



***Town of Amherst
Phase 1 Urban Forest Inventory***

Completed by: Davey Resource Group





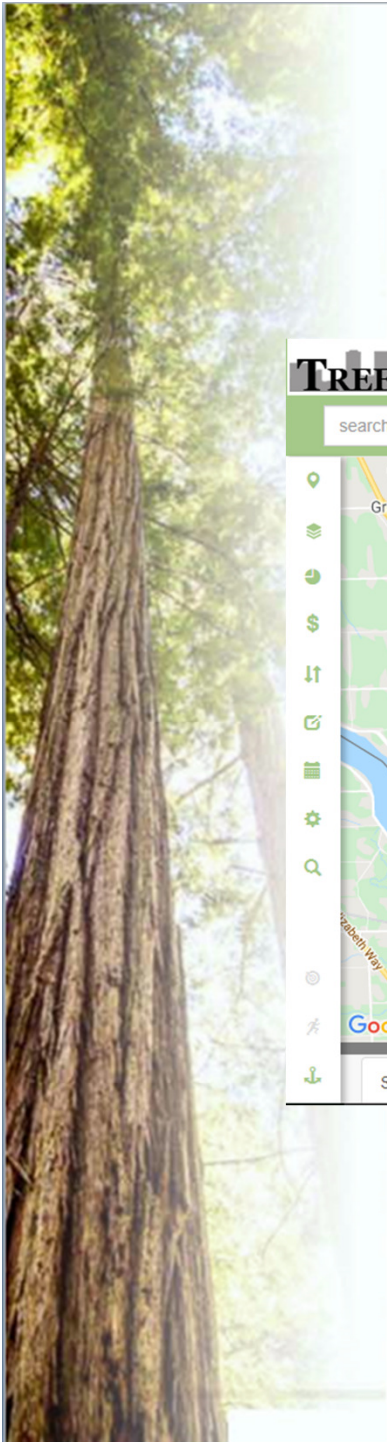
Sites Included in the Inventory:

- Trees, planting sites and stumps

Data Fields

| | |
|---------------------------------|--------------------|
| Location (Address) | Risk Assessment |
| GPS X and Y | Risk Rating |
| Species | Further Inspection |
| Diameter at Breast Height (DBH) | Defects |
| Tree Condition | Stems |
| Primary Maintenance Need | Grow Space |

Data Collection: Summer of 2020



TREEKEEPER II

search

Amherst, NY

Hunts Corners

Grand Island

Tonawanda

Getzville

University at Buffalo

East Amherst

Woodstream Farms

Clarence Center

Grandyle Village

Brighton

Clarence

Ferry Village

Kenmore

Williams

Harris Hill

Main St

United States

Niagara River

Canada

The Buffalo Zoo

BLACK ROCK

DELAWARE PARK

Bowmansville

Cleveland Hill

NY State Thruway

Millgrove

ELMWOOD VILLAGE

Pine Hill

Dellwood

Map data ©2020 Google Terms of Use Report a map error

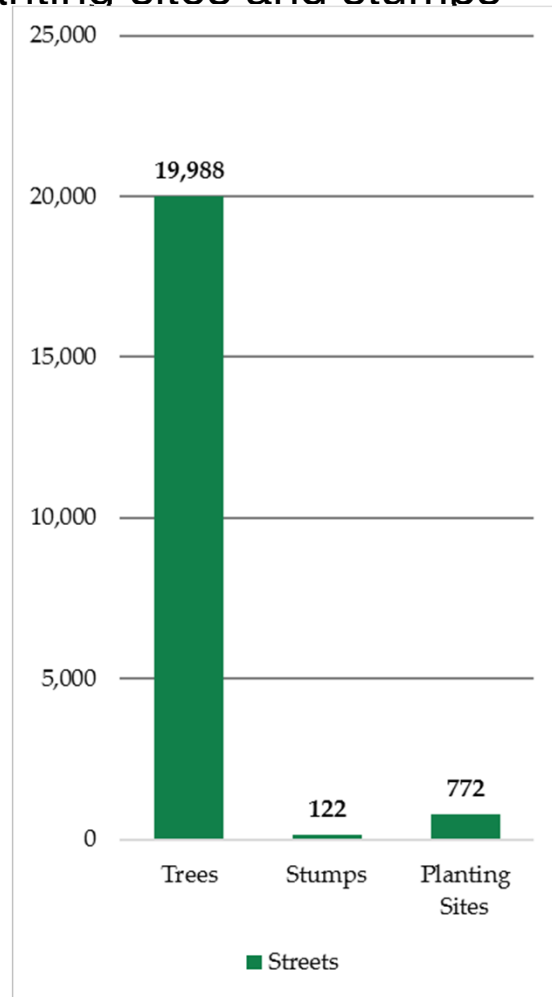
Sites Calls Work Work Orders

20882 Total | 0 Queued

<https://amherstny.treekeepersoftware.com/index.cfm>

Sites Included in the Inventory:

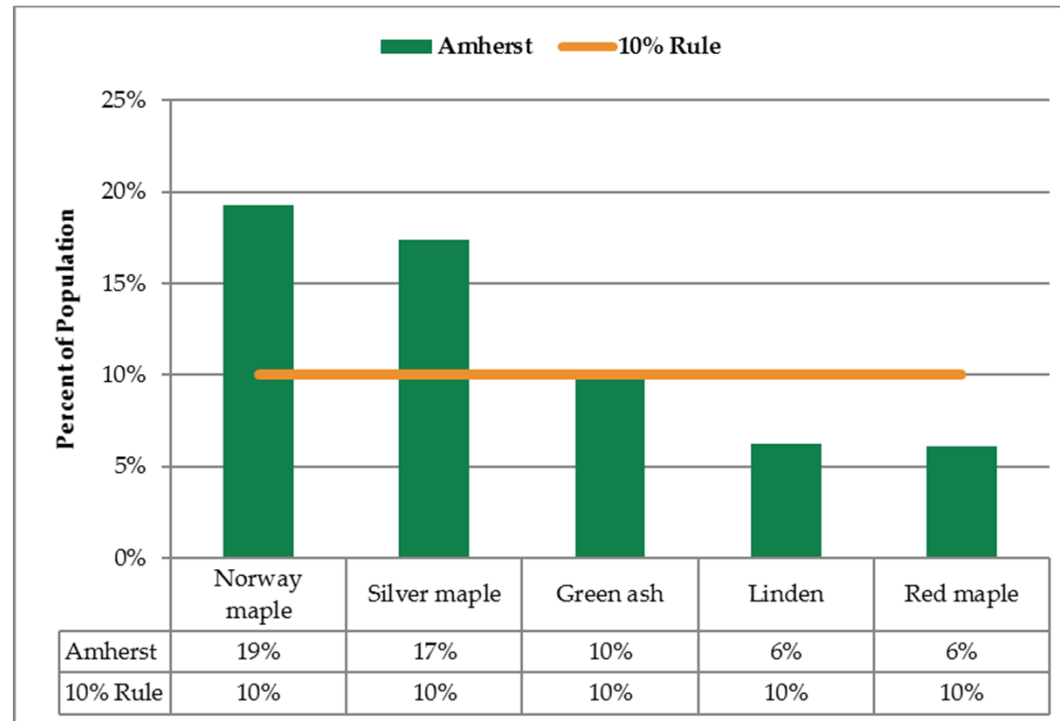
- Trees, planting sites and stumps



Data Collection: Summer of 2020

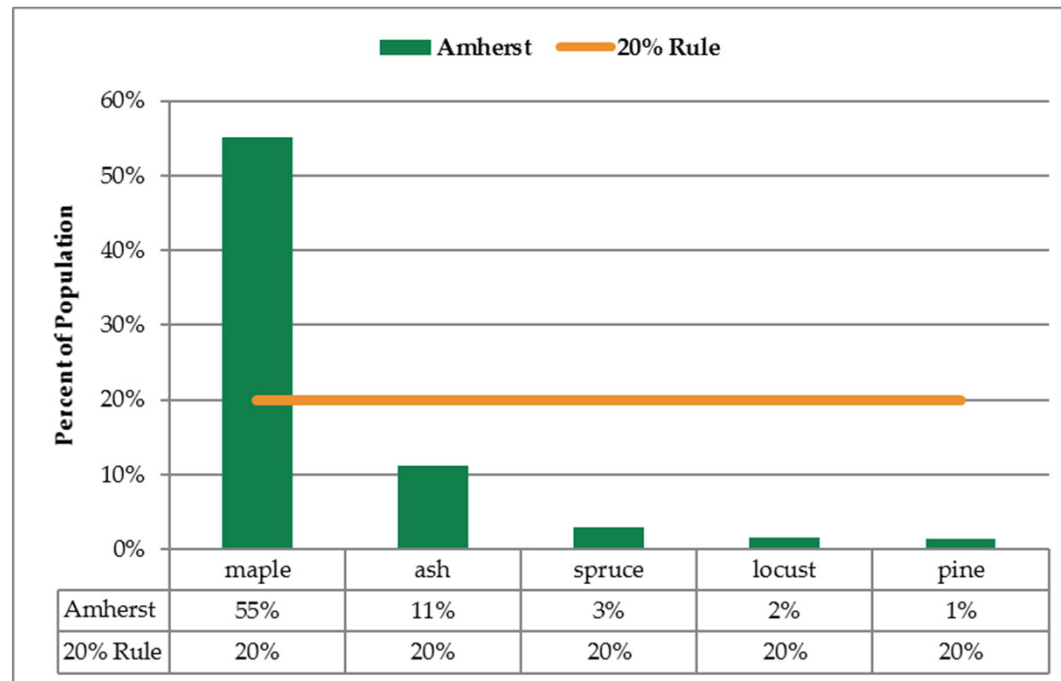


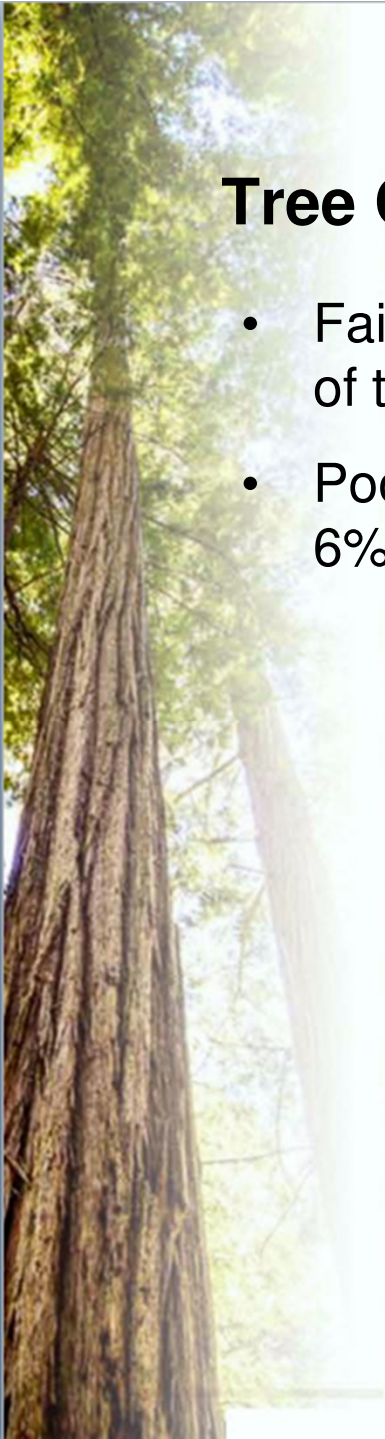
Species and Genus Diversity





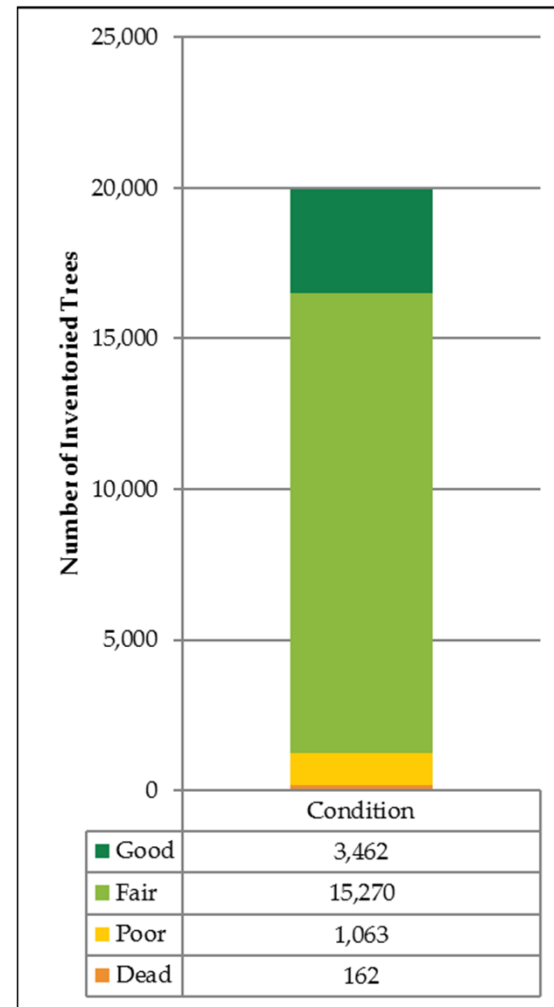
Species and Genus Diversity





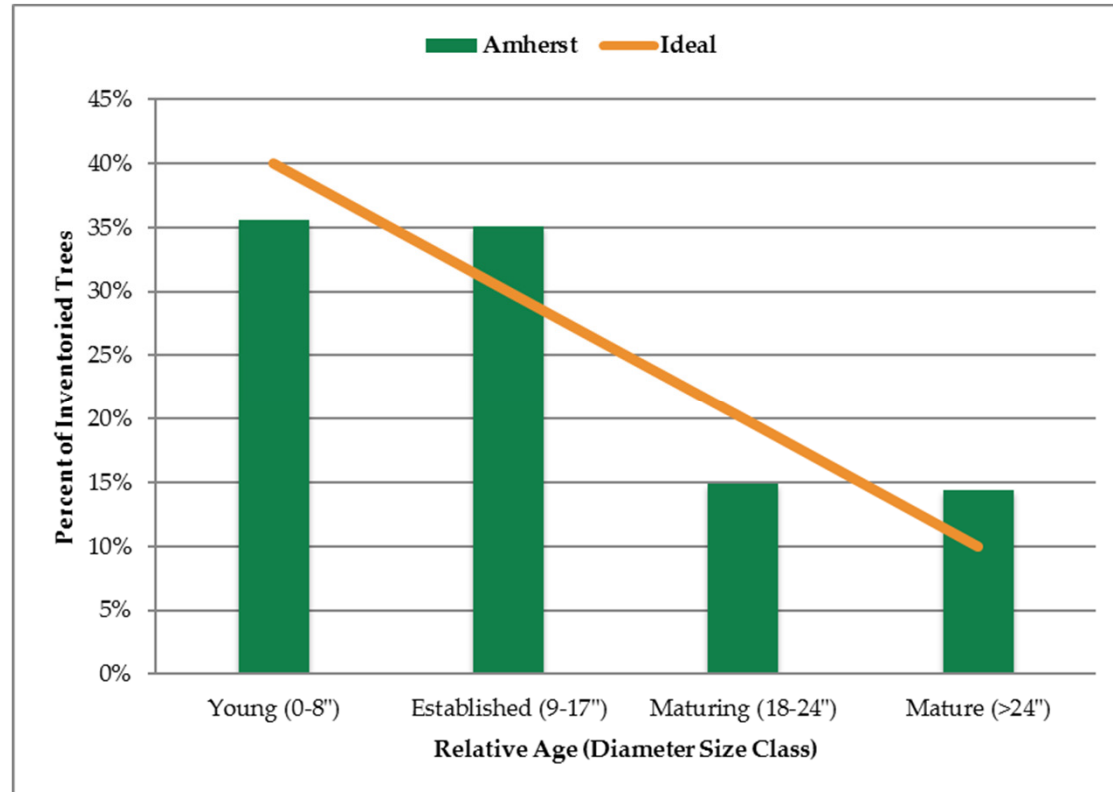
Tree Condition

- Fair trees make up 77% of total inventory
- Poor to Dead make up 6%



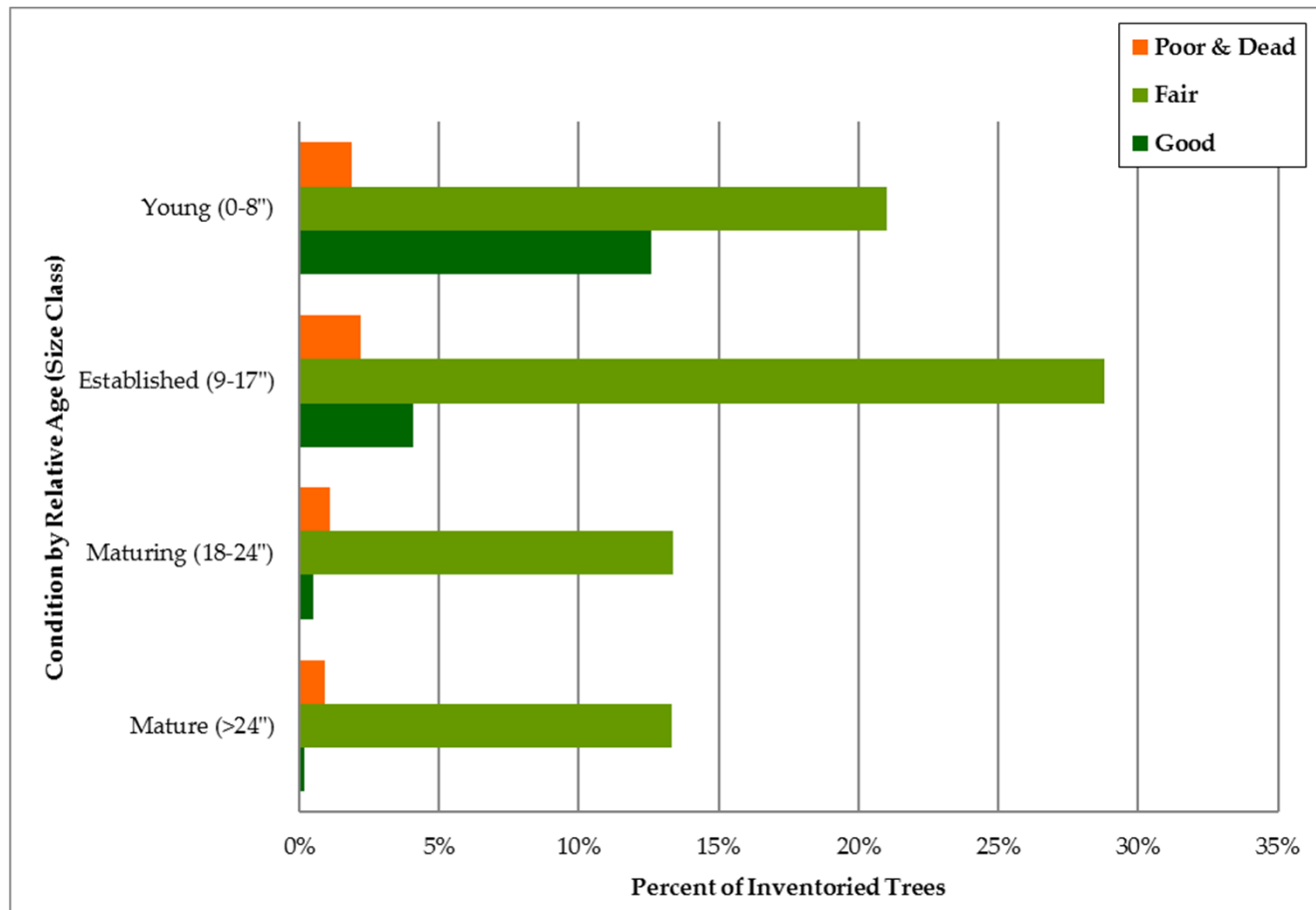


Diameter Class Distribution



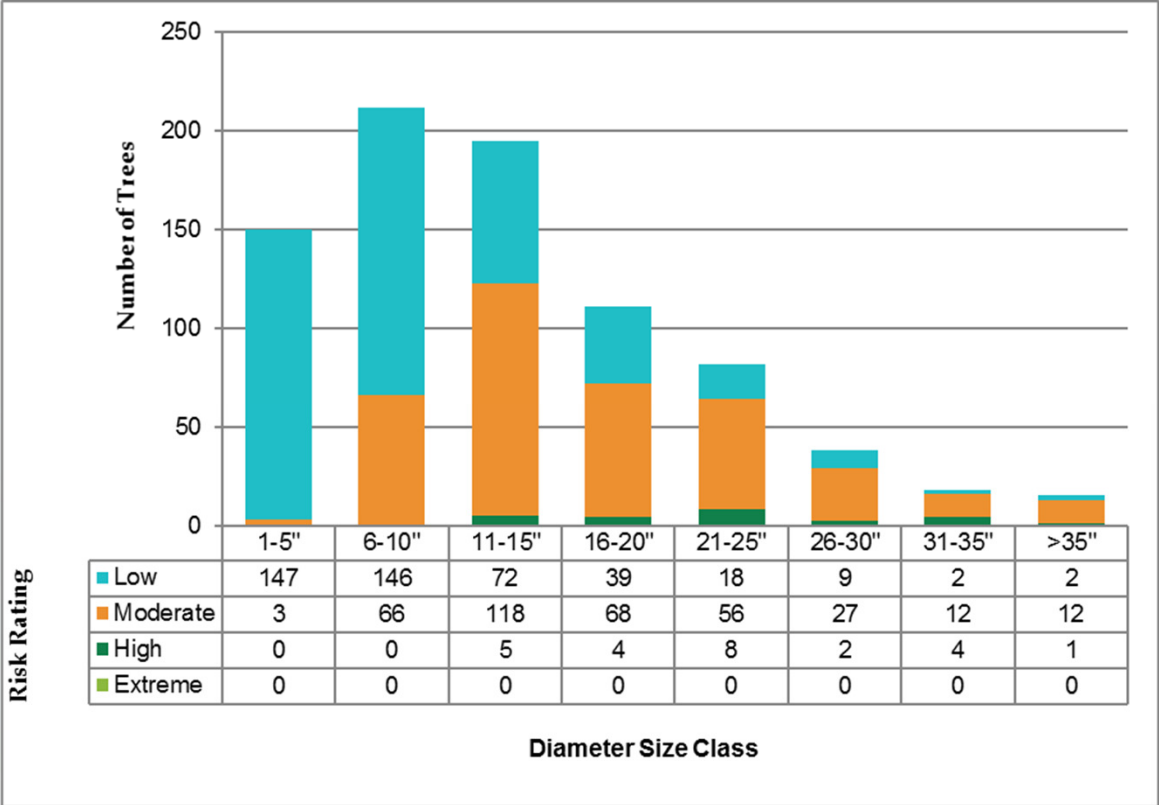


Tree condition by relative age



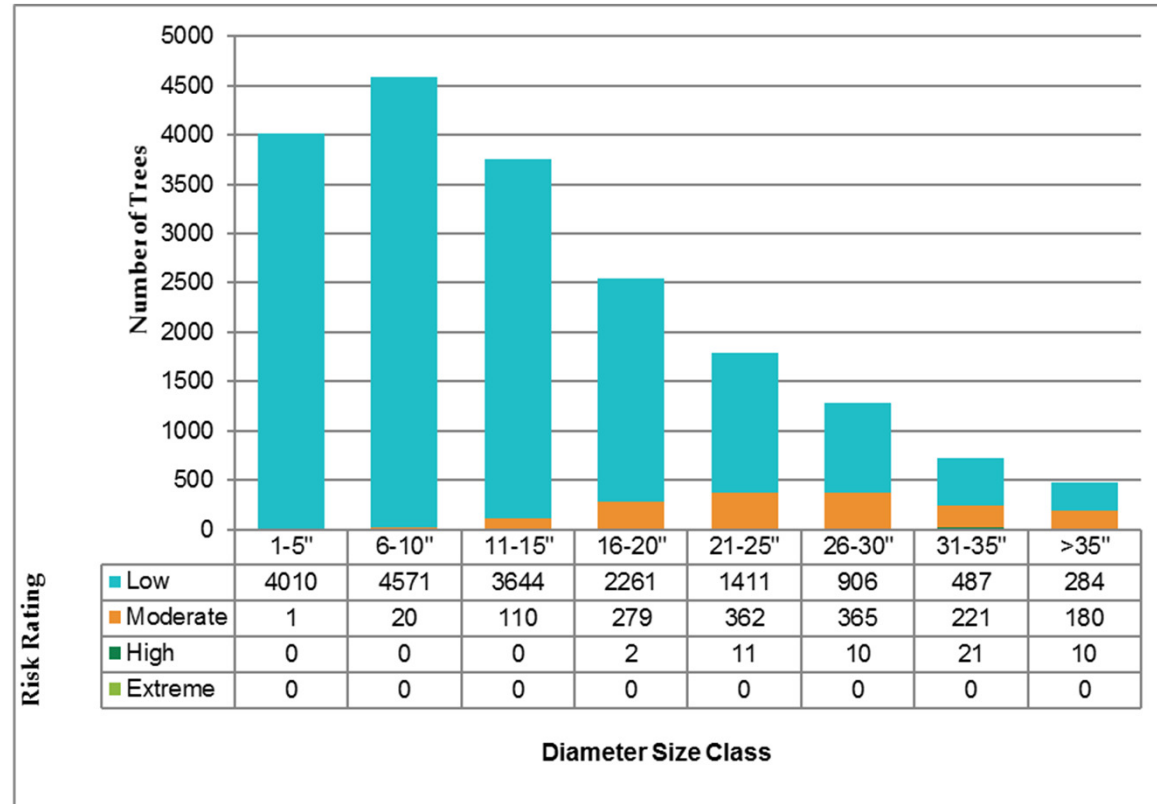


Tree Removals by Risk Rating





Tree Pruning by Risk Ratings



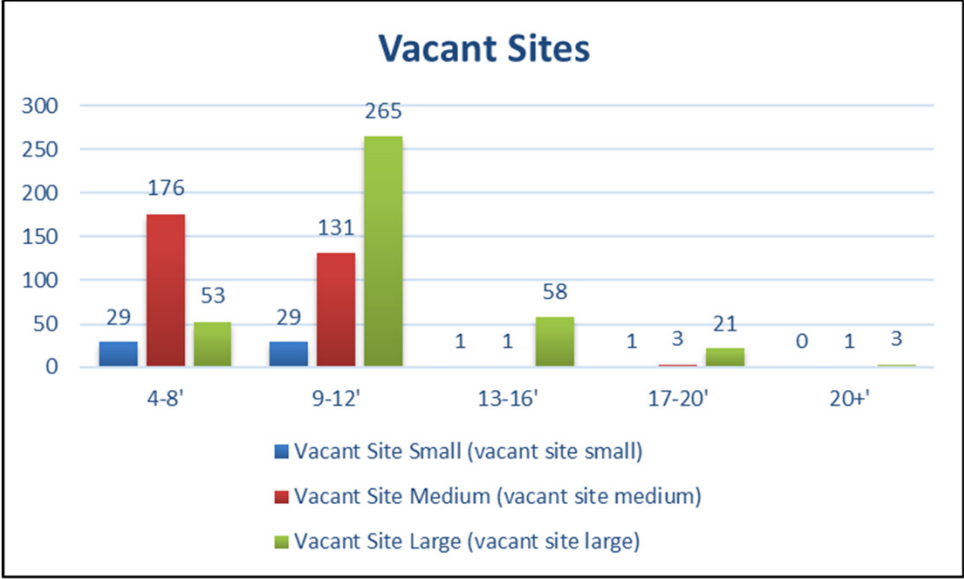


Defects

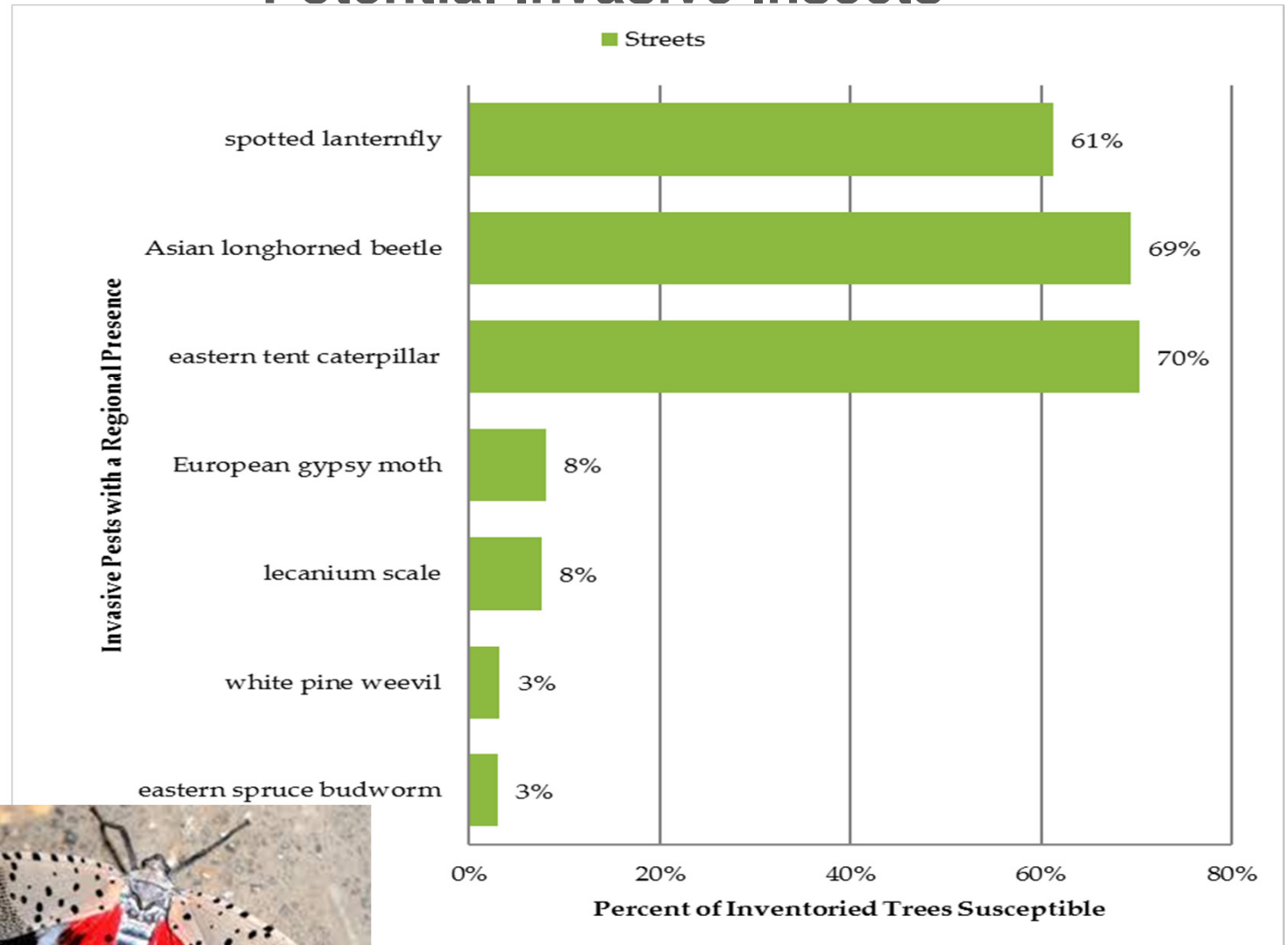
| Observation | Number of Trees | Percent |
|-------------------|-----------------|---------|
| Cavity/Decay | 6517 | 31.2% |
| deadwood | 3726 | 17.8% |
| Codominant Leader | 2317 | 11.1% |
| None | 2293 | 11.0% |
| Other | 2208 | 10.6% |
| Mechanical Damage | 1708 | 8.2% |
| Included Bark | 876 | 4.2% |



| Conflict | Presence | Number of Trees | Percent |
|--------------------|----------------------------------|-----------------|---------|
| Overhead Utilities | Not Present | 18819 | 90% |
| | Present | 2063 | 10% |
| | 0 | 0 | 0% |
| Hardscape Damage | Yes Both for Side walk | 2151 | 14% |
| | No | 12,953 | 86% |
| Total | Sites with at least one conflict | 13,119 | 87% |

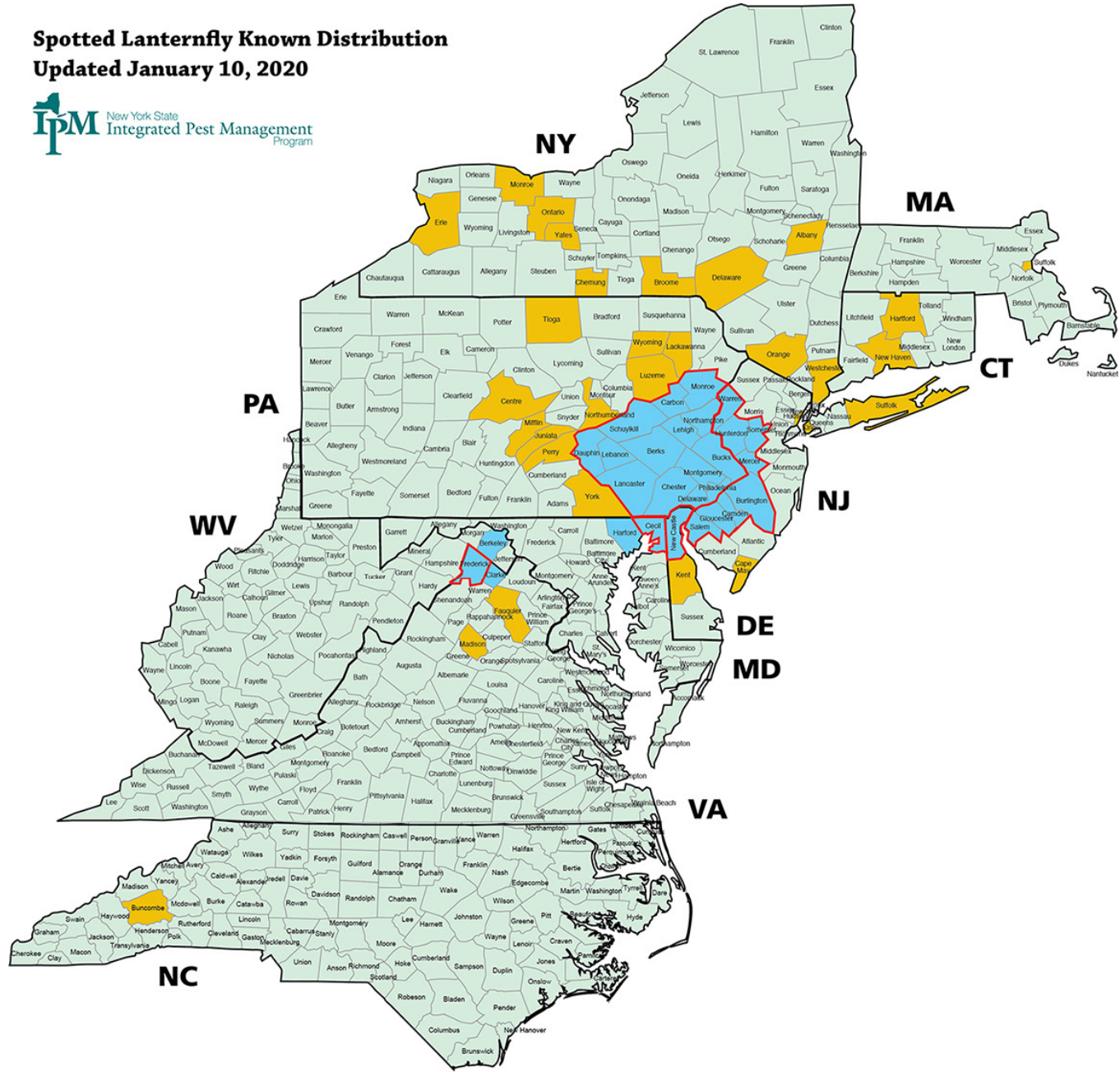


Potential Invasive Insects



Spotted Lanternfly Known Distribution

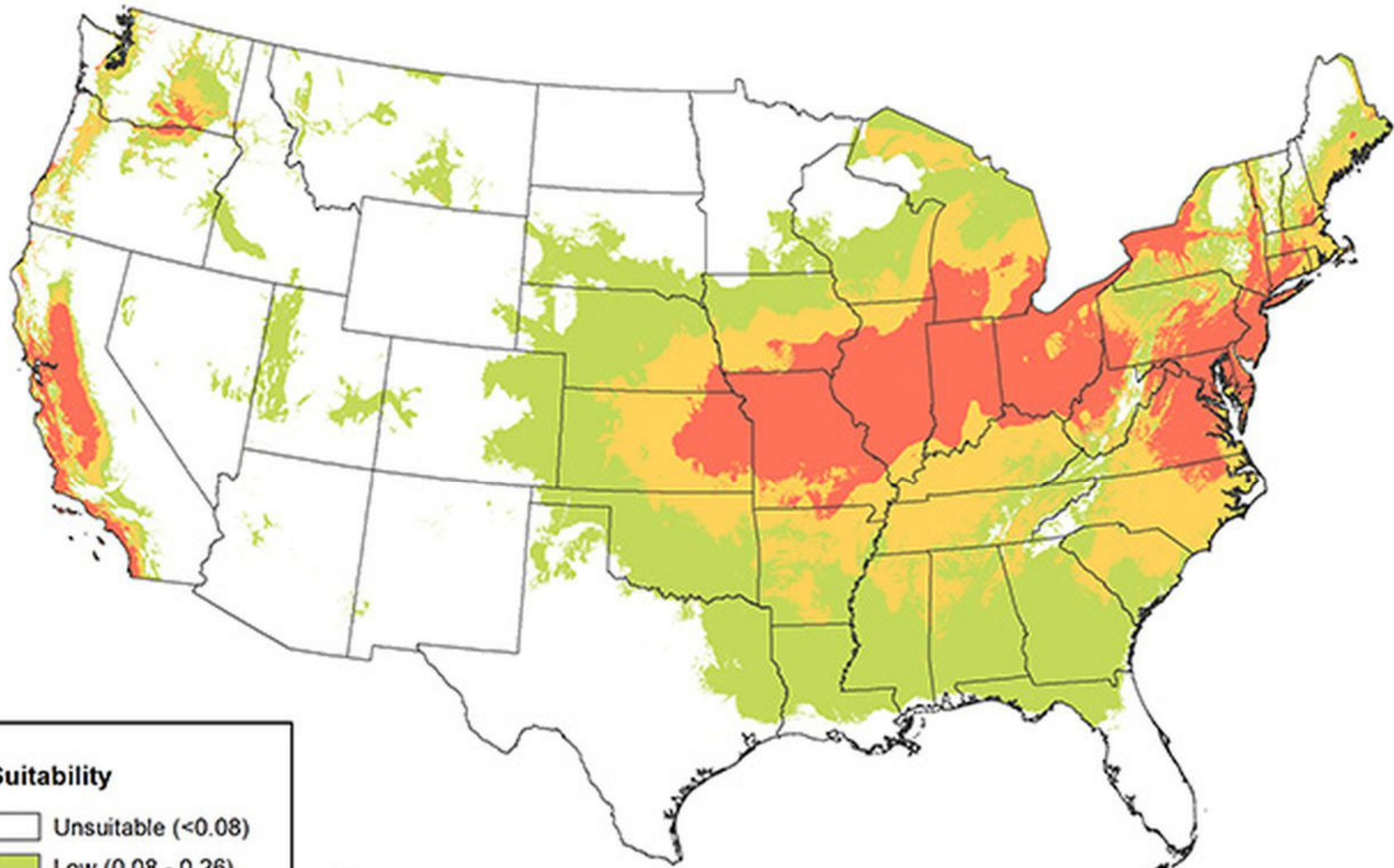
Updated January 10, 2020



NY external quarantine areas. Spotted lanternfly infestation found.
 Spotted lanternfly found, no infestation.

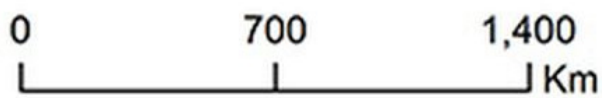
Internal state quarantine areas.





Suitability

- Unsuitable (<0.08)
- Low (0.08 - 0.26)
- Medium (0.26 - 0.51)
- High (0.51 - 0.93)



Datum: North American 1983
Coordinate System: USA Contiguous
Albers Equal Area Conic

i-Tree Eco Analysis



Reduce Runoff + Erosion

Trees slow down and reduce stormwater runoff. 100 Mature trees can intercept 100,000 gallons of rainfall! Additionally, trees stabilize soil and provide habitat for wildlife (USFS, 2003a).



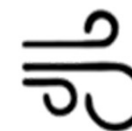
Reduce Stress

Trees reduce the stress of drivers. They also decrease traffic speeds creating safer streets. Also, psychosocial signs of stress, such as muscle tension and pulse rate decrease within 3 or 4 minutes when a person is surrounded by trees (Wolf 1998a, Kuo and Sullivan, 2001b).



Improve Health + Wellness

Employees who can see trees experience 23% less sick time and report higher satisfaction with their job (Wolf, 1998a). Recovering hospital patients who had a view of trees required fewer pain relievers, experienced fewer complications, and left sooner than other patients (Ulrich 1984, 1986).



Reduce Air Pollution

Trees reduce noise levels, clean the air, produce oxygen and absorb carbon dioxide. They also can reduce air pollution by 60% (Coder, 1996) and reduce rates of asthma in children (Lovasi, 2008).



Reduce Crime

Chicago apartment buildings with high amounts of greenery compared to none saw a 52% reduction in crime (Kuo and Sullivan, 2001a). Areas that have 'medium' amounts of greenery experience a 42% reduction in crime (Kuo and Sullivan, 2001a).

Overall Benefits

| Species | Trees | Carbon Storage | | Avoided Runoff | | Pollution Removal | | Structural Value |
|---------------------------|--------|----------------|-----------------|-----------------------|-------------|-------------------|----------|------------------|
| | Number | (ton) | (\$) | (ft ³ /yr) | (\$/yr) | (ton/yr) | (\$/yr) | (\$) |
| Silver maple | 3470 | 6220.77 | \$ 1,060,958.76 | 134203.91 | \$ 8,970.97 | 1.65 | 13414.21 | \$ 9,281,381.13 |
| Norway maple | 3857 | 1681.54 | \$ 286,788.28 | 87495.20 | \$ 5,848.69 | 1.08 | 8745.49 | \$ 4,986,173.64 |
| Green ash | 2042 | 698.69 | \$ 119,163.07 | 35810.54 | \$ 2,393.79 | 0.44 | 3579.40 | \$ 3,146,124.01 |
| Littleleaf linden | 1243 | 221.77 | \$ 37,823.03 | 14101.95 | \$ 942.66 | 0.17 | 1409.55 | \$ 1,529,759.22 |
| Red maple | 1219 | 374.94 | \$ 63,946.58 | 13608.30 | \$ 909.66 | 0.17 | 1360.20 | \$ 1,233,487.23 |
| Crimson king norway maple | 1177 | 336.30 | \$ 57,356.62 | 19385.34 | \$ 1,295.83 | 0.24 | 1937.64 | \$ 1,053,933.37 |
| Freeman maple | 688 | 478.42 | \$ 81,594.28 | 13597.58 | \$ 908.94 | 0.17 | 1359.13 | \$ 1,049,750.74 |



Stormwater and Trees

| Species Name | Number of Trees | Leaf Area (ac) | Potential Evapotranspiration (ft ³ /yr) | Evaporation (ft ³ /yr) | Transpiration (ft ³ /yr) | Water Intercepted (ft ³ /yr) | Avoided Runoff (ft ³ /yr) | Avoided Runoff Value (\$/yr) |
|---------------------------|-----------------|-------------------|---|--------------------------------------|--|--|---|---------------------------------|
| Silver maple | 3470 | 327.49 | 3798363.43 | 657797.13 | 1434053.57 | 660402.84 | 373653.38 | 8970.97 |
| Norway maple | 3857 | 213.51 | 2476370.20 | 428855.54 | 934941.48 | 430554.35 | 134203.91 | 5848.69 |
| Green ash | 2042 | 87.39 | 1013543.02 | 175524.46 | 382658.22 | 176219.76 | 87495.20 | 2393.79 |
| Crimson king norway maple | 1177 | 47.30 | 548661.84 | 95016.76 | 207144.60 | 95393.15 | 35810.54 | 1295.83 |
| Littleleaf linden | 1243 | 34.41 | 399126.56 | 69120.38 | 150688.28 | 69394.18 | 19385.34 | 942.66 |
| Red maple | 1219 | 33.21 | 385154.75 | 66700.75 | 145413.30 | 66964.97 | 14101.95 | 909.66 |
| Freeman maple | 688 | 33.18 | 384851.23 | 66648.19 | 145298.70 | 66912.20 | 13608.30 | 908.94 |
| Norway spruce | 167 | 11.27 | 130696.21 | 22633.85 | 49343.72 | 22723.51 | 13597.58 | 308.68 |

TreeKeeper[®] Software

Data were delivered in TreeKeeper[®], ESRI[®], Excel[™], Access and Google Earth, and Davey's TreeKeeper[®] software (during promotional period).

The screenshot displays the TreeKeeper software interface. At the top right, it says "Welcome, Guest". Below that is a search bar and the location "Ludington, MI". The main dashboard area is divided into two sections: "Overview" and "Trees Species Breakdown".

The "Trees Species Breakdown" section contains a table with the following data:

| Species | COUNT |
|------------------------|-------|
| Acer palmatum | 2 |
| Acer platanoides | 1482 |
| Acer rubrum | 784 |
| Acer saccharinum | 478 |
| Acer saccharum | 542 |
| Acer tataricum ginnala | 2 |
| Acer x freemanii | 91 |

The right side of the interface features a map of a residential neighborhood in Ludington, MI, with numerous orange and green circular markers indicating tree locations. The map includes street names like W Haight St, N Walnut St, N Chestnut St, N Elm St, N Maple St, N Cedar St, N Elm St, N Marquette St, and N Marquette St. The Davey Resource Group logo is visible in the bottom right corner of the map area.

<https://amherstny.treekeepersoftware.com/index.cfm>



Summary and Next Steps

- Diversify distributions of genus and species when planting.
- Prioritize managing established and mature tree population.
- Prune young trees now to improve structure encouraging better form as they age. Theoretically, this is a cost saver down the road.
- Use TreeKeeper® to keep the inventory up-to-date as work is performed.
- Consider performing an annual ANSI Level 1 inventory to identify new maintenance priorities that popped up since the inventory.
- Perform a complete re-inventory in 5 years or update 1/7 of the population every year.



Thank you for working with DRG!

QUESTIONS?

Lori Brockelbank, Area Manager

Lori.brockelbank@davey.com

716-450-0884