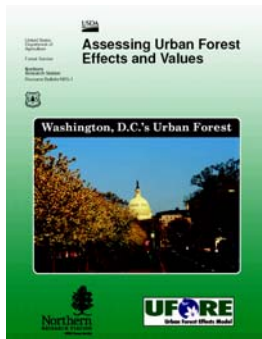




i-Tree: Tree Carbon Estimation for Urban Areas



i-Tree is a USDA Forest Service suite of urban and community forestry software tools that allows communities to collect, analyze, and display information on the structure, functions, condition, and costs and benefits of their urban forest (www.itreetools.org). This software is available free of charge, and since its release in the Fall of 2006, about 3,100 copies have been distributed within 47 countries worldwide. Program development, dissemination, training, and support are provided through a public-private partnership of among the Forest Service, Davey Tree, the National Arbor Day Foundation, the Society of Municipal Arborists, and the International Society of Arboriculture.



Two of the tools in i-Tree estimate carbon storage within urban trees, annual carbon sequestration, and carbon emissions avoided through energy conservation due to urban trees. One tool, the Urban Forest Effects (UFORE) model, focuses on an entire urban forest. The other tool, STRATUM, focuses on street tree populations. Tree sample (e.g., from random field plots) or inventory data are required to run the model. Models to estimate future carbon effects based on local field data and user-defined mortality and planting rates have also been developed.



Details on UFORE model:

- Nowak, D.J., and D.E. Crane. 2000. The Urban Forest Effects (UFORE) Model: quantifying urban forest structure and functions. In: Hansen, M. and T. Burk (Eds.) *Integrated Tools for Natural Resources Inventories in the 21st Century*. Proc. of the IUFRO Conference. USDA Forest Service General Technical Report NC-212. North Central Research Station, St. Paul, MN. pp. 714-720. http://ncrs.fs.fed.us/pubs/gtr/other/gtr_nc212/index.htm
- Nowak, D.J. and D.E. Crane. 2002. Carbon storage and sequestration by urban trees in the United States. *Environ. Poll.* 116(3): 381-389. http://www.fs.fed.us/ne/syracuse/Pubs/Downloads/02_DN_DC_CStor.pdf
- Nowak, D.J., D.E. Crane, J.C. Stevens, and M. Ibarra. 2002. Brooklyn's Urban Forest. *USDA Forest Service Gen. Tech. Rep.* 290. 107 p. <http://www.treeseearch.fs.fed.us/pubs/3174>
- Nowak, D.J., D.E. Crane, J.C. Stevens, and R. Hoehn. 2003. The Urban Forest Effects (UFORE) model: field data collection procedures. USDA Forest Service, Syracuse, NY. 30 p. http://www.fs.fed.us/ne/syracuse/Tools/downloads/UFORE_Manual.pdf
- Nowak, D.J., R. Hoehn, D.E. Crane, J.C. Stevens and J.T. Walton. 2006. Assessing urban forest effects and values: Minneapolis' urban forest. *USDA Forest Service, Northeastern Resource Bulletin*, NE-166. 20 p. <http://www.treeseearch.fs.fed.us/pubs/23593>
- Nowak, D.J., R. Hoehn, D.E. Crane, J.C. Stevens and J.T. Walton. 2006. Assessing urban forest effects and values: Washington D.C.'s urban forest. *USDA Forest Service, Northern Resource Bulletin NRS-1*. Newtown Square, PA. 24 p. <http://www.treeseearch.fs.fed.us/pubs/18406>
- Nowak, D.J., R.E. Hoehn, D.E. Crane, J.C. Stevens, J.T. Walton and J. Bond. (In press) A ground-based method of assessing urban forest structure and ecosystem services. *Arboric. Urb. For*