feet)	DBH (inches)	Condition	Is there damage to the tree?	Does the tree need maintenance?
Main-53	111	886	American Elm	Ulmus	americana	1951	Unknown	Private Land	61-70	28.7	Good	None	None
Main-54	112	876	American Elm	Ulmus	americana	1951	Unknown	Private Land	61-70	30.3	Good	None	Minor
Main-55	-	-	Black Walnut	Juglans	nigra	-	Unknown	Sidewalk	36-40	6.8	Good	None	None
Main-56	-	874	American Elm	Ulmus	americana	-	Unknown	Sidewalk/ Roadside	61-70	25.8	Good	Minor	None
Main-57	-	-	Buisman Elm	Ulmus	minor 'Christine Buisman'	-	Unknown	Sidewalk	36-40	14	Fair	None	None
Main-58	-	870	American Elm	Ulmus	americana	-	Unknown	Sidewalk/ Roadside	71-80	35.9	Good	Minor	Minor
Main-59	-	875	American Elm	Ulmus	Americana	-	Unknown	Sidewalk/ Roadside	71-80	28.9	Good	None	Minor

Procedures were created and tested to allow others to continue the tree inventory.

Trimble Unit Operation

Data Collection Procedure

Data Processing Procedure

ArcMap Data Processing Procedure

describes how to export data from ArcMap. Consult this after the "Data Processing Proce

ArcMap software on the computer **(Figure 1)**.

to the ArcMap project:
the "Add Data" button **(Figure 2)**.
the Shapefiles exported from the "Data
sing Procedure."
pted that "No Spatial Reference Information is
le," select "Okay."

coordinate system for each Shapefile:
lick on the first layer **(Figure 3)**.
"Properties."
oordinate system is defined, skip to **step 6**.
for each layer listed.

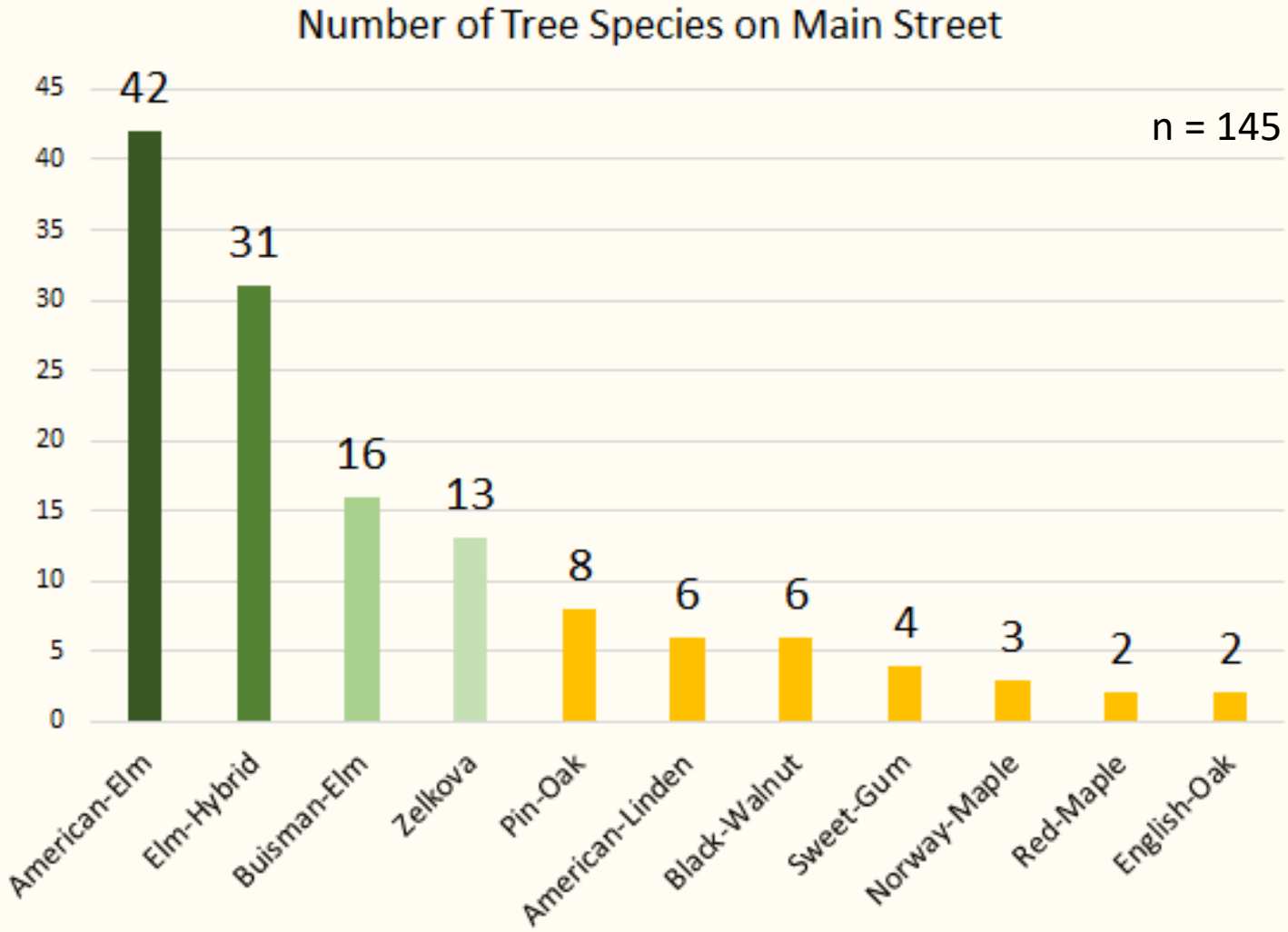
Using the Inventory

The trees can be displayed on a map using their GIS locations.

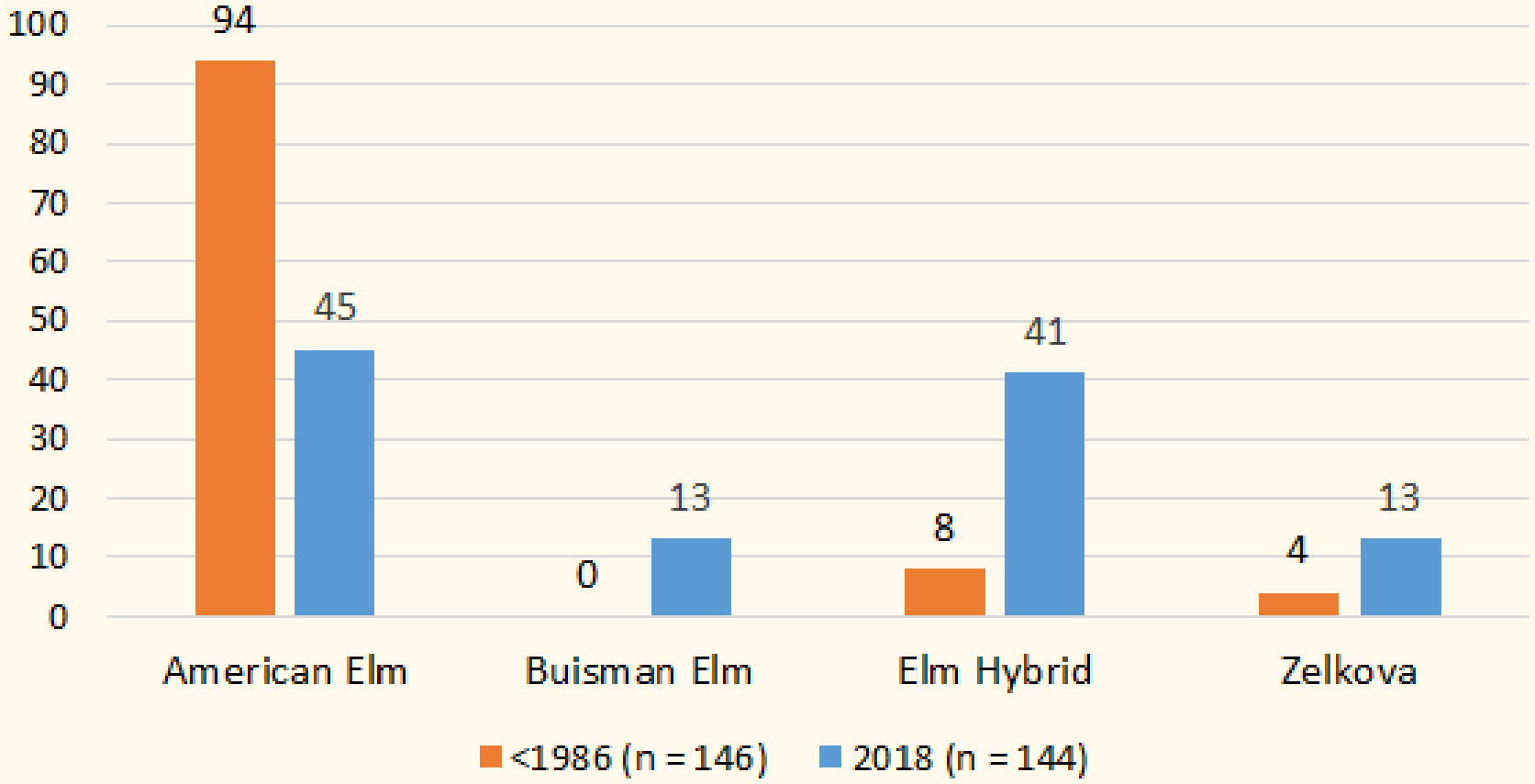
MONUMENT
ROTARY

MADAKET

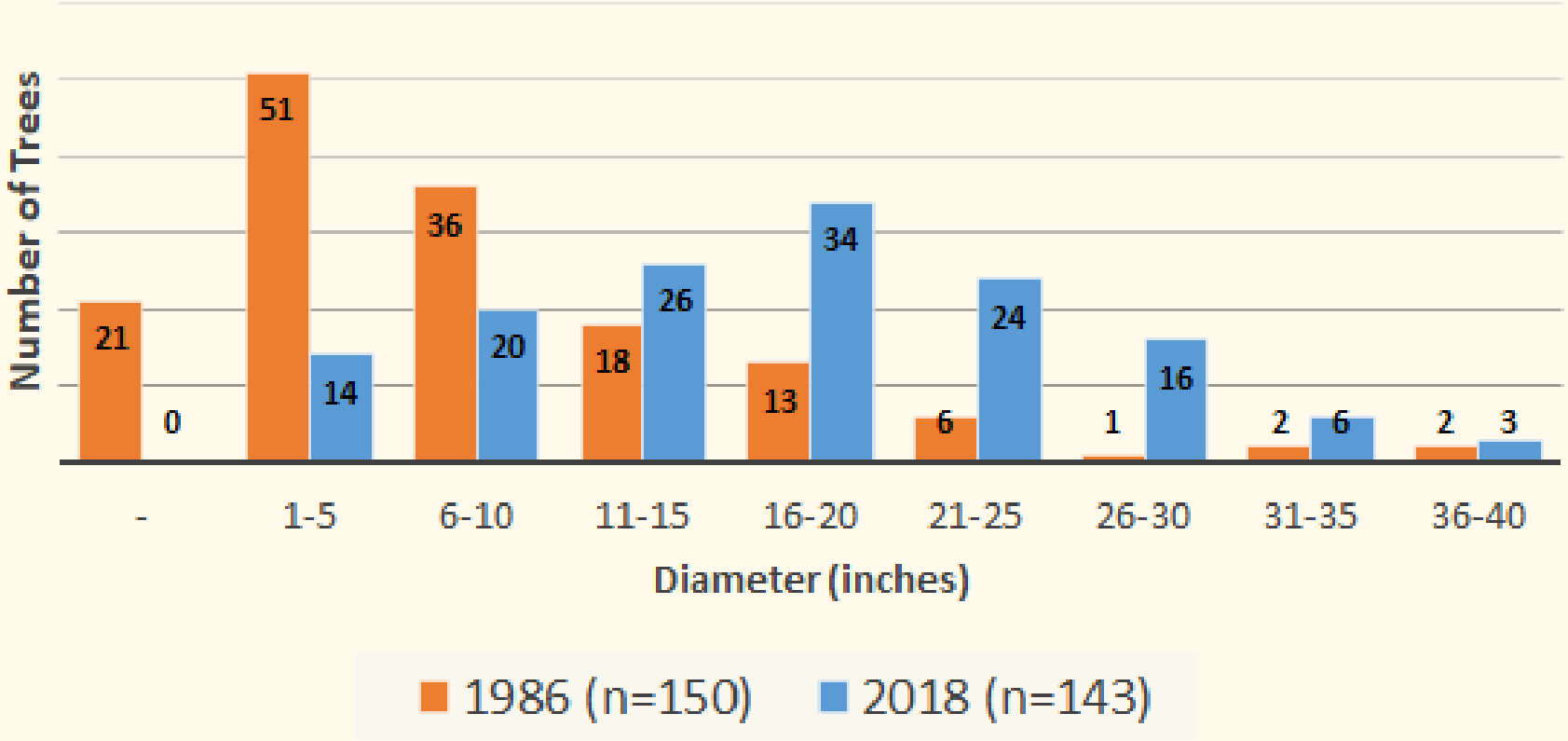
HARBOR


Number of Tree Species on Main Street
n = 145
45
40
35
30
25
20
15
10
5
0
42
31
16
13
8
6
6
4
3
2
2
American-Elm
Elm-Hybrid
Buisman-Elm
Zelkova
Pin-Oak
American-Linden
Black-Walnut
Sweet-Gum
Norway-Maple
Red-Maple
English-Oak

American Elms have been replaced by Dutch Elm Disease resistant species.



The diameter of many trees on Main Street have doubled since 1986.

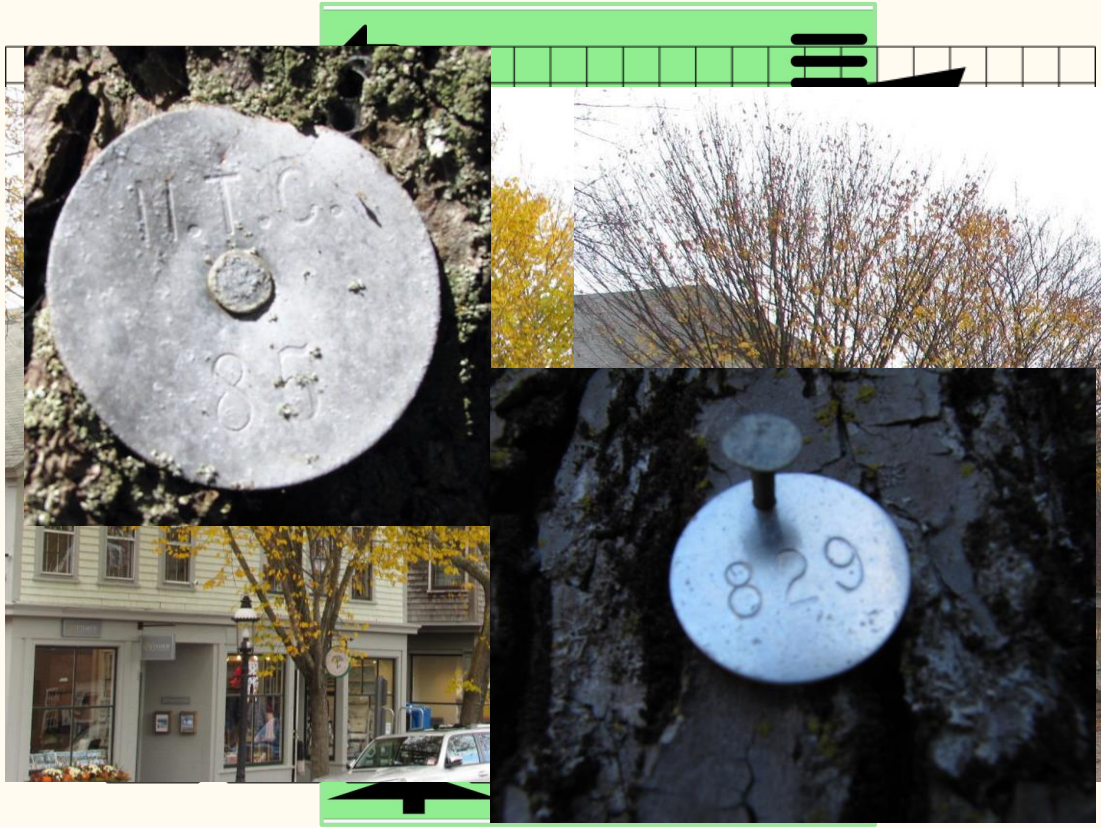


Scavenger hunt

Mobile Tree Tour

Project Recommendations

- Remake ID numbers for the trees
- Collect data in summer and winter
- Create maintenance programs from data analysis
- Further develop mobile website



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- Dale Gary & Scott Williams
- Vincent Murphy
- Tree Advisory Committee
- Young's Bicycle Shop
- Nantucket Yacht Club

Questions?