

The U.S. Forest Service's National Urban and Community Forestry Advisory Council (NUCFAC) funded the Bloomington Urban Forestry Research Group (BUFRG) to study tree planting projects supported by nonprofit organizations, including Keep Indianapolis Beautiful, Inc. (KIB).

This brochure presents the results of part of the project: a re-inventory of trees planted by KIB from 2009 to 2011 and benefit estimates from i-Tree Streets.

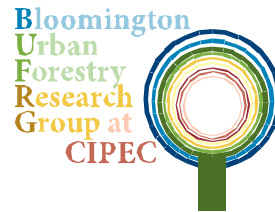
KIB planted more than 11,000 trees from 2009 to 2011. In June and July of 2014, teams of volunteers, supervised by KIB, re-inventoried 1,076 of those trees. In our analysis of the re-inventory data we found:

- Survival rate was 80%.
- 64% of trees were in good condition.
- Average DBH (diameter at breast height) was 1.5 inches.
- American elms were the largest, with an average DBH of 2.6 inches.
- The estimated total replacement value of the trees is \$223,000.
- Estimated total annual benefits of the trees are \$15,600.

If all trees planted from 2009 to 2011 had the same species composition, average DBH, and mortality rates as the re-inventoried trees, they would provide around \$182,000 in total annual benefits.

For more information, visit:

www.kibi.org
http://www.indiana.edu/~cipec/research/bufrg_about.php
www.iTreetools.org



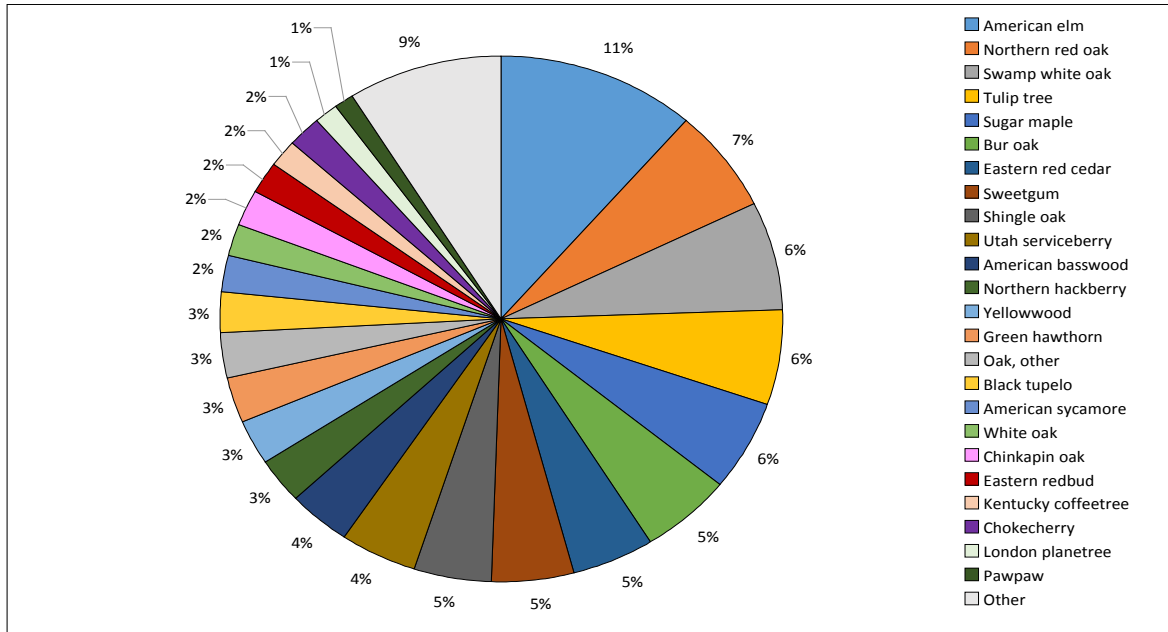
Keep Indianapolis Beautiful, Inc.

Planted Tree Re-Inventory: Survival and Benefits of Recently Planted Trees

Prepared by Sarah Widney
Bloomington Urban Forestry Research
Group at CIPEC
Indiana University – Bloomington
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Funders:

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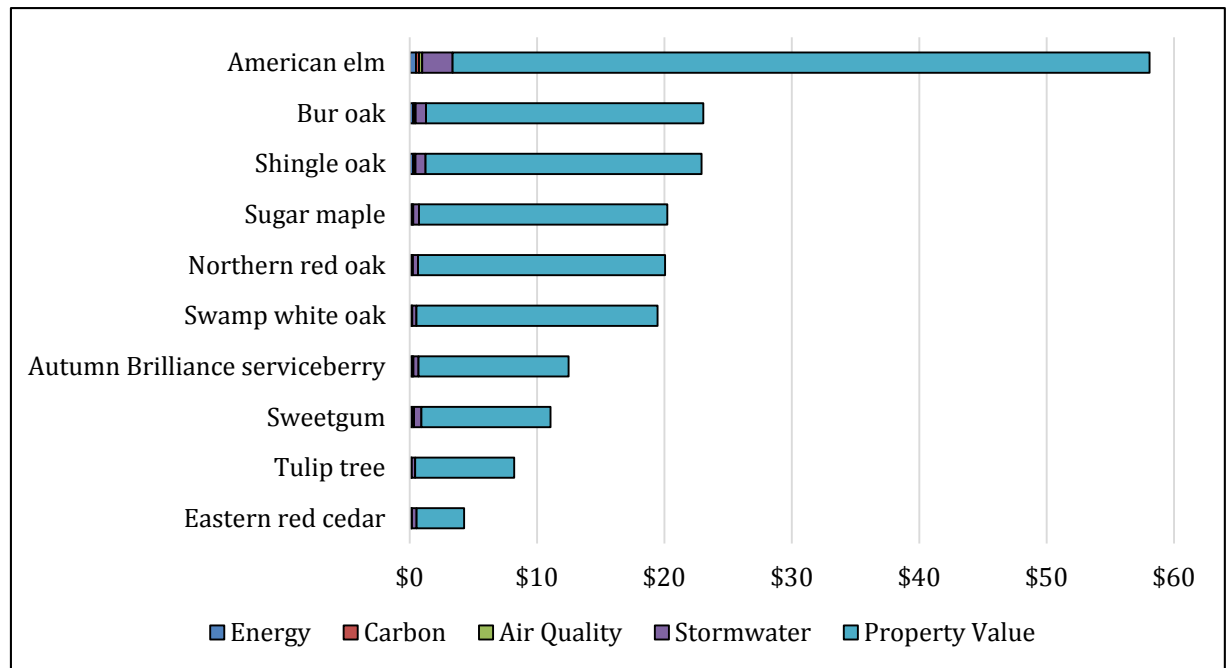
Above: Species distribution of surviving re-inventoried trees. American elms make up 11% of surviving re-inventoried trees, while oaks account for 30% of surviving re-inventoried trees.

Tree Benefits

We used i-Tree Streets to estimate the energy, carbon, air quality, stormwater, and property value benefits and canopy cover provided by the re-inventoried trees. i-Tree takes into account the species and size class of each tree in calculating canopy cover and incorporates energy costs and climate in calculating benefits.

Most (95%) of the current annual benefits are property value benefits; we expect these to become relatively less important over time as the trees grow larger and contribute more stormwater benefits.

Below: Estimated annual benefits per tree, by type, provided by the ten most common surviving tree species.



The re-inventoried trees . . .

- Provide \$15,600 in total estimated annual benefits.
- Provide \$152 in annual energy benefits, corresponding to 11 GJ of reduced energy usage.
- Sequester or avoid 7,700 kg of CO₂ each year.
- Take up or avoid 7 kg of ozone, 4 kg of nitrogen dioxide, 4 kg of particulate matter, and 13 kg of sulfur dioxide each year.
- Intercept 80,000 gallons of rainfall each year.
- Provide \$15,000 in increased property value annually.
- Provide 23,000 ft² of canopy cover.