

IUB Historical Neighborhood Street Tree Inventory and Analysis

Michael Aitchison, Leah Brinson, Robert Stoddard

Introduction

The IU Bloomington Historical Neighborhood (formally known as the University Courts Neighborhood) is a neighborhood adjacent to the IU campus. Its historic significance was formally recognized by the city of Bloomington, who named it a historic district in 2014. Much of the neighborhood is owned by IU, who converted many of the residences into offices. In addition, many of the current residents are IU students. This gives the neighborhood a significant amount of IU pride, which translates to its urban forest. The neighborhood's urban forest consists largely of maples, especially red maples. This lack of diversity presents unique problems for the neighborhood, but also opportunities to improve. A street tree inventory can help identify major flaws, and identify possible ways to improve the tree population and the overall quality of the neighborhood's urban forest.

Methods

Trees along the public right of way in the area of 7th Street to 10th Street between Woodlawn Avenue and Indiana Avenue were inventoried. Using the GIS Collector app, the following data was collected: Species, address, diameter at breast height (DBH), condition, maintenance needs, and presence of overhead utility. The Collector app also recorded the coordinates of the trees.

Maps were created in ArcGIS to help assess the species diversity, condition, and age distribution of the trees across the neighborhood. The average DBH of the three most numerous species was input into the National Tree Benefits Calculator in order to assess the monetary benefits of the street trees.

Diversity

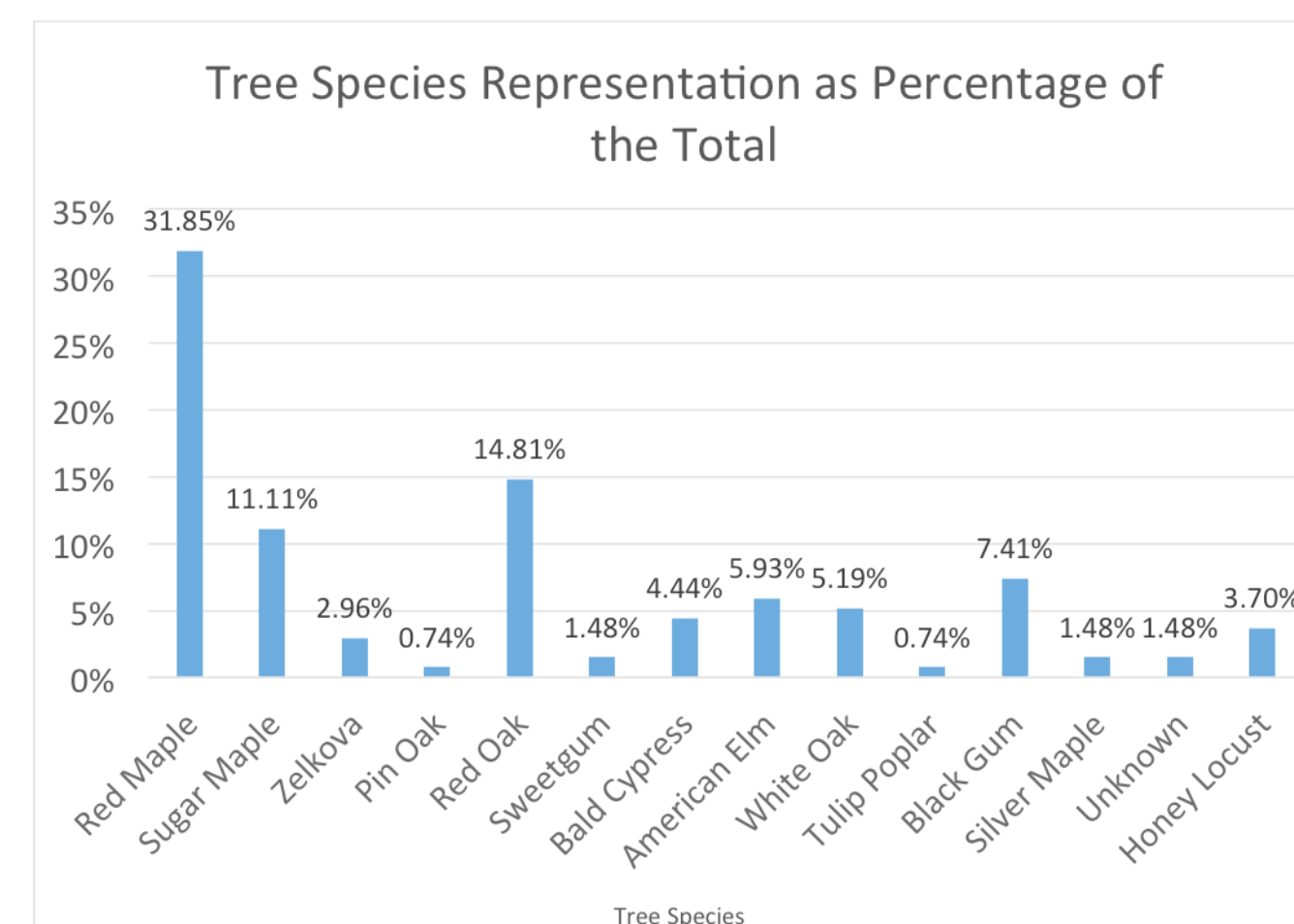


Figure 1 shows the species representation in the neighborhood.

Diversity (continued)

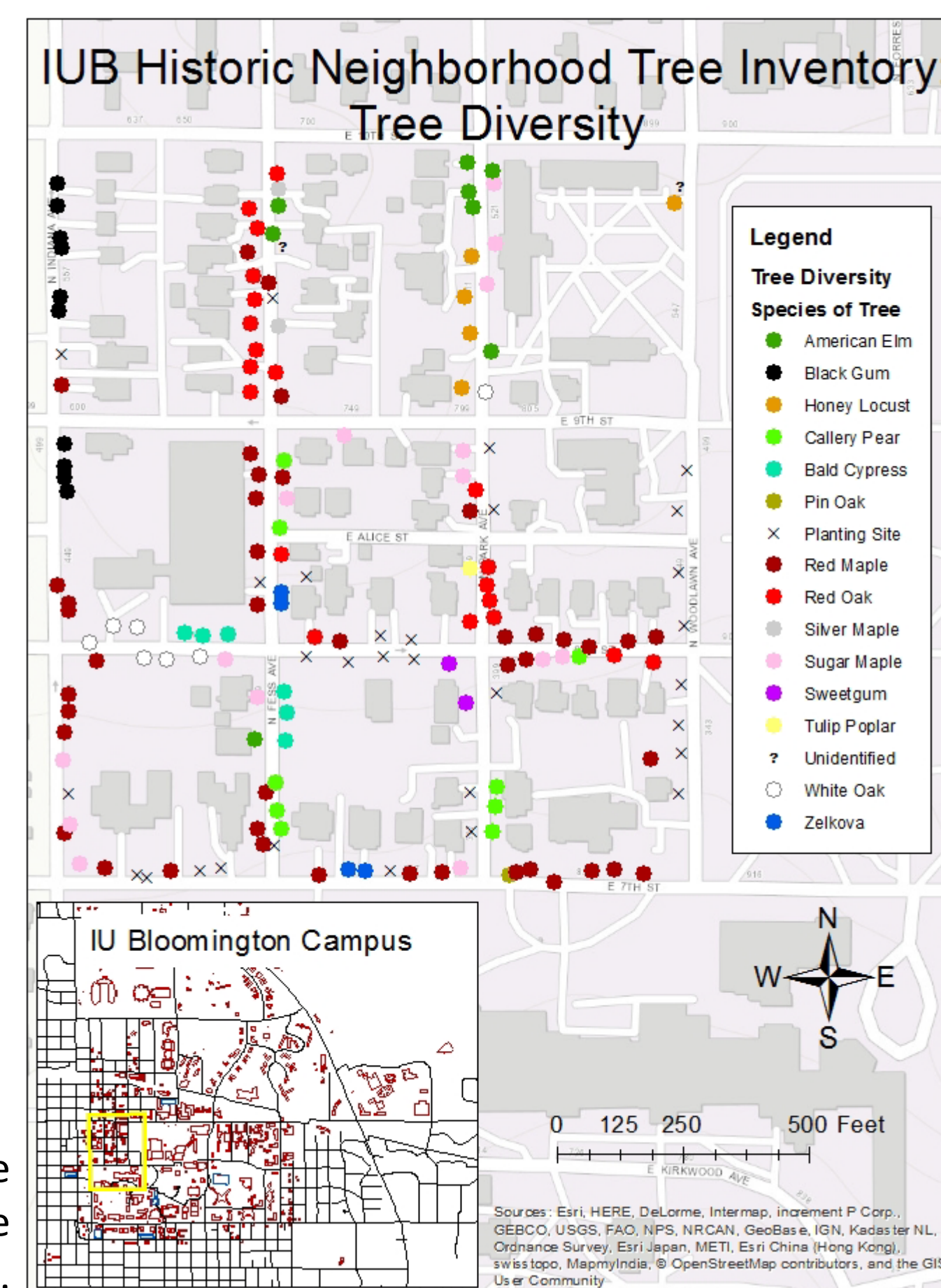
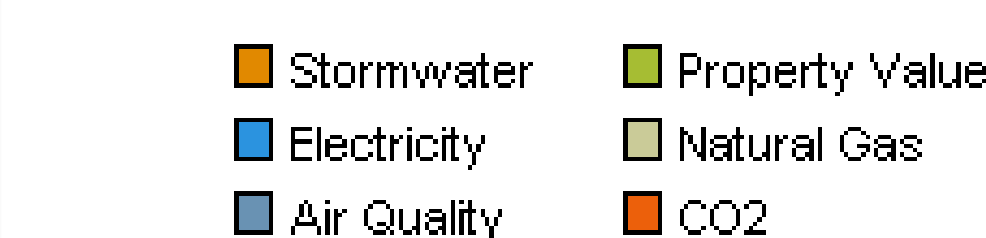


Figure 2 denotes the species of each tree and its location.

Overall, the neighborhood lacked diversity. The species representation as a percentage is shown in figure 1, and figure 2 shows the species of each tree and its location within the neighborhood. From these figures, it is clear that red maples are the dominant species in the neighborhood. Red oaks and sugar maples are the second and third most abundant trees, respectively. Recently, several black gum trees were planted on Indiana Avenue, which helped to increase species diversity; however, more red maples were planted on 8th Street outside of a new fraternity house.

Monetary Benefits



The figure to the left shows the benefits of a red maple with a DBH of 8.09 inches. It provides \$60 in benefits annually. The table to the right shows the benefits for the three most numerous trees in the neighborhood.

Condition

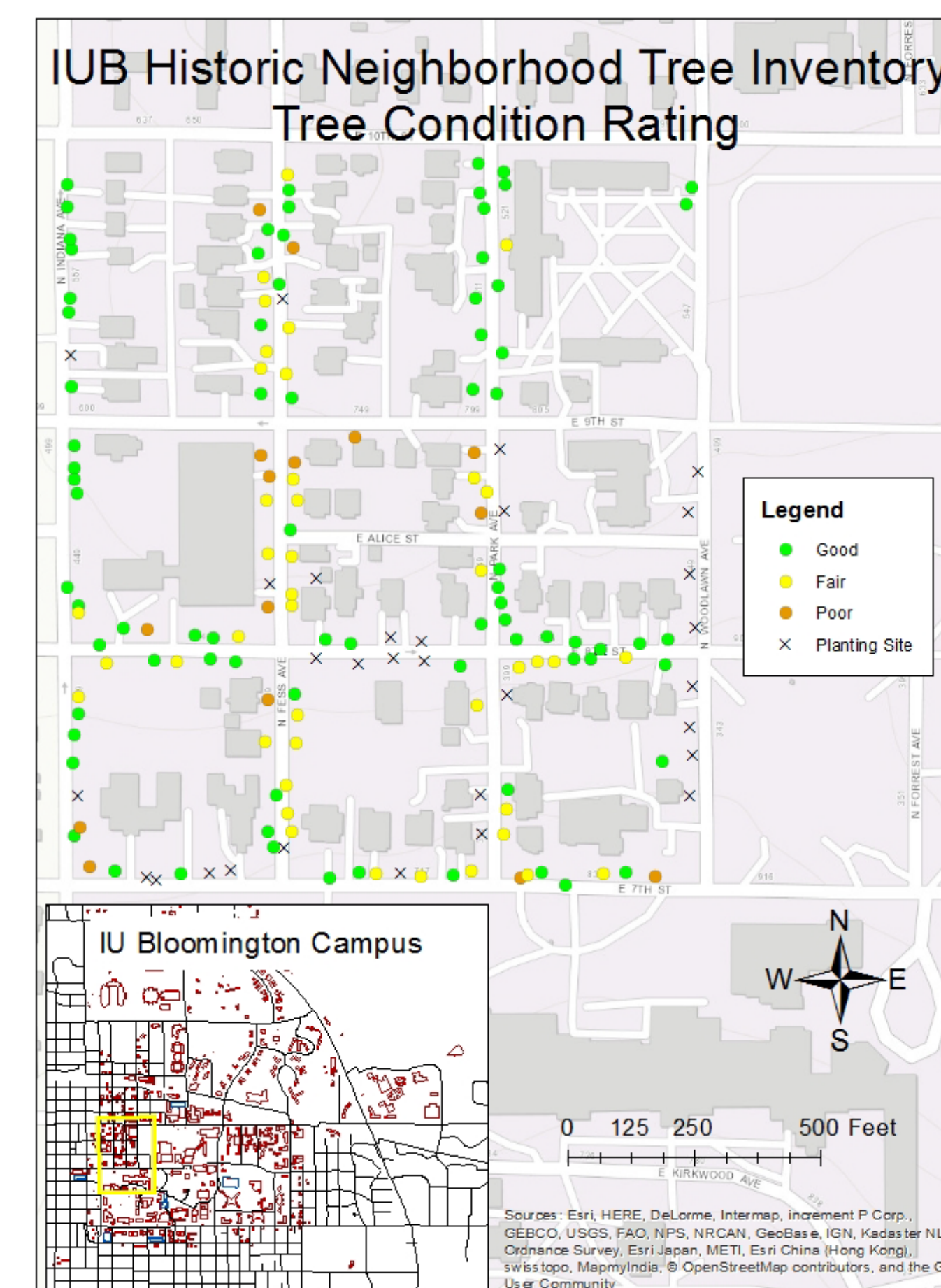


Figure 3 denotes the condition of each tree and its location.

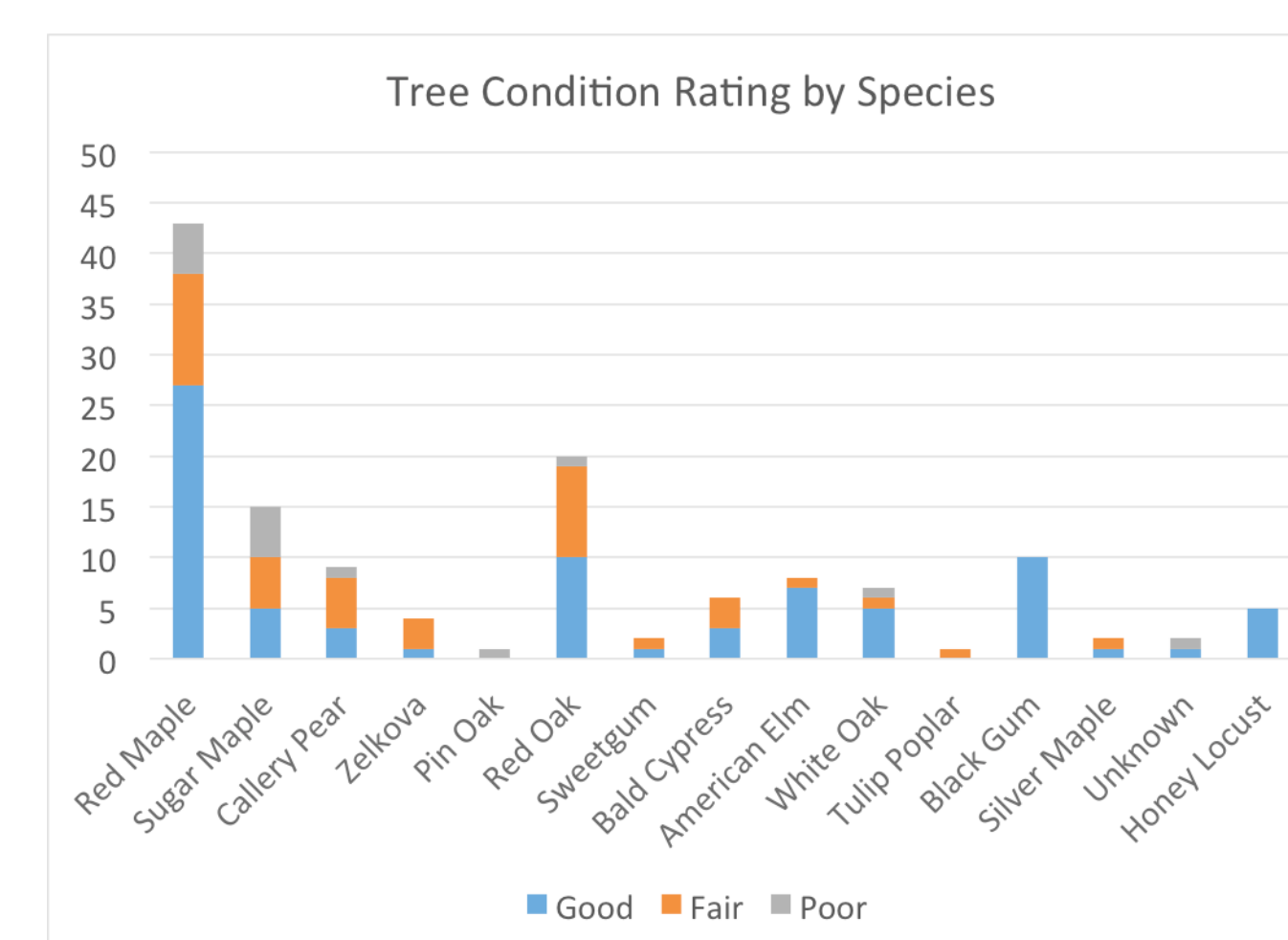


Figure 4 shows the condition of the trees in each species.

Most of the trees in the neighborhood are in good condition, as shown in Figure 3. This figure also shows that most of the trees in poor condition are in the middle of the neighborhood, off of the busier thoroughfares. Figure 4 shows the condition of the trees by species.

	Red Maple	Red Oak	Sugar Maple
Average DBH	8.09	10.1	20.8
Annual benefits for average DBH	\$60	\$74	\$87
Number of trees	43	20	15
Total Benefits	\$2580	\$1480	\$1305

Size Distribution

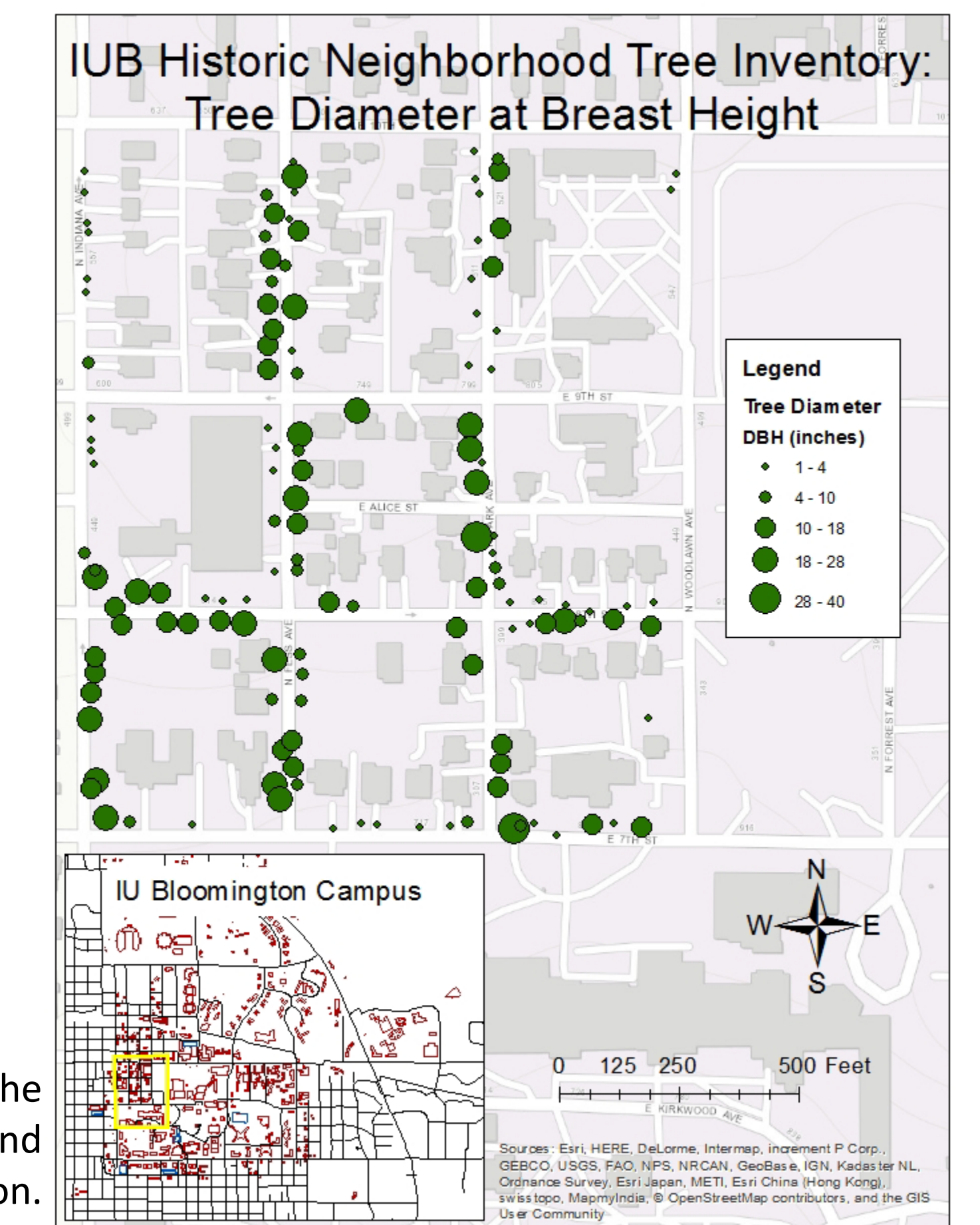


Figure 5 denotes the size of each tree and its location.

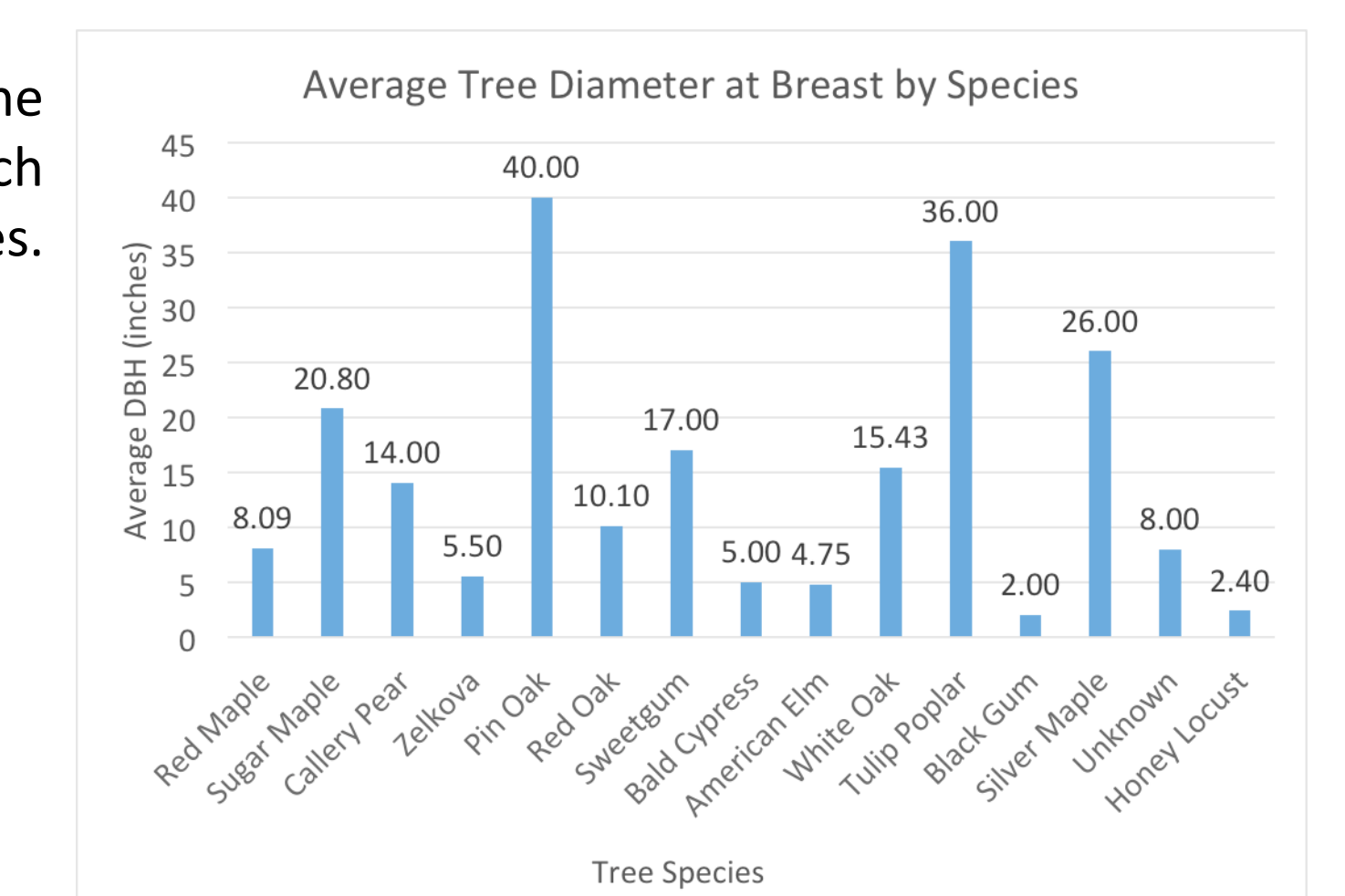


Figure 6 shows the average size of each species.

The size distribution helps to show the sustainability of the neighborhood's trees. Figure 5 shows the size and location of the trees. Many new, small trees have been planted on Indiana and 8th, as previously mentioned. Figure 6 shows the average size of each species. There is one large tulip poplar, and many smaller American elms, for example. The size distribution of the trees is fairly even across the neighborhood.

Recommendations

- ◆ Use ample planting spaces in order to increase neighborhood species diversity
- ◆ Tend to trees with encircling roots and branches that need pruning
- ◆ Remove suggested trees