United States
Department of
Agriculture

Forest Service

FS-929

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Forest Inventory and Analysis

Fiscal Year 2008 Business Report

Disclaimer

Executive Summary

For more than 75 years, the Forest Inventory and Analysis (FIA) program has played an integral role in managing the Nation's forest resources and conducting the orderly inventory of these resources. This inventory is required for developing effective management scenarios. In recent years, an increased number of major decisions affecting the Nation's forests have been made with reference to and reliance on FIA findings and forest resource evaluations. Contemporary topics include carbon sequestration, climate change, land cover and land use change, pollutant effects, and fire risk.

In 1999, Congress directed the Forest Service, U.S. Department of Agriculture, to reevaluate its statewide inventory mission and to make the transition from a periodic survey approach by State to one in which each State is inventoried annually. FIA moved forward, in concert with its partners, to a strategic plan to carry out the new congressional mandate. FIA's strategic plan, approved by Congress, included a requirement for an Annual Business Report on the status and progress of the annualized inventory program.

This annual report, our 11th, tells the taxpayers and partners what the program has accomplished with the financial resources they provided and what the program will accomplish in the coming year with budgeted financial resources. This relationship with taxpayers and partners is integral to FIA's continued success. Accountability is our first priority. Some of the key findings of this report are:

Annualized Progress—In fiscal year (FY) 2008, two new States, Oklahoma and New Mexico, were added bringing activity to 46 States, plus coastal Alaska, or 94 percent of all States. We measured a total of 47,559 plots on the base grid, or 12 percent of the U.S. total. Periodic inventories have also been completed in the Commonwealth of Puerto Rico, U.S. Virgin Islands, Federated States of Micronesia, American Samoa, Guam, the Republic of Palau, Republic of the Marshall Islands, and the Commonwealth of the Northern Mariana Islands, which are all exempt from the annualized system. Nevada, Wyoming, Hawaii, and interior Alaska continue to await sufficient funding to enter the annualized inventory program.

Funding—Federal funding available for the FIA program in 2008 totaled $66.2 million, a net increase of $1.3 million from FY 2007. This funding consisted of $64.6 million appropriated by Congress, $1.6 million in adjustments from the previous fiscal year, and $6.5 million in partner funds to accommodate shorter cycles and program enhancements. A total of $72.7 million was available for overall program operation. The appropriated funding level in FY 2008 was still $8 million short of the target levels required to complete the transition to a full annualized inventory. The continuing resolution budget in FY 2009 holds funding to the FY 2008 level. Little progress is expected toward full program implementation in FY 2009 unless other funding sources are identified.

Fire Transfer Impact—As required, FIA transfered nearly $2.3 million dollars (4 percent of appropriated funds) to the fire fighting program in FY 2008. While most of this funding was not needed for fire and will be returned in FY 2009, it resulted in completion of over 1,000 (5 percent) fewer forest plots than FY 2007.

Partner Support—Partners contributed $6.5 million dollars to the program in FY 2008. Through cost share, 37 States contributed $2.2 million toward buying down their cycles to 5 years. States and other partners added $4.3 million for intensification and other program enhancements. Overall, State support of $3.8 million in FY 2008 is sharply down (36 percent) from the $5.9 million contributed in FY 2007, indicative of the economic stress created by the current financial crisis.

Grants and Agreements—When cooperators can complete critical FIA work with equal quality for less cost, FIA contracts for these services—spending a total of $9.5 million this way in FY 2008. Of this total, FIA provided $6.1 million to State forestry organizations to accomplish fieldwork and employed 146 people. Universities received $2.6 million to support 16

researchers to improve program efficiency and provide critical issue research and analysis. The remaining $800,000 supported 11 people providing information management support. These arrangements are detailed in Appendix 4. Overall, contract employees represent 31 percent of the total workforce of 573 people and are integral to the efficient delivery of the FIA program.

Data availability—Forty-five States now have access to online data that is less than 2 years old. The availability of this data improves partner access to current information on the Nation's forests and allows analysts to clear up the backlog of analytical reports. Through this data, FIA supplied information for 483 spatial data requests and over 50,000 online data retrievals.

5-year Reports—By FY 2008, 59 percent of targeted FIA 5-year State analytical reports were completed. The goal is to reach 80 percent completion by the end of FY 2009 and 100 percent by the end of FY 2010. This will bring FIA into full compliance with our legislative mandate and a permanent cycle will be established for State analytical reports beginning in FY 2011.

Quality Assurance (QA)—In FY 2008, FIA quality checked 10 percent of all field plots to assure the highest quality data is loaded into FIA databases. The QA staff continues to actively improve documentation, training, and standards.

User Groups—FIA relies heavily on periodic meetings with users and clients to assure that we are providing the highest quality service and meeting program objectives. In 2008, FIA held nine regional and one national user group meetings to gauge how well we are meeting the goals stated in the strategic plan and get input for future program enhancements.

Personnel—Quality staffing is critical to the success of the FIA program. FIA—directly and through cooperators—employs 562 people. Twenty-seven of these staff—employed in information management, techniques research and resource analysis—provided 1,659 consultations (6,656 hours) to assist users and clients effectively use FIA data.

Performance History—Appendix 9 of this report provides a summary of dozens of key program performance measures for FY 2001 through FY 2008 to allow clients to quickly review program progress without gathering all of our annual reports.

Clearly, FY 2008 was a very productive year for FIA. We look forward to further progress in FY 2009. Important goals for FY 2009 include:

- Continue annualized inventory of 45 States and coastal Alaska, which are currently in the program.
- Continue analysis of the National Woodland Owners Study.
- Make further improvements to the Forest Inventory Data Online system,
- Continue development of tools for NFS and others through the National Inventory and Monitoring Applications Center.
- Develop a final outline and prospectus for the FIAtlas book.
- Update of the Forest Facts brochure in five languages.
- Continue work on piloting urban forest inventory.
- Continue work on piloting a national rangeland inventory.

Contents

Introduction

The Forest Inventory and Analysis (FIA) program of the Forest Service, U.S. Department of Agriculture (USDA), provides the information needed to assess the status, trends, and sustainability of America's forests. This business report, which summarizes program activities in fiscal year (FY) 2008 (October 1, 2007, through September 30, 2008), gives our customers and partners a snapshot of past activities, current business practices, and future program directions. It is designed to increase our accountability and foster performance-based management of the FIA program. (Note: This business report does not include statistical information about the forests of the United States. Those who wish to obtain such information should contact the appropriate regional or national FIA office listed on the inside back cover of this report or go to http://www.fia.fs.fed.us.)

The FIA program is the Nation's continuous forest census. We collect, analyze, and report information on the status and trends of America's forests: how much forest exists, where it exists, who owns it, and how it is changing, as well as how the trees and other forest vegetation are growing, how much has died or been removed, and how the harvested trees are used in recent years. This information can be used in many ways, such as in evaluating wildlife habitat conditions, assessing sustainability of current ecosystem management practices, monitoring forest health, supporting planning and decision making activities undertaken by public and private enterprises, and predicting the effects of global change. The FIA program combines this information with related data on insects, diseases, and other types of forest damage to assess the current health and potential risks to forests. These data are also used to project how forests are likely to appear in 10 to 50 years under various scenarios in order to evaluate whether current forest management practices are sustainable in the long run and to assess whether current policies will allow our grandchildren and their grandchildren to enjoy America's forests as we do today.

Changes From Previous Years' Business Reports

Lack of full funding and loss of fixed-cost increases continue to have a negative impact on the program. Initial State and Private Forestry (S&PF) funding of $5 million dropped to $4.3 million in FY 2008. Continued losses in this funding are placing cooperative support for States at risk. Increases in funding to the Research and Development (R&D) side have largely gone to implement new States.

While Congress targeted a 7-year cycle in the East and a 10-year cycle in the West, most Eastern States contribute funds to attain a 5-year cycle. But State contributions declined 37 percent in FY 2008, from $5.9 million to $3,7 million, as State budgets felt the pinch of the economic crisis. And, fire transfer returned in FY 2008, resulting in reduced forest plot output of nearly 1,000 plots.

The financial table (app. 2) appears the same as last year's, with a continued focus on consistency between FIA units in how data are reported for administrative and indirect costs. This has been a particular concern of regional and national user groups. Since each unit is expected to share some of the national analysis burden, the inter-unit transfers for this activity are no longer a separate line but are imbedded in each unit's base allocation.

The FIA program continues to seek performance measures that accurately reflect the program's progress toward meeting the goal of annualized inventory in all 50 States. In addition to Appendix 7, which provides a 5-year summary to compare the number of States and the area of forest under annualized inventory, Appendix 9 provides a multiyear performance summary of key program indicators. This will allow users to see program progress toward full implementation.

The FIA performance measures shown in the "Long-Term Strategic Direction" section conform to measures required by the Office of Management and Budget (OMB) Program Assessment Rating Tool. These changes are consistent with OMB guidance to use easily defined measures that clearly convey performance with reduced ambiguity.

Fiscal Year 2008 Program Overview

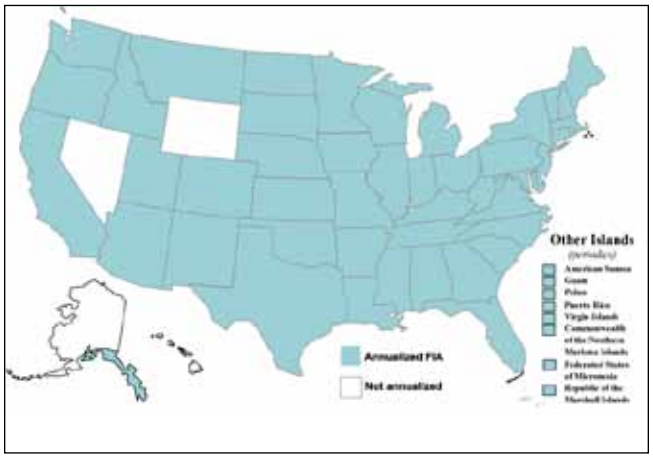
This overview for FY 2008 includes outputs and products, program changes, program resources, and partner contributions.

Outputs and Products

Appendix 1 shows some comparisons across FIA regional units in the rates, costs, and performance of implementing the FIA program. In FY 2008, we were active in 46 States plus coastal Alaska (fig. 1), measuring 47,559 Phase 2 and 3 sample locations from the base grid, or 12 percent of the total. At the end of FY 2008, 94 percent of all States were covered by the annual FIA program, the same as in FY 2007, with only partial coverage of Alaska. Periodic inventories have also been completed in the Commonwealth of Puerto Rico, U.S. Virgin Islands, Federated States of Micronesia, American Samoa, Guam, the Republic of Palau, Republic of the Marshall Islands, and the Commonwealth of the Northern Mariana Islands, which are all exempt from the annualized system. This is in compliance with a congressional mandate under the Renewable Resources Research Act of 1978, as amended.

The FIA program produced 172 reports and publications in FY 2008, 37 more than in FY 2007. Of these publications, 50 were core publications consisting of reports specific to a complete survey unit or complete State, national forest, or national report. We also published 65 articles in peer-reviewed journals (28 more than in FY 2007), and 35 articles in proceedings from scientific meetings and conferences (compared to 31 in FY 2007). The net increase in peer-reviewed articles and proceedings reflects an increased engagement of our new scientists as they continue to mature in the program. The FIA staff participated in 1,659 significant consultations with FIA customers, requiring 6,656 hours of staff time—equivalent to more than 4 full-time staff positions. The FIA technical staff met on several occasions to further refine the national core FIA program, resulting in continued improvement of the national core field guide and enhancement of Internet tools for accessing and analyzing FIA data. Tools include the National Information Management System (NIMS), which provides a single national platform for processing FIA data and posting it on the Web. Our Internet resources processed more than 50,000 completed data retrievals where FIA customers obtained user-defined tables and maps of interest.

Figure 1.—*FIA implementation status, 2008.*



Program Changes in FY 2008

In FY 2008, the FIA program completed the 10th year of program transition to an annual inventory system as outlined in the Strategic Plan for Forest Monitoring written in response to the Agricultural Research, Extension, and Education Reform Act of 1998 (Public Law 105-185). The FIA program includes three sample levels, or "phases": Phase 1, consisting of remote sensing for stratification to enhance precision; Phase 2, based on the original set of FIA forest measurement plots (approximately 1 plot per 6,000 acres); and Phase 3, consisting of a subsample of Phase 2 plots measured for a broader set of forest ecosystem indicators (approximately one sample location per 94,800 acres). By the end of FY 2003, our goal was to implement an annual FIA program that measures at least 10 percent of all Phase 2 sample locations per year in the Western United States, 15 percent of Phase 2 sample locations per year in the Eastern United States, and 20 percent of Phase 3 sample locations per

year in all States. Table 1 shows the overall distribution of Phase 1, Phase 2, and Phase 3 elements of the FIA sample for the United States.

Owing to lack of full funding, we are now several years behind the original plan. The base program will include annual compilations of the most recent year's information, with full reporting at 5-year intervals. All States have the option to contribute the resources necessary to bring the program up to the full sample intensity of 20 percent per year, or to make other value-added contributions such as funding new measurements or additional sample locations. The permanent funding level in FY 2008 was still $8 million short of the target levels required to complete this transition. Owing to a continuing resolution budget in FY 2009 that holds funding to the FY 2008 level, little progress is expected toward full implementation unless other funding sources are identified. The FIA program did not add any new sampling protocols for FY 2009.

Program Resources

Appendix 2 shows Federal funding available for the FIA program in 2008 totaled $66,199,576, a net increase of $1,322,691 from the previous year's total available funding of $64,876,885. The funding consisted of $64,641,000 appropriated by Congress specifically for FIA, plus $1,558,576 in unspent FIA funds and adjustments from the previous fiscal year.

Congress currently appropriates funds annually for the FIA program in two different Forest Service deputy areas: (1) R&D and (2) S&PF. Historically, most FIA funding was contained within the research budget of the Forest Service. In FY 2008, the amount of research money provided by Congress for the FIA program was $60,372,000, an increase of $992,000 over the FY 2007 level of $59,380,000 (app. 2). The S&PF Forest Resource Inventory and Analysis budget line was $4,269,000 (an increase of $44,000 above the 2007 level of $4,225,000) to support the FIA program in those States that provide cost-share contributions. Cost-share States contributed and additional $2,489,451 toward buying down to 5-year cycles in the FIA program in 2008. States and other partners also added $4,015,607 for intensification and other program enhancements. Thus, after all contributions and adjustments, a total of $72,146,058 was available to the FIA program in FY 2008.

Across FIA regions, cost and productivity figures differ because of the cyclical nature of the current inventory system and because of differences among field units in operational methods and ease of access to property. Rates of effective indirect expenses in FIA field units in 2008 ranged from 12 to 16 percent across the country for field units (app. 2), reflecting differences in both sources of funding, as well as researach station overhead assessment practices. The National Office had a 78-percent rate of indirect cost because its FIA budget includes the USDA overhead and programwide changes to the regional indirect rates have begun to decline. This trend should continue into FY 2009. Figure 3 shows the total appropriated

Table 1.—*Overview of land area, forest area, and estimated Phase 1 pixels, Phase 2 plots, and Phase 3 plots by region in FY 2008.*

Region	Land area	Forest area	Forest	All Phase 1*	All Phase 2	All Phase 3	Total Phase 2, Phase 3
	mil. acres	*mil. acres*	*percent*	*mil. pixels*	*plots*	*plots*	
North	608,051	177,795	29	39,484	96,016	6,401	102,417
South	535,229	214,644	40	34,755	84,517	5,634	90,151
Interior West	548,047	144,905	26	35,587	86,541	5,770	92,311
Pacific Coast (CA, OR, WA)	203,389	85,266	42	13,207	31,924	2,129	34,053
Coastal Alaska	41,279	14,944	36	2,680	6,450	430	6,880
Interior Alaska	323,762	111,925	35	21,024	not set	3,373	3,373
Islands (including Hawaii)	6,935	3,697	53	450	1,084	72	1,156
Total	2,266,693	753,176	33	147,188	306,531	23,809	330,340

funding available for FIA from FY 1995 to FY 2008 from all sources, as well as the projected future total funding needed to deliver the base Federal program beyond FY 2008. Appendix 9 also shows trend data in FIA performance measures for 2001 through 2008.

In FY 2008, FIA program staffing consisted of 389 Federal person-years of effort (app. 3), up from 387 Federal person-years in FY 2007. Changes were relatively small; indicating that level of employees precluded hiring more field crews and increasing analysis. Of the Federal FIA employees, approximately 55 percent were involved in supervising and data collection, 25 percent in analysis and information management, 7 percent in program management and administration, 8 percent in techniques research, and 5 percent in Phase 1 production work (fig. 4).

Cooperators, especially State forestry organizations, through grants and agreements, accomplish much of the work done by FIA. In FY 2008, it is estimated that we employed an additional 173 people through this mechanism, including 141 State field people, 11 information management specialists, 10 analysts, 6 researachers, and 5 administrative specialists. These additional non-Federal employees bring the total number of employees working for FIA to 562 and represent 31 percent of the total FIA workforce.

Figure 2.—*FIA program available funds and expenditures by category, 2008.*

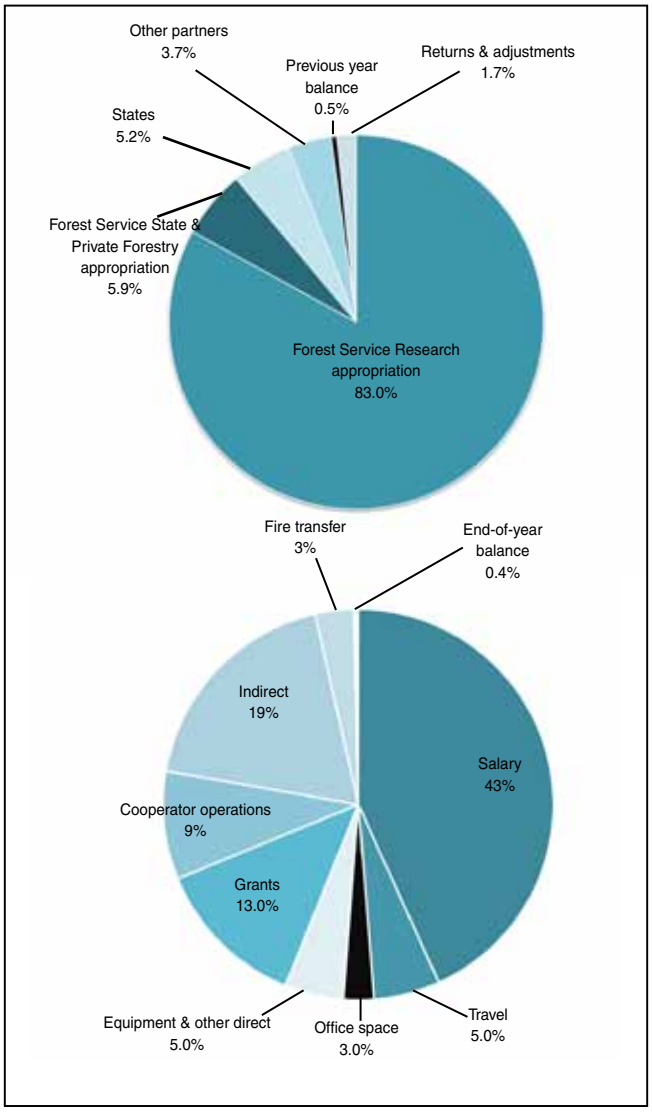


Figure 3.—*FIA appropriated funding level, 1995–2009 (projected).*

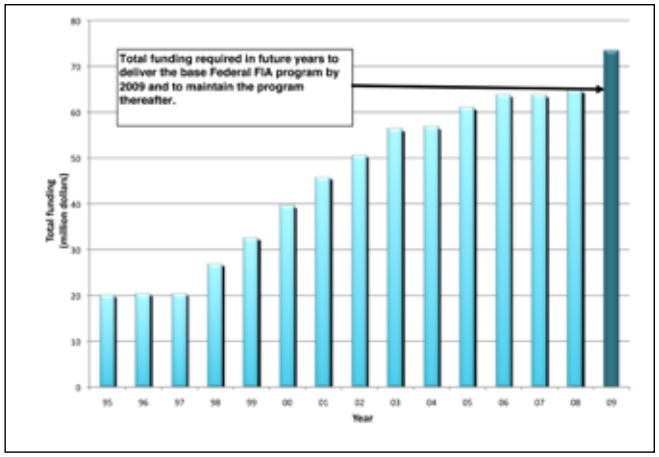
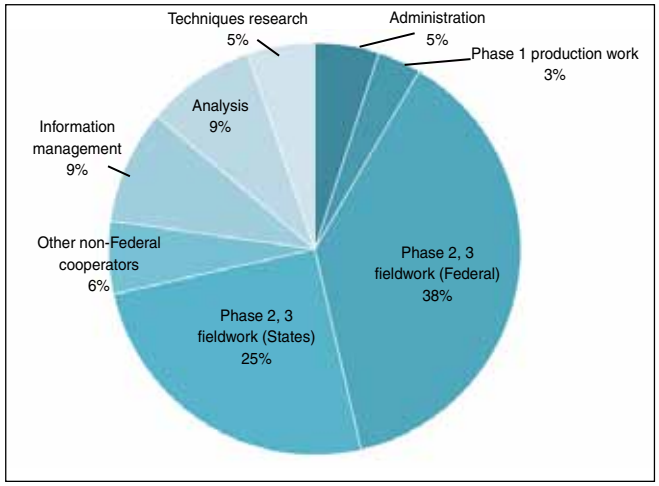


Figure 4.—*FIA program employees, by job group, 2008.*



Partners' Contributions

The complete FIA program required by Congress is envisioned to be a Federal-State partnership, with both partners contributing resources to accomplish the work. We have agreed that the base Federal share of this program is an inventory program that collects data from 10 percent of sample locations in the Western United States and 15 percent of the sample locations in the Eastern United States on an annual basis, with comprehensive, analytical reports for all States produced at 5-year intervals.

Partners, at their discretion, may choose to contribute the resources needed to bring the FIA program up to the full 20-percent measurements per year described in the law. Additionally, or alternately, partners may choose to contribute resources for other purposes that add value to the FIA program from their perspective, such as intensifying the base FIA sample location grid to support analysis at finer spatial resolution, funding additional types of measurements on FIA sample locations, or providing analyses or reporting beyond that provided by FIA. The willingness of partners to contribute resources demonstrates the inherent value of the FIA program as a flexible framework upon which to address other issues of interest.

Appendix 4 lists those partners that have contributed resources to the FIA program in FY 2008, either to achieve the 20-percent program envisioned by Congress or to add value to FIA data in other ways. These resources include staff time, vehicle use, office space, equipment, travel costs, and other noncash items that support or add value to the FIA program. Contributions are valued for reporting purposes in terms of what it would cost the Federal FIA staff to provide the same service, which may not necessarily be the same as the actual cost to the partner making the contribution. Overall, partners contributed $2.5 million toward the full 20-percent FIA program envisioned by Congress, and another $4 million in contributions that add value to the FIA program, for a total of $6.5 million in partners' contributions. This amount is a decrease from $7.2 millioncontributed by partners in FY 2007. The source of the partner contributions depends on the region of the country and the ability of States and partners to contribute. In the West, where forest land ownership is primarily Federal, the major cost-sharing partners tend to be Federal land managers, particularly the National Forest System (NFS) branch of the Forest Service, which contributed approximately $1.7 million in additional funds to add value to the basic FIA program. In the East, where forest land ownership is predominantly private, States are the major contributors. In FY 2008, States contributed over $2.2 million to help implement the basic 20-percent FIA program, plus an additional $1.6 million to add value to the basic FIA program. Total State support of $3.8 million in FY 2008 is sharply down (36 percent) from the $5.9 million contributed in FY 2007, indicitave of the economic stress of the current financial crisis.

FIA Data Availability

The FIA program is designed and intended to provide continuously updated, accurate, and reliable information on status and trends in the Nation's forest resources. Current information is one of the chief interests of FIA customers. Our program objectives include (1) providing annual updates for all forested lands sampled as part of the annual inventory system and (2) producing analytical reports for all States on a 5-year cycle.

As we move through our transition and toward full program implementation, one key performance measure is how well we are satisfying those objectives. Figure 5 shows, for each State, the age of FIA data accessible in our public database as of October 2007—the start of the 2008 fiscal year. States with 1- to 2- year-old data—the program objective—are shaded light blue; States with 3- to 5-year-old data are shaded medium blue; and States for which data are more than 5 years old are shaded teal. This map shows that progress is being made in all regions of the country. The few States with data older than 5 years are in the South and West. The number of "light blue" States was 45 in 2008, and the number of "teal" States were 5. The implementation of the FIA NIMS is now paying dividends by allowing us to catch up with the previous data backlog.

Figure 6 shows, for each State, the data collection year for the most recently published statewide FIA report. States where publications exist based on data less than 5 years old—the program objectives—are shaded light blue. States with publications 5 to 10 years old are shaded medium blue, and States where the most recent publication reports on data more than 10 years old are shaded teal. The North leads the Nation in States

Figure 5.—*Availability of State FIA data, 2008.*

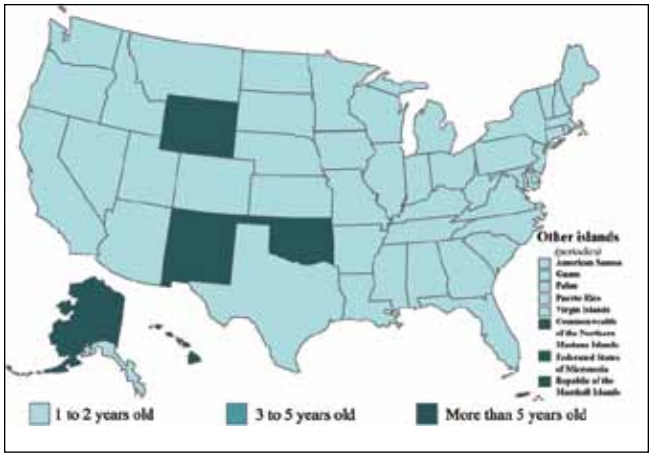
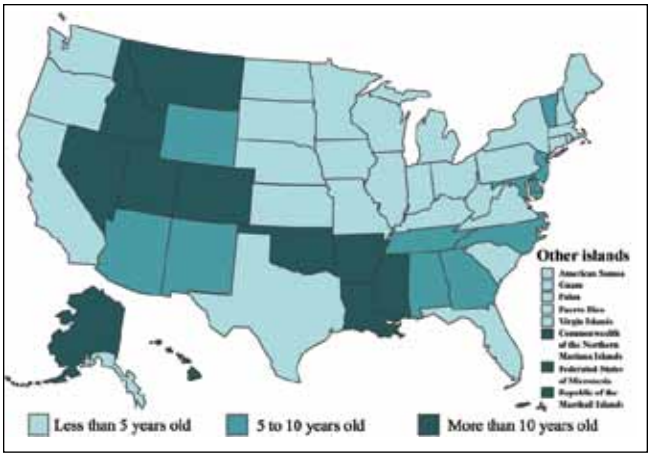


Figure 6.—*Publication status of State reports, 2008.*



having reports based on data that are less than 5 years old, with 20 of 24 States. The South is a distant second, with 3 of 13 States less than 5 years old. Although the Pacific Coast States of California, Oregon, and Washington are all new, progress has been slower in the interior West, which still has no State reports less than 5 years old.

Quality Assurance

The FIA Program is committed to producing and delivering complete, accurate, and unbiased information of known quality. The Quality Assurance (QA) program supports this goal through a framework that promotes consistency through all stages of the national core FIA inventory process to assure the collection, compilation, summarization, and delivery of quality data products with known precision, completeness, representativeness, comparability, and accuracy.

National QA—In FY 2008, FIA hired a National QA coordinator who provides direction and coordination for the FIA QA program. The QA coordinator, located in Pacific Northwest Research Station, works with the Washington Office, as well as the regions and the national indicator advisors, to assist with QA issues in the program.

FIA Process Documentation:

- National FIA program consistency is promoted by extensive documentation of methods and procedures.
- Up-to-date national core field guides assure consistent collection of core program data items.
- The FIA Database Description and Users Guide, version 3.0, is available to users. An effort is underway to fully document NIMS.
- A catalog of FIA procedures documents, covering all stages of the national core FIA inventory, is under development.
- A FIA National Data Quality Assessment (Measurement Quality Objectives summary) GTR is being revised.

QA Projects: In FY 2008, the FIA, with support from all regions, identified and implemented QA tasks designed to identify errors and increase consistency in the national inventory, including:

- National guidelines and standards are defined for checking compiled data for accuracy and completeness prior to release to the public. These guidelines promote analytical QA consistency across regions.
- National cold check field and scoring procedures are rigorously defined to allow equivalent field crew assessment across regions and crew types.
- National data collection staff training standards are defined and implemented.
- Based on GeoTeam recommendations, the following are developed: (1) cartographic standards associated with FIA national map products, and (2) a listing of relevant geographic information system (GIS) base layers for the FIA national program.

Fiscal Year 2008 Regional Highlights

This section provides information on FIA results, accomplishments, and outcomes throughout the country. Those wanting more detailed information may either go to provided links or contact the respective FIA unit (contact information for each FIA unit can be found on the inside back cover of this report).

West Coast

Finding: Forest stand conditions on the Kenai Peninsula of Alaska can be characterized using airborne laser scanning (LIDAR)

Accomplishment: We used LIDAR data to estimate three fundamental forest stand condition classes (forest stand size, land cover type, and forest density) at 32 accurately georeferenced FIA plots distributed over the Kenai Peninsula of Alaska. Individual tree crown segment attributes (height, area, and species type) were derived from the 3-dimensional LIDAR point cloud, LIDAR-based canopy height models, and LIDAR return intensity information. Because the LIDAR was collected primarily in leaf-off conditions, the tree crown segments could be classified into conifer and hardwood species classes, with a misclassification rate of 16.5 percent. We then used the LIDAR-based crown segment and canopy cover information to estimate condition classes at each 10-meter grid cell on a 300 m × 300 m area surrounding each FIA plot. A quantitative comparison of the LIDAR- and field-based condition classifications at the subplot centers indicates that LIDAR has potential as a useful sampling tool in an operational forest inventory program.

Outcome: There is increasing interest in the use of airborne laser scanning as a tool in the Alaska forest inventory program. The program is charged with inventory of very extensive and remote areas of forest where it is often prohibitively expensive to establish plots at an adequate sampling intensity to meet target levels of precision. This paper provides a methodology to characterize three of the most important forest attributes, including canopy density, canopy stand size, and forest type. It is expected that this information will be applied to more extensive LIDAR data sets in the future to provide mapped inventory information and improve estimation via post-stratification.

Contact: Hans Andersen, handersen@fs.fed.us

Partners: University of Washington, Pacific Northwest Research Station Research Station: Management and Productivity Program

Finding: Two reports highlight key findings from 2001–2005 inventory data across all forest land in California and Oregon

Accomplishment: We summarized and interpreted basic resource information, including forest area, land use change, ownership, volume, biomass, and carbon stocks; structure and function topics such as biodiversity, forest age, dead wood, and hardwood forests; disturbance topics such as insects and diseases, fire, invasive plants, and air pollution; and information about the forest products industry in each State, including data on tree growth and mortality, removals for timber products, and nontimber forest products. The appendixes describe inventory methods in detail and provide summary tables of data, with statistical error, about the suite of forest characteristics inventoried.

Outcome: The FIA inventory provides consistent and statistically reliable information across all ownerships of forested land in California and Oregon, establishing a baseline in each State that we can easily use to compare future conditions and identify trends. The data can be used for the Forest Service's reporting on international criteria and indicators of sustainability. It can also be used for regional and State-level assessments of a wide variety of topics including biomass, carbon flux, fuel-loading, and fire risk; land use

change; status and change in oak woodlands; air quality; timber availability; and the impacts of climate change.

Contacts: Glenn Christensen, gchristensen@fs.fed.us (California report), Joe Donnegan, jdonnegan@fs.fed.us (Oregon report)

Partners: Bureau of Business and Economic Research; University of Montana; Forest Service, Pacific Southwest and Pacific Northwest Regions; California Department of Forestry and Fire; Oregon Department of Forestry

Finding: Forest inventory-based estimation of carbon stocks and fluxes in California forests in 1990

Accomplishment: Estimates of forest carbon stocks and fluxes for California circa 1990 were modeled from forest inventory data in support of California's legislatively mandated greenhouse gas inventory. Reliable estimates of live-tree carbon stocks and fluxes on timber lands outside of national forest could be calculated from periodic inventory data collected in the 1980s and 1990s. However, estimation of circa 1990 flux on national forests and forests other than timber land was problematic owing to a combination of changing inventory protocols and definitions and the lack of remeasurement data on those land categories. We estimated annual carbon flux on the 7.97 million acres of timber lands outside of national forests (which account for 24 percent of California's forest area and 28 percent of its live tree aboveground biomass) at 2.9 terragrams per year. As annual inventory progresses and plots are remeasured (with ingrowth, harvest, and mortality accounted for, and with direct measurement of dead wood), FIA is well-positioned to provide monitoring data on carbon flux into the future across all forest land ownerships, productivity classes and reserve statuses, as well as the basis for understanding the dynamics of interpool transfers (e.g., from live trees to wood products, bioenergy, or atmospheric emissions via fire).

Outcome: This information has been used as a basis for evaluating modeled 1990 forest carbon emissions targets for use in the California Assembly Bill 32 framework for carbon monitoring and emissions reduction. It has also been used as a basis for generating options for intensified monitoring activity that would deliver sufficiently precise estimates of carbon flux to support policy development and carbon trading frameworks. Clients include the California Air Resources Board, the Fire and Resource Assessment Program of CALFIRE, the California Board of Forestry, and the California Climate Action Registry Forestry subgroup.

Contact: Jeremy Fried, jsfried@fs.fed.us

Partners: California Climate Action Registry, Forest Service Pacific Southwest Region

Interior West

Finding: LANDSAT-based monitoring of forest change can be used to assess the role of disturbance at continental scales

Accomplishment: FIA is working with the North American Forest Dynamics (NAFD) project to combine inventory data with satellite imagery to characterize the effects of forest disturbance across North America. LANDSAT imagery going back to 1972 in 2-year intervals has been acquired and processed for numerous sample sites across the United States. This imagery is being used to create disturbance maps that, because of calibration with FIA data, express estimates of the biomass or volume loss associated with each disturbance over the study period. Models are being constructed to extend this information to nationwide maps of forest dynamics over the United States. Collaborative work with Canada and Mexico is underway to derive estimates over all of North America to provide historic carbon information at the continental scale. The disturbance maps produced through NAFD methodologies offer opportunities to gain a clearer understanding of forest dynamics over the last several decades, and the opportunity to communicate the timing, area, and intensity of fires, harvests, and other disturbances.

Outcomes: Demonstration projects include harvest patterns on the Allegheny National Forest, blowdown in the Boundary Waters Canoe Area, woody encroachment in diverse ecozones,

land-use change in eastern Pennsylvania, as well as forest carbon tracking in Idaho and Montana. Work is also ongoing to forge closer ties between FIA and the Mexican national forest inventory. In addition, Interior West–FIA (assisted by NAFD partners) will be piloting its first statewide disturbance analysis in Utah. The goal at the end of this project is to have a historic disturbance product for the entire State ready for analysis by FIA staff and collaborators. This analysis should demonstrate utility of LANDSAT-based change products at the sub-State and local spatial scales for numerous applications in the Interior West.

Cohen, W.B.; Healey, S.P.; Goward, S.N.; Moisen, G.G.; and others. 2007. Use of Landsat-based monitoring of forest change to sample and assess the role of disturbance and regrowth in the carbon cycle at continental scales. Proceedings of the ForestSat 2007, Montpellier, France, 5-7 November. pp.14-19.

Goward, S.N.; Masek, J.G.; Cohen, W.B.; Moisen, G.G.; and others. 2008. Forest disturbance and North American carbon flux. EOS Transactions. 89(11): 11 March 2008.

Healey, S. P.; Cohen, W.B.; and Moisen, G.G. 2007. Applications of satellite-derived disturbance information in support of sustainable forest management. Proceedings of the ForestSat 2007, Montpellier, France, 5-7 November. pp.158-162.

Healey, S.P.; Cohen, W.B.; Spies, T.A.; Moeur, M.; and others. 2008. The relative impact of harvest and fire upon landscape-level dynamics of older forests: lessons from the Northwest Forest Plan. Ecosystems. DOI : 10.1007/s10021-008-9182-8.

Contact: Sean Healey, shealey@fs.fed.us, Rocky Mountain Research Station, FIA

Partners: Forest Service, Pacific Northwest Research Station and Northern Research Station-FIA; National Aeronautics and Space Administration (NASA); University of Maryland; Canadian Forest Service; Comisión Nacional Forestal (CONAFOR) in Mexico; and others. Funded under the North American Carbon Program.

Finding: Interior West–FIA data used to quantify potential habitat of sensitive species

Accomplishment: The Utah Department of Natural Resources Division of Wildlife Resources placed Lewis's Woodpecker (*Melanerpes lewis*) on their Sensitive Species Tier II list due to declining populations throughout the State, as well as suspected local extirpations. It is thought that a decline in burned coniferous forest has reduced the amount of suitable habitat for these birds, which are known to be closely tied to disturbed landscapes. We identified the main indicators for Lewis' Woodpecker breeding habitat as plant association, tree canopy cover, and number of suitably sized snags per hectare of habitat. Based on these indicators, we used FIA data to quantify primary (burned) and secondary breeding habitat in Utah. Results indicate that very little primary habitat presently exists for this species but many undisturbed stands of aspen, lodgepole pine, and Douglas-fir appear to meet the structural needs of the species. Aspen, in particular, appears to be promising as a secondary habitat in the absence of burned forests. For each indicator thought to be important to Lewis' Woodpecker breeding activities, we produced area estimates, as well as estimates of forest land that provides all of the structural components in concert.

Outcome: The Utah Department of Natural Resources Division of Wildlife Resources has incorporated this model into their monitoring program and will use it as a tool to guide management decisions for the species. A collaborative effort between them, Utah State University, and FIA has been initiated to further refine and validate this model and develop additional models for other sensitive species in Utah.

Contact: Chris Witt, chriswitt@fs.fed.us, Rocky Mountain Research Station, FIA

Partner: Utah Department of Natural Resources Division of Wildlife Resources

Finding: Interior West–FIA annual inventory data used to quantify trends in conifer mortality in Colorado

Accomplishment: Aerial detection surveys, conducted by Forest Health Management in the Rocky Mountain Region, indicate that widespread conifer mortality has been steadily increasing in Colorado, particularly since 2002. Some of this conifer mortality, such as lodgepole pine mortality caused by mountain pine beetle, is believed to be catastrophic and unprecedented. Aerial surveys map the extent of visible damage and die-off, but have limitations when it comes to quantifying the amount of mortality. The FIA annual inventory system began in Colorado in 2002, which coincided with the onset of elevated conifer mortality rates. The current mortality event, coupled with collection of 6 years of annual inventory data, provided an opportunity to test the usefulness of the FIA annual inventory system for quantifying rapid change in the conifer resource over a large geographic area using an independent annual panel design. Results indicate significant increases in mortality of several major conifer species in Colorado. The most significant increase over the 6 years of measurement occurred in lodgepole pine forests affected by the mountain pine beetle. The average annual number of lodgepole pine trees killed by bark beetles in 2007 was over 10 times the level recorded in 2002. Significant upward trends in mortality were also recorded in the true fir and woodland softwood species groups.

Outcome: Although results are not directly comparable between aerial surveys and FIA annual inventory data, FIA data are useful for quantifying tree mortality and trends at landscape and regional scales and provide statistically valid estimates of mortality for all forest lands. FIA estimates will only become more useful and sensitive as more annual data are accrued.

Contact: Mike Thompson, mtthompson@fs.fed.us, Rocky Mountain Research Station–FIA

Southern

Finding: Establishment of forest inventory plots across Mona Island, Puerto Rico

Accomplishments: Mona Island is a 55 km2 island that rises sharply out of the Caribbean Sea between Puerto Rico and the Dominican Republic and is administered as a natural reserve by the Puerto Rico Department of Natural and Environmental Resources. The island's subtropical dry forest is critical habitat for the threatened Mona ground iguana and home to the endemic Mona coquí tree frog and the threatened, endemic Mona boa constrictor, as well as an endemic subspecies of the endangered yellow-shouldered blackbird. The forests on Mona Island are also important wintering habitat for Neotropical migrants, several species of seabirds nest along its cliffs, and the beaches are critical habitat for leatherback, green, and hawksbill sea turtles. For the first time ever, a field staff of 16 individuals established a total of 28 phase 3 FIA plots over a 2-week period on Mona Island during late 2007. This will provide a basis local agencies to better monitor sensitive species.

Outcome: This work completes a 360-km-long monitoring network that stretches across Puerto Rico and the U.S. Virgin Islands. These islands share similar climates and pre-European colonization plant communities, while having vastly different land use histories. By gaining forest inventory, down woody materials, tree crown assessment, forest soils and vegetation diversity, and structure data from this unique protected area, we increase our assessment capabilities in Caribbean subtropical dry forest and their responses to human-induced change and catastrophic disturbances such as hurricanes or droughts.

Contact: Thomas J. Brandeis, tjbrandeis@fs.fed.us, Southern Research Station–FIA

Partners: Puerto Rico Department of Natural and Environmental Resources; University of Puerto Rico Center for Applied Tropical Ecology and Conservation; and Forest Service, International Institute of Tropical Forestry and Northern Research Station–FIA.

Finding: Evaluation of the cypress resource status using southern FIA data

Accomplishments: Interest in the status of the cypress resource escalated in recent years due to emergence of the cypress mulch industry, continuing utilization of cypress lumber by the construction and furniture industries, and regulatory issues surrounding its harvest and regeneration. The Forest Service Southern Region and Southern Research Station cooperated in a study utilizing FIA data collected by each of the Southern State forestry agencies to evaluate the cypress resource. Broad ownership of the cypress resource and the current status and recent trends in area of cypress-tupelo forest type and volume of all live cypress on timber land were studied for the South and for each of the 13 States comprising the region.

The study revealed that cypress-tupelo forest types accounted for 3.3 million acres, or less than 2 percent, of the South's timber land. More than three-fourths, or 2.5 million acres, of the cypress-tupelo forest types are privately owned. Almost one-fourth, or 767 thousand acres, of the cypress-tupelo forest types are publicly owned. The cumulative all-live volume in individual cypress trees across the South totaled 7.3 billion cubic feet, or 2.3 percent, of total all-live volume of all tree species in the South. Three-fourths, or 5.5 billion cubic feet, of the cypress volume was privately owned. One-fourth, or 1.8 billion cubic feet, of the cypress volume was publicly owned. Two States, Florida and Louisiana, contain the vast share of both acreage and volume of cypress. More than half of the privately owned cypress-tupelo acreage in the South occurs in these two States. Together, they also contain two-thirds of the South's publicly owned cypress-tupelo acreage. Florida and Louisiana also combine for more than one-half of the privately owned cypress volume and almost two-thirds of the publicly owned cypress volume.

Outcome: The findings of the study were reported in a fact sheet titled *Cypress Facts for the South*, which is available on the FIA Web site homepage at http://srsfia2.fs.fed.us/. Information on cypress has been highly sought after by the wood industry, local governments, academia, environmental organizations, the media, and retailers.

Contact: Mark Brown, mbrown03@fs.fed.us, Southern Research Station–FIA

Partners: Southern State Forestry agencies and Forest Service, Southern Region, S&PF

Finding: Development of a national portable field data recorder (PDR) collection system

Accomplishments: In early 2007, management formed a national task team to develop a field data collection system that would meet the field data collection needs of each of the four FIA regions. The developed system would need to meet both the current data management requirements of the existing regional implementations of the national inventory and be extensible at a State, regional, and national level as changes are made to the current inventory design. The result of the collaborative effort was the Mobile Integrated Data Acquisition System (MIDAS), which includes both the field data collection program and a system of Web-based data management tools. On October 1, 2008, the team implemented the program, meeting the delivery deadline.

Outcome: The completion of the MIDAS system allows for standardized data collection across the entire FIA plot network. In addition, it allows programming skills, which were formerly dedicated to development of regional data collection systems, to be used throughout the United States in the support of the overall FIA program.

Contact: *Team Lead:* Angie Rowe, krowe@fs.fed.us, Southern Research Station–FIA
Team Members: Jay Solomakos, Northern Research Station–FIA; Chuck Veneklase, Pacific Northwest Research Station–FIA; Mark Rubey, Rocky Mountain Research Station–FIA; Kelly Peterson, Southern Research Station–FIA; Ervin Czimskey, University of Nevada, Las Vegas

Partners: University of Nevada–Las Vegas

Northern

Finding: Mapping forest resources of the United States

Accomplishment: We developed a collection of 22 maps designed to portray the composition, structure, ownership, utilization, and spatial patterns of forest resources across the United States. This collection is the first comprehensive compilation of national-scale, forestry-related maps. There are many options for presenting plot-level data at a broader scale, and forest attributes lend themselves naturally to different styles of presentation. The Resources Planning Act (RPA) tables and summaries provide direct sources for many, but not all, of the maps. These maps complement the information presented in the associated RPA chapters, but the maps can be read and interpreted as standalone documents. These maps strike a balance between the information provided by each attribute, the context available in ancillary data sources, and the protection of landowner privacy. FIA is leading the charge to produce and distribute additional geospatial datasets and cartographic products for mapping forest resources, and these 22 maps are just precursors to a much expanded FIAtlas currently under development.

Outcome: This is a chapter in the upcoming publication *Forest Resources of the United States, 2007*. Map subjects include: major forest cover types, land cover of commonwealths and territories of the United States, forest land by ownership category, change in live-tree forest carbon stocks, growth, removals, and mortality, and roundwood harvest.

Perry, C.H.; Nelson, M.D.; Toney, J.C.; Frescino, T.S. 2009. In: Forest Resources of the United States, 2007. Smith, W.B., tech. coord.; Miles, P.D. data coord.; Perry, C.H., map coord.; Pugh, S.A., Data CD coord. Gen. Tech. Rep. WO-78. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. 336 p.

Contact: Charles H. (Hobie) Perry, charleshperry@fs.fed.us, Northern Research Station–FIA

Partners: Forest Service, Northern Research Station and Rocky Mountain Research Station (contributing) and Southern Research Station and Pacific Northwest Research Station (supporting)

Finding: Improved online tools for analyzing FIA databases enable customized reports for natural resource partners

Accomplishment: Forest Inventory Data Online (FIDO) catalogs the vast holdings of forest data collected over decades and puts it at the fingertips of natural resource partners and the public. The improved database analysis tool, developed by Northern Research Station–FIA scientists, allows users to create custom reports on the forest resources of the United States. This Web-based interactive tool provides easy and quick access to the latest FIA data for a wide range of users, including public and private land managers, planners, and researchers who need the latest forest resource information. This tool is also compatible with other similar forest inventory databases. For example, data from an ongoing inventory designed by the National Inventory and Monitoring Applications Center (NIMAC) and conducted by Wisconsin's Department of Natural Resources was integrated with FIDO. The modification of FIDO to fit Wisconsin's data not only provided the State with the ability to conduct their own queries using FIA methodology, but it also accelerated the development of FIDO, thus benefiting other FIA customers.

Outcome: This application has enabled users to successfully generate thousands of reports per month since its launch. Visit http://fiatools.fs.fed.us.

Contacts: Ty Wilson, barrywilson@fs.fed.us, Northern Research Station–FIA; Chip Scott, ctscott@fs.fed.us, Northern Research Station–NIMAC

Partners: University of Nevada, Las Vegas; Wisconsin Department of Natural Resources

Finding: National Woodland Owner Survey data published and available online

Accomplishment: Based on FIA's National Woodland Owner Survey (NWOS; http://www.fia.fs.fed.us/nwos), we now know there are over 10 million families and individuals who own 264 million acres, or 35 percent, of the forest land in the United States. We also know that they have diverse reasons for owning their lands and diverse plans for the futures of their forests. Their knowledge of forest management practices varies immensely, as do their propensities for implementing them. Not only are these ownership patterns complex, they are also dynamic; 1 in 5 acres is owned by someone who plans to sell or transfer some or all of their forest land in the next 5 years. Understanding family forests and family forest owners is critical to understanding the Nation's forest resources. Family Forest Owners of the United States is the first report in over a decade that documents this important topic. It includes information on the numbers of family forest owners and their characteristics, such as size of forest holdings, ownership histories, ownership objectives, forest uses, forest management practices, preferred methods for receiving information, concerns, future intentions, and demographics. In addition to more than 1,800 tables that provide national, regional, and State summaries published in this report, we have launched the NWOS Table Maker program. This online tool allows users to select their State(s) of interest and summarize or cross-tabulate over 50 variables. We will continue to conduct the NWOS to answer new questions, update information, and monitor trends.

Outcomes: This information is being used by Federal, State, and local government agencies; universities; nonprofit organizations; private consultants; and others. They are using it to develop, implement, assess, and improve forest policies, services, and programs that affect family forests and family forest owners.

Butler, B.J. 2008. Family forest owners of the United States, 2006. Gen. Tech. Rep. NRS-27. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 73 p. http://treesearch.fs.fed.us/pubs/15758.

Butler, B.J. and Carr, M.A. 2008. Who owns America's forests? NRS-INF-06-08. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 8 p. http://www.nrs.fs.fed.us/pubs/5794.

Butler, B.J.; Miles, P.D.; and Hansen, M.H. 2008. National Woodland Owner Survey Tabler web-application version 1.0. Amherst, MA: U.S. Department of Agriculture, Forest Service, Northern Research Station. http://fiatools.fs.fed.us/NWOS/tablemaker.jsp.

Contact: Brett J. Butler, bbutler01@fs.fed.us, Northern Research Station–FIA

Partners: Forest Service, S&PF

National Office

The National Office–FIA program helps to guide and coordinate the FIA field units engaged in implementing the enhanced FIA program. Most of the National Office accomplishments include making presentations, preparing policy white papers and budget justifications, and providing input to reports for national and international organizations.

In FY 2008, the National Office staff:

- Provided budget coordination, briefings, and guidance for FIA field units.
- Facilitated one FIA management team meeting, six conference calls, and dozens of briefings for internal and external partners, customers, collaborators, and supporters.
- Collaborated with the Society of American Foresters and assisted with the eighth national user-group meeting for FIA customers, which will be held in New Orleans in March 2009.
- Published the 2007 FIA Annual Business Report, adding a safety section for the first time.
- Began work on merging three Memorandum of Understandings (MOUs) with NFS that expire in 2009 into a single comprehensive MOU covering data privacy, wilderness, and NFS partnership.

- Continued collaboration with the Bureau of Land Management (BLM) and the Natural Resources Conservation Service (NRCS) to design common protocols for strategic rangeland monitoring.
- Continued working with the Conservation Biology Institute (CBI) in Corvallis, OR, to develop and improve the Protected Areas Database. Provided membership on a new Steering Committee made up of CBI, Forest Service, U.S. Geological Survey (USGS), and The Nature Conservancy to develop an "official" protected areas data base for the United States. The committee secured a grant of $1 million from the Doris Duke Foundation and $650,000 from USGS and The Nature Conservancy to work on a 3-year data base project.
- Completed draft report for the upcoming RPA assessment report on forest resources. Posted final tables to the FIA Web site and printed and distributed publication in early 2009.
- Completed core indicator chapter for the National Report on Sustainable Forests–2010 and the glossary of terms for the report.
- Continued work on coordinating coding and testing National Vegetation Classification System algorithm for use with FIA data in the Eastern United States developed in cooperation with FIA by NatureServe.
- Completed and submitted U.S. Country Report for the United Nations (UN) Food and Agriculture Organization (FAO) 2010 Global Forest Resources Assessment. Brad Smith serves as the U.S. national correspondent, and Sonja Oswalt (Southern Research Station) serves as official alternate.
- Organized UN/FAO North American Forestry Commission Inventory Working Group project on a large-scale summary database for North America. Drafted a second joint peer-reviewed publication with Canada and Mexico on estimating tree species diversity from national inventory data.
- Completed plans with UN/FAO for implementation of the Global Remote Sensing Project to estimate and monitor area changes of the world's forests. Greg Reams currently serves on the UN/FAO Global Advisory Group for this project and the Forest Resources Assessment.

FIA Data Requests and Access

Spatial Data Service Center

Spatial Data Services (SDS) Members

Liz LaPoint—Team Lead, Northern Research Station–FIA, National projects
Sam Lambert—Southern Research Station–FIA
Jock Blackard and Ron Tymcio—Interior West–FIA
Dale Weyermann–Pacific Northwest–FIA

News, Changes, and Updates

The Spatial Data Service Center (SDSC) has had some changes in staffing this past year. We now have one person handling both Northern Research Station and multiregional or national requests. Also, since Interior West's Ron Tymcio retired, he has been replaced by Jock Blackard. Blackard is a welcome addition to the SDSC crew.

SDSC is currently working under MOUs with the following partners: Forest Service, Health Technology Enterprise Team Pacific Northwest Research Station, the Landfire project, and national forests; NRCS; University of Maryland; Clark University; Woods Hole Institute; NASA, Goddard Space Flight Center; University of New Hampshire; National Park Service; University of Wisconsin; Institute of Ecosystem Studies; Oregon State University; and The Nature Conservancy.

Pacific Northwest Research Station SDSC worked with the Oregon Department of Forestry to capture structure counts and structure locations from resource photography and digital imagery from circa 1970, 1980, 1990, 2000, and 2005. These data were used to evaluate the change in development in the rural/forested areas of Oregon from 1970 to present. A key analysis looked at the effectiveness of Oregon's land-use laws enacted in the 1980s and recently amended in mid 2000s. A similar study is underway in Washington. This dataset will also be used to evaluate the increase in wildland fire based on development locations relative to public forest ownerships.

Pacific Northwest Research Station SDSC accomplished considerable work developing and evaluating a sampling grid for inventory of range lands in several counties of eastern

Oregon. This is a cooperative venture between Pacific Northwest Research Station–FIA, Rocky Mountain Research Station–FIA, Pacific Northwest Region–NFS, and NRCS, and is a pilot test for a possible national cooperative rangeland inventory.

SDSC team members are active in many groups within the FIA organization: National Reporting and Data Distribution Team, Information Management Band, National Carbon Reporting Team, Rapid Assessment Team, GeoTeam, Data Issues Team, Data Strategy Team for State and Private Redesign. SDSC team members have been involved in testing the new Federal Desktop Core Configuration settings and the effectiveness of the proposed Data Center.

The SDSC Team is working on a spatial data services toolkit with the Forest Service GeoSpatial Technologies Center. The toolkit will ensure more consistent products obtained from SDSC.

FY 2008 Spatial Data Requests

There were 483 requests active in FY2008. National or multi-regional data requests accounted for 10 percent of the total number of requests. Of the received requests 91 percent were completed by the end of the fiscal year and 7 percent remain in progress. The remaining 2 percent were either canceled by the client, put on hold by the client or the client has not remained in contact with SDSC. The Southern Research Station's SDSC numbers include all requests that the station receives, regardless of type of request (i.e., the Southern Research Station reports tabular data requests here and other SDSC units do not).

The two largest categories are consultation type requests and those for spatial intersections. The consultation request may be a clarification of FIA data, a search for a GIS data layer or assistance with a GIS task. The spatial requests generally involve overlaying FIA plots on a client's GIS or imagery and returning information to the client.

Figure 7.— *Requests made to the FIA Spatial Data Service Center, by unit, 2008.*

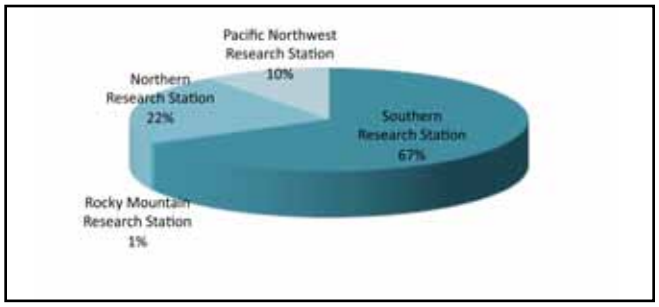
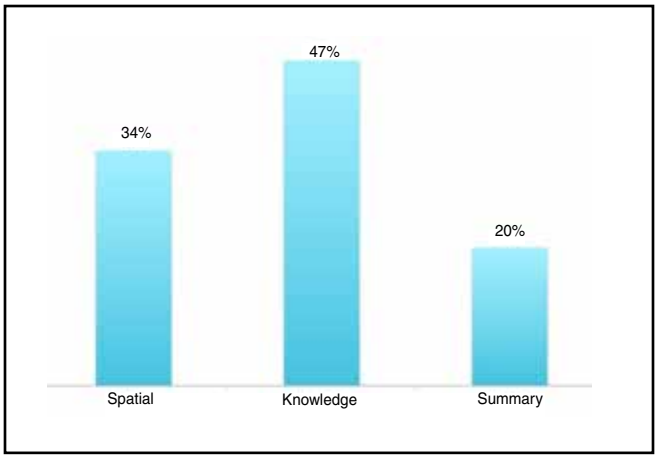


Figure 8.—*Requests made to the FIA Spatial Data Service Center, by type, 2008.*



Academia continues to be SDSC's largest client with 28 percent of all new requests. Nongovernmental organizations have increased their use of FIA data, from 4 percent in FY 2007 to 7 percent in FY 2008. Similarly, NFS has also increased their requests for FIA data from 3 to 7 percent.

Mapmaker, Forest Veg Simulator, Fuel Treatment Evaluator, and FIDO access

Users continue the access FIA data through various online data tools such as MapMaker, FSVeg (Field Sampled Vegetation) forest vegetation simulator, Fuel Treatment Evaluator (FTE), and, the newest tool, the FIDO. FIDO will replace MapMaker over the next year or so. The following tabulation shows historic use of FIA data tools.

Figure 9.—*Requests made to the FIA Spatial Data Service Center, by organization, 2008.*

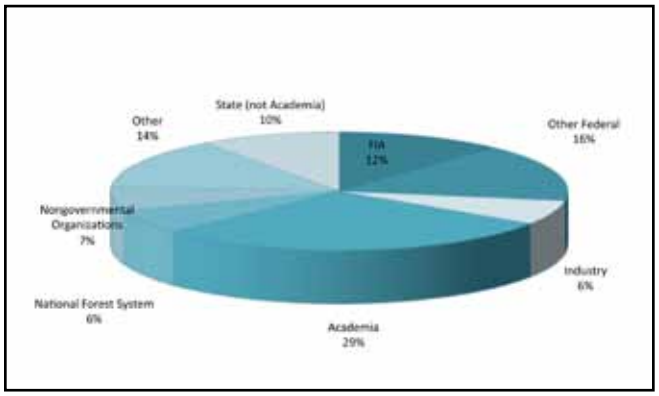


Table 2.—*Historic FIA online information retrievals by retrieval tool*

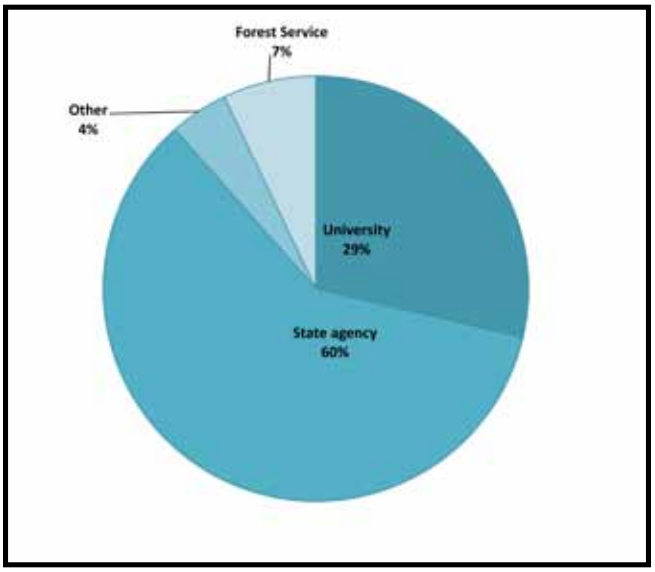
Retreival Tool	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
MapMaker	11,579	14,577	26,034	55,062	22,906	24,073	20,834
Forest Veg Simulator (FVS)	-	396	514	763	566	497	683
FTE	-	-	-	650	863	-	-
FIDO	-	-	-	-	-	-	38,092
Total	11,579	14,973	26,548	56,475	24,335	24,570	59,609

Grants and Agreements

Each year, FIA units enter into various grants and cooperative agreements with partners to accomplish specialized work in support of the FIA mission. In some cases, partners provide expertise that is not available within the FIA program; in other cases, they share the workload. Appendix 5 lists 49 grants and agreements funded in FY 2008, composing $9,235,674 or approximately 14 percent of the total available FIA program budget. This amount is a decrease of $1,990,968 below those awarded in FY 2007. This number fluctuates from year to year but demonstrates the reliance of the FIA program on collaborating with external partners to get work done efficiently. Most of these grants and agreements were with State agency (60 percent of funds) and university partners (29 percent of funds) (fig. 10).

Additional cooperators included other Federal and Forest Service offices (7 percent of funds) and other non-Federal partners (4 percent of grants). The major purpose for all grants was for collaboration in data collection, information management, and research in techniques development. We expect to continue to make significant use of grants and agreements to augment FIA staff capacity in the analysis and reporting of annual FIA data for individual States.

Figure 10.—*Grants and agreements, by recipient group, 2008.*



Consultations by FIA Staff

Consulting with FIA customers is a growing part of our business. Just as we have increased information (both data and analyses) made available on our Web site, our FIA staff are increasingly in demand by customers seeking either to understand more about the FIA program and our results, or seeking to address a specific question not obviously addressed through other means. Questions pertaining to a single administrative unit (for example, to a single State or to a single national forest) often are referred to partners within that administrative unit (for example, State foresters, national forest analytical staff) who can often provide better context and who prefer to maintain their contacts with their customers. When questions span multiple administrative units, FIA staff will try to help the customer find an answer. FIA does not compete with private sector consultants; rather, we answer questions about our methods and help customers (including private consultants) use FIA data to answer their own or their client's questions. Appendix 6 shows the number of significant consultations that FIA staff provided in FY 2008, by unit and by type of customer. A significant consultation is defined as any dialogue with a customer outside of FIA that requires more than a single hour to address, and which is not part of our normal course of business in collecting, analyzing, and reporting on FIA information. All together, FIA staff addressed 1,659 significant consultations requiring 6,656 staff hours to complete—equivalent to 4 full-time staff-years. Forty-four percent of the time and 35 of the consultations were conducted with other government agencies, such as State agencies and other Federal agencies, as well as having internal discussions within the Forest Service. Other major client groups included academic clients (approximately 21 percent of the consultations and 23 percent of the time), industry (17 percent of the consultations and 9 percent of the time), and nongovernmental organizations (8 percent of the consultations and 8 percent of the time). The data also show some regional variations. For example, although government organizations (largely State agencies) are the major clients throughout the country, industry and academic customers are secondary major clients in the East.

Program Safety

Safety is a primary concern for the Forest Service and especially for FIA, whose employees travel hundreds of thousands of miles each year in routine conduct of business. Standard safety training is mandatory and is conducted at each field unit. Safety training and equipment are provided for headquarters offices, field offices, and field crews, including driver training, first aid kits, cell phones, etc. In regions with special circumstances, such as need for aircraft, access to large areas of wilderness, or exposure to potentially dangerous wildlife, additional training and equipment is provided. Information on specific safety training and criteria are available through the FIA main Web site at http://fia.fs.fed.us.

Regional Safety Notes

Pacific Northwest Research Station—The Pacific Northwest Station has continued its efforts to improve its employees safety and safety awareness. The Pacific Northwest Research Station–FIA safety committee has continued its emphasis on safety recognition through a Safe-T-Bucks reward program and Safety Employee of the Month awards. For safety awareness, we conducted our annual survey of safety perceptions, collected an average of one near miss report per employee per month, and developed brochures describing safety issues for "Going to the Field" and "Winter Driving." Our 2008 Safety Action plan included the following items: (1) developing a safety and health statement that sets the safety tone and culture and outlines the goals and desired outcomes of the program, as well as distributing the statement to all employees; (2) developing site specific procedures that ensure all accidents, at all levels, are investigated and that ensure follow-up actions are taken; (3) conducting an evaluation of the Pacific Island field operation; and (4) implementing Plot Hazard Label for plot jackets to let crews who visit plots know when hazards have been identified by previous crews.

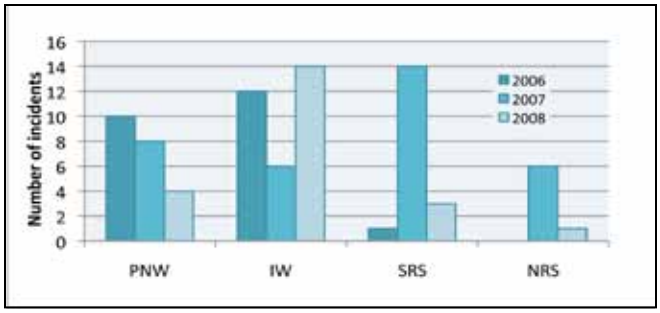
Interior West—The Interior West FIA program completed a 5-year safety analysis report that examined various trends in unit incidents, helped identify areas for improvement and extra focus, estimated the real costs of accidents, and helped formulate additional leading indicators to monitor health and safety. In addition to standard safety training for first aid, defensive driving, fire extinguisher use, etc., the program devoted 3 days to Interagency Aviation Training and 3 days to wilderness first aid for the field staff. The program's Safety Committee met monthly and accomplished several projects including: (1) creating "Missed Check-In" guidance to avoid assumptions and duplication and find our employees more quickly, (2) revising single-person field crew guidelines so that they are more effective and still keeping employees' well-being first priority, (3) upgrading field safety equipment (e.g., trekking poles) following field trials, and (4) organizing the program's safety training database. In addition, Interior West–FIA staff served on the Rocky Mountain Station's Safety Council, and the program manager, along with three staff, participated in the Forest Service National Safety and Health Conference. In continuance of an overall safety learning environment, the unit prepared incident analyses and "Lessons Learned" following most accidents. These led to the identification of equipment issues, procedural changes, and an increase in knowledge sharing and learning. The program disseminated a bimonthly safety newsletter that provided timely safety-related information and safety messages from the program manager, as well as recognizing safety award recipients. During the year, the unit presented eight awards for proactive safety performance. The unit completed an annual facilities inspection and safety program evaluation checklist and, again, indicated improvement in all seven of the Forest Service safety pillars. Although the unit incurred 14 recordable injuries, 7 of the injuries did not result in any days away from work or restricted activities (i.e., only medical expenses were incurred).

Southern Research Station—Staff drove approximately 800,000 miles in FY 2008 with only 3 motor vehicle accidents. The unit conducted defensive driving, boating safety, CPR, first aid, and defibrillator training. We held five safety meetings and, in September, had a safety "stand down" and safety meeting for FIA inventory crews. We updated the field, office, and driving job hazard analysis. The safety manager attended driving certification training in order to recertify employee license requirements. The safety manager also assisted in fire suppression activities for the Cherokee National Forest. We performed the annual vehicle inspection and equipment inventory on our fleet of 36 vehicles. The safety manager received Federal Emergency Management Agency certification for National Incident Management and National Response Framework.

Northern Research Station—The Northern Research Station–FIA safety committee—comprised of five members from the field, Newtown Square, and St. Paul locations—sent monthly safety reminders and continued a nonmonetary award for safety writing. The safety committee also conducted a safety perceptions survey and shared the results with the entire staff. Members of the data collection staff have contributed safety-related presentations that were shared with all.

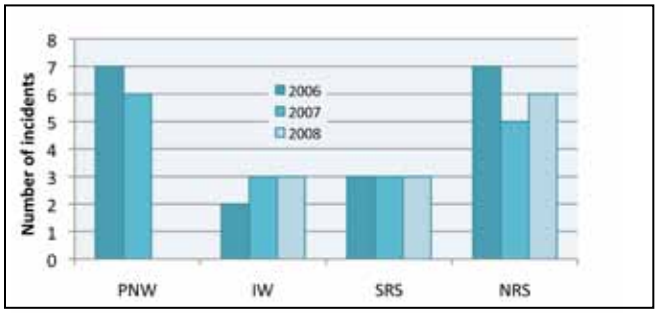
FIA Program Safety Summary for FY 2008

Figure 11.—*Number of injury or illness incidents by unit, 2006–2008*



[1] A work-related injury or illness resulting in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid or loss of consciousness. No data available for Northern Research Station for 2006.

Figure 12.—*Number of motor vehicle accident incidents by unit, 2006–2008*



[1] Any occurrence involving the use of a government-owned, leased motor vehicles (automobiles, trucks, and buses) that results in a total combined damage exceeding $500 or more. This definition also applies to privately owned vehicles when used on official government business. Value for Pacific Northwest Research Station for 2008 was zero.

FIA—National Forest Collaboration

In FY 2002, the Deputy Chief for R&D and the Deputy Chief for NFS signed an internal MOU providing for permanent inclusion of all national forest lands within the FIA program. This was a significant step forward for FIA customers, guaranteeing the availability of consistent FIA information across the entire United States, including all national forest lands. Under the terms of the negotiated agreement, the national forests provide permanent funding to help cover the cost of the FIA program on national forest lands, and, in return, the FIA program agrees to implement the program in a consistent manner with inventory on other lands within the same State and to load FIA data into the national forest information base for use in forest planning and other strategic-scale assessments. FIA will also provide advice and assistance in developing forest-level sampling protocols linked to FIA and collaborate with national forests that want to contribute additional resources for additional sampling.

In FY 2008, FIA continued development and operation of applications to load FIA data from national forests into FSVeg (Field Sampled Vegetation module of NIMS), the corporate standard database for national forest staff. Recent collaborative efforts between FIA and NFS may be reviewed on the Web at http://www.fia.fs.fed.us.

Based on feedback from the nine NFS regions, FIA is meeting the needs of NFS partners with caveats. Additional work continues to be needed in the western regions in the areas of coordinating fieldwork and in defining and collecting a consistent set of regional variables on NFS lands to meet NFS needs. More effort needs to be made in getting FIA data from NFS lands into the hands of NFS staff and in developing data presentations, analyses, and reports tailored to the specific needs of NFS managers. FIA will continue to work on these issues in FY 2009. Increasing demands from NFS customers for additional forest planning data and the move toward an Environmental Monitoring Systems approach to planning will most certainly require changes in current financial arrangements with stronger NFS funding support at the national level, including additional NFS funding for needs beyond the core FIA program. In a meeting with NFS inventory specialists on inputs to the FIA Strategic Plan, the following issues were raised as NFS priorities:

- Implement the annual system in all States.
- Collect data on all lands, including reserved and range lands.
- Collect a full suite of vegetation and associated information.
- Follow standard protocols across all NFS lands.
- Allow for “a la carte protocols” with local/regional funding support.
- Allow for increasing the intensity of the core grid as needed.
- Support a mid-level vegetation map product meeting Federal Geographic Data Committee standards (which may require an NFS-funded 2X sample).
- Provide an inventory compilation package that meets NFS business needs.

The NFS will participate in a national user’s survey on defining the FIA core program and provide input on their planning needs from the annualized inventory.

Comparing FY 2007 Plans with FY 2008 Accomplishments and FY 2009 Plans

In the FY 2007 business report for FIA, we included a section stating our plans for FY 2008. Below we show how our actions in FY 2008 matched our plans from FY 2007 and our plans for FY 200.

In the FY 2007 business report, we said that in FY 2008 we would—	In FY 2008, we—	In FY 2009, we will—
Continue annual inventories in 45 States and the pilot study in Nevada. Add Oklahoma and New Mexico to the annualized inventory program.	Continued annual inventories on all forested lands in 45 current States and coastal Alaska. Initiated annual inventory work in Oklahoma and New Mexico. Completed Nevada Pilot study—all the data have been collected and analysis is ongoing.	Develop plans to inventory Hawaii, Wyoming, Nevada, and interior Alaska if funding becomes available. Publish results of the Nevada pilot.
Publish a 5-year summary report, develop an on-line data distribution tool, and begin planning for the next iteration of the survey.	Published a 5-year comprehensive report (Butler 2008), Family Forest Owners of the United States, 2006. Gen. Tech. Rep. NRS-27. Published a summary brochure (Butler and Carr 2008) "Who owns America's forests?" NRS-INF-06-08. Launched an online data distribution tool (http://fiatools.fs.fed.us/NWOS/tablemaker.jsp) Began planning for the next iteration of the NWOS.	Continue planning for the next iteration of the NWOS. Work with partners to analyze the results from the NWOS. Develop techniques for creating geospatial NWOS products.
Continue to consult with clients on program priorities and new directions.	Held 10 user group and management team meetings. Combined meetings (down from 16 in 2007) and moved locations to reduce travel costs. Reduced office travel by 12 percent in 2008.	Continue to consult with clients on program priorities and new directions. Combine and consolidate meeting opportunities wherever possible.
Complete rangeland pilot study and implement initial urban forest monitoring.	Completed final report on the Oregon Multiagency Rangeland Pilot. We will be releasing it and having it peer reviewed by an external panel. Completed data collection for 4th of 5 years for the urban forest inventory pilot in Colorado and Tennessee.	Continue work with NRCS-Natural Resources Inventory to deliver consistent indicators of rangelands sustainability to the NFS, BLM, State agencies, nogovernmental organizations, and private landowners. Work with clients and partners to complete implementation plans for rangeland monitoring. Complete 5th year of data collection for urban pilot in Colorado and Tennessee.
Publish State reports for Wisconsin, Michigan, Kansas, Illinois, Ohio, Oregon, California, Arkansas, Kentucky, and east Texas. Continue movement to convert annual reports to simplified Web-based format. Complete Spanish version of Puerto Rico report.	Published 5-year State reports for Kansas, Wisconsin, eastern Texas, Kentucky, Oregon, and California. States delayed due to fire transfer include Illinois, Nebraska, North Dakota, Georgia, Tennessee, and Alabama (close-out periodic). Michigan, Ohio, and Arkansas reports were also delayed. Completed Spanish version of Puerto Rico and U.S. Virgin Islands reports.	Publish 5-year State reports for Illinois, Michigan, Nebraska, North Dakota, Ohio, South Dakota, Arkansas, Florida, Georgia, Tennessee, Alabama (close-out periodic), Arizona, Colorado, Utah, and Washington. Continue to convert annual reports to simplified Web-based format.

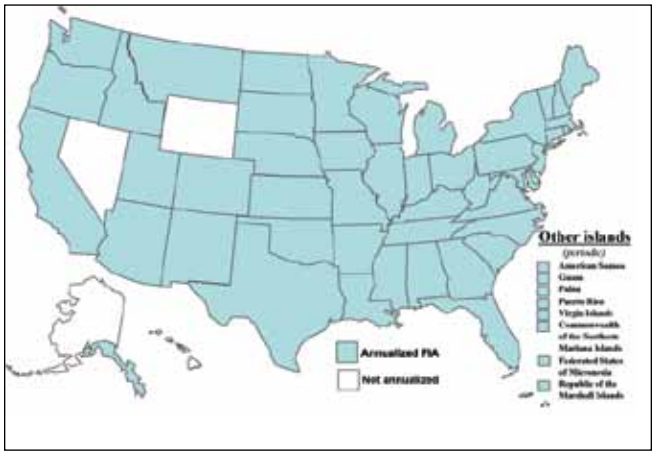
In the FY 2007 business report, we said that in FY 2008 we would—	In FY 2008, we—	In FY 2009, we will—
Continue collaborative stewardship of the FIA program by holding user-group meetings in all regions of the country and at the national level, holding regional management team meetings in all regions of the country, and resuming scientific symposium on a biennial basis.	Held a total of 10 user group and management team meetings in all regions of the country. The FIA science symposium was held in October 2008, with over 100 attendees from dozens of organizations. Proceedings in publication process.	Continue collaborative stewardship of the FIA program by holding user-group meetings in all regions of the country and at the national level, holding regional management team meetings in all regions of the country. Begin planning for the 2010 FIA Science Symposium.
Continue ongoing enhancement of FIDO system, including more output formats.	Released the production version of FIDO in October 2007. This version significantly extended the functionality of the earlier version and now allows users to create custom reports and use the estimation engine to produce population estimates and variances per the published methods. FIA staff conducted FIDO training at an ESRU workshop in March 2008 in Columbus, OH, and the Ecological Society of America Annual Meeting in August 2008 in Milwaukee, WI. Training materials were posted on the FIDO Web site. FIDO averages over 3,000 successful retrievals per month. In August 2008, NIMAC, in collaboration with the State of Wisconsin and the University of Nevada Las Vegas, developed an interface for the analysis of Continuous Forest Inventory data collected in Wisconsin's State Forests.	Improve the user interface to FIDO in order to make the application easier to use for novice users. Complete the migration of the application to the Forest Service consolidated datacenter environment for ongoing support. Develop FIDO interfaces to other FIA datasets. Enhance the mapping capabilities of FIDO.
Review and evaluate client recommendations on possible program efficiencies to assure full-core program implementation in all States.	Developed models to estimate crown cover in west Texas. Publication in press. Developed component ratio method (CRM) to deliver compatible volume and biomass data at the tree level in FIADB. Two publications in press. Developed prefield remote sensing strategies to reduce field checks and reduce costs.	Continue to conduct applied research into ways of using technology to increase program efficiency, to develop new products to meet customers' needs, and to collaborate with partners to reduce program costs and increase the scope of products offered.
Complete the beta release of the Portable Data Recorder data collection program (MIDAS) with national and regional variables.	Completed development and began implementation of the MIDAS capable of collecting both national and regional variables.	Continue implementation of MIDAS in all regions. Begin work on the next version of MIDAS to incorporate suggested feature enhancements and new technologies.

In the FY 2007 business report, we said that in FY 2008 we would—	In FY 2008, we—	In FY 2009, we will—
Provide technical assistance and software tools to States, NFS, and collaborating nations, to monitor criteria and indicators of sustainable forestry on their lands using consistent and compatible methods.	Made 1st year data for Wisconsin State forests available via the Web using FIDO. Provided technical assistance and software tools to Wisconsin and Indiana (State forests) and four Plains States (trees outside forests). Transferred image classification technology to Maryland. Identified the requirements for the design and analysis tools for inventory and monitoring and received funding from NFS for software development. Provided technical assistance to four national forests. Developed and plot tested a land cover change photointerpretation method in Maryland. Completed the monitoring system for pine forests in Honduras. A monitoring system for mahogany and other rainforest species is being developed.	Continue to work with Indiana and Wisconsin on data collection and processing of State lands inventory data. Design and conduct year 2 data collection for the Plains State Nonforest Tree Inventory. Continue to develop personal computer design and analysis tools. Begin development of Web-based analytical tool for NFS. Continue with plot intensification planning on NFS lands. Collect and process data from Honduras rainforest plots.
Continue to improve NIMS to enhance program data delivery.	Released NIMS-CS 4.0 test version that supported processing Field Guide 4.0 data. That version also had features to support migration to the data center, a new user interface (MAESTRO), and better support for population estimates.	Release NIMS-CS 4.0 Production version. NIMS-CS 4.0a with enhanced functionality and support for FIADB 4.0. Migration of FIADB and NIMS-CS to the data center.
Prepare a final 20 map atlas for the 2007 Forest Resources of the United States RPA publication. Complete the first design phase of a national FIAtlas consisting of over 75 web based maps illustrating multiple aspects of nation wide forest issues using FIA and related data.	Published 22 atlas maps in the Forest Resources of the United States RPA publication, including map themes, cartographic layout, geographic templates, and corresponding FIA data base files. Developed prototype maps for the FIAtlas for review and placed on the national FIA Web site. Drafted a timetable and map list for the atlas.	Continue working on FIAtlas project and finalize the outline and prospectus for the book. Select Atlas storylines, potential maps, charts, and graphics. Develop layout format and preliminary storyboards with final map selections. Target roll-out date is late 2010 in time for 2011 “International Year of the Forest.” Revise MOU with NFS. Combine three MOUs expiring in 2009 on Wilderness, plot coordinates and general NFS cooperation. Update Forest Facts brochure and publish in four languages (Spanish, French, Russian, and Chinese) for distribution at 2009 World Forestry Congress.

Fiscal Year 2009 FIA Program Direction

The FIA program initially intended to implement the "Strategic Plan for Forest Inventory and Monitoring" by achieving a base Federal program of 10 percent per year in the West and 15 percent per year in the East by FY 2003. Unfortunately, while funding for the FIA program increased over the past several years, it has not increased sufficiently to allow full program implementation as scheduled in 2003. And, unless final budgets provide increased funding in 2009, we will continue to maintain annual inventory only in the States currently in the program. We continue to be optimistic that funding will increase in 2010 to allow full implementation of the program in those States not currently being inventoried (Nevada, Wyoming, Hawaii, and interior Alaska). Aggressive partner financial support has allowed FIA to achieve full implementation and 5-year cycles throughout the 37 States, from the Great Plains eastward.

Figure 13.—*Planned FIA implementation status, 2009.*



Long-Term Strategic Direction

The Government Performance and Results Act (GPRA) of 1993 directs Federal entities to develop long-term goals and performance measures to monitor progress toward those goals. Although intended for application at the agency level, the GPRA framework also provides an excellent tool for guiding progress at the project level. The following tabulation shows our key goals, performance measures, benchmarks, and targets for the FIA program for 2003-2008. In future business reports, we will repeat this table to show how we are progressing toward our goals.

Goal	Performance measure	2003 level	2004 level	2005 level	2006 level	2007 level	2008 level	Target level
Inputs								
Maintain sufficient funding to support the base Federal FIA program	Percentage of total Federal funding necessary for annualized inventory received	84	82	83	87	87	88	100
Outputs								
Include 100 percent of U.S. forest lands in the FIA sample population	Percentage of Nation's forest land included in the target FIA sample population	100	100	100	100	100	100	100
Keep fieldwork current	Percentage of States actively engaged in the Annualized Inventory program	78	88	90	90	90	92	100
Make data accessible to national forest customers	Percentage of national forest land for which FIA data are loaded into NRIS	18	65	80	84	90	92	100
Outcomes								
Keep analysis current	Percentage of States with FIA State report less than 5 years old	48	52	48	42	42	60	100
Keep online data current	Percentage of States with FIA online data less than 2 years old	38	56	80	84	88	90	100
Customer satisfaction	Percentage of customers rating service as "satisfactory" or better	89	85	85	85	85	85	100
Partner participation	Partner financial contributions expressed as percentage of total Federal FIA budget	18	10	10	11	10	10	20

Conclusions

We continue to operate in a new era of partnership and collaboration in which Federal and State agencies and other colleagues work together to plan, manage, implement, and continuously improve the FIA program. We are gathering and disseminating information on a wider array of ecological attributes while continuing to serve our traditional customers who require timely information on forest resources. We are increasing the timeliness of our surveys and of our reporting to provide a continuously updated, publicly accessible information base that includes meaningful reports and analyses, as well as elemental data for others to use. We are exploring and using the latest technology to expand the scope of our products and to deliver them more efficiently. And, we are openly reporting on our progress, our accomplishments, our successes, and our challenges.

In summary, we are committed to working collaboratively with our partners to deliver the best program possible with the resources that we have at our discretion. We hope this report gives you a transparent view of the business practices of the FIA program, and we encourage you to help us improve the program with your feedback.

Glossary of Terms Used in Appendixes

Base Federal FIA program. A level of FIA program delivery that includes sampling 10 percent of base grid Phase 2 plots per year in the Western United States, 15 percent of base grid plots per year in the Eastern United States, and 20 percent of Phase 3 plots nationwide, with data compiled and made available annually and complete State analyses done every 5 years.

Base grid plots sampled. The base grid consists of one sample location per approximately 6,000 acres (Phase 2) and one location per approximately 94,800 acres (Phase 3). Some partners chose to intensify beyond the base grid.

Buy down. Plots installed at State expense to reach 20-percent implementation level.

Core reports. A class of publications that summarizes forest status and trends for a complete administrative unit, such as a whole State or a national forest. Examples include survey unit reports, State statistical or analytical reports, or national forest reports.

Direct expenses. All expenses directly attributable to the FIA unit incurred as a part of doing FIA business. Excludes indirect business costs (such as rent, telephones, and administrative overhead outside the FIA unit staff), which are included below in "effective indirect expenses." Includes work done for other units as a normal part of FIA business and the following items:

***Salary*.** Includes direct salary and costs, plus benefits charged to the FIA unit, broken into the following categories:

Administration. Program manager, project leader, and clerical staff.

Phase 1 production. Aerial photointerpreters, satellite image analysts engaged in Phase 1 stratification.

Field support. Field crew supervisors who spend less than 50 percent of their time measuring plots; others involved in supporting and coordinating field crews.

Data collection. All staff spending at least 50 percent of their time measuring regular plots.

QA (quality assurance) crews. All staff spending at least 50 percent of their time doing QA fieldwork.

Information management. Programmers, data compilers, computer system support staff.

Analysts. Staff who analyze data and write publications.

Techniques research. Mainly research staff who conduct FIA-related research on methods and techniques.

Travel. Broken into the following categories:

Office travel. Travel costs for all staff except field crews and QA crews.

Field/QA travel. Travel costs for field crews and QA crews.

Equipment. Costs for durable goods used for FIA. Includes the following:

Imagery. Aerial photos, satellite imagery data files.

Vehicles. All vehicle costs, including such items as operating costs, depreciation, and leases.

Field equipment. Measurement tools and equipment, such as data recorders carried by field crews.

Computer/telecommunications. Computer hardware, software, communications costs.

Other. Any cost that does not fit into one of the above equipment categories.

Publications. Costs for laying out, editing, printing, and distributing publications.

Grants and agreements. Cost of cooperative grants and agreements that directly support the FIA mission.

Office space and utilities. Charges for rent, lease, or other real estate costs for FIA staff, plus utilities.

Other direct expenses. Any cost that does not fit into one of the above categories, including training costs, unemployment, office supplies, postage, awards, moving expenses, and other expenses related to delivering the FIA program.

FRIA (Forest Resource Inventory and Assessment). An account created by Congress within the S&PF portion of the Forest Service budget to provide funds to support FIA collaboration with States.

Effective indirect expenses. Indirect expenses include items such as research station management and administrative salaries, operating expenses, research station budget shortfalls, and other items for which the FIA unit is assessed by their research station. Each station has its own means for determining these assessments. Rather than reporting the different rates, we simply calculate the "Effective Indirect Expenses" item by subtraction:

Effective indirect expenses = (total available funds) – (total direct FIA expenses + end of year balance).

Effective indirect rate. Effective indirect expenses divided by total available funds. This is not necessarily the same as the standard station overhead rate; instead this rate reflects the total indirect cost as a fraction of the total funds available to FIA.

Intensification. Plots installed at State expense to achieve higher quality estimates for smaller areas of a State.

Management meetings held. Number of national or regional management team meetings held by each FIA unit. A management team for each FIA region consists of partners who are sharing in the funding and implementation of the FIA program. This group typically consists of representatives from the FIA unit, NFS regional offices, S&PF offices, and State forestry agencies.

NGO (nongovernmental organization). A class of customers with whom FIA staff are asked to consult. Includes environmental organizations, professional societies, and other generally not-for-profit organizations.

NIPF (nonindustrial private forest land owners). Private individuals or organizations who own forest land for purposes other than industrial operations.

Percentage of total plots sampled. Total number of base grid plots sampled divided by the total number of plots in the base grid.

Percentage of full funding. Total available funds divided by the funding needed to fully implement the base Federal program for a given year's target funding.

Percentage of region covered by annual FIA. Sum of forested acres in States currently implementing annual FIA, divided by the total number of forested acres in each FIA region; a measure of the degree to which the FIA region has moved from periodic to annual inventory.

Phase 1. Stratification of the land base into forested and nonforested classes by using remotely sensed imagery (aerial photographs or satellite imagery). Done to increase the efficiency of fieldwork and estimation.

Phase 2. A set of sample locations, approximately one for every 6,000 acres of land, measured for basic mensurational forest attributes.

Phase 3. A subset of Phase 2 sample locations, approximately one for every 96,000 acres of land, measured for a more extended set of ecosystem attributes, including tree crown condition, lichen community diversity, soil data, and down woody debris.

Publications. Number of publications per unit, by type of publication, as reported in official agency attainment reports. Publications are among the major outputs of the FIA program. Types of publications include the following:

Core reports. A report pertaining to reporting inventory results for a complete geographic entity. Includes:

National forest reports. A complete analysis for a single national forest.

State resource reports. A complete statistical or analytical summary of the forested resources within a single State.

State timber product output (TPO) reports. A complete analysis of TPO data for a single State.

Regional reports. A report for a group of States or other contiguous unit larger than a single State, such as a regional assessment.

National report. A report for the entire Nation, such as the Forest and Rangeland Renewable Resources Planning Act (RPA) report.

Peer-reviewed journal articles. An article appearing in a refereed or peer-reviewed journal.

Proceedings papers. An article appearing in the proceedings from a meeting or symposium.

Other station publications. A manuscript published by the Forest Service, for example, a general technical report.

Other. Publications that do not fit into any of the above categories, such as abstracts, books, or other Government publications.

FY (end-of-the-year) balance. Funds reported in the previous fiscal year business report as unspent at the end of that fiscal year and presumably available for use in the current fiscal year.

Significant consultations. Cases in which an FIA staff person spent at least 1 hour in discussion, analysis, or research to address a specific question or need raised by an external FIA program customer, and which is not part of our normal course of business in collecting, analyzing, and reporting FIA information.

Total available funds. Total funds available for delivering the FIA program, including funds appropriated by Congress for the FIA program, other funds made available by Forest Service partners, and previous year carryover funds. This is a measure of Federal funding for the base Federal program.

User-group meetings held. Number of user group meetings sponsored or attended by each FIA unit. A user group meeting is an open meeting in which a complete regional cross section of FIA partners and customers are invited to attend. User-group meetings differ from the usual smaller meetings with one or two partners that all FIA units call as a normal course of business.

Contacts

For information about the status and trends of America's forests, please contact the appropriate office below:

Northern

Program Manager, FIA
Forest Service
North Central Research Station
1992 Folwell Avenue
St. Paul, MN 55108
651–649–5139

Southern

(includes Commonwealth of Puerto Rico and the U.S. Virgin Islands)
Program Manager, FIA
Forest Service
Southern Research Station
4700 Old Kingston Pike
Knoxville, TN 37919
865–862–2073

National Office

National Office
National Program Leader, FIA
Forest Service
1601 North Kent Street, Suite 400
Arlington, VA 22209
703–605–4177

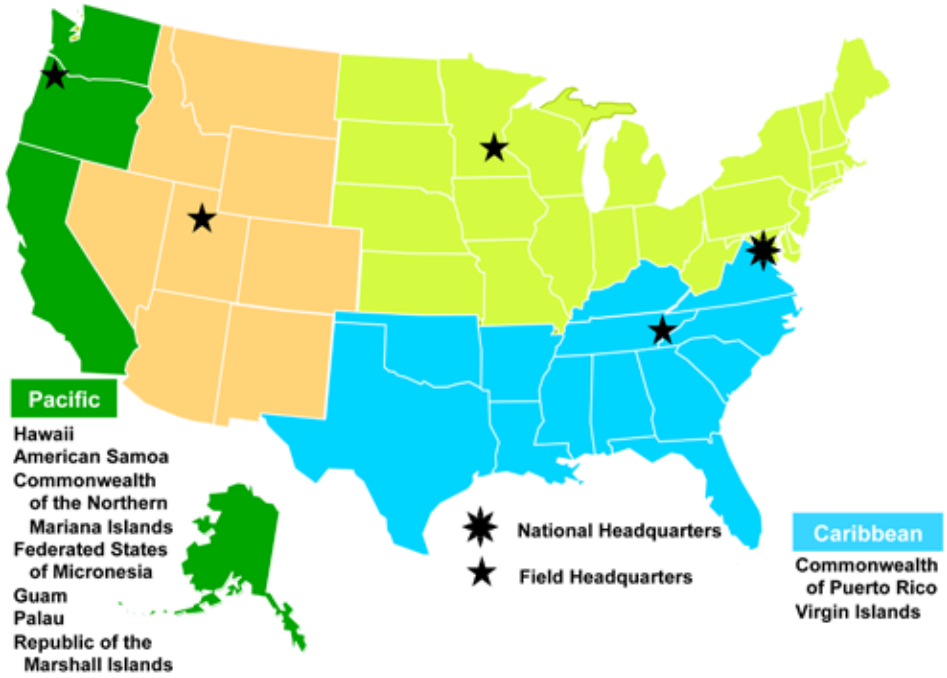
Interior West

Program Manager, FIA
Forest Service
Rocky Mountain Research Station
507 25th Street
Ogden, UT 84401
801–625–5388

Pacific Northwest

Program Manager, FIA
Forest Service
Pacific Northwest Research Station
620 SW Main St., Suite 400
Portland, OR 97205
503–808–2066

All our regional Internet home pages, as well as a wealth of statistical and other information, are available through the national FIA homepage located at http://www.fia.fs.fed.us.



Appendix 1.—*Performance Measures for the FY 2008 FIA Program.*

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Total available Federal funds, FY 2008	$13,871,000	$12,752,403	$15,124,100	$16,764,073	$7,688,000	$66,199,576
Total appropriated Federal funds, FY 2008	$13,540,000	$12,151,000	$15,095,000	$16,167,000	$7,688,000	$64,641,000
Estimated % of FY 2008 full funding	87%	89%	91%	95%	90%	88%
Contributions from partners:						
Supporting the 20% FIA program	$85,000	$0	$1,432,323	972,128	$0	$2,489,451
Value-added contributions	$1,606,438	$657,444	$185,975	$1,565,750	$0	$4,015,607
Total contributions	$1,691,438	$657,444	$1,618,298	$2,537,878	$0	$6,505,058
Base grid plots sampled (includes buy down):						
Phase 2, forested	1,647	2,034	6,941	6,588		17,210
Phase 2, nonforested	1,883	3,466	4,777	17,517		27,643
Total Phase 2 plots	3,530	5,500	11,718	24,105		44,853
Phase 3, forested	99	123	363	413		998
Phase 3, nonforested	123	212	241	1,132		1,708
Total Phase 3 Plots	222	335	604	1,545		2,706
Total base grid plots	3,752	5,835	12,322	25,650		47,559
Intensification plots sampled:						
Phase 2/3, forested	839		241	2,864		3,944
Phase 2/3, nonforested	20		251	2,868		3,139
Total intensification plots	859		492	5,732		7,083
Number of quality assurance plots						
Phase 2 (forest + nonforest)	187	344	1,691	2,479		4,701
Phase 3 (forest + nonforest)	13	20	72	54		159
Total quality assurance plots	200	364	1,763	2,533		4,860
Total base grid plots and percent sampled:						
Total Phase 2 and 3 Target base grid plots	40,933	92,311	90,151	102,417	-	325,812
Phase 2 and 3 Target (with buy down)	20%	20%	20%	20%		20%
Phase 2 and 3 Target (without buy down)	10%	10%	15%	15%		12%
Phase 2 and 3 Accomplishment	9%	6%	14%	25%		15%

Appendix 1.—*Performance Measures for the FY 2007 FIA Program (continued).*

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Percentage of States with annual FIA activity	80%	75%	100%	100%		94%
Number of publications:						
National forest reports	-	3	-	1	-	4
State resource reports	2	-	6	16	-	24
State timber product output reports	-	1	12	2	-	15
Regional reports	-	-	5	-	-	5
National reports	-	-	-	1	1	2
Subtotal—core reports	2	4	23	20	1	50
Peer-reviewed journal articles	14	10	4	36	1	65
Proceedings articles	4	6	12	13	-	35
Other station publications	6	-	2	8	-	16
Other publications	2	-	-	3	1	6
Total, all reports	28	20	41	80	3	172
Number of publications per Federal FTE	0.32	0.21	0.47	0.69	0.86	0.44
Consulting activities:						
Number of significant consultations	94	180	1,190	174	21	1,659
Total hours of significant consultations	1,130	850	3,431	1,097	148	6,656
Meetings:						
User-group meetings held	2	1	0	1	1	5
Management meetings held	2	1	1	1	0	5

[a] *Base grid targets shown are 20 percent of samples per year as stated in the Farm Bill. Congressional conference notes recommended annual Federal targets of 15 percent in the East and 10 percent in the West. Interior Alaska as well as the Caribbean and Pacific Island inventories are periodic and excluded from this mandate in compliance with Congressional recommendations.*

[b] *Revised measure based on number of States where annualized inventory is active (see last section of app. 7 for previous measures).*

Appendix 2.—*Financial Statement for the FY 2008 FIA Program.*

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Available funds:			Dollars			
Previous year end-of-year balance	125,676	60,045	92,035	58,816	8,610	345,182
Post-year adjustments[a]	205,324	541,358	(62,935)	538,257	(8,610)	1,213,394
Subtotal pre-year adjustments	**331,000**	**601,403**	**29,100**	**597,073**	**0**	**1,558,576**
FY appropriated funds						
Research	12,749,000	11,356,000	14,856,000	15,355,000	6,056,000	60,372,000
State and Private-FRIA (base)	791,000	795,000	239,000	812,000	1,632,000	4,269,000
Subtotal appropriated funds	**13,540,000**	**12,151,000**	**15,095,000**	**16,167,000**	**7,688,000**	**64,641,000**
Special project funding	0	0	0	0	0	0
Total available Federal funds	**13,871,000**	**12,752,403**	**15,124,100**	**16,764,073**	**7,688,000**	**66,199,576**
Direct expenses:						
Salary—	**6,808,446**	**6,990,904**	**7,129,658**	**10,246,308**	**252,945**	**31,428,261**
Administration	427,055	785,056	440,206	328,345	252,945	2,233,607
Phase 1 production	0	0	573,577	624,099	0	1,197,676
Field support	1,040,002	1,049,523	601,872	665,858	0	3,357,255
Data collection	2,218,812	2,473,431	676,467	3,499,697	0	8,868,407
Quality assurance	426,779	370,045	1,308,598	557,040	0	2,662,462
Information management	1,163,952	1,097,346	1,029,883	1,421,355	0	4,712,536
Analysis	919,293	700,560	1,782,973	1,743,694	0	5,146,520
Techniques research	612,553	514,943	716,082	1,406,220	0	3,249,798
Travel—	**$1,516,678**	**$1,027,414**	**$792,003**	**$598,505**	**$50,752**	**$3,985,352**
Office travel	93,723	132,648	131,768	142,270	50,752	551,161
Field/quality assurance crew travel	1,422,955	894,766	660,235	456,235	0	3,434,191
Equipment—	**$402,506**	**$762,882**	**$255,215**	**$546,574**	**$0**	**$1,967,177**
Imagery	3,748	50,770	0	4,000	0	58,518
Vehicles	220,353	498,615	191,102	359,213	0	1,269,283
Field equipment	100,205	101,981	64,113	69,193	0	335,492
Information technology/communications	78,200	111,516	0	59,291	0	249,007
Other	0	0	0	54,877	0	54,877
Publications	**$16,623**	**$18,490**	**$0**	**$7,996**	**$45,330**	**$88,439**
Grants and agreements[b]	**$825,321**	**$808,597**	**$4,423,093**	**$2,026,663**	**$1,152,000**	**$9,235,674**
Field work	***0***	***345,417***	***4,235,648***	***1,292,967***	***183,000***	***6,057,032***
Information management	***38,635***	***148,000***	***90,000***	***443,667***	***675,000***	***1,395,302***
Research	***786,686***	***315,180***	***97,445***	***290,029***	***294,000***	***1,783,340***
Office space and utilities[c]	**$594,046**	**$398,780**	**$376,312**	**$460,836**	**$0**	**$1,829,974**
Other direct expenses[d]	**$942,605**	**$371,373**	**$147,706**	**$20,175**	**$5,800**	**$1,487,659**
Total direct expenses	**$11,106,225**	**$10,378,440**	**$13,123,987**	**$13,907,057**	**$1,506,827**	**$50,022,536**
Fire Transfer	**$977,775**	**$307,759**	**$67,000**	**$765,268**	**$200,000**	**$2,317,802**
Effective indirect expenses						
Total effective indirect[e]	**$1,787,000**	**$1,996,153**	**$1,749,078**	**$2,072,403**	**$5,981,173**	**$13,585,807**
Total effective indirect rate	13%	16%	12%	12%	78%	21%
2008 EOY balance	**$0**	**$70,051**	**$184,035**	**$19,345**	**$0**	**$273,431**

[a] Some bookkeeping is not completed until after the new fiscal year begins, which may affect beginning balances. These adjustments—including items such as carryover adjustments, return of fire transfer, station adjustments, and others, are accounted for here.

[b] Grants and Agreements include general allocation to basic categories.

[c] Note that this row was new in 2003; formerly, these expenses were lumped into "Other Direct and Indirect Expenses."

[d] Note: Because office space and other direct expenses are no longer included in this line, these figures are not directly comparable to data prior to 2003.

[e] Program charges for Albuquerque Service Center included in National Office column.

Appendix 3a.—*Federal Staffing (Full-Time Equivalents) for the FY 2008 FIA Program.*

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Administration	4.9	11.5	5.4	3.9	2.5	28.2
Phase 1 production work	0.0	2.0	9.1	8.0	0.0	19.1
Field support	13.7	13.9	6.2	9.8	0.0	43.6
Data collection	33.7	43.7	11.4	45.9	0.0	134.7
Quality assurance crew	6.2	1.8	19.0	7.8	0.0	34.8
Information management	12.6	9.6	11.5	16.4	0.0	50.1
Analysis	10.3	6.9	18.2	13.2	0.0	48.6
Techniques research	7.0	4.4	7.0	10.5	1.0	29.9
Total	**88.4**	**93.8**	**87.9**	**115.5**	**3.5**	**389.1**

** Techniques person is in unit funded by National Office at Research Triangle Park, NC.*

Appendix 3b.—*Estimate of Cooperator Staffing Funded by FIA Grants and Agreements (Full-Time Equivalents) for the FY 2008 FIA Program.*

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Administration	0.0	0.6	3.9	0.6	0.0	5.1
Phase 1 production work	0.0	0.0	0.0	0.2	0.0	0.2
Field support	0.0	1.0	8.0	2.5	0.0	11.5
Data collection	0.0	11.5	95.5	22.0	0.0	129.0
Quality assurance crew	0.0	0.2	0.4	0.0	0.0	0.6
Information management	0.5	1.5	0.0	4.2	5.0	11.2
Analysis	3.7	1.0	0.0	5.0	0.0	9.7
Techniques research	3.8	0.0	0.0	1.0	1.0	5.8
Total	**8.0**	**15.8**	**107.8**	**35.5**	**6.0**	**173.1**

Appendix 3c.—*Estimate of Total Federally Funded Staffing (Full-Time Equivalents) for the FY 2008 FIA Program.*

Administration	4.9	12.1	9.3	4.5	2.5	33.3
Phase 1 production work	0.0	2.0	9.1	8.2	0.0	19.3
Field support	13.7	14.9	14.2	12.3	0.0	55.1
Data collection	33.7	55.2	106.9	67.9	0.0	263.7
Quality assurance crew	6.2	2.0	19.4	7.8	0.0	35.4
Information management	13.1	11.1	11.5	20.6	5.0	61.3
Analysis	14.0	7.9	18.2	18.2	0.0	58.3
Techniques research	10.8	4.4	7.0	11.5	2.0	35.7
Total	**96.4**	**109.6**	**195.7**	**151.0**	**9.5**	**562.2**

Appendix 4.—*Partner Contributions Toward Implementing FIA in FY 2008.*

Unit	Partner	Contributions toward the base program	Contributions that add value
		- - - - - - - - - *Dollars* - - - - - - - - -	
Interior West	Colorado State Forest Service		150,205
	Montana State Department of Natural Resources		1,500
	University of Montana, Bureau of Business and Economics Research		72,413
	NASA, Remote Sensing science project		150,238
	NASA, Remote Sensing science project		160,410
	Forest Service S&PF, Urban pilot project		75,000
	Forest Service Region 1		43,178
	Forest Service Region 2		4,500
IW total		**0**	**657,444**
National Office			0
NO total		**0**	**0**
Northern	American Forest Foundation		5,000
	Colorado State University		10,000
	Connecticut	500	
	Conservation Biology Institute		7,500
	Delaware Department of Agriculture	7,770	16,146
	Illinois Division of Forest Resources	25,539	
	Indiana Department of Natural Resources	37,600	228,450
	Iowa Department of Natural Resources	18,817	
	Kansas State Forest Service	34,938	11,050
	Maine Forest Service	219,961	233,905
	Mark Twain National Forest		66,000
	Maryland Department of Natural Resources Forest Service	14,500	
	Massachusetts Department of Conservation and Recreation	9,700	
	Michigan Division of Forest Management	40,200	
	Minnesota Department of Natural Resources	55,000	335,253
	Missouri Department of Conservation	67,492	
	Nebraska Department of Forestry, Fish, and Wildlife	4,680	11,050
	New Hampshire Department of Resources and Economic Development Division of Forests and Lands	20,400	
	New Jersey	500	
	New York Department of Environmental Conservation	19,890	
	North Dakota Forest Service	8,299	11,050
	Ohio Department of Natural Resources	15,174	
	Pennsylvania Department of Conservation and Natural Resources	43,000	49,264
	Resources Planning Act		30,000
	Rhode Island Department of Environmental Management	3,883	
	Shawnee National Forest		30,000
	South Dakota Department of Forestry and Natural Resource Management	21,480	11,050
	University of Massachusetts	18,450	
	University of Nevada in Las Vegas	103,855	
	Forest Service Region 9	2,000	
	Forest Service State & Private Forestry Northern Area	68,000	85,032
	Vermont Department of Forests, Parks & Recreation	8,600	
	West Virginia Division of Forestry	49,300	
	Wisconsin Department of Natural Resources	52,600	425,000
NR total		**972,128**	**1,565,750**

Appendix 4.—*Partner Contributions Toward Implementing FIA in FY 2008 (continued).*

Unit	Partner	Contributions toward the base program	Contributions that add value
		- - - - - - - - - *Dollars* - - - - - - - - -	
Pacific Northwest	Alaska Department of Natural Resources	15,000	
	California Department of Forestry	15,000	
	Washington State Department of Natural Resources	20,000	
	Oregon Department of Forestry	35,000	
	University of Montana, Bureau of Business and Economic Research		27,238
	Changes in fragmentation in western Washington, S&PF Forest Health Monitoring		20,000
	Forest Health Monitoring base evaluation monitoring, R&D		9,000
	Summer crew housing		4,000
	Forest Service Region 5		680,328
	Forest Service Region 6		865,872
PNW total		**85,000**	**1,606,438**
Southern	Alabama Forestry Commission	155,330	9,825
	Arkansas Forestry Commission	143,744	
	Florida Department of Agriculture and Consumer Services	64,726	6,525
	Forest Health Management Detection Survey		13,000
	Forest Health Monitoring		12,500
	Georgia Forestry Commission	206,600	12,675
	International Institute of Tropical Forestry	120,641	
	Kentucky Division of Forestry	107,003	21,750
	Mississippi Forestry Commission		8,325
	North Carolina Division of Forest Resources		13,050
	South Carolina Forestry Commission	97,128	5,100
	Tennessee Department of Agriculture	110,174	26,175
	Texas Forest Service	303,139	4,950
	Urban Forestry		38,000
	Virginia Department of Forestry	123,838	14,100
	Forest Health Monitoring project, S&PF Cooperative Forestry		13,000
	Crowns, S&PF Cooperative Forestry		12,500
	Forest Service Southern Region, Urban Forestry		25,000
SRS total		**1,432,323**	**185,975**
Grand total, all FIA units		**2,489,451**	**4,015,607**

Appendix 5.—*Grants and Agreements Entered Into by FIA Units, FY 2008.*

Unit	Amount	Recipient	Purpose
	Dollars		
Interior West	270,417	Colorado State Forest Service	Implementation of annual FIA
	75,000	Colorado State Forest Service	Urban FHM pilot, field plots
	211,180	University of Montana, Bureau of Business and Economic Research	Forest industry timber products analysis for the Interior West States
	148,000	University of Nevada, Las Vegas	Support for MIDAS data recorder software
	104,000	Rocky Mountain Research Station	Soils indicator lead and sample analysis
IW total	**808,597**		
National Office	80,000	International Institute of Tropical Foresty	Implementation of annual FIA
	33,000	Northeastern Area S&PF	Damage indicators
	70,000	One time Interior West allocation for New Mexico	Implementation of annual FIA
	15,000	Conservation Biology Institute	Protected areas database
	675,000	University of Nevada in Las Vegas	Information Management
	279,000	Research Triangle Park FHM Unit	National FHM support
NO total	**1,152,000**		
Northern	128,983	Indiana Department of Natural Resources	Implementation of annual FIA
	2,823	Iowa Department of Natural Resources	Implementation of annual FIA
	230,000	Jameson Professional Services	Implementation of annual FIA
	64,452	Kansas State University	Implementation of annual FIA
	401,425	Maine Forest Service	Implementation of annual FIA
	335,253	Minnesota Department of Natural Resources	Implementation of annual FIA
	4,253	North Dakota State University	Implementation of annual FIA
	56,229	South Dakota Department of Forestry and Natural Resource Mgmt.	Implementation of annual FIA
	14,027	North Dakota Contract	Implementation of annual FIA
	10,000	Northern Research Station Grand Rapids	Soil analyses
	45,522	University of Missouri	Soil sample processing
	416,000	University of Nevada in Las Vegas	Information management (for all units)
	27,667	Kera Enterprise	Administrative support
	62,250	University of Massachusetts	National ozone indicator advisor
	15,000	Conservation Biology Institute	Protected area database enhancement
	25,000	American Forest Foundation	Sustaining family forests initiative
	80,000	Southern Research Station RTP	Forest resource supply and demand projections for Northern States
	30,000	University of Massachusetts - Amherst	Private forest owners research
	27,779	Mississippi State University	FHM
	50,000	Colorado State University	Carbon inventories
NRS total	**2,026,663**		

Appendix 5.—*Grants and Agreements Entered Into by FIA Units, FY 2008 (continued).*

Unit	Amount	Recipient	Purpose
Pacific Northwest	233,331	Oregon State University	Regional and national lichen analysis and QA/QC coordination
	60,000	Oregon State University	Using high-density airborne LIDAR to improve the accuracy of mapped forest inventory variables
	14,471	Oregon State University	Inventory and modeling of changes in subalpine forests, tree line, and alpine plant communities using permanent plot systems and predictive mapping
	56,294	University of Alaska, Fairbanks	Projection of forest growth and yield in coastal Alaska
	422,590	University of Montana	Pacific States forest industry and timber harvest analysis
	38,635	University of Nevada Las Vegas	Information management projects
PNW total	**825,321**		
Southern	465,991	Alabama Forestry Commission	Implementation of annual FIA
	431,231	Arkansas Forestry Commission	Implementation of annual FIA
	194,179	Florida Dept. of Agric. and Consumer Services	Implementation of annual FIA
	514,798	Georgia Forestry Commission	Implementation of annual FIA
	321,006	Kentucky Division of Forestry	Implementation of annual FIA
	405,609	North Carolina Department of Environment and Natural Resources	Implementation of annual FIA
	291,383	South Carolina Forestry Commission	Implementation of annual FIA
	330,521	Tennessee Department of Agriculture	Implementation of annual FIA
	909,416	Texas Forest Service	Implementation of annual FIA
	371,514	Virginia Department of Forestry	Implementation of annual FIA
	90,000	University of Nevada Las Vegas	Information management
	97,445	Small Business Innovation Research	Coop agreement assessment
SRS total	**4,423,093**		
Grand total	**9,235,674**		

Appendix 6.—*Number and Hours of Significant Consultations by FIA Staff, by Customer Group, FY 2008.*

Customer group	Pacific Northwest		Interior West		Southern		Northern		National Office		Total	
	No.	*Hours*	*No.*	*Hours*	*No.*	*Hours*	*No.*	*Hours*	*No.*	*Hours*	*No.*	*Hours*
Academic	32	247	47	226	228	793	39	262	3	20	349	1,548
Government	33	474	98	486	387	1,375	63	567	6	50	587	2,952
Industry	7	35	-	-	245	524	28	62	2	5	282	626
NGO[a]	12	66	16	98	79	170	26	172	4	50	137	556
NIPF[b]	-	-	5	8	116	191	1	1	1	3	123	203
Media	2	3	3	3	14	28	3	12	4	15	26	61
Other	8	305	11	29	121	350	14	21	1	5	155	710
Total	**94**	**1,130**	**180**	**850**	**1,190**	**3,431**	**174**	**1,097**	**21**	**148**	**1,659**	**6,656**

[a] *NGO = nongovernmental organization.*

[b] *NIPF = nonindustrial private forest landowner.*

Appendix 7.—*Land and Forest Area and FIA Annualized Implementation Status by State and Region, FY 2004-2009.*[a]

Region and State	Land area	Forest area	Entry year	2004	2005	2006	2007	2008	2009 (plan)
	----------Thousand acres----------								
Northern									
Connecticut	3,101	1,859	2003	1,859	1,859	1,859	1,859	1,859	1,859
Delaware	1,251	383	2004	383	383	383	383	383	383
Illinois	35,580	4,331	2001	4,331	4,331	4,331	4,331	4,331	4,331
Indiana	22,957	4,501	1999	4,501	4,501	4,501	4,501	4,501	4,501
Iowa	35,760	2,050	1999	2,050	2,050	2,050	2,050	2,050	2,050
Kansas	52,367	1,545	2001	1,545	1,545	1,545	1,545	1,545	1,545
Maine	19,753	17,699	1999	17,699	17,699	17,699	17,699	17,699	17,699
Maryland	6,295	2,566	2004	2,566	2,566	2,566	2,566	2,566	2,566
Massachusetts	5,016	3,126	2003	3,126	3,126	3,126	3,126	3,126	3,126
Michigan	36,359	19,281	2000	19,281	19,281	19,281	19,281	19,281	19,281
Minnesota	50,955	16,680	1999	16,680	16,680	16,680	16,680	16,680	16,680
Missouri	44,095	13,992	1999	13,992	13,992	13,992	13,992	13,992	13,992
Nebraska	49,201	947	2001	947	947	947	947	947	947
New Hampshire	5,740	4,818	2002	4,818	4,818	4,818	4,818	4,818	4,818
New Jersey	4,748	2,132	2004	2,132	2,132	2,132	2,132	2,132	2,132
New York	30,223	18,432	2002	18,432	18,432	18,432	18,432	18,432	18,432
North Dakota	44,156	672	2001	672	672	672	672	672	672
Ohio	26,210	7,855	2001	7,855	7,855	7,855	7,855	7,855	7,855
Pennsylvania	28,685	16,905	2000	16,905	16,905	16,905	16,905	16,905	16,905
Rhode Island	668	385	2003	385	385	385	385	385	385
South Dakota	48,574	1,619	2001	1,619	1,619	1,619	1,619	1,619	1,619
Vermont	5,920	4,618	2003	4,618	4,618	4,618	4,618	4,618	4,618
West Virginia	15,415	12,108	2004	12,108	12,108	12,108	12,108	12,108	12,108
Wisconsin	34,761	15,963	2000	15,963	15,963	15,963	15,963	15,963	15,963
Southern									
Alabama	32,481	22,987	2001	22,987	22,987	22,987	22,987	22,987	22,987
Arkansas	33,328	18,771	2000	18,771	18,771	18,771	18,771	18,771	18,519
Florida	34,520	16,285	2001	16,285	16,285	16,285	16,285	16,285	16,718
Georgia	37,068	24,405	1998	24,405	24,405	24,405	24,405	24,405	24,896
Kentucky	25,428	12,684	1999	12,684	12,684	12,684	12,684	12,684	12,129
Louisiana	27,883	13,812	2000	13,812	13,812	13,812	13,812	13,812	14,138
Mississippi	30,025	18,580	2007				18,580	18,580	18,580
North Carolina	31,180	19,302	2003	19,302	19,302	19,302	19,302	19,302	18,595
Oklahoma	43,955	7,665	2008					7,665	7,665
South Carolina	19,272	12,495	1998	12,495	12,495	12,495	12,495	12,495	12,894
Tennessee	26,381	14,396	1999	14,396	14,396	14,396	14,396	14,396	13,951
Texas	167,626	17,149	2000	17,149	17,149	17,149	17,149	17,149	12,099
Virginia	25,343	16,074	1998	16,074	16,074	16,074	16,074	16,074	15,724
Interior West									
Arizona	72,732	19,427	2001	19,427	19,427	19,427	19,427	19,427	19,427
Colorado	66,387	21,637	2002	21,637	21,637	21,637	21,637	21,637	21,637
Idaho	52,960	21,646	2004	21,646	21,646	21,646	21,646	21,646	21,646
Montana	93,157	23,293	2003	23,293	23,293	23,293	23,293	23,293	23,293
Nevada	70,276	10,204							
New Mexico	77,674	16,682	2008					16,682	16,682
Utah	52,587	15,676	2000	15,676	15,676	15,676	15,676	15,676	15,676
Wyoming	62,147	10,995							

Appendix 7.—*Land and Forest Area and FIA Annualized Implementation Status by State and Region, FY 2004-2009[a] (continued).*

Region and State	Land area	Forest area	Entry year	2004	2005	2006	2007	2008	2009 (plan)
	----------Thousand acres----------								
Pacific Northwest									
Alaska, Coast	39,041	13,718	2003	13,718	13,718	13,718	13,718	13,718	13,718
Alaska, Int.	326,000	113,151							
California	99,824	40,233	2001	40,233	40,233	40,233	40,233	40,233	40,233
Hawaii	4,111	1,748							
Oregon	61,442	29,651	2000	29,651	29,651	29,651	29,651	29,651	29,651
Washington	42,612	21,790	2002	21,790	21,790	21,790	21,790	21,790	21,790
TOTAL	**2,263,230**	**748,923**		**569,898**	**569,898**	**569,898**	**588,478**	**612,825**	**607,115**
Forest area performance measure, excluding HI, interior AK				90%	90%	90%	93%	97%	96%
Forest area performance measure, including HI, interior AK				76%	76%	76%	79%	82%	81%
State activity performance measure, includes all active States				**88%**	**88%**	**88%**	**90%**	**94%**	**94%**

AK = Alaska, HI = Hawaii

[a] *Based on area from Forest Resources of the United States, 2002, and entry year into annualized inventory.*

Appendix 8.—*Status of FIA Special Project Areas Excluded From Annualized Inventory.*

Region and area	Land area in inventory	Forest area	Percentage forest	Number of major islands	Year of current inventory	Year of published report	Total Phase 2 plots[a]	Total Phase 3 plots	Available online data
Pacific (PNW):	*- - - - - Acres- - - -*								
American Samoa	48,434	43,631	90	4	2001	2004	21		Yes
Guam	135,660	63,833	47	1	2002	2004	46		Yes
Palau	110,028	90,685	82	10	2003	2007	54		Yes
Commonwealth of the Northern Mariana Islands	75,546	51,009	68	3	2004	1989	35		No
Federated States of Micronesia	161,917	143,466	89	10	2005-2006	1986-87	73		No
Marshall Islands	33,182	23,230	70	10	2008		44		No
Hawaii	4,141,469	1,990,000	48	8		1988			
Atlantic (SRS):									
Commonwealth of Puerto Rico	2,191,815	1,260,625	57	3	2003	2007	373	61	Yes
U.S. Virgin Islands	85,590	52,478	61	3	2004	2007	73	40	Yes
Total	**6,983,641**	**3,718,957**	**612**	**52**			**719**	**101**	

[a] *Partial suite of Phase 3 data collected on all plots in Pacific region.*

Publications for Appendix 8

American Samoa

Donnegan, J.A.; Mann, S.S.; Butler, S.L.; Hiserote, B.A. 2004. American Samoa's forest resources, 2001. Resour. Bull. PNW-RB-244. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 32 p.

Guam

Donnegan, J.A.; Butler, S.L.; Grabowiecki, W.; Hiserote, B.A.; Limtiaco, D. 2004. Guam's forest resources, 2002. Resour. Bull. PNW-RB-243. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 32 p.

Republic of Palau

Donnegan, J.A.; Butler, S.L.; Kuegler, O.; and others. 2007. Palau's forest resources, 2003. Resour. Bull. PNW-RB-252. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 52 p.

Commonwealth of the Northern Mariana Islands

Falanruw, M.C.; Cole, T.G.; Ambacher, A.H. 1989. Vegetation survey of Rota, Tinian, and Saipan, Commonwealth of the Northern Mariana Islands. Resour. Bull. PSW-RB-27. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 11 p.

Federated States of Micronesia

Falanruw, M.C.; Cole, T.G.; Ambacher, A.H. 1987. Vegetation survey of Moen, Dublon, Fefan, and Eten, State of Truk, Federated States of Micronesia. Resour. Bull. PSW-RB-20. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 6 p.

Falanruw, M.C.; Whitesell, C.D.; Cole, T.G.; MacLean, C.D.; Ambacher, A.H. 1987. Vegetation survey of Yap, Federated States of Micronesia. Resour. Bull. PSW-RB-21. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 9 p.

MacLean, C.D.; Cole, T.G.; Whitesell, C.D.; Falanruw, M.V.; Ambacher, A.H. 1986. Vegetation survey of Pohnpei, Federated States of Micronesia. Resour. Bull. PSW-RB-18. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 9 p.

Whitesell, C.D.; MacLean, C.D.; Falanruw, M.C.; Cole, T.G.; Ambacher, A.H. 1986. Vegetation survey of Kosrae, Federated States of Micronesia. Resour. Bull. PSW-RB-17. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 8 p.

Marshall Islands

Figures reported above are from NASF: http://www.stateforesters.org/statistics/FY98_Statistics/Resource%20Base.htm. Also see: Bolsinger, C.L. 2000. Forest inventory information needs assessment for the Territory of Guam, Republic of the Marshall Islands, and the State of Hawaii with emphasis on the Island of Maui. Professional Services Contract: David Evans and Associates, Inc., Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 102 p.

Hawaii

Buck, M.G.; Branam, J.M.; Stormont, W.T. 1988. The multiresource forest inventory for Kauai, Hawaii. Resour. Bull. PNW-RB-156. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 35 p.

Buck, M.G.; Branam, J.M.; Stormont, W.T.; Costales, P.G. 1988. The multiresource forest inventory for Oahu, Hawaii. Resour. Bull. PNW-RB-155. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 35 p.

Buck, M.G.; Costales, P.G.; McDuffie, K. 1986. The multiresource forest inventory for Molokai, Hawaii. Resour. Bull. PNW-RB-136. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 18 p.

Puerto Rico

Brandeis, T.J.; Helmer, E.H.; Oswalt, S.N. 2007. The status of Puerto Rico's forests, 2003. Resour. Bull. SRS–119. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 72 p.

Brandeis, T.J.; Helmer, E.H.; Oswalt, S.N. 2007. Elestado de los bosques de Puerto Roco, 2003. Resour. Bull. SRS–RB–119 (Espanol). Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 72 p.

U.S. Virgin Islands

Brandeis, Thomas J.; Oswalt, Sonja N. 2007. The status of U.S. Virgin Islands' forests. Resour. Bull. SRS–122. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 61 p.

Appendix 9.—*FIA summary statistics and performance measures for 2001–2008.*

	2001	2002	2003	2004	2005	2006	2007	2008
Program funds								
Apropriated funds[1]	45,697	50,523	56,234	56,652	60,881	63,641	63,605	64,641
Other Federal funds[2]	3,460	5,397	3,437	6,073	1,776	1,775	1,272	1,559
Total Federal funds	**49,157**	**55,920**	**59,671**	**62,725**	**62,657**	**65,416**	**64,877**	**66,200**
Total partner funds	8,291	8,656	10,164	7,479	6,379	7,034	7,204	6,505
Total available funds	**57,179**	**64,574**	**69,834**	**70,204**	**69,036**	**72,450**	**72,081**	**72,705**
% Full Federal appropriated funding	**75%**	**79%**	**84%**	**82%**	**83%**	**87%**	**87%**	**88%**
Program expenses and balances								
Administration	2,867	3,306	3,172	3,430	3,065	3,104	3,031	2,785
Image processing	1,362	905	967	940	1,218	919	1,300	1,198
Field support	2,253	2,154	2,252	2,786	2,940	3,287	3,175	3,357
Data collection[3]	17,323	20,891	22,514	22,461	23,470	25,106	23,630	22,989
Information management[3]	5,849	5,801	6,719	9,448	7,394	6,890	7,431	6,108
Analysis	3,493	3,440	3,484	3,967	4,161	4,499	4,518	5,147
Research[3]	4,117	3,413	4,312	3,975	3,477	3,422	4,799	5,033
Miscellaneous/other	1,180	627	3,829	4,351	3,963	5,231	3,454	3,406
Total direct expense	**38,444**	**40,535**	**47,249**	**51,357**	**49,687**	**52,458**	**51,338**	**50,023**
Total indirect expenses	**9,228**	**13,025**	**11,123**	**8,919**	**11,313**	**12,587**	**13,194**	**13,586**
Total Federal expense	**47,672**	**53,560**	**58,372**	**60,277**	**61,000**	**65,045**	**64,532**	**63,608**
Fire transfer[4]								**2,318**
Total EOY balance	**1,485**	**2,359**	**1,298**	**2,448**	**1,657**	**371**	**345**	**273**
Total Federal funds	**49,157**	**55,920**	**59,671**	**62,725**	**62,657**	**65,416**	**64,877**	**66,200**

Appendix 9.—*FIA summary statistics and performance measures for 2001-2008 (continued).*

	2001	2002	2003	2004	2005	2006	2007	2008
Category as % of total Federal funds								
Administration	5.8%	5.9%	5.3%	5.5%	4.9%	4.7%	4.7%	4.2%
Image Processing	2.8%	1.6%	1.6%	1.5%	1.9%	1.4%	2.0%	1.8%
Field support	4.6%	3.9%	3.8%	4.4%	4.7%	5.0%	4.9%	5.1%
Data collection	35.2%	37.4%	37.7%	35.8%	37.5%	38.4%	36.4%	34.7%
Information management	11.9%	10.4%	11.3%	15.1%	11.8%	10.5%	11.5%	9.2%
Analysis	7.1%	6.2%	5.8%	6.3%	6.6%	6.9%	7.0%	7.8%
Research	8.4%	6.1%	7.2%	6.3%	5.5%	5.2%	7.4%	7.6%
Miscellaneous/other	2.4%	1.1%	6.4%	6.9%	6.3%	8.0%	5.3%	5.1%
Indirect	18.8%	23.3%	18.6%	14.2%	18.1%	19.2%	20.3%	20.5%
Fire transfer								3.5%
EOY balance	3.0%	4.2%	2.2%	3.9%	2.6%	0.6%	0.5%	.4%
Total % all categories	100%	100%	100%	100%	100%	100%	100%	100%
Grants as % of total Federal funds								
Fieldwork grants	11.4%	9.8%	14.4%	10.1%	9.6%	11.8%	11.3%	9.1%
Research grants	5.0%	2.7%	3.4%	2.7%	1.5%	1.8%	3.3%	2.7%
Data/information grants	1.6%	1.2%	2.6%	4.1%	2.0%	1.7%	2.7%	2.1%
Total % all Federal grants	18.0%	13.6%	20.4%	16.9%	13.1%	15.4%	17.3%	14.0%
Partner funds as % of total program funds								
All partner contributions	14.8%	13.9%	14.8%	11.0%	9.5%	9.7%	11.1%	9.8%
Other measures								
% States with annual activity	56	64	78	88	88	88	90	94
% States with FIADB 1-2 yrs old	n/a	10	28	56	80	84	90	90
Federal employees	374	400	403	426	447	410	387	389
Other employees	179	160	180	166	179	171	179	173
Total employees	553	560	583	592	626	581	566	562
P2/3 forest plots	14,927	16,108	17,182	16,036	15,675	18,245	19,880	18,208
P2/3 nonforest plots	24,982	24,459	29,592	29,532	24,445	24,190	24,757	29,351
Total plots	39,909	40,567	46,774	45,568	40,120	42,435	44,637	47,559
All QA plots	1,658	1,889	2,332	2,874	3,584	3,382	3,664	4,860
Percent QA plots	4%	5%	5%	6%	9%	8%	8%	10%
All publications	116	167	138	114	164	182	135	172
Journal publications	28	28	23	25	34	45	37	65
Percent journal publications	24%	17%	17%	22%	21%	25%	27%	38%
Consultations, number	921	819	1,450	1,566	1,510	1,608	1,571	1,659
Consultations, hours	3,751	2,978	4,514	4,899	5,612	5,527	5,767	6,656
User/mangement meetings	14	18	16	20	23	16	16	10
Spatial data requests filled	n/a	29	44	66	145	347	492	100
MapMaker accesses, FVS, FTE, FIDO	n/a	11,579	14,973	26,543	56,475	24,335	27,570	59,609

[1] *Net of rescissions.*

[2] *Includes return of previous year carryover, return of fire transfers and additional Research Deputy commitments.*

[3] *Includes Federal grants and agreements.*

[4] *Prior to 2008, fire transfer was included in "Indirect expenses."*