



The Greatest Good For.....

The Greatest Number

Forest Research—State & Private Forestry—National Forests



What Does the Forest Inventory Analysis (FIA) Have to do with Woodland Owners?

Introduction and Background

The Forest Inventory and Analysis (FIA) Program of the U.S. Forest Service provides the information needed to assess America's forests. FIA is managed by the Research and Development organization within the USDA Forest Service in cooperation with State and Private Forestry and National Forest Systems. FIA traces its origins back to the McSweeney - McNary Forest Research Act of 1928 (P.L. 70-466). This law initiated the first inventories starting in 1930.

As the Nation's continuous forest census, our program projects how forests are likely to appear 10 to 50 years from now. This information is needed to evaluate whether current forest management practices are sustainable in the long run and to assess whether current policies will allow the next generation to enjoy America's forests in the future. FIA reports on the status and trends in forest area and location; in the species, size, and health of trees; in total tree growth, mortality, and removals by harvest; in wood production and utilization rates by various products; and in forest land ownership.

A 5-minute YouTube video offers an interesting introduction to the Forest Service Forest Inventory and Analysis Program. It describes why and how an FIA crew measures private forest land. This video is ideal for a landowner meeting and presentation by a guest speaker on an FIA topic. <https://tinyurl.com/y2aqn6k2>

Exactly How Does Work?

Phase 1, the basic forest inventory, is the remote sensing phase aimed at classifying the land into forest and non-forest and taking spatial measurements such as fragmentation, urbanization, and distance variables.

This phase has historically been done using aerial photography, but is changing to a system based on satellite imagery.

Phase 2 consists of a set of field sample locations distributed across the landscape with approximately one sample location (FIA plot) every 6,000 acres. FIA plots are monitored through a partnership between FIA Program and state forestry agencies. Forested sample locations are visited by field crews who collect a variety of forest ecosystem data. Non forest locations are also visited as necessary to quantify rates of land use change.

Phase 3 addresses forest health indicators through a subset of the Phase 2 plots (approximately 1 every 96,000 acres) which are visited during the growing season in order to collect an extended suite of ecological data including full vegetation inventory, tree and crown condition, soil data, lichen diversity, coarse woody debris, and ozone damage.

FIA Outputs and Data Uses

Timber Products Output (TPO)

FIA conducts Timber Products Output (TPO) studies to estimate industrial and non-industrial uses of roundwood in a state. To estimate industrial uses of roundwood, all primary wood-using mills in a state are canvassed.

The questionnaires are designed to determine: location, size and types of mills in a state, and the volume of roundwood received by product species and geographic origin. This data is used to determine the volume, type and disposition of wood residues generated during primary processing. TPO studies report

size and composition of primary wood using industries, use of roundwood by product, by species and by geographic location.

FIA also conducts logging utilization studies to relate TPO to inventory volume. This is done by visiting a cross-section of logging operations in a state to characterize the sites logged, trees cut, products taken, and residues left behind.

National Woodland Owner Survey (NWOS)

The National Woodland Owner Survey (NWOS) is aimed at increasing the USFS's understanding of private forest owners (rural, urban and large corporate). Summary information from the NWOS is used by people who provide, design, and implement services and policies that impact private forest owners, including government agencies, landowner organizations and other non-governmental organizations, private service providers, business analysts, forest industry companies, and academic researchers. To learn more about the National Woodland Owner Survey please visit <http://www.fia.fs.fed.us/nwos/>

Forest Health Indicators

The forest monitoring component is a widely reported component of the FIA program focusing on forest health indicators. Sample plots are measured for a broader suite of forest health attributes including tree crown conditions, lichen community composition, understory vegetation, down woody debris, and soil attributes. Soil samples are sent to a laboratory for chemical analysis. Finally, an associated sample scheme exists to detect cases of ozone damage occurring to adjacent forest vegetation.

Collectively, the forest monitoring component of FIA provides a nationwide systematic sample of a wide array of measurements on forested ecosystems, which are used by a diverse set of customers for many purposes. For example, FIA data have been used to map habitat for endangered animal species, to identify areas of forest decline, and to track the effect of global change reflected in changing species distributions.

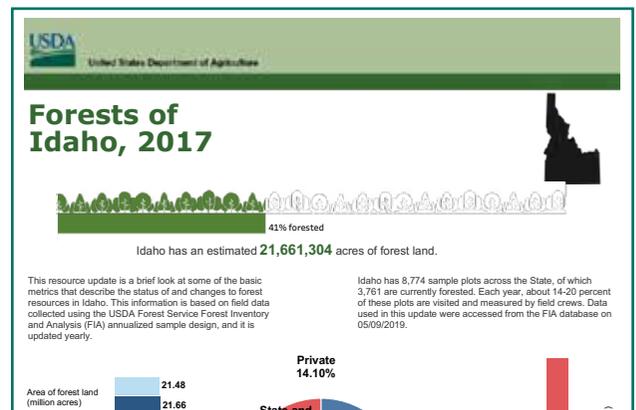
National Assessment (Resources Planning Act)

The Forest and Rangeland Renewable Resources Planning Act of 1974 RPA, P.L. 93-378, 88 Stat. 475, as amended, directed the Secretary of Agriculture to prepare a Renewable Resources Assessment by December 31, 1975 and update in 1979 and each 10th year thereafter. FIA currently provides updates of assessment data every five years as required by

the Agriculture Research, Extension and Education Reform Act of 1998 (Farm Bill). These assessments include "an analysis of present and anticipated uses, demand for, and supply of the renewable resources, with consideration of the international resource situation, and an emphasis of pertinent supply, demand and price relationship trends. An interactive USA map broken down to the county level, allows anyone with a computer to see the percent of forest land, growing stock volume and number of live trees in their county: <https://tinyurl.com/y4f998pj>

Recent Improvements

The Forest Service has significantly enhanced the FIA program by changing from a periodic survey to an annual survey, by increasing its capacity to analyze and publish data, and by expanding the scope of data collection to include soil, understory vegetation, tree crown conditions, coarse woody debris, and lichen community composition on a subsample of plots. The FIA program has also expanded to include the sampling of urban trees on all land use types in select cities (<https://www.itreetools.org>).



Grab Your Own State's One-Click FIA Factsheet

The ability to see county-level data as described above is powerful information. Also very useful is the ability to see and print factsheets summarizing a state's essential forest data. Using the webpage found at <https://tinyurl.com/y47crdzo>, hover over and click on any state to see the one-page, easy to read factsheet. Use the back button to navigate back to the map to choose another state. Use the download button at the lower right corner of the page to download a personal copy of the fact sheet that interests you (a colorful PDF document).



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In the Summer 2019 edition, National Woodlands magazine posted its first in a series of articles, “What does the Forest Inventory Analysis (FIA) Have to do with Woodland Owners?” That article described the FIA Program, its various components, and how to access FIA data. The first article also had a short description of the on-the-ground data collection activities on FIA plots. This article serves as part 2 of the series and will focus on the on-the-ground effort and the FIA Programs needed to access private property. Thank you to William Burkman, Program Manager, at USDA Forest Service, Southern Research Station, Forest Inventory and Analysis Program, located in Knoxville, TN.

The Need to Access Private Property by the FIA Program

FIA plots are randomly distributed across the US and its territories to form the backbone of the FIA Program. As of 2017, the US has almost 766 million acres of forestland according to data from the Resource Planning Act (RPA) Assessment (see <https://tinyurl.com/yjtlfahu> for the latest RPA report). Of this total forestland in the US, nearly 444 million acres (or 58%) are owned by private forestland owners. Why is this important information? Because the FIA plots are randomly distributed across the forestlands of the US regardless of ownership and that means that the 58% of the plots are on private forestland. Because the majority of forestland is privately owned, access to FIA plots (or as many as possible), including those that fall on private ownership, is critical to the success and statistical integrity of the FIA inventory and its results.

By Federal law, FIA field data collectors must obtain permission from landowners prior to accessing FIA plots. Permission is obtained via phone, written letters, and/or in person by a FIA field data collector on site, and possibly standing on a landowner’s front porch. As an individual forestland owner, it is completely within your rights to deny access to the FIA field data collectors. FIA hopes you won’t! Why? Because the data collected from an FIA plot on your land is combined with data from other landowners to provide a complete picture of forest information for the US. Not collecting or missing the data from privately owned property will have a negative effect on FIA data summaries and reporting of the forest resources in your state and

across the US. Currently, the percentage of denied access plots is low – less than 5% although there are some smaller geographic areas with higher denied access rates. Maintaining a low denied access rate is critical to the success and integrity of our inventory.

Due to the cooperative nature of the FIA Program, data collection is accomplished by field crews from state forestry organizations, contractors, other Federal agencies, and university partners in addition to USDA Forest Service employees. The make-up of field data collectors that may visit your property will depend on the state. In the southern US, most of the field data collectors are state forestry employees while in the western US, the field data collectors are primarily USDA Forest Service employees. In the northeastern US, it’s a mix of USDA Forest Service employees, state forestry employees, and private contractors who do the field data collection work.

The remainder of this article highlights some frequently asked questions that forest landowners ask.

Will this FIA plot damage my forestland?

FIA measurements are not destructive. FIA field data collectors may use increment borers to core trees to determine tree age on a small number of trees on the FIA plot. On some FIA plots, soil samples are collected. These samples are smaller than a car battery and any disturbance to the forest floor is limited and unnoticeable after the FIA field data collectors leave the plot location.

What kind of data is collected? What is it exactly that you are looking for? How is the data used?

What do I (the landowner) get out of it? How will this benefit me (the landowner)? How will participating benefit me? What's in it for me? How do I benefit from allowing you access? What will I get out of your survey/are there any incentives associated with the survey?

The FIA program of the USDA Forest Service is the Nation's forest census. FIA has tracked the status, change, and future potential of public and private forested lands for more than 90 years. We collect data on tree species, tree damage, age, size, height as well as productivity, growth, mortality, and harvest activity. Other collected data describe understory vegetation, soil characteristics, measures of forest loads and estimates of biomass and carbon. The data collection effort and inventory itself is not looking for anything specific. We just report on what we collect without an agenda.

Although there may not be a direct benefit or financial incentive to you as a landowner, the results from our inventory are used for many outputs that can benefit you indirectly. The sustainability of forest resources is important to state forestry agencies, forest industries, non-industrial private landowners, federal agencies, and non-governmental organizations. Demands placed on forests are expanding and questions of forest resource sustainability are increasing. Having this information allows forest industries to understand where the resource is and possibly to expand their markets and invest in the health and sustainability of all of the nation's forests. An expansion of forest markets can provide forest landowners additional outlets for their timber and can be beneficial to the local economy. Forests still provide the raw material for traditional forest industries but now they are also viewed as the basis of renewable sources for cellulosic energy and bio-fuels. In addition, both rural and urban forests must satisfy the recreational demands of an increasing population. Forests (and some wood products) are large carbon sinks, partially offsetting the impacts of increased CO₂ emissions.

Why should I give you access? Why did my property get chosen for the survey? How did you find me/get my number? Why is this plot on my property and not everyone else's? Why do you need to access my forest? Why did you pick that spot? Why was my property chosen? How to do you select plot locations? Why do you want to go there? There are some better trees for you to look at over here. Why does FIA want to measure mesquite and "brush"?

This group of questions generally focuses on how the FIA plot locations are chosen. The simple answer is that the locations are random using a hexagonal grid that covers the entire US. We don't target or avoid any individual location or property ownership. We gather landowner contact information and addresses from public county tax office records and various on-line sources. There is one FIA plot for approximately every 6,000 acres of land in the US – 2.26 billion acres – or 375,000 plots nationally. Not all these plots are forested and only about 1/3 or 125,000 are plots with forestland.

Measuring mesquite and "brush" from the last question above, take place in State of Texas where FIA partner organizations are concerned about the wildfire risk associated with arid ground cover species.

The author would like to thank all previous and current FIA data collectors. The information would not be possible without your hard work in all types of conditions!



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Thank you to William Burkman, Program Manager, at USDA Forest Service, Southern Research Station, Forest Inventory and Analysis Program, located in Knoxville, TN.

In this modern day and time, why can't you use technology (satellites/GIS) to get the same information?

FIA does. Satellite technology is very useful but cannot identify individual tree species, provide accurate measurements of individual trees, identify seedlings, identify individual/specific tree damage, measure soil characteristics, or identify understory vegetation by species. In some cases, satellite technology cannot accurately differentiate between forestland and other land uses. The information collected remotely is utilized in combination with FIA plot data to provide a more complete picture of the forests in the US.

Will this information be shared?

The aggregated FIA data is publicly available through our online data access tools - <https://tinyurl.com/thgvlyb>. The confidential data is not made available. FIA data is summarized in various reports and documents and these are publicly available.

I don't have any trees, why do you need to access my property? Why does the plot fall in the non-forested section of my property? What forest? There's no trees out here.

In addition to information on the forests of the US, it is also critical to understand how landscapes and land uses are changing. Visiting properties without trees may be necessary to monitor land use change from both conversions from forestland to non-forest land as well as conversions from non-forest land to forestland. Our use of remote sensing using satellite imagery is critical to tracking these landscape changes.

Will this affect any of my taxes? Will this affect my real estate tax bill? Will my individual plot data be given or be accessible to local (city and/or county)

government officials to be used against me for zoning/taxation/annexation/tree ordinances, etc.? Can the results of your survey get me in trouble with the state/city? Will this raise my property taxes? Will this visit/measurement make my property taxes go up?

No. This information has no direct impact on your taxes, property value assessments or anything else pertaining to the management or use of your property. We are not involved in regulatory actions or tax assessment on any property.

Do you look for endangered plants and wildlife? What happens if you find threatened or endangered species (flora or fauna)? Are y'all looking for endangered species? (plants or animals).

The FIA Program does not explicitly look for endangered plants and wildlife. Due to the rare occurrence of these organisms, it is highly unlikely that FIA data collectors would encounter endangered plants or animals on a FIA plot. If endangered species are found, the location and ownership of the property where they were found is protected by law and is not disclosed.

What if the FIA Foresters get hurt on my property? Am I going to be liable? Do you have liability insurance, in case you are injured on my property? Am I liable if you get injured, bitten by snake, etc., while on my property?

As the FIA data collectors from the USDA Forest Service or state forestry agencies are conducting their official duties while measuring a FIA plot on your property, they are covered by OSHA and Workers Compensation. Contractors must carry liability insurance before they can collect FIA data. As a landowner,

you will not be liable for any injuries incurred by the FIA field data collectors while collecting FIA on your property.

Can I change my mind about participating/allowing access to my property?

Yes. FIA would like to continue to access the FIA plot on your property but will respect your wishes if you choose to decline access.

Will this restrict my rights to harvest timber or sell the property in any way (property rights)? Can I still harvest these trees and manage this area? Will I have to change the way I manage the area of my property that your plot falls?

No. The FIA wants you to treat your property as if the plot was not there and we want the plot to reflect what forest landowners do with their forested property. As mentioned above under questions about property taxes, we are not involved in regulatory actions, use restrictions, or tax assessment on any property. If you intend harvest – harvest; conduct a prescribed burn – burn; clear the forest for building a structure – clear the forest and build.

May I have a copy of the information collected? Can I get a report of my individual plot data? How can I access the results of your survey for my property?

FIA generally does not provide this information because this location may not be representative of your entire land holding. There is nothing to prevent you having access to this information but its utility to you may be limited and we can provide it if you want. If you need an inventory of your property, there are better ways than the FIA program to get this information. This doesn't mean that the FIA data is not important. For a more complete explanation about the validity of a single FIA plot, see response to the next question.

How can the information be statistically valid when plots are so spread apart, especially in areas with high variability?

It is a matter of scale and sample size. The FIA Program is intended to be a large-scale forest inventory – i.e. National, regional, state, sub-state, large watershed, etc. This provides forest information for strategic-level decisions. The USDA FS requires that the FIA Program provide estimates of forest area +/- 2% accuracy at a 1 million acre resolution. The current

FIA sampling intensity does meet that target. Using remote-sensed data and statistical techniques, FIA data can be used at smaller scales.

How often will you need to access my property in order to complete your survey?

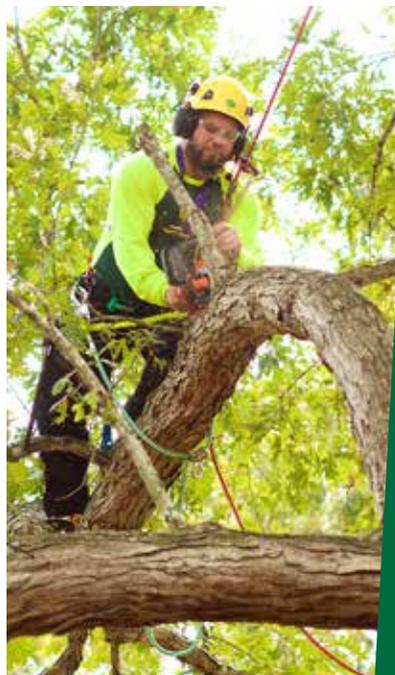
In the eastern US, most FIA plots are visited once every 5 or 7 years. Why are there differences in the eastern states? Some state partners invest additional resources in FIA to conduct a 5-year inventory cycle while others remain at base funding of 7 years for the eastern US. In the western US and in western Oklahoma and western Texas, the FIA plots are on a 10-year inventory cycle.

In order to assure data quality, about 8-10% of FIA plots will be randomly selected and revisited for quality assurance (QA) by a QA inspector. This second visit is usually completed within a month of the original data collector's visit. The QA data is used to quantify and document how repeatable our data collection effort is and indicate areas where we may need improvements to data quality.

Do I need to be present while you conduct your survey? Do you need me out there? (Commonly asked by out of state landowners.)

No, you do not need to be present although you are welcome to be on the plot while the FIA data collectors measure the plot.

The author would like to thank all previous and current FIA data collectors. The information would not be possible without your hard work in all types of conditions!



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