Quantifying Sustainability with i-Tree®

i-Tree® Eco

If you have sustainability goals, using i-Tree® Eco to quantify the benefits provided by your trees can help you be successful. i-Tree® Eco is part of the i-Tree® software suite designed to quantify the economic, environmental, and social benefits provided by urban and rural trees. i-Tree® tools are designed to highlight the significance of community trees and advocate for them as sustainable infrastructure.

When i-Tree® Eco is used to its full potential, it can provide estimates of carbon storage and sequestration on an individual tree basis to help you reach your sustainability goals (Figure 1).

Tree ID	Species Name	Gross Carbon Sequestration (lb/yr)	% of Total
11588	Sweetgum	10.8	0.0
11589	Southern red oak	79.1	0.0
11590	Southern red oak	48.6	0.0
11591	Pignut hickory	44.7	0.0
11592	Water oak	30.6	0.0
11593	Mockernut hickory	41.7	0.0
11594	Scarlet oak	183.9	0.1
11595	Water oak	43.6	0.0
11596	Water oak	149.5	0.1
11597	Scarlet oak	175.9	0.1
11598	Pignut hickory	30.3	0.0
11599	Scarlet oak	102.6	0.1
11600	Winged elm	22.8	0.0
11601	Shagbark hickory	34.7	0.0
11602	Black oak	125.3	0.1
11603	Sweetgum	89.2	0.0
11604	Winged elm	32.0	0.0
11605	Scarlet oak	274.9	0.1
11606	Mockernut hickory	44.2	0.0
11607	Pignut hickory	64.6	0.0
11608	Pignut hickory	56.8	0.0

Figure 1. Example of a gross carbon sequestration report.

i-Tree® Eco can be used for a small group of trees, all the trees on a college or corporate campus, and for an entire urban forest. The results provide information on the tree population's structure, function, and value based on attributes collected in the field.

If you have a natural area you are interested in, or if you are a municipality, i-Tree® Eco sample plots can be more cost-effective than collecting information on every tree. Results can also be obtained by only collecting the tree species and size. However, to achieve the best estimates possible, it is recommended that all i-Tree® Eco fields be collected, and when possible, on an individual tree basis.

While carbon storage and sequestration are typically the desired results, i-Tree® Eco also provides estimates for pollution removal, human health impacts, building energy effects, hydrological effects, and more (Figure 2).

						Annual benefits									
Tree ID	Species Name	DBH (in)	Replacement Value ($)	Carbon Storage (lb)	Carbon Storage ($)	Gross Carbon Sequestration (lb/yr)	Gross Carbon Sequestration ($/yr)	Avoided Runoff (gal/yr)	Avoided Runoff ($/yr)	Carbon Avoided (lb/yr)	Carbon Avoided ($/yr)	Pollution Removal (oz/yr)	Pollution Removal ($/yr)	Energy Savings ($/yr)	Total Annual Benefits ($/yr)
332	Flowering dogwood	7.1	799.22	176.5	11.74	15.0	0.99	40.6	0.36	N/A	N/A	2.8	0.22	N/A	1.58
335	Flowering dogwood	7.5	815.12	205.2	13.65	15.8	1.05	39.5	0.35	N/A	N/A	2.7	0.21	N/A	1.62
349	Tulip tree	3.0	117.59	13.1	0.87	5.8	0.38	18.8	0.17	N/A	N/A	1.3	0.10	N/A	0.65
351	Tulip tree	4.0	247.29	26.4	1.76	10.0	0.67	29.8	0.27	N/A	N/A	2.0	0.16	N/A	1.10
361	Overcup oak	27.0	6,245.81	2,510.0	166.97	55.8	3.71	613.6	5.48	N/A	N/A	41.7	3.31	N/A	12.50
364	Flowering dogwood	10.3	1,043.25	424.1	28.22	22.5	1.50	47.1	0.42	N/A	N/A	3.2	0.25	N/A	2.17
369	Flowering dogwood	1.0	66.25	1.7	0.11	1.3	0.09	2.1	0.02	N/A	N/A	0.1	0.01	N/A	0.12
925	Tulip tree	4.0	254.93	26.4	1.76	10.4	0.69	28.8	0.26	N/A	N/A	2.0	0.16	N/A	1.10
932	Tulip tree	2.0	87.30	4.8	0.32	4.2	0.28	6.8	0.06	N/A	N/A	0.5	0.04	N/A	0.38
933	Tulip tree	3.0	143.40	13.1	0.87	7.2	0.48	15.2	0.14	N/A	N/A	1.0	0.08	N/A	0.70
937	Tulip tree	3.0	143.40	13.1	0.87	7.2	0.48	22.7	0.20	N/A	N/A	1.5	0.12	N/A	0.80
938	Tulip tree	3.0	117.59	13.1	0.87	5.8	0.38	13.0	0.12	N/A	N/A	0.9	0.07	N/A	0.57
940	Tulip tree	3.0	143.40	13.1	0.87	7.2	0.48	21.2	0.19	N/A	N/A	1.4	0.11	N/A	0.78

Figure 2. Example summary of benefits.

i-Tree® Eco can also forecast future benefits based on your existing trees (Figure 3). By adding planting scenarios, you can also estimate what your urban forest may look like in the future. Forecast is a powerful feature built within i-Tree® Eco.

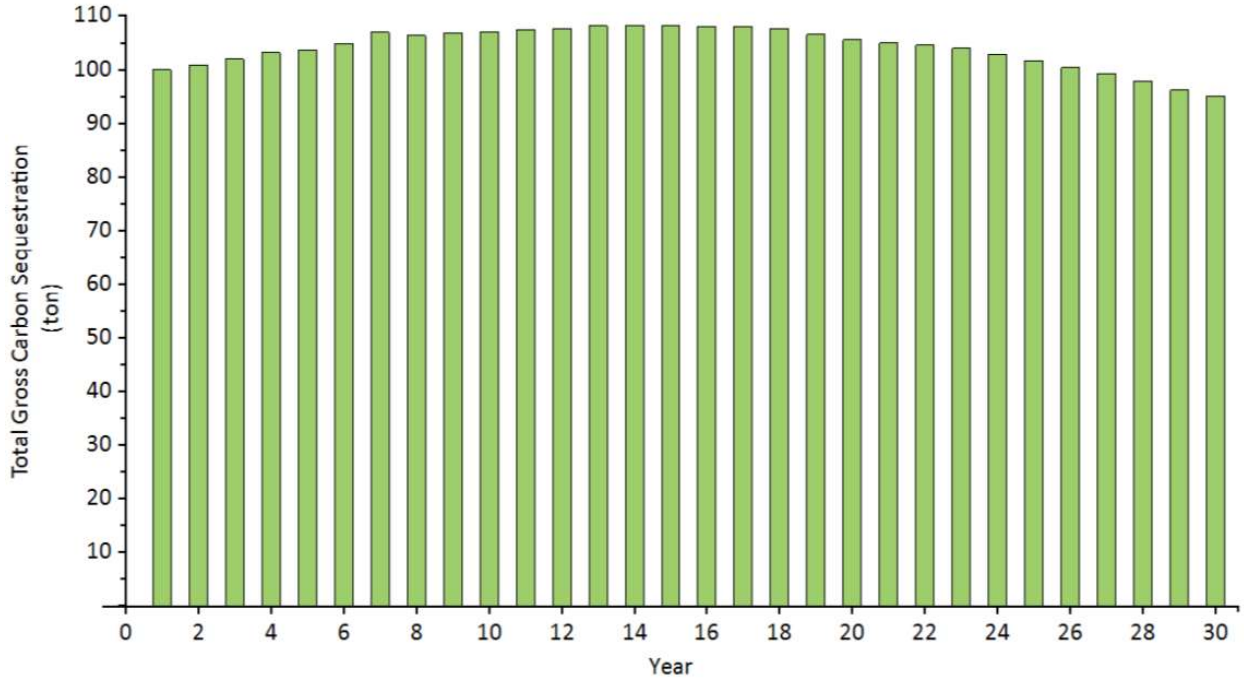

Figure 3. Example of total gross carbon sequestration amounts thirty years into the future.

Besides providing sustainability and forecasting information, i-Tree® Eco is a great tool to:

- Demonstrate the current structure of the entire urban forest.
- Demonstrate the importance of urban trees and provide an overall analysis of the benefits provided.
- Help improve community awareness and engage decision-makers.

Additional information can be found on the i-Tree® website: www.itreetools.org.

Bartlett Tree Experts (Bartlett) has arborists who are trained to conduct i-Tree® Eco analyses. Bartlett can provide i-Tree® Eco results with the same attributes collected for a Tree and Shrub Care Plan. For clients with sustainability goals, Bartlett typically collects all i-Tree® Eco attributes as part of a Tree Inventory and Management Plan. Depending on the level of detail desired and the number of trees, including i-Tree® Eco may add significant time and cost to your project.

For more information, please contact Bartlett Consulting at consulting@bartlett.com or visit www.bartlett.com/bartlett-consulting.cfm.