



The Forest Inventory and Analysis (FIA) Program

A Position Statement of the Society of American Foresters

Originally adopted by the Council of the Society on December 10, 2000, revised and renewed on May 26, 2006, and revised and renewed on October 31, 2011. It will expire October 31, 2016 unless, after subsequent review, Council decides otherwise.

Position

The Society of American Foresters (SAF) supports full funding and full implementation of the Forest Inventory Analysis (FIA) Program. The FIA Program provides scientifically credible forest inventory data across all ownerships, and it is the only national inventory system that delivers current and consistent information about the status, condition, and trends of America's forestland. SAF supports the full implementation of a national, annualized inventory system with 20% annual measurement consistently applied across all ownerships and reported for each state every five years. SAF also believes the base program must be responsive to stakeholder needs and be implemented prior to adding new components to the Program. Because the FIA Program is a nationwide science-based inventory and reporting program, SAF recommends the continuation of its operation under the direction of the USDA Forest Service.

Issue

“A forest inventory is the procedure for obtaining information on the quantity, and condition of the forest resource, associated vegetation and components and many of the characteristics of the land area on which the forest is located” (Husch et al. 2003). Regardless of the forest management objectives – whether timber, wildlife, recreation, water, or non-wood values – the forest must be quantified for informed decision-making. Forest cover is an important part of wildlife habitat, watershed dynamics, forest aesthetics, and other ecosystem services.

The core objective of any forest inventory effort is to obtain the optimal precision and accuracy with the minimum expenditure. To realize this objective, a sound and consistent design and uniform scheduled implementation over the forest area are crucial. Forest inventories, such as the FIA system, also consist of vast amounts of data. The processing and timely reporting of this data correctly requires adequate staffing, computer science, remote sensing, and advanced statistical analysis. Failure to adequately fund an inventory system, such as the FIA system, will jeopardize the program's ability to achieve these objectives predictably and within acceptable confidence limits.

Background

The National Forest Inventory and Analysis Program of the Forest Service has been in continuous operation since 1930, based initially on authorities in the McSweeney-McNary Forest Research Act of 1928. Since then, the FIA program has evolved and merged with other programs such as the Forest Health Inventory program. The FIA Program conducts and continuously updates a comprehensive nationwide inventory and analysis of the status and trends of America's forest resources. Information collected and analyzed under this Program are the primary source of ecological data on the conservation and sustainable management of forests across all ownerships in the United States.

In 1998, Congress passed the Agriculture Research, Extension, and Education Reform Act. This legislation authorized significant changes in the FIA Program, including conversion to an annual (continuous) forest inventory program; development of a core set of procedures to be implemented in a consistent fashion across all US forest lands; continuously updated databases available on an annual basis; and production of complete state-level analyses at five-year intervals. The legislation authorized the Forest Service to develop a strategic plan, in consultation with program partners and customers, detailing how these changes would be implemented over five years. FIA has now completed its second Strategic Plan under the 1998 Act for 2007–11 with advice from various partners and data users across the nation (USDA Forest Service 2007). FIA conducts the nation's continuous forest census, collecting, analyzing, and reporting information on the status and trends of America's forests. The quality of this information will not be attained, as Congress intended, without full funding. Information provided by FIA on how much forest exists, where it exists, who owns it, and how it is changing (growth, mortality, removal, and successional trends) have many uses for SAF members, state agencies and other partners, policy makers, and research analysts. In many states, the FIA program relies on active partnership with state forestry agencies, and provides critical information used by the states.

A comprehensive review of resource assessments and multipurpose uses of FIA Data from 1976 to 2001 (Rudis 2003) contains over 1,400 literature citations and reveals an evolving program that is used by a broad array of researchers (Rudis 2005). Recent models developed with FIA observations are those associated with biodiversity, acid deposition, global warming, recreation, potential future tree species importance values, urban conversion probability of rural land, invading nonnative species, and woody and non-woody biomass estimation. Of wide interest are broad scale forest type maps and associated forest area and change statistics. This database is the only comprehensive source of field data for evaluating forest health (Woodall et al. 2011) and for estimating forest carbon as part of the annual U.S. Greenhouse Gas Inventory (Heath et al. 2011). Recent advancements in geospatial technologies have increased the utility of previously tabular FIA survey findings. FIA and collaborators have made extensive use of its plot location information to advance spatial analyses, such as estimation of tree species distributions and carbon sequestration. Such information serves as the foundation for landscape-level policy decisions, economic and ecological management decisions, and offers substantial utility to land managers in devising better forest management plans and developing an understanding of future ecosystem changes.

Since its inception, FIA has existed as a partnership among Forest Service branches: Research and Development, National Forest Systems, and State and Private Forestry. In addition, external partners have been developed to increase the efficiency and quality of the Program to achieve

desired standards across all ownerships, including the 82% of plot locations on non-Forest Service ownerships. FIA is also being expanded to include inventory of island forests, riparian areas, urban forests, and the States of Wyoming, portions of Nevada, and interior Alaska so that the database has a complete and comprehensive inventory to address emerging questions related to environmental changes.

The FIA Program has evolved into a world leader in the science of inventory, data collection, and efficient use of current, state-of-the-art technology. Natural resource professionals, congressional staff, and other policy makers across the country depend on the consistent and continuous data collection, analysis, and dissemination provided by the FIA program. This high quality information provides the basis for long-term strategic planning, forecasts of outputs from our nation's forest resources, and insights on its sustainability. In particular, this data serves as the basis for the National Report on Sustainable Forests which outlines forest conditions and trends for national and international use.

America's FIA program is recognized as one of the world leaders in forest inventory. The institutional knowledge FIA has acquired over its years of existence is valuable to countries seeking to establish their own national forest inventories. This international recognition has supported multinational efforts such as the recently developed SilvaCarbon program which enhances capacity worldwide for monitoring and managing forest and terrestrial carbon.

Literature Cited

- HEATH, L.S., J.E. SMITH, K.E. SKOG, D.J. NOWAK, AND C.W. WOODALL. 2011. Managed forest carbon estimates for the US greenhouse gas inventory, 1990-2008. *Journal of Forestry* 109(3):167-173.
- HUSCH, B., T.W. BEERS, AND J.A. KERSHAW. 2003. Forest Inventory. P.290-298 in *Forest Mensuration*, 4th Ed. John Wiley & Sons, Hoboken, NJ. 290-298.
- RUDIS, V.A. 2003. *Comprehensive regional resource assessments and multipurpose uses of Forest Inventory and Analysis data, 1976 to 2001: A review*. Gen. Tech. Rep. SRS-70. USDA, Forest Service, Southern Research Station. 129 p.
- RUDIS, V. 2005. *A Knowledge Base for FIA Data Uses*. In *Proceedings of the fifth annual forest inventory and analysis symposium*; November 18-20, 2003; New Orleans, LA. Gen. Tech. Rep. WO-69. USDA U.S. Department of Agriculture Forest Service, Washington, DC. P. 222.
- USDA FOREST SERVICE. 2007. *Forest Inventory and Analysis Strategic Plan*. FS-865, January 2007. USDA Forest Service, Washington, DC. P. 20. Available at: http://www.fia.fs.fed.us/library/fact-sheets/overview/FIA_Strategic_Plan2.pdf.
- WOODALL, C. W., M.C. AMACHER, W.A. BECHTOLD, J.W. COULSTON, S. JOVAN, C.H. PERRY, K.C. RANDOLPH, B.K. SCHULZ, G.C. SMITH, B. TKACZ, AND S. WILL-WOLF. 2011. Status and future of the forest health indicators program of the USA. *Environmental Monitoring and Assessment* 177:419-436.