

Wisconsin Urban Forest Inventory and Analysis (UFIA)

What is the Forest Inventory and Analysis (FIA) Program?

- FIA is a forest inventory program of the USDA Forest Service working in partnership with the nation's state forestry agencies, universities, and nongovernmental organizations (NGOs). FIA is the only comprehensive field-based and annually updated inventory of all forest ownerships for each of the 50 states and affiliated Pacific and Atlantic Islands (since 1928).
- FIA monitors wood flows to all primary wood-using facilities in the U.S. (since 1947); tracks the ownership objectives, management practices, and future intentions of over 10 million private forest landowners in the U.S. (since 1953); and provides scientifically sound carbon estimates for all U.S. forests annually (since 1994).
- Since 1992, FIA has provided public access to current and historic inventory data through online tools, pioneering concepts recently seen in the President's 2013 Executive Order on Open Data.
- With guidance from the 2014 Farm Bill and experience gained from past urban pilot studies, FIA will team up with i-Tree to implement an annualized inventory of trees in urban settings to monitor their status and trends, and assess their ecosystem services, values, health, and risk to pests and diseases.

What is i-Tree?

i-Tree is a state-of-the-art, peer-reviewed software suite from the USDA Forest Service that provides urban forest analysis and benefits assessment tools. The i-Tree Tools help communities of all sizes to strengthen their urban forest management and advocacy efforts by quantifying the structure of community trees and the environmental services that trees provide. For more information go to: www.itreetools.org

Why monitor urban trees?

Urban trees and natural spaces are critical to human health and well-being. A neighborhood's trees moderate air and water pollution, reduce heating and cooling costs, and provide shade and shelter from the hot summer sun. Healthy trees can provide wildlife habitat and improve real estate values. Research shows that trees improve mental health, strengthen social connections, and reduce crime rates. Trees, parks, and other green spaces get people outside, helping to foster active living and neighborhood pride. We can all appreciate these benefits, and the more we know about the trees in our cities and towns the better we can nurture them and sustain their benefits. Yet, despite all their benefits and the need to know more about them, urban forests are not currently covered by a continuous wall-to-wall inventory and monitoring system like rural forests.



Wisconsin Department of Natural Resources
Box 7921
Madison, WI 53707



PUB FR-553 2015

What kind of data will urban FIA collect?

The following list demonstrates some, but not all, of what will be monitored in the urban inventory:

- *Tree species* – Determining what trees are growing in the urban environment and which tree species are most abundant.
- *Tree size* – Measuring tree size helps us learn more about the tree's ability to provide benefits as well as the future of the urban forest.
- *Tree crown condition* – Recording the size, shape, and density of all of a tree's branches and leaves tells a lot about the health of a tree, how well it's growing in its location, and its impact on plants growing underneath.
- *Tree damage* – Assessing trees for any signs of damage, such as the presence of forest pests or disease, impact from storms or environmental stresses, or improper management and care helps identify species prone to damage to develop effective management plans.
- *Ground cover* – Provides a description, in areas with or without trees, of the existence of other plants, permeable (gravel, bare soil) and impermeable surfaces (asphalt, cement) to learn more about water infiltration potential and runoff to improve urban planning.
- *Ownership* – Identification of public and private land provides information to tailor integrated management strategies across ownerships.
- *Re-measurement* – Repeated measurements over a period of years will tell more about how the urban forest is changing.

How will the urban FIA program be implemented nationally?

The USDA Forest Service is focusing national efforts on metropolitan areas with populations greater than 200,000. In 2014 the first urban FIA plots were established and measured in Baltimore, MD and Austin, TX. Six additional metro areas were added in 2015, two of which are Madison and Milwaukee, and another seven will be added in 2016. In each of these cities there will be 200 urban FIA plots established within the municipal boundary. Urban areas outside of that boundary, but within the surrounding metro area, will be sampled at an intensity of 1 plot for every 6,000 acres. Plots will be measured over a seven-year cycle, with approximately 1/7th of the plots measured each year.

How will the urban FIA program be implemented in Wisconsin?

The State of Wisconsin has partnered with the Forest Service to expand the FIA program to sample urban forests throughout the state, not just those in the Madison and Milwaukee metro areas. This will provide statewide and regional estimates of our urban forest resources and their associated benefits. Data obtained from the expanded urban FIA program will be augmented with a statewide urban tree canopy assessment, using remotely sensed data, and a database of aggregated tree inventories gathered from organizations throughout the state. **For more information** browse dnr.wi.gov, keyword "UFA".

Wisconsin Urban Forest Inventory and Analysis (UFIA)

Urban FIA Frequently Asked Questions:

What are some of the benefits of an urban inventory? Trees provide benefits and services regardless of where they occur. All trees sequester carbon, provide habitat, filter water, stabilize soils, provide biomass, enhance biodiversity, and create jobs; some trees also conserve energy and improve human health and safety. By sampling the characteristics of urban trees, these services can be quantified, valued and their management consequences evaluated. Elected officials, planners, land managers and private property owners can use this information to help maximize the benefits of their trees and accomplish their goals for their communities and properties.

Is this urban inventory program similar to a Street Tree Inventory? No, it is a sample-based inventory of trees in the entire urban forest canopy that provides scientifically sound, statistically reliable information for urban planning at national, state, regional, county, and potentially metropolitan and city scales.

How are urban inventory sample plots identified and located? At the national level, for each selected city there are 200 urban FIA plots located within the municipal boundary. The municipality is broken into 200 polygons of equal area and random sample locations are selected within each polygon to assure unbiased estimates of the character of the urban forest. Urban areas outside of the municipal boundary, but within the surrounding metro area, will be sampled at an intensity of 1 plot for every 6,000 acres. In a similar fashion, a grid is created across the surrounding metro area (with each grid cell being approximately 6,000 acres) and random sample locations are selected within each grid cell.

Who will collect the data? FIA personnel and contract crews will collect data. All crews will be trained and certified by FIA and routinely checked to assure FIA quality standards are met.

How often are sample locations re-measured? FIA is a continuous, permanent sampling methodology. This means that each year a subset of the total number of samples are measured. Currently, this is a 7 year cycle so 1/7th of the total samples are measured each year. In year 8 the cycle starts over again, and those samples collected in year 1 are re-measured in year 8.

Will there be public access to the urban inventory data? Yes, there will be forest inventory delivery systems accessible from FIA and i-Tree websites. A datamart will be provided where users can download data, grab summary tables, access periodic reports, or run custom queries using online tools.

How will the Forest Service analyze the data and provide key findings? Annual statistical updates will be provided and posted online along with more comprehensive analytical reports every 5 years.

Will the urban plots be on public and private land? Yes.

What do landowners need to know if a sample point falls on their property? Landowners will be contacted by phone and by mail to request access to their property by field crews. Field crews will not collect sample information on properties without expressed consent from the land owner. Typically, sampling takes between one and two hours on site, and does not require any access to buildings. The same sampling points are re-measured periodically, currently once every 7 years. For more information visit this website: www.nrs.fs.fed.us/fia/landowner

Who will see the data from my property? Specific information collected from the research site on your property is not made public. Only once the information is aggregated with data from other research sites do we provide data summaries. Those summaries cannot be linked to your property. Only designated individuals have access to the data from your property, and those individuals must sign confidentiality agreements which hold them legally liable for maintaining confidentiality.

How can I be sure information about my property will not be made public? The 1998 Farm Bill, which authorizes the annualized collection of forest resource data, prevents the dissemination of information that can be associated with a specific landowner. It is a criminal offense to release data that can be linked to a specific landowner, punishable by fines or imprisonment.

What do Wisconsin municipalities need to know about inventory efforts in local communities? This project is just beginning. In 2015, sampling began in the Milwaukee and Madison metro areas. Most of the sampling plots fall within the city limits of Milwaukee and Madison, but most adjoining communities will have 1 or 2 sampling points. In 2016, the sampling will be expanded to all census urban areas of the state. Approximately 1,300 plots will be established throughout Wisconsin and sampled on a 7 year cycle.

Who can I contact for more information about the urban FIA inventory?

Andrew Stoltman
Rural and Urban Forest Inventory Analyst
Wisconsin Department of Natural Resources
(608) 266-9841
Andrew.Stoltman@wisconsin.gov

Peter Koehler
Supervisory Forester
USDA Forest Service
(651) 261-0052
pkoehler@fs.fed.us

Laura Lorentz
Urban Forest Inventory Specialist
Wisconsin Department of Natural Resources
(608) 264-9237
Laura.Lorentz@wisconsin.gov