2007 & 2018 Street Tree Inventory Comparison

SCHOOL OF PUBLIC AND ENVIRONMENTAL AFFAIRS
Indiana University

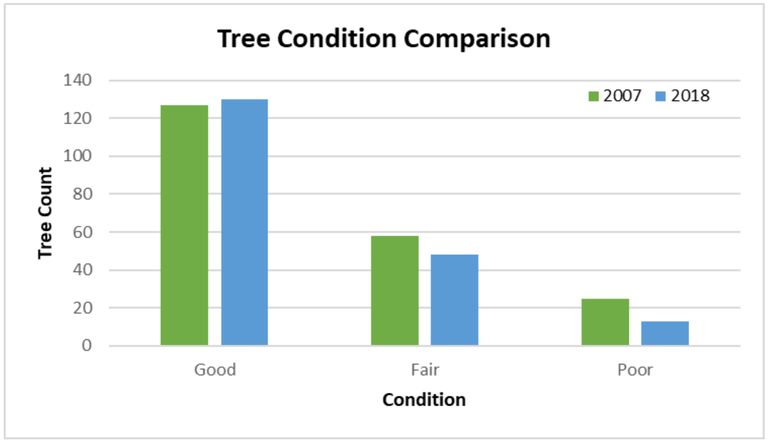
UFM Graduate and Honors Undergraduate Student Case Study
Urban Forest Management, Dr. Burney Fischer

CITY OF BLOOMINGTON

Top 10 Species in 2007 vs. 2018

Tree Condition

- Based on the top 10 species inventoried, the average conditions for 2007 and 2018 were good, fair, and poor, so there was not a significant negative or positive change in condition between the two inventories. This is represented in the chart below.



Species Count

- Either from removal or misidentification, there were three species that were not consistently in the top ten in both inventories. Overall, the top 5 species remained the same between 2007 and 2018.

All Species in 2007 vs. 2018

Species Diversity

- The city significantly reduced the amount of maple species planted since 2007. The 2018 inventory did not express a major increase in species diversity. Thus, between the two inventories, there was not a significant difference in the amount of species represented.

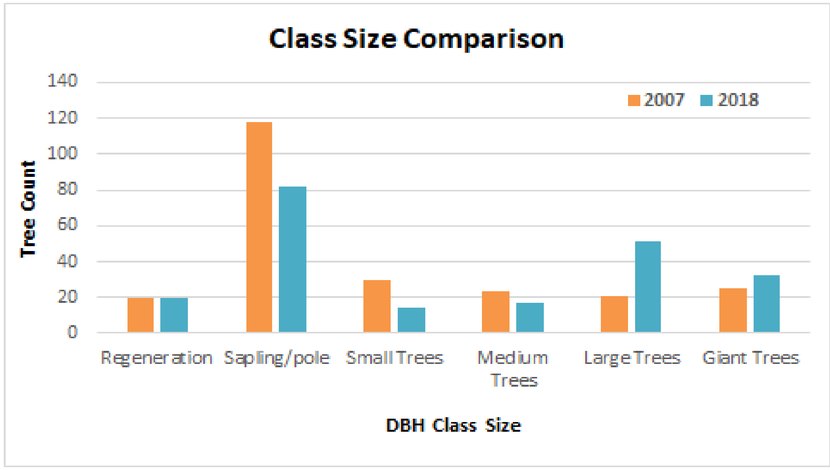
DBH Class Distribution			
Class Name	**Class Size**	**2007 Count**	**2018 Count**
Regeneration	<7.5 cm	93	20
Sapling/pole	0-24 cm	179	82
Small Trees	25-37 cm	25	14
Medium Trees	38-49 cm	11	17
Large Trees	50-75 cm	2	51
Giant Trees	>75 cm	0	32
Total (Excluding Regeneration)		217	196

DBH Classification

- We represented species DBH by class size using the table below.
- 2007 and 2018 had consistently the highest number of trees in the sapling/pole category.

Size and DBH

- There is a bigger representation of large trees in the 2018 inventory, but saplings were the largest recorded in both inventories.



Top 10 Species in 2007 vs. 2018							
Species		**Count**			**Average DBH (in)**		
2007	**2018**	**2007**	**2018**	**Percent Change**	**2007**	**2018**	**Percent Change**
KENTUCKY COFFEETREE	KENTUCKY COFFEETREE	6	5	-17%	6	12.8	0.01%
LINDEN, LITTLE LEAF	LINDEN, LITTLE LEAF	7	7	0%	9	15.25	0.69%
PEAR, CALLERY	PEAR, CALLERY	16	14	-13%	12	14.86	0.24%
MAPLE, SILVER	MAPLE, SILVER	16	9	-44%	34	28.74	-0.15%
GINKGO	GINKGO	24	24	0%	5	9.44	0.89%
MAPLE, SUGAR	MAPLE, SUGAR	24	17	-29%	18	12.57	-0.30%
MAPLE, RED	MAPLE, RED	55	48	-13%	11	12.50	0.14%
MAPLE, NORWAY	DOGWOOD, FLOWERING	8	7	NA	9	4.45	NA
ASH, WHITE	OAK (UNIDENTIFIED)	8	6	NA	22	8.60	NA
CRABAPPLE	HAWTHORNE	9	9	NA	7	3.02	NA

Conclusions

- The most significant changes between the two inventories were species changes and DBH.
- Although maples are no longer being planted, the city should be aware of the aging maple population, specifically silver maple.
- White Ash was in the 2007 inventory but not in 2018 most likely due to proactive removal because of Emerald Ash Borer.
- The city should be concerned with the abundance of Callery Pear because of their increasing invasive behavior.
- The 2018 inventory may not be adequately represented because of tree ID mistakes, public vs. private tree discrepancies, and condition reporting.
- Following the deconstruction, the city should prioritize planting species in patches which continue to increase the urban tree canopy and diversity.

References

- City of Bloomington, Indiana (2014) Bloomington Urban Forestry Plan (2014 - 2019) bloomington.in.gov/about/trees/urban-forestry-plan.

- Portland State University (2010). “Protocol: Measuring Tree Diameter, Class Size, and Average Species Diameter.” Ecoplexity, ecoplexity.org/?q=node%2F236.