



Village of Dolton Public Tree Inventory - 2017

KAITLYN PIKE ^a, ALLI PREBLE ^b and DR. JESS VOGT ^c

^aB.A. Environmental Studies student ^bB.A. Environmental Studies student ^cAssistant Professor

Department of Environmental Science & Studies, College of Science & Health, DePaul University



BACKGROUND

Trees provide many environmental and social benefits:

- Stormwater management
- Improvement of air-quality
- Carbon dioxide sequestration
- Shade (saves energy)
- Increased property values
- Lowered BMI and asthma rate in children
- Increased community involvement.

Public street tree inventories are crucial for the proper management of municipal forests, not only ensuring the health and diversity of a tree population but also maintaining the positive view of street trees within a neighborhood.



Image 1. Silver maple street tree in Dolton, IL; most common species inventoried

METHODS

In the summer of 2017, DePaul University students Kaitlyn Pike and Alli Preble surveyed a sample of Dolton public trees. The village was split into zones A, B, C, D, E, F and G, as well as randomly selected segments within each zone, ending in 281 segments in total.

Each tree within a segment was identified according to:

- Species/genus
- DBH
- Condition
- Photographs of the leaves, bark and entire tree

This data was collected on Apple iPad tablets, running Survey123 software and then analyzed in Microsoft Excel and ArcGIS.

Table 1. Explanation of collected variables for 2017 Village of Dolton public tree inventory.

Variable	Explanation
Taxonomy	Trees identified by genus and species, both common and Latin names
Tree Location	Zone (A - G), segment (1-281) and full address where tree is located
DBH	Diameter at breast height (4.5 ft above ground level, measured in 2" classes); heights recorded if diameter taken at different height
Mortality Status	Status was categorized as alive, standing dead or a stump

2017 SAMPLE INVENTORY AREAS

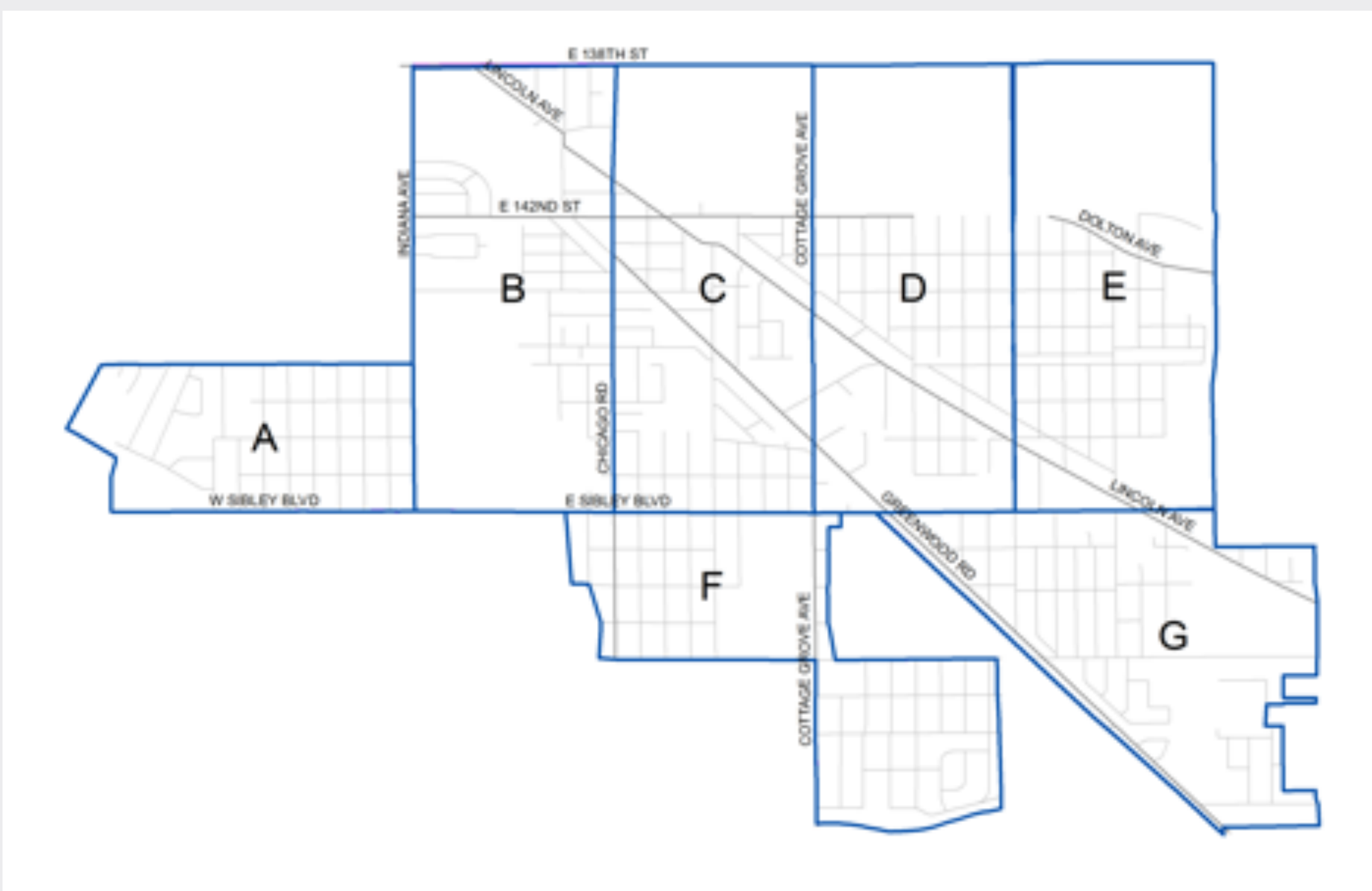


Figure 1. Map of designated zones for Dolton, IL Public Tree Inventory.

INVENTORY RESULTS

We inventoried 2,144 trees in total

- High number of silver maples (Table 2) with 73.47% of the mass falling under the maple genus.

Of the 281 segments inventoried:

- 50 had no trees present
- Zone B had the highest number of segments with no trees at almost 40% of the zone (Table 3)
- all of Zone F's segments inventoried had trees present (Table 3)

All alive trees were identified

- Many unknown trees were stumps, therefore a confident i.d. was unobtainable
- The vast majority of dead trees were lost due to pests, namely emerald ash borer (Image 2).

The majority of street trees were of mature size with an average DBH of 22.65 inches.

The top 10 most common street tree species had an average DBH between 10 and 28 inches (Figure 2).

Table 2. Top 10 species of the 281 designated segments in the 2017 Public Tree Inventory. These numbers represent living trees.

Species	# of Trees	% of Total Inventory
Silver Maple	1122	52.33%
Royal Red Maple	114	5.32%
American Elm	108	5.04%
Norway Maple	101	4.71%
Honeylocust	100	4.66%
Freeman Maple	68	3.17%
Green Ash	51	2.38%
American Sycamore	44	2.05%
Red Maple	43	2.01%
Apple	35	1.63%

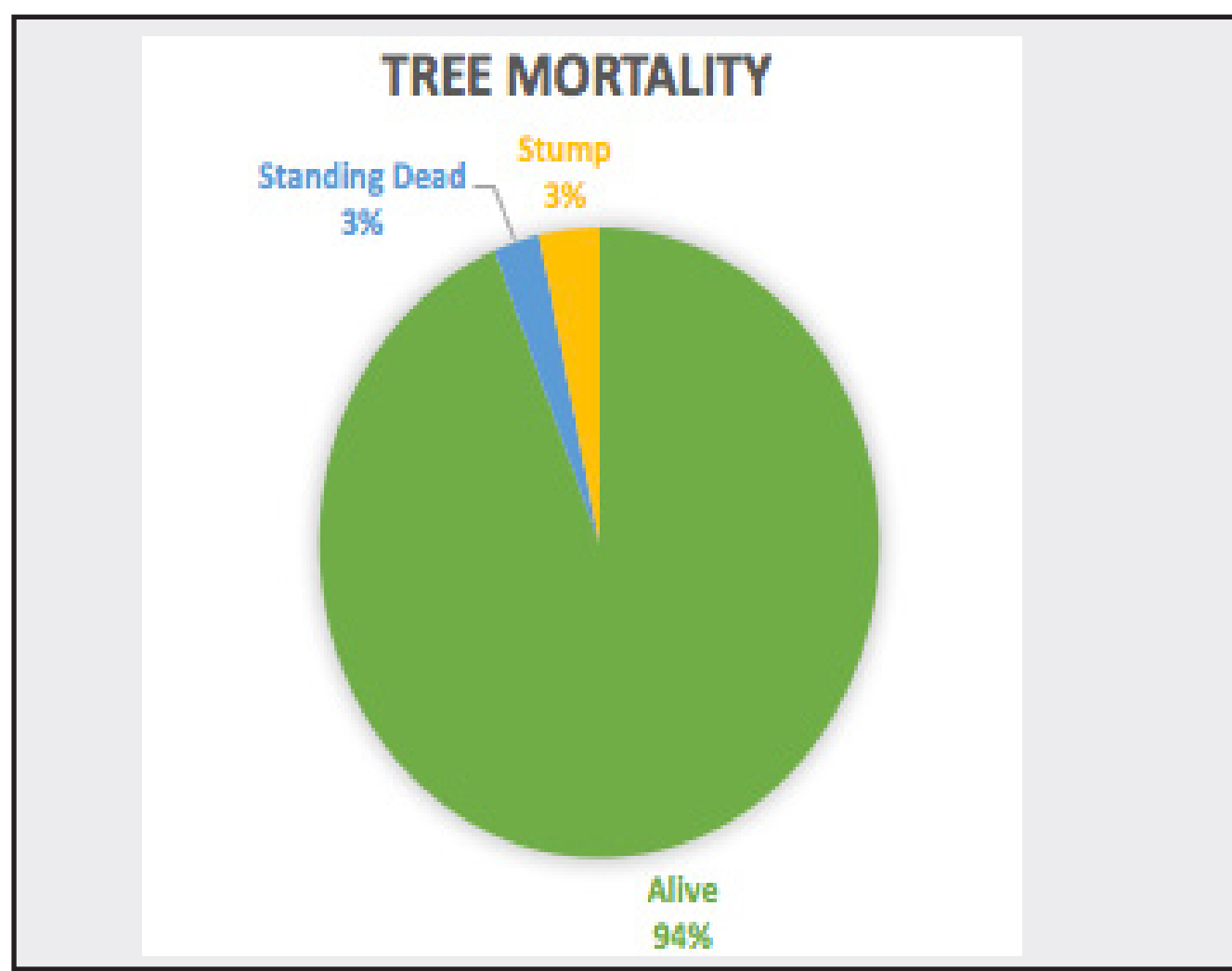


Figure 3. Percentage of trees inventoried by mortality.

Table 3. Distribution of living surveyed trees by zone.

Zone	# of Segments	# of Trees	% No Trees	% Alive
A	24	294	8.33%	96.60%
B	43	193	39.53%	94.30%
C	48	289	22.9%	96.19%
D	39	277	15.38%	92.06%
E	39	313	2.56%	92.97%
F	50	571	0.00%	93.87%
G	38	204	34.21%	90.34%

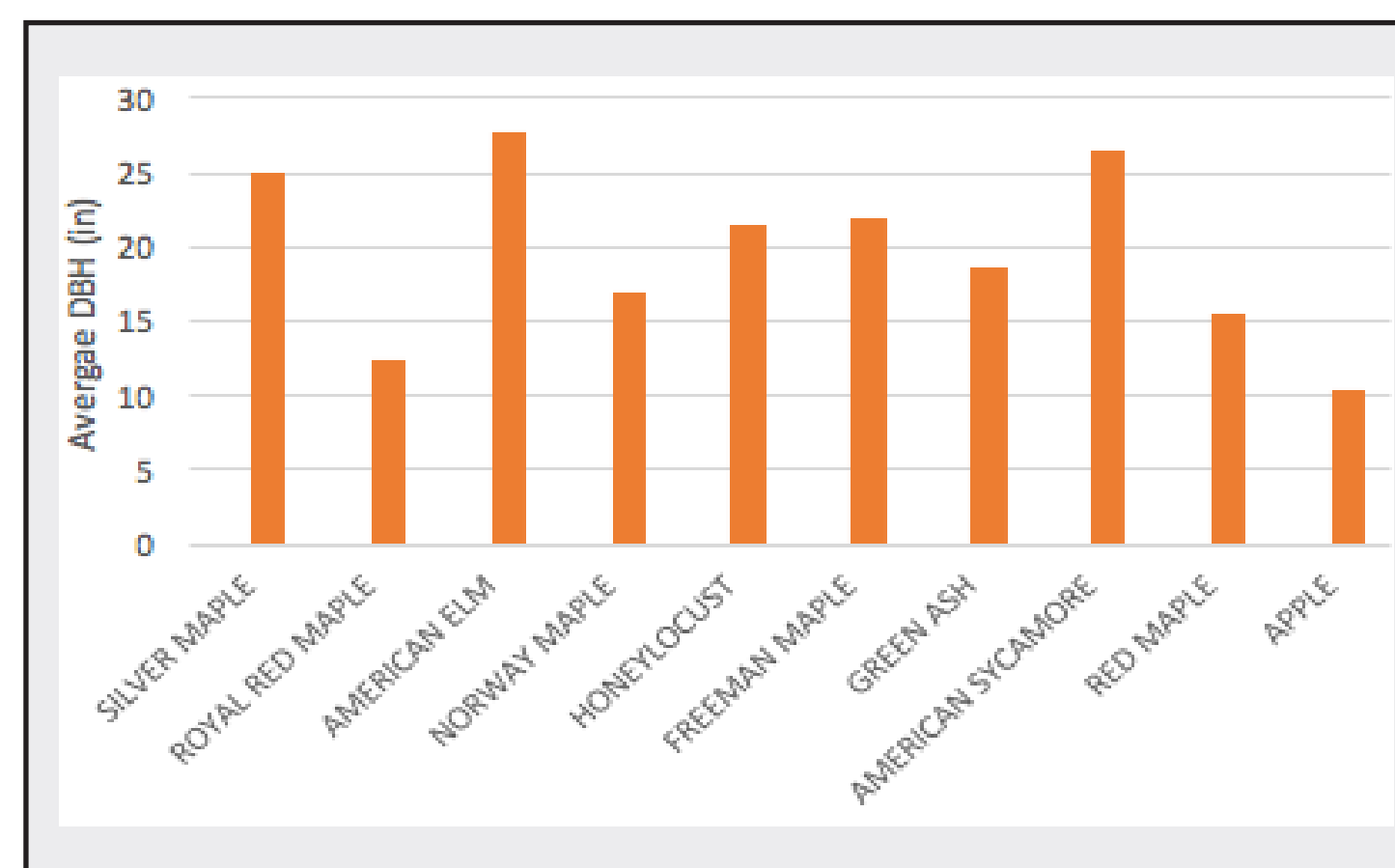


Figure 2. Average DBH in inches for top 10 most common species



Image 2. Ash tree with distinct markings from emerald ash borer.

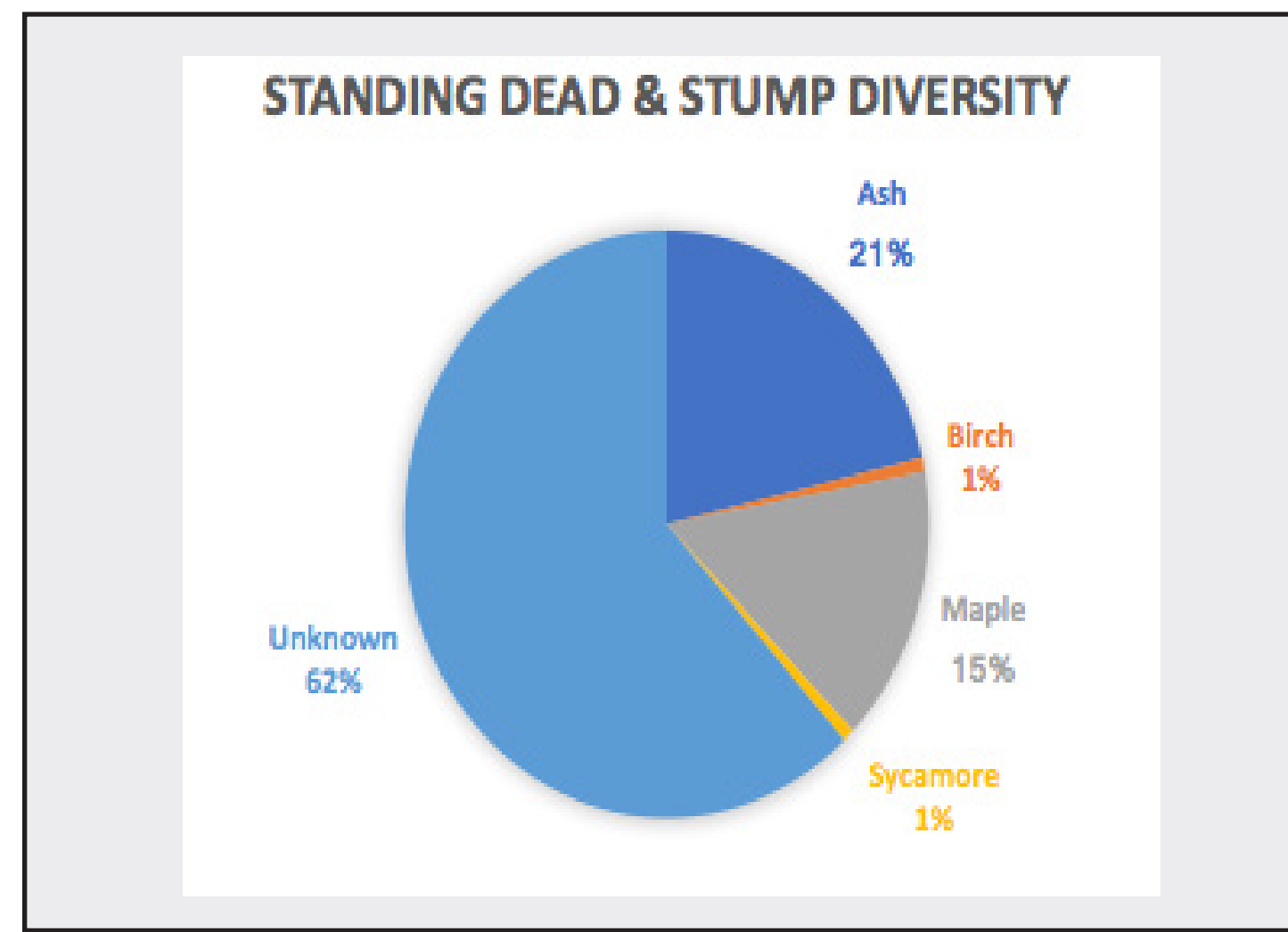


Figure 4. Distribution of non-living trees by genus.

RECOMMENDATIONS FOR THE VILLAGE OF DOLTON

Maintenance

There are many trees which need their branches trimmed, both live and dead

- Overhanging branches are hazardous and are a liability for the Village
- Negatively affects the public's opinion of the trees in their neighborhood.
 - Many of Dolton's residents had complaints of these falling branches and requested that otherwise healthy trees be removed completely

Every ash tree surveyed was in bad shape due to the emerald ash borer

- A large portion of these are dead and need to be removed
- A different species should be planted

At least one segment inventoried contained dead newly-planted trees

- It is important to ensure watering is maintained
- An outreach effort to convey the importance of watering young street trees could ensure their survival.

Diversity

Maples outnumber other genus' by a very large margin.

- Silver maples alone represent 52.33% of the population
- Most of which are around the same age.

This monoculture system is more susceptible to disease and could possibly lead to a die-off of the majority of canopy cover. Therefore it is important to:

- Focus on a variety of species (preferably native)

Size Distribution

Many of the trees are within a similar, more mature size range. An ideal, sustainable size distribution has more small trees than large trees, because some of the planted trees will die before they reach a larger size.

- Begin and maintain yearly tree plantings in order to protect present population

New Trees

Of the streets inventoried, 17.37% contained no trees. Many others only had stumps, dead, or very few trees.

- This free space provides the city with plenty of room for future tree plantings.

Continuous planting programs:

- increase the chances that more trees grow to a large size over time
- diversify the population

Keeping up with planting efforts will help ensure a sustainable tree population into the future.

NEXT STEPS

This inventory was apart of a larger research project, studying the possibility of using Google Street View for urban forestry management in underserved communities who lack the resources for an urban forestry program.

SUPPORT & FUNDING

