

STATUS REPORT ON THE U.S. FOREST SERVICE FOREST INVENTORY & ANALYSIS PROGRAM



AN UPDATE TO THE FINDINGS OF THE
1998 BLUE RIBBON PANEL

SEPTEMBER 2001

INTRODUCTION

The extent, health and productivity of the nation's forests are ecologically and economically fundamental to our society's future. It follows that we must have up-to-date and timely information on these resources. Significantly, the methods for collecting and compiling the nation's primary information on forest resources has undergone great change in the last several years.

The 1998 report of the Second Blue Ribbon Panel on the Forest Inventory and Analysis (FIA) Program of the USDA Forest Service identified serious shortcomings and made a number of recommendations for improving methods and the timeliness of this information. Subsequently, the Congress specified major changes—including a move from periodic to annual forest inventory data collection, more frequent data availability and reporting.

In the three years since publication of the BRPII report and enactment of the authorizing legislation to implement an annual system, significant improvements in the program have occurred. Leadership within the USFS has focused greater resources and time on an issue that the forestry community believes is at the top of its priorities. Great strides were made in developing a strategic plan to implement the program and work with the research stations, state foresters, academia and the forestry community in implementing an annual system. These are commendable accomplishments.

However, the Blue Ribbon Panel II members continue to have concerns. The achievement of critical program goals, notably the timeliness and analysis of reporting, has been elusive. As a consequence, the Second Blue Ribbon

Panel convened a meeting on June 7, 2001 to update the understanding of progress, identify issues and problems, and to make recommendations for moving the program toward full achievement of goals. Growing concerns regarding issues of timber supply, demand and availability, maintenance of biodiversity, forest sustainability, forest health and global climate change foster a sense of urgency in implementing these recommendations.

The following recommendations were made. Each of these is discussed in more detail in the sections of the report.

BRP II RECOMMENDATIONS

- Improve Data Availability, Analysis and Reporting
- Improve Data Management
- Maintain Pre-Eminence of Annualized System
- Foster Greater Collaboration Among FIA Program, Research Station Leaders, Academia, State Foresters and FIA Users
- Provide full FIA Program Funding to Implement the Annual System

ISSUE: DATA AVAILABILITY, ANALYSIS AND REPORTING

The new annual inventory has been implemented in a number of states in most FIA regions. From this perspective, FIA has been performing well.

The fundamental task of the FIA program is to ensure data are collected from FIA plots, analyzed and reported timely and accurately. Concerns were expressed by FIA BRP meeting participants that there is significant lag time between plot data collection and analysis. There was also concern expressed regarding annual report preparation. The FIA program needs to have systems in place to ensure that data are not only collected on schedule, but are also made accessible to the public in a timely fashion.

The budget devoted to analysis of FIA data has decreased as a share of the overall direct program expenses from 10.5% in 1998 to 9.2% in 2000. Program emphasis during these years of implementation of annual inventory has necessarily focused on the field data collection aspects.



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However, the current deficiency in analysis must be corrected soon to provide the public with this critical end product of the FIA program expansion.

Few reports have been generated, and fewer data are available to the public. Looking at details, we find that the average field crew completes less than one plot per day because of the large number of variables that must be measured. There are some additional factors contributing to these problems. FIA field crew performance, measured in plots/day, is not as good as that of state-run crews in some regions (South). This is partly why the data collection effort is behind the desired schedule of 20% per year.

The meeting participants suggest that FIA give more consideration to the use of outside partners in state agencies, universities, and private industry when looking to accomplish the analysis mission. Many capable, qualified, and motivated parties are available to team with FIA analysts to provide this public service.



The FIA program management could facilitate this process by providing early access to data, which would also assist in checking for data quality. Grants and contracts for analysis, with joint publication of results, could effectively increase the ability of the FIA program to deliver results without diminishing FIA's leadership and control.

SPECIFIC RECOMMENDATIONS

- Amend strategic plan to specify when data will be made available after the end of each field season. Reports will follow if the data are available.
- Contract a significant portion of the field work. FIA could maintain check-crews to ensure data quality, but non-FIA crews are likely to be more cost effective for routine data collection.
- Develop mechanisms for analysis partnerships that include state agencies, universities, and private companies.
- Encourage these partnerships with grants and contracts, and promote opportunities for joint publication of results to maintain FIA's stature in the scientific community.
- Re-evaluate the list of core data variables collected on FIA plots with an emphasis on demonstrated need and the ability to interpret these data for national reporting purposes. Demand for data and past access records should be factored into determining what data is to be collected on the plots.

ISSUE: DATA INFORMATION MANAGEMENT

There can be no access or report generation until data are collected and stored in a database management system. Data management has become a bottleneck that prevents timely access and reporting.

Approximately 20% of the FIA program's direct expenses and more than 25% of its federal person-years are spent on information management and data analysis. Attending to data quality and ensuring information integrity are obvious requirements of a data-centric program of this magnitude. However, it seems that the information management task is consuming an inordinate share of the FIA program budget at a time when analysis is behind schedule. There are abundant opportunities to efficiently use outside resources to accomplish these tasks and bring balance to the program.

The critical task of information management consumes 16% of FIA's federal staffing positions, and over 10% of the budget. Staffing in this portion of the program has risen 49% between 1998 and 2000. This is about double the rate of increase in analysis positions in FIA during the same time period.

The increase in information management effort is explained by the need to develop a secure, consistent, and accurate information management process. This process is complex, ranging from programming of field data collection devices to design and management of database systems that maintain data integrity while

enabling the Internet access that users have come to expect.

The meeting participants feel the system for managing the data is inadequate. It appears that several FIA regions are independently developing database management systems at the same time a national effort is underway. The result is that database



management has become a bottleneck. Since much of the data are not accessible, reporting has fallen behind schedule. The complexity is compounded by the simultaneous change in the FIA plot design and implementation of the annual inventory system.

Similar challenges have been encountered by other organizations,

and an entire industry of information management professionals is available to help solve these problems. FIA staffing suggest the program is not making efficient use of the outside expertise available, but is instead relying on internal FIA personnel that may lack the appropriate knowledge, expertise and sense of urgency.

SPECIFIC RECOMMENDATIONS

- Place greater emphasis on data management.
- Make effective use of outside expertise to complete the transitional aspects of the information management task.
- Centralize the development of data management systems and consider contracting some of this work. It is inefficient for each region to develop a customized system.



ISSUE: MAINTAIN PRE-EMINENCE OF ANNUAL SYSTEM

The annual inventory system, as mandated by the 1998 Farm Bill, requires an equal percentage of plots to be measured each year. The objective is that the system should provide an annual “snapshot” of each state’s forests. In accordance with this, FIA has divided each state into panels, where a panel consists of a set of plots that systematically cover the state.

The goal is to measure one panel each year, which allows estimates to be made annually using individual panels, or by combining the current panel with previous ones. The FIA

program has chosen to create five panels in each eastern state and ten panels in each western state.

For various reasons, in some states it will take more than one year to measure a panel. This has been termed “panel creep” by FIA staff. The meeting participants are concerned that panel creep will undermine the pre-eminent purpose of the annual system as envisioned by the Farm Bill. As a result of “panel creep”, the annual inventory system will not be able to provide annual snapshots of each state.



Hancock Timber Resource Group



RECOMMENDATION

The FIA program should develop a white paper that discusses the advantages and disadvantages of panel creep relative to possible alternatives. Examples of alternatives would be to create enough panels in a state so that a complete panel can be measured each year, to measure fewer variables per plot in order to achieve completion, or to augment field crew efforts to complete the task. Allowing a panel measurement to extend beyond a year is deemed inappropriate.

ISSUE: FOSTER GREATER COLLABORATION AMONG THE FIA PROGRAM, RESEARCH STATION LEADERS, ACADEMIA, STATE FORESTERS AND FIA USERS

The BRPII group emphasized the need for cooperation in all phases of the FIA program. The USFS has overall leadership responsibility for the FIA program and must recognize the multiple groups and stakeholders that are dependent upon the program. The USFS Research Stations must continue their dialogue with the state foresters. The Research Stations provide front-line advice to the states and provide FIA program delivery. In return, the state foresters are dependent upon this resource information to advise state legislatures, governors, policymakers and the public on the status and trends of the forest resource. The academic community plays a crucial role in providing new technologies and scientific and technical advice to the state foresters, the research stations, the USFS FIA program office and the public. For the forestry community and industry, understanding the status of the resource, growth

and removal levels and forest health conditions provides the necessary information to allow sound management, protection, and investment decisions.

The USFS FIA program prepared a national strategic plan to implement the annualized system. The BRPII meeting participants discussed the possibility of a similar effort between the research stations and the states they work with in implementing the annualized system. Instead of a strategic plan, the BRPII group believed it would be important to establish a Memorandum of Agreement between each Research Station and the state for delivery of the annualized inventory system to ensure a level of accountability in the process. The agreement would form the basis for defining roles and responsibilities, outlining deliverables, preparing a schedule for the collection and analysis of forest resource data and describing the resources and personnel needed to conduct the program. To the extent these agreements are already in place or exist, it was suggested they should be updated or reviewed to ensure consistency with

the 1998 BRPII panel recommendations and the 1998 Farm Bill provisions.

The key, from the state perspective, is full implementation of the Strategic Plan. The plan is designed to phase in states over time for the FIA annualized inventory. It is critical that funding be available as scheduled or the dollars for states already on line will be reduced. States cannot be expected to make up a deficit. To ensure that state budgets and timelines are synchronized, the MOA could assist in coordinating these actions.

RECOMMENDATION

The USFS FIA program should work with the Research Stations in coordinating the preparation of a Memorandum of Agreement between the Research Stations and the states they serve. The MOA would include key elements to ensure consistency with federal requirements.

ISSUE: FULL FIA PROGRAM FUNDING TO IMPLEMENT THE ANNUAL SYSTEM

To successfully achieve the goals and objectives of implementing an annual forest inventory in all states on public and private lands, the BRPII group unanimously agreed that full funding support by Congress and the Administration is necessary. Significant progress has been made in increasing the FIA program budget. Over the past three years, the forest inventory and analysis program has doubled its budget. Funding has come from congressional appropriations and internal transfer payments by State & Private Forestry and the National Forest Systems to implement the annualized system.

The BRPII participants applaud this effort. The Panel also believes, that this program provides essential information needed to assess forest resource sustainability in the nation and it should be funded at the levels specified in the February 2000 Memorandum of Agreement between the National Association of State Foresters (NASF) and the Chief of the USFS.



Photo: U.S. Forest Service

SPECIFIC RECOMMENDATION

Fully fund the FIA program at the levels specified in the Strategic Plan and endorsed in the MOA between the NASF and USFS.

FIA: RECENT PROGRESS AND FUTURE DIRECTION

ANDREW J. R. GILLESPIE,
USDA FOREST SERVICE, FOREST INVENTORY NATIONAL PROGRAM LEADER

The Forest Inventory and Analysis (FIA) program has made substantial progress in the past three years in responding to the challenges set forth by the Agriculture Research, Extension, and Education Reform Act of 1998, which greatly reflected earlier Blue Ribbon Panel reports. We have:

- Implemented the annual FIA program in 28 states comprising 65% of the country's forest area;
- Successfully and efficiently expanded the scope of FIA measurements on a subsample of FIA locations by incorporating the Forest Health Monitoring plots into FIA;
- Developed nationally consistent field procedures for a core set of data elements to be collected on all FIA plots;
- Standardized the use of global positioning systems and field data recorders by our field crews, and initiated a partnership with the U.S. Geological Survey and other federal agencies to incorporate satellite image data and analysis into our inventory program.
- Guaranteed coverage of all U.S. forest lands by negotiating an agreement with the USDA Forest Service national forest systems to ensure that national forest lands are included in the FIA program;
- Increased the number of reports and publications produced by the FIA program, including initial compilations of annual inventory data;
- Significantly increased the participation by partners and customers in program oversight and guidance through inclusion in management structures and user groups and through publication of an annual business report;

The FIA program is focused on completing the transitions described in the Strategic Plan for Forest Inventory and Monitoring by 2003, subject to receipt of the necessary funding increases identified in the Plan. Over the next two years, this will require the USFS to implement the annual

FIA program in the remaining 35% of the country and to complete basic information management and analysis systems. By 2003, the USFS will be capable of producing annual updates of accessible databases and complete state level analytical reports for 10 states per year. In addition, with the inclusion of national forest lands in the FIA program, FIA is taking on a more significant role within the Forest Service in supporting forest planning and in leading national analysis and reporting initiatives.

Over the next year, FIA will complete a dialogue with partners and customers to identify how the FIA program should continue to grow once we have achieved the base level of federal support (10% of samples per year in the West and 15% per year in the East). Options range from:

- continuing to build federal support of the FIA program up to the 20% level envisioned by Congress,
- to expanding the scope of FIA to address other resource related issues such as range inventory or urban forest inventory,
- to increased research on inventory and monitoring techniques. The FIA research program will also pursue the development of methods and tools for small area (sub-county) estimation while protecting private landowner confidentiality. Efforts will continue to explore methods of linking plot data to remote sensing data.

We have developed a review process with a targeted completion date of December 2002, culminating in time for incorporation into the fiscal year 2005 budget planning process. This will include two reviews by program partners and customers to assess interests for further FIA program growth. The FIA program greatly appreciates the guidance and feedback provided by the Blue Ribbon Panel and by our various user groups.

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