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Fiscal Year 2006 Business Report

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Introduction

The Forest Inventory and Analysis (FIA) program of the Forest Service, U.S. Department of Agriculture, 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) 2006 (October 1, 2005, through September 30, 2006), 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 decisionmaking 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

Rescissions, national assessments, 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 in 2000 should have grown to \$6.5 million adjusted for inflation by 2006, but only \$4.3 million was provided. Continued losses in this funding are placing cooperative support for States at risk. Increases on the Research and Development side have largely gone to national assessments funding the Albuquerque Service Center. This has been offset by lower indirect costs at the unit level.

We have changed the "Total plots and percent sampled" section of Appendix 1 to more clearly reflect regional accomplishments based on inclusion of funds and support from States. Although Congress targeted a 7-year cycle in the East and 10 years in the West, most Eastern States contribute funds to attain a 5-year cycle.

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. Because each unit is expected to share some of the national analysis burden, the interunit 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, we have added Appendix 9, which provides an 8-year 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 have been revised to conform to new 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.

provides a single national platform for processing FIA data and posting it on the Web. Our Internet resources processed 24,335 completed data retrievals where FIA customers obtained user-defined tables and maps of interest, along with 566 retrievals by users of the Forest Vegetation Simulator (FVS), which uses FIA data as one source of input data for modeling forest growth and yield.

Program Changes in FY 2006

In FY 2006, the FIA program completed the 8th 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. Owing to lack of full funding, we are still more than 2 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 2006 was still \$9.7 million short of the target levels required to complete this transition. Owing to a continuing resolution budget in FY 2007 that holds funding to the FY 2006 level, little progress is expected toward full implementation unless other funding sources are identified.

The FIA program did not add any new sampling protocols in FY 2006 other than continuing the Nevada pilot

study on new techniques and initiating a closeout periodic inventory of Mississippi with emergency funds in the wake of Hurricane Katrina. We completed the development of a vegetative diversity measurement protocol, which should be ready for implementation in 2007, subject to availability of requisite funding.

Program Resources

Appendix 2 shows Federal funding available for the FIA program in 2006 totaled \$65,415,865, a net increase of \$2,759,337 from the previous year’s total available funding of \$62,656,528. The funding consisted of \$63,641,000 appropriated by Congress specifically for FIA, \$1,040,000 in special funds for post-Katrina Mississippi inventory and an urban pilot, plus \$734,865 in unspent FIA funds from the previous fiscal year, which should have been available for FIA in FY 2006 adjusted for any post-year actions.

Congress currently appropriates funds annually for the FIA program in two different Forest Service deputy areas: (1) Research and Development and (2) S&PF. Historically, most FIA funding was contained within the research budget of the USDA Forest Service. In FY 2006, the amount of research money provided by Congress for the FIA program was \$59,329,000, an increase of \$3,406,000 over the FY 2005 level of \$55,923,000 (app. 2). This total includes \$4,312,000 in the S&PF Forest Resource Inventory and Analysis budget line (a decrease of \$646,000 below the 2005 level of \$4,958,000) to support the FIA program in those States that provide cost-share contributions. Cost-share States contributed an additional \$7,033,592 (app. 9) toward enhancing the FIA program in 2006. Thus, after all contributions and adjustments, a total of \$72,449,457 was available to the FIA program in FY 2006.

The overall indirect rate averaged 19 percent for the program in FY 2007 (fig. 2) compared to 18 percent in FY 2006. 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 (app. 2) in FIA field units in 2006 ranged from about 9 to 15 percent across the country for field units (app. 2), reflecting differences in both

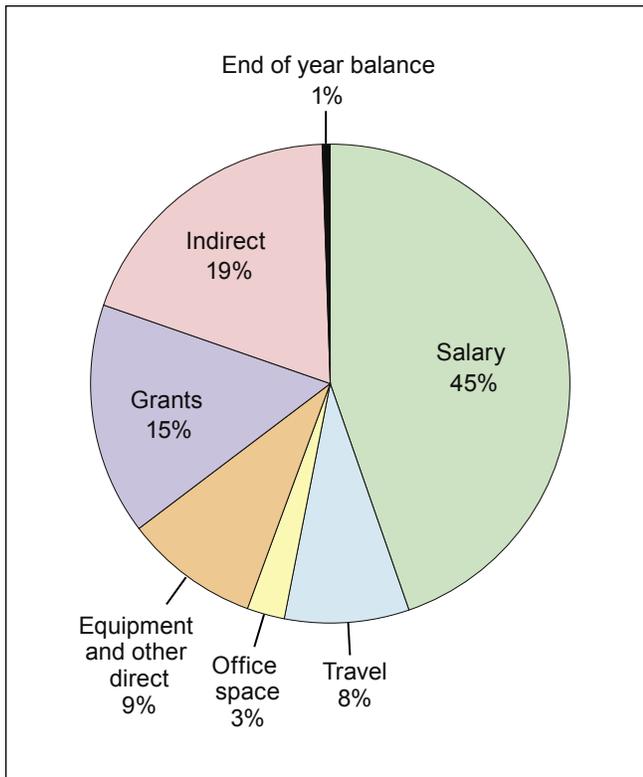


Figure 2—FIA program expenditures by category, 2006.

sources of funding as well as research station overhead assessment practices. The National Office had an 80 percent rate of indirect cost because its FIA budget includes the USDA overhead and program-wide charges to the new Albuquerque Service Center for FIA. As these costs shifted to the national office, regional indirect rates have begun to decline, a trend that should continue into FY 2007. Figure 3 shows the total appropriated funding available for FIA from FY 1995 to FY 2006 from all sources, as well as the projected future total funding needed to deliver the base Federal program beyond FY 2006. Appendix 9 also shows trend data in FIA performance measures for 1999 through 2006.

In FY 2006, FIA program staffing consisted of 410 Federal person-years of effort (app. 3), down from 447 Federal person-years in FY 2005. The largest change was in data collection staff (declined from 177 to 148 person-years); otherwise, the changes were relatively small and may indicate that our nonfield staffing is approaching the strength needed to implement the program over the long

run. Of the Federal FIA employees, approximately 58 percent were involved in supervising and data collection, 26 percent in analysis and information management, 7 percent in program management and administration, 6 percent in techniques research, and 3 percent in Phase 1 production work (fig. 4). Each of these percentages is within 1 or 2 percent of the 2005 staffing values.

Cooperators, especially State forestry organizations, through grants and agreements, accomplish much of the work done by FIA. In FY 2006, it is estimated that we employed an additional 171 people through this mechanism. These additional employees bring the total number of employees working for FIA to 581 and represent 29 percent of the total FIA workforce.

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 2006, either to achieve the 20-percent program envisioned by Congress or to add value to FIA data in other ways. These

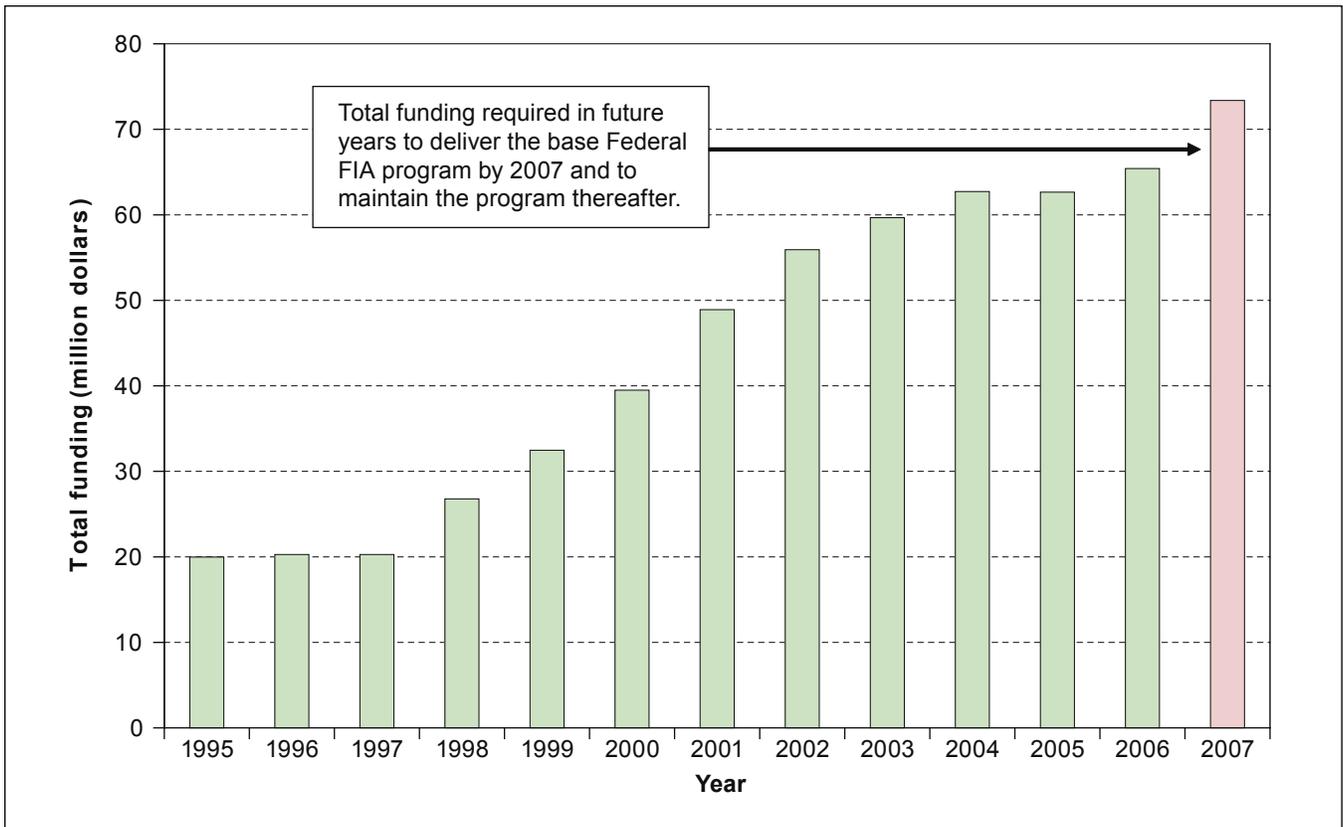


Figure 3—FIA funding level, 1995–2007 (projected).

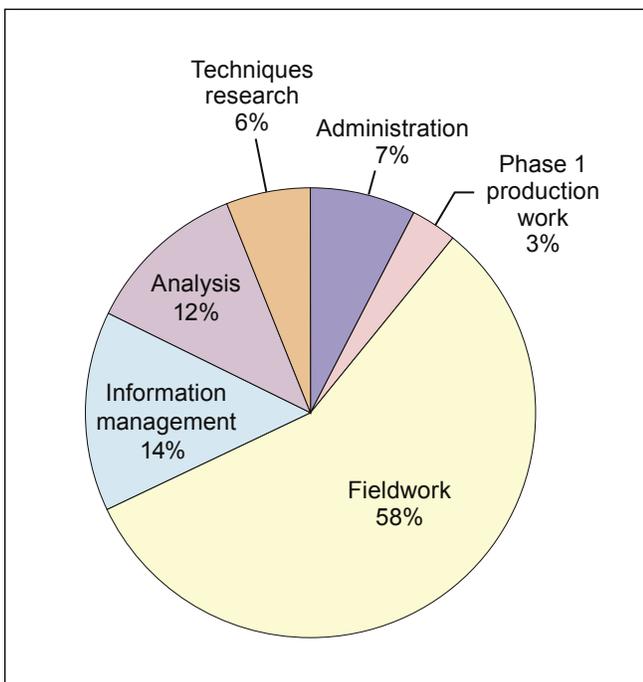


Figure 4—FIA program employees, by job group, 2006.

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 \$2,975,042 toward the full 20 percent FIA program envisioned by Congress, and another \$4,058,550 in contributions that add value to the FIA program, for a total of \$7,033,592 in partners' contributions. This amount is an increase from \$6,370,012 contributed by partners in FY 2005. 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 \$261,815 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 2006, States contributed over \$3.0 million to help implement the basic 20 percent FIA program, plus an additional \$2.9 million to add value to the basic FIA program.

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 complete 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 2006—the start of the 2007 fiscal year. States with 1- to 2-year-old data—the program objective—are shaded green; States with 3- to 5-year-old data are shaded yellow; and States for which data are more than 5 years old are shaded blue. 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 “green” States was 42 in 2006, and the number of “blue” States was 5. The implementation of the FIA NIMS is now paying dividends by allowing us to catch up with the previous data backlog. There are still some delays in loading current data, as annual budgets continue to fall below target levels for full program implementation.

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

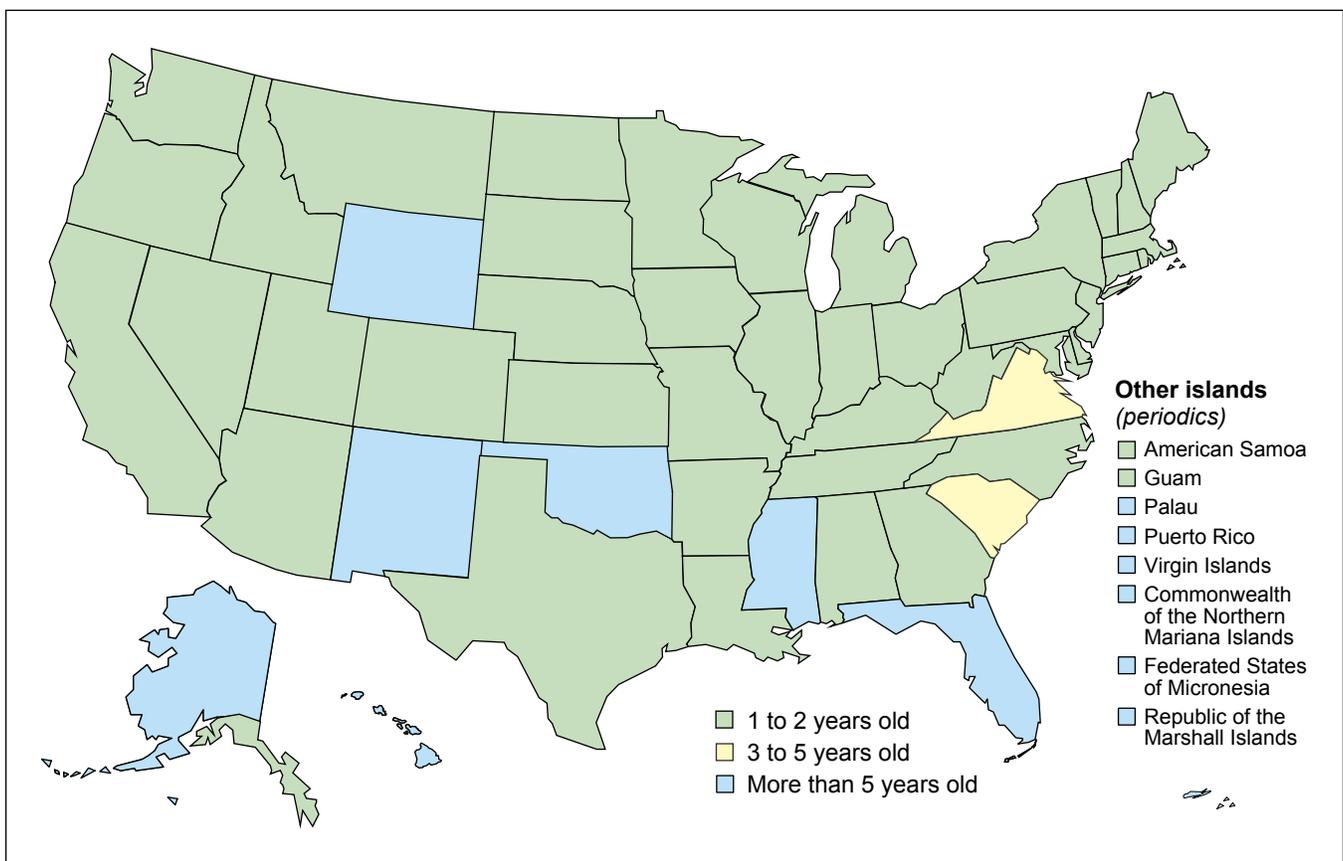


Figure 5—Availability of State FIA data, 2006.

old—the program objectives—are shaded green. States with publications 5 to 10 years old are shaded yellow, and States where the most recent publication reports on data are more than 10 years old are shaded blue. The North leads the Nation in States having reports based on data that are less than 5 years old, with 15 of 24 States. The South is a distant second, with 3 of 13 States less than 5 years old, and owing to the longer base cycle of 10 years, progress is slower in the West.

Fiscal Year 2006 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). Some examples of FIA program accomplishments and outcomes for FY 2006 follow:

West Coast

Finding: Scientists predict the effect of climate change on wildfire severity and outcomes in California.

Accomplishment: Subtle shifts in fire behavior of the sort that might be induced by the climate changes anticipated for the next century are of sufficient magnitude to generate an appreciable increase in the number of fires that escape initial attack, at least for areas where brush fuels dominate. Such escapes are of considerable importance in wildland fire protection planning, given the high cost to society of a catastrophic escape like those experienced in recent decades in the Berkeley-Oakland, Santa Barbara, San Diego, or Los Angeles areas. The method used in this study was conservative, sampling from historical distributions, but, lacking input from larger scale dynamics as represented by a regional climate model, it may underestimate the effect of

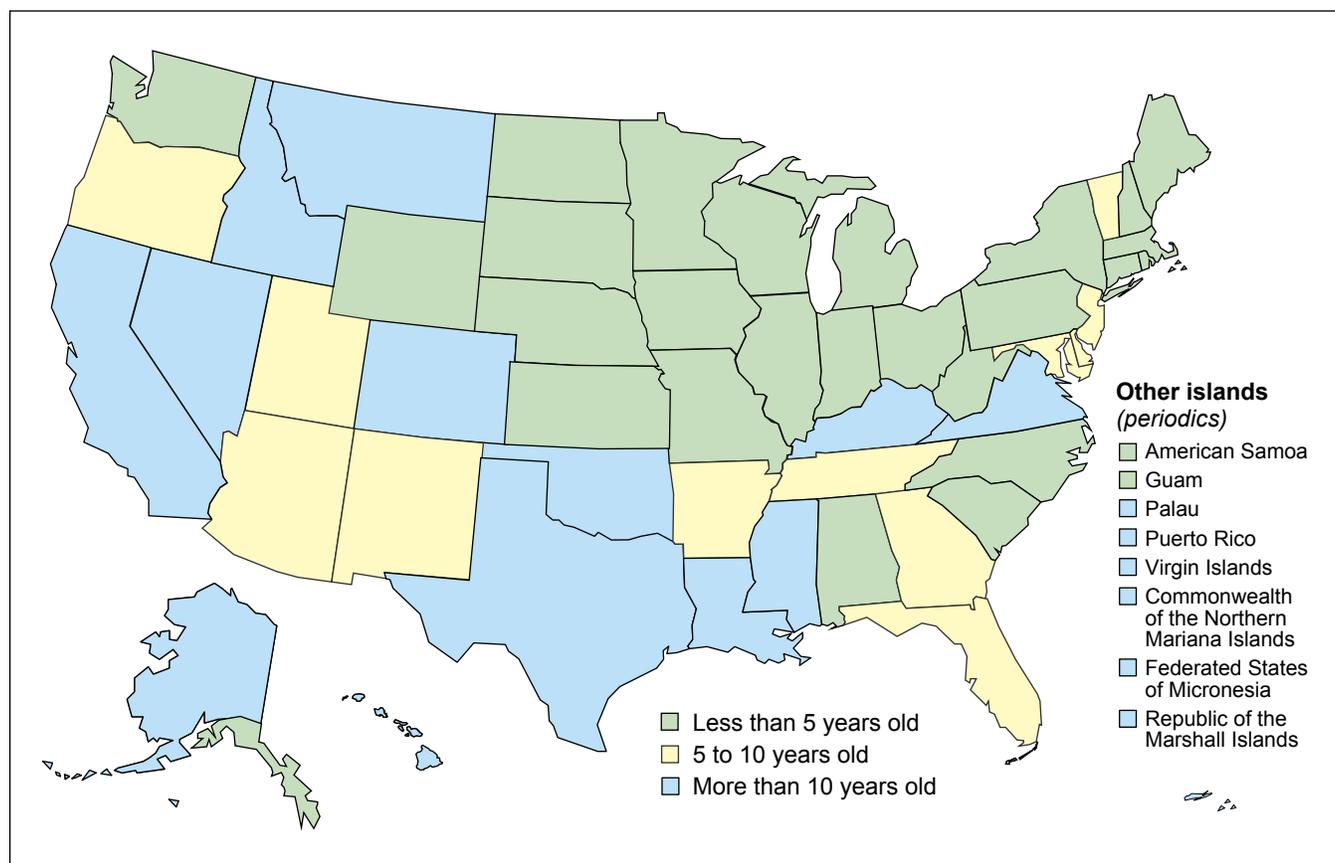


Figure 6—Publication status of State reports, 2006.

climate change on wind fields. At least for the limited region in the Sierra Nevada considered in this study, it would appear that relatively modest augmentations to existing firefighting resources would be sufficient to compensate for climate change in wildland fire outcomes.

Outcome: This is a white paper that was prepared for the California Energy Commission's Governor's Science Report as a basis for action on climate change in the State.

Fried, J.S.; Gillies, J.K.; Riley, W.J. [and others]. 2006. Predicting the effect of climate change on wildfire severity and outcomes in California: preliminary analysis. California Climate Change Center white paper CEC_500_2005_196_SF, Sacramento, CA 47 p. http://www.energy.ca.gov/2005publications/CEC-500-2005-196/CEC_500-2005-196-SF.PDF.

Contact: Jeremy Fried, jsfried@fs.fed.us, Pacific Northwest Research Station, FIA

Partners: University of California, Berkeley; Lawrence Berkeley National Laboratory, Center for Isotope Geochemistry; Universidad Rey Juan Carlos; ATMOS Research and Consulting

Finding: New inventory shows diversity of south-central Alaska forests.

Accomplishment: Southeast Alaska has about 18.5 million acres, of which two-thirds are vegetated. Four million acres are forest land, and about 14.5 million acres have nonforest vegetation (herbs and shrubs). Species diversity is greatest in closed and open Sitka spruce forests, spruce woodlands, closed tall alder shrub type, and low shrub willow type. About 1.3 million acres of forest land are reserved from harvest; these reserved areas are primarily on the Kenai National Wildlife Refuge, national parks, and the Chugach National Forest. The volume of timber on timberland was estimated at 5,087 million cubic feet; 44 percent is on State and local government lands, 28 percent on private lands, and 23 percent on national forest. Fifty-seven percent of timberland acres and 93 percent of growing-stock volume is in sawtimber stands, with Sitka spruce forest type predominating. Most timberland in south-central Alaska is

of relatively low productivity, producing less than 50 cubic feet per acre per year.

Outcome: Summarized information on the extent, ownership, and change (growth, mortality, and harvest) of forest and nonforest vegetation in south-central Alaska is needed by a variety of Alaska clients to better understand their State's resource and to aid in land management decisions or public input to those decisions.

Campbell, S.; van Hees, W.S.; Mead, B.R. 2005. South-central Alaska forests: inventory highlights. Gen. Tech. Rep. PNW-GTR-652. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 28 p.

Contact: Sally Campbell, scampbell01@fs.fed.us, Pacific Northwest Research Station, FIA

Finding: New inventory shows western juniper has expanded its range in eastern Oregon.

Accomplishment: Western juniper has expanded its range across eastern Oregon over the past 100 years. The 1987 inventory was done mostly from aerial photography with approximately 50 ground plots and an expectation that the inventory did not capture all the juniper forest land, owing to smaller junipers that were not visible from aerial photographs. This inventory was designed to investigate both plots that were juniper forest and those that were thought to have less than 10 percent juniper tree cover. Nearly 800,000 acres of land that was classed as having less than 10 percent tree cover in 1987, and therefore not juniper forest, were found to have enough stocking to be called juniper forest. The estimated area of juniper forest was approximately 3.5 million acres as opposed to the 1987 estimate of 2.2 million. Approximately 3.2 million acres were classed as juniper savanna, and we estimated that over 2 million acres that were determined to have no juniper in 1987 from aerial photography, and were mostly classed as juniper savanna, actually had juniper present. Juniper tends to grow in multi-aged stands. Using stand size class as a surrogate for stand age, the number of seedlings tends to decrease as cover and stand size increase.

Outcome: The area occupied by juniper was estimated to be around 1.5 million acres in 1936. This inventory estimated the area of savanna and juniper forest combined to be over 6.5 million acres. The amount of land that is classed as juniper forest should continue to increase in the future, owing to the presence of seedlings and their development on savanna lands.

Azuma, D.L.; Hiserote, B.A.; Dunham, P.A. 2005. The western juniper resource of eastern Oregon. Resour. Bull. PNW-RB-249. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 18 p.

Contact: David Azuma, dazuma@fs.fed.us, Pacific Northwest Research Station, FIA

Interior West

Finding: Historical forest disturbance of the Allegheny National Forest mapped by FIA and National Aeronautics and Space Administration (NASA).

Accomplishment: Maps of historical forest disturbance, including harvests and natural events, can be used for forest planning and can provide background for policy decisions. FIA is collaborating with NASA, the University of Maryland, and other Forest Service researchers to map historical disturbances across the country. Biennial Landsat satellite imagery from 1984 to 2002 has been acquired for 30 areas (each 185 by 185 km), 9 of which are in the Interior West. Change detection algorithms have been developed that use FIA plot data to identify disturbances and estimate their effects on forest structure. The first Landsat scene to be processed in this way encompassed the Allegheny National Forest (ANF) in northwestern Pennsylvania. Disturbances were mapped in 2-year intervals, and these maps were validated by using forest health sketch maps and national forest harvest records.

Outcome: The disturbance maps resulting from this effort allowed comparison of current ANF disturbance rates with past rates as well as with disturbance trends occurring on neighboring non-Federal land. Estimates of both harvest and total disturbance rates will be included in a 2007 FIA report for the ANF. Similar efforts are underway for each of the

project's 30 sites. This project will add a spatial element to traditional FIA disturbance reporting. Maps of disturbance can be used to update habitat or fuel maps, support landscape-level studies of edge effects, and prioritize recovery and rehabilitation efforts. Leveraging FIA data with satellite imagery in this way may open up new perspectives of how disturbance operates in our forests over both time and space.

Healey, S.P.; Yang, Z.; Cohen, W.B.; Pierce, D.J. 2006. Application of two regression-based methods to estimate the effects of harvest on forest structure using Landsat data. Remote Sensing of Environment. 101: 115–116.

Healey, S.P.; Cohen, W.B.; Yang, Z.; Kennedy, R.E. 2006. Remotely sensed data in the mapping of forest harvest patterns. In: Wulder, M.; Franklin, S.E., eds. Understanding forest disturbance and spatial pattern: remote sensing and GIS approaches. Boca Raton, FL: Taylor and Francis, CRC Press: 63–84.

Contact: Sean Healey, seanhealey@fs.fed.us, and Gretchen Moisen, gmoisen@fs.fed.us, Rocky Mountain Research Station, FIA

Partners: National Aeronautics and Space Administration Goddard Biospheric Sciences; University of Maryland; Laboratory for Applications of Remote Sensing in Ecology, Pacific Northwest Research Station, FIA

Finding: FIA research assists mapping potential vegetation types and canopy fuels for the LANDFIRE Prototype Project.

Accomplishment: The Landscape Fire and Resource Management Planning Tools Prototype Project, or LANDFIRE Prototype Project, began in April 2002 and ended in April 2005. The objective of the LANDFIRE Prototype Project was to develop the methods, tools, and protocols for producing consistent and comprehensive digital maps of current vegetation composition and structure, wildland fuel, historical fire regimes, and fire regime condition class to be applied across the entire United States at a 30-meter spatial resolution. The involvement of the FIA program was identified as a key component to the success of the project. In response, the Interior West FIA (IW-FIA) provided staff

in Missoula, Montana, to assist in data management, interpretation, and utilization of FIA data related to the project as well as to assist in modeling and mapping activities pertaining to potential vegetation and canopy fuels.

Outcome: A general technical report was developed describing the scientific foundations of LANDFIRE and providing details on the methods and results of the LANDFIRE Prototype Project. The report explains the scientific foundation of the project and describes the compilation of a large field-referenced database, including FIA data, to serve as training data for developing predictive landscape models. The report includes chapters on the development of Landsat image catalogs and biophysical gradient layers to serve as spatial predictors for mapping vegetation and wildland fuel characteristics; the development of vegetation and fuel map unit classifications; the development of a suite of vegetation dynamics models for simulating vegetation development over time; the implementation of a landscape succession model (LANDSUMv4) for simulating historical fire regimes and vegetation reference conditions; and the development of maps of surface and canopy fuel and fire effects fuel models for application in wildland fire management planning.

Rollins, M.G.; Frame, C.K., tech. eds. 2006. The LANDFIRE Prototype Project: nationally consistent and locally relevant geospatial data for wildland fire management. Gen. Tech. Rep. RMRS-GTR-175. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 416 p.

Frescino, T.S.; Rollins, M.G. 2006. Mapping potential vegetation type for the LANDFIRE prototype project. In: Rollins, M.G.; Frame, C.K., tech. eds. The LANDFIRE Prototype Project: nationally consistent and locally relevant geospatial data for wildland fire management. Gen. Tech. Rep. RMRS-GTR-175. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 416 p. Chapter 7.

Keane, R.E.; Frescino, T.S.; Reeves, M.C.; Long, J.L. 2006. Mapping wildland fuel across large regions for the LANDFIRE prototype project. In: Rollins, M.G.; Frame, C.K., tech. eds. The LANDFIRE Prototype Project: nationally consistent and locally relevant geospatial data for wildland fire management. Gen. Tech. Rep. RMRS-GTR-175. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 416 p. Chapter 12.

Contact: Tracey Frescino, tfrescino@fs.fed.us, Rocky Mountain Research Station, FIA

Partners: Forest Service, Rocky Mountain Research Station, Missoula Fire Sciences Laboratory; USDI Geological Survey Center for Earth Resource Observation and Science

Finding: FIA research evaluates relative density and stand dynamics across the geographic ranges of species and forest types.

Accomplishment: Stand Density Index (SDI) is a commonly used measure of relative density in forest stands. Each species or forest type has a maximum SDI value that defines the theoretical upper limit of stand density. Silvicultural tools, such as density management diagrams (DMDs) and stand-growth models often use SDI as a basis for projecting self-thinning mortality in dense stands. SDI is also used in standard FIA reporting in the Interior West. However, the maximum SDI values assigned to different species and forest types in the past have been based on highly variable methods and data. As a result, there are regional differences in values used for management and reporting. Because FIA data are geographically comprehensive and unbiased, and are obtained by using well-documented methodology, they have been useful for consistent characterization of relative density over species' entire ranges. FIA data also permit objective testing of factors that may affect SDI maximum values, such as stand composition and ecoregional characteristics.

Outcome: Revised SDI maximum values have been defined by using consistent data and methods for the most common species and forest types of the Interior West. These values have been accepted by the Bureau of Land Management (BLM) and are included in an upcoming summary of BLM forests in Western States. The Forest Service Intermountain Region is coordinating reviews of the revised values with the Northern, Rocky Mountain, and Southwestern Regions. Traditional SDI maximum values for two well-documented species, ponderosa and longleaf pine, have been confirmed by this analysis, and density management diagrams were

developed by using FIA data from the species' entire ranges. In the case of longleaf pine, the "fall-off" of relative density in large-diameter stands has also been modeled and incorporated into the DMD. In related ongoing work, the relative density models are being used to improve stand density projections produced by the FVS. The long-term outcome of this work will be compatibility, through the use of consistent data and methods, among FVS, DMDs, and SDI values used in silvicultural planning and FIA reporting.

Long, J.N.; Shaw, J.D. 2005. A density management diagram for even-aged ponderosa pine stands. *Western Journal of Applied Forestry*. 20(4): 205–215.

Shaw, J.D. 2006. Reineke's Stand Density Index: Where are we and where do we go from here? Proceedings: Society of American Foresters 2005 national convention. Fort Worth, TX. [CD-ROM]: Bethesda, MD: Society of American Foresters.

Shaw, J.D.; Vacchiano, G.; DeRose, R.J.; Brough, A.; Kusbach, A.; Long, J.N. 2006. Local calibration of the Forest Vegetation Simulator (FVS) using custom inventory data. Proceedings: Society of American Foresters 2006 national convention. [CD-ROM]: Society of American Foresters, Bethesda, MD.

Shaw, J.D.; Long, J.N. [In press]. A density management diagram for longleaf pine stands with application to red-cockaded woodpecker habitat. *Southern Journal of Applied Forestry*.

Contact: John D. Shaw, jdshaw@fs.fed.us, Rocky Mountain Research Station, FIA

Partners: Utah State University, Intermountain Region

Northern

Finding: Northern FIA uses unit merger to identify program efficiencies.

Accomplishment: The North Central and Northeastern FIA units were merged into the Northern FIA unit as part of the creation of the new Northern Research Station of the Forest Service. This action created the largest FIA unit in the country in terms of States inventoried, congressional

delegations represented, dollars appropriated, and outside funding leveraged. As part of the merger, we restructured the unit for organizational effectiveness, group cohesiveness, and supervisory efficiency by realigning personnel to eliminate redundancies and fill gaps; streamlining and unifying systems and protocols for collecting, processing, and distributing FIA data; and exploiting newly found critical mass to outreach into previously untapped or underserved markets, such as tactical-level monitoring of northern forests and assessing national carbon stocks. And lastly, representatives from each of the 24 States, 3 NFS regions, and 3 S&PF areas were united into a regional management team to help guide the unit in its delivery of the FIA program across the North.

Outcome: The North is already the only FIA unit in the country to inventory all its States annually, and the efficiencies gained by combining the North Central and Northeastern units will allow us to not only lose no ground in these fiscally tight times but will allow us to fully deliver the FIA program mandated by law, promised in the strategic plan, and expected by customers. Customers are currently benefiting from standard northwide procedures for selecting and navigating to plots, collecting field and quality assurance data, stratifying samples, managing data, producing population estimates, making maps, and reporting and distributing inventory results. Future efficiency reinvestments will allow us to start sampling understory vegetation and invasive species in FY 2007, and move to a consistent inventory cycle northwide by FY 2008.

Contact: Dennis May, dmay@fs.fed.us, Northern Research Station, FIA

Partners: The States of Connecticut, Delaware, Iowa, Illinois, Indiana, Kansas, Massachusetts, Maryland, Maine, Michigan, Minnesota, Missouri, North Dakota, Nebraska, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, Wisconsin, West Virginia; NFS Northern Region, Rocky Mountain Region, and Eastern Region; and S&PF

Finding: FIA researchers integrate estimation engine and applications to produce standardized population estimates and sampling errors.

Accomplishment: The estimation engine code that FIA developed in cooperation with its partners and that implements the procedures in General Technical Report SRS-80, *The Enhanced Forest Inventory and Analysis Program—National Sampling Design and Estimation Procedures*, was optimized for integration with FIA Web services. A Web client data distribution tool, Forest Inventory Data Online (FIDO), was developed to utilize the enhanced Web services. FIA, in collaboration with its partners, developed code for the compilation of down woody material data as published in GTR-NC-256, *Sampling Protocol, Estimation, and Analysis Procedures for the Down Woody Materials Indicator of the FIA Program*.

Outcome: By following the standards of the FIA enterprise architecture for the development of applications, the same estimation engine code developed for the NIMS Compilation System (CS) was reused within the Web services and Web applications that are available to users outside of the program. This resulted in greater efficiency in application development, better consistency in published results, and improved public access to FIA data and reports. Likewise, the down woody material code will be reused in the NIMS-CS and eventually create additional data sets available to users of FIDO.

<http://fiatools.fs.fed.us/fido/statereports/index.html>.

Contact: B. Tyler Wilson, barrywilson@fs.fed.us, Northern Research Station, FIA

Partners: University of Nevada, Las Vegas; University of Minnesota

Finding: National and regional forest inventory map products capitalize on new techniques.

Accomplishment: Maps are an essential way to present forest data collected over large areas. Three geospatial mapping techniques have been developed, tested, and used to produce large area maps of forest land characteristics.

Improvements in two methods that combine, quantify, and cartographically display FIA plot data over space advanced the procedures used for county-level maps as well as more resolute products. A third method researched geospatial mapping techniques that statistically fuse the forest data provided by FIA's vast plot array with multiple climatic and geographic information system (GIS) layers including seasonal satellite imagery. Additionally, an FIA GeoTeam was chartered to recommend cartographic standards and a list of relevant GIS base layers for the national FIA program.

Outcome: Multiple national and Northern Research Station FIA regional forest resource maps were produced to correspond with the FIA statistics used in the Resources Planning Act (RPA) Assessment. These maps provide county-level information on forest area and volume, as well as growth, mortality, and number of trees. Additionally, higher resolution tree species distribution and forest volume maps were produced for the Northern Research Station FIA region by summarizing FIA plot data within a GIS box that moves across a selected cartographic area. Finally, a GIS model was produced that can be used to map many, if not most, of the FIA plot attributes, over entire regions, at a mapping unit resolution of 250 meters. The model was used to produce several tree species distribution and forest volume maps in the Northern Research Station FIA region.

Lister, A.J.; Wilson, B.T. [In press]. Landscape scale mapping of forest inventory data by nearest neighbor classification. In: Proceedings, 8th annual forest inventory and analysis symposium. Gen. Tech. Rep. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station.

Kurtz, C.M.; Kaisershot, D.J.; Gormanson, D.D.; Wazenegger, J. S. [In press]. Forest resources of the United States, 2002: mapping the Renewable Resource Planning Act data. In: Proceedings, 8th annual forest inventory and analysis symposium. Gen. Tech. Rep. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station.

<http://fia.fs.fed.us/program-features/rpa/>

http://fiatools.fs.fed.us/fido/_html/species-maps.html

Contacts: Michael L. Hoppus, mhoppus@fs.fed.us, Northern Research Station, FIA; Dale Gormanson, dgormanson@fs.fed.us, Northern Research Station, FIA; Barry T. Wilson, barrywilson@fs.fed.us, Northern Research Station, FIA

Partners: Remote Sensing Application Center, Salt Lake City, UT; FIA units in Southern Research Station, Rocky Mountain Research Station, and Pacific Northwest Research Station.

Southern

Finding: Invasive plant taxa from forest surveys find increased value through Web delivery tool.

Accomplishment: A Web delivery tool provides users with information on a region-wide strategic survey of 32 important invasive pest plants known to invade forest edge, gap, and interior habitats of southern forests, and 20 additional taxa for Florida. These surveys were initiated in the Southern United States in 2001. The tool is a series of algorithms to make possible timely delivery of readily understandable nonnative invasive plant occurrence observations on forest land by county. Other details also are provided to enable knowledgeable stakeholders to map, model, and analyze these regional observations when combined with traditional tree, forest condition, and plot attributes from the national FIA MapMaker database.

Outcome: County and plot frequency results were used as input to all-land invasive plant databases and in strategic monitoring research projects for taxa such as cogongrass (*Imperata cylindrica*), Japanese honeysuckle (*Lonicera japonica*), kudzu (*Pueraria montana* var. *lobata*), oriental bittersweet (*Celastrus orbiculatus*), privet (*Ligustrum* spp.), and Chinese tallowtree (*Triadica sebifera*). Outside the FIA program, users include the U.S. Geological Survey's National Biological Information Infrastructure and the National Institute of Invasive Species Science, U. S. Forest Service Forest Health Protection, and other Federal agencies, The Nature Conservancy's NatureServe, and State and regional exotic pest plant councils.

Ridley, T.; Rudis, V.A.; Beresford, H. 2006. Forest inventory non-native invasive plant Web-application, version 1.0. Knoxville, TN: U.S. Department of Agriculture, Forest Service, Southern Research Station. http://srsfia2.fs.fed.us/nonnative_invasive/Southern_Nonnative_Invasives.htm].

Contact: Victor A. Rudis, vrudis@fs.fed.us or Ted Ridley, tridley@fs.fed.us, Southern Research Station, FIA

Partners: State forestry agencies in 13 Southern States and Jim Miller, Southern Research Station, Insect, Disease, and Invasive Plant Research Program

Finding: FIA workshops provide clients key service in the South.

Accomplishment: The number and complexity of data requests have increased as FIA implements annual inventories across the South. To help meet this demand, three FIA data workshops were held across the region in order to:

- Inform users of current FIA data request guidelines and privacy laws
- Facilitate access to FIA data on the Internet

Topics covered included:

- Downloading publications from the Web
- Data request procedures
- FIA privacy laws
- Spatial data services
- Downloading raw data files
- Accessing standard FIA tables
- Performing custom FIA queries
- Accessing Timber Product Output regional data
- Southern On-Line Estimator Web site

Between July and September 2006, a total of 31 participants attended FIA data workshops held in Knoxville, TN, Hot Springs, AR, and Auburn, AL. The attendees represented forest industry from both the United States and Canada, private forestry consultant companies, timber investment management organizations, state forestry agencies across the South, university extension foresters, as well as Forest Service personnel from Region 8 NFS and Southern Research Station Research work units.

Outcome: Participants gained a better understanding of accessing and using annual FIA data collected in the South, as well as procedures for requesting spatial data or more complicated data requests. In addition, participants gained an increased understanding of harvest and removals in

the South by using the Southern Timber Product Output database. The feedback received from these sessions made it clear that they were successful. Plans are in place for future sessions across the region and at the Forest Service Eastern/Southern Region University in Columbus, OH, in March 2007.

Contact: Jeffery A. Turner, jturner02@fs.fed.us, Carol J. Perry, cperry@fs.fed.us, Samuel G. Lambert, slambert@fs.fed.us, Tony G. Johnson, tjohnson09@fs.fed.us, James W. Bentley, jbentley@fs.fed.us, and Mike Howell, mhowell@fs.fed.us, Southern Research Station, FIA

Partners: State FIA field personnel and State Utilization and Marketing personnel from the 13 Southern States, National FIA Information Management Band representatives, Pat Miles, Northern FIA, and Paul C. Van Deusen, National Council of Air and Stream Improvement

Finding: Rapid assessment of catastrophic damage provides critical information.

Accomplishment: After providing four separate forest damage assessments to FIA partners and customers immediately following each storm during the hurricane season of 2004, these techniques were placed into operation when Hurricanes Katrina and Rita devastated the Gulf Coast in 2005. The two rapid assessments produced maps delineating the widespread impact of hurricane damage along with accompanying estimates of potential: (1) timber volume mortality, (2) standing live volume with damage, (3) economic valuation of this loss, and (4) forest land acreage impacted.

Outcome: Rapid assessment data were presented during testimonies to Congressional committees, such as Agriculture, for amending legislation and writing new legislation that contains forest recovery provisions and emergency tax relief for forest landowners. These data were used by The Mississippi Forestry Association for developing methodologies to determine costs of providing disaster relief assistance to forest landowners that were presented in congressional testimony. One such result providing tax relief is The Gulf Opportunity Zone Act of 2005. Some of this legisla-

tion provided \$950 million funding for forestry programs to restore healthy forests on private forest land and to develop forest stewardship plans for nonindustrial forest landowners. As done in 2004, some of these assessment data were used by the Forest Service Southern Region, Fire and Aviation Management in developing fire and fuel monitoring reports for planning efforts. Forest Service Southern Region, S&PF also made use of the damage assessment information. Results have shown that comprehensive updates to annual inventory data are necessary to provide pre-event baseline information that will assist States with forest resource damage assessments when any major ecological impact results from a catastrophic event. Reporting forest damage from hurricanes and their impact on the integrity of the FIA database has increased the visibility of the FIA program in Congress and in the Southern Regional Office.

Contact: Dennis M. Jacobs, djacobs@fs.fed.us, Southern Research Station, FIA

Partners: Southern Research Station Forest Economics Research Unit, Alabama Forestry Commission, Florida Division of Forestry, Louisiana Office of Forestry, Mississippi Forestry Commission, Texas Forest Service, Forest Service Southern Region Fire and Aviation Management

National Office

The National Office of the FIA program helps to guide and coordinate the FIA field units engaged in implementing the enhanced FIA program. Much of the National Office experience is in making presentations, preparing policy white papers and budget justifications, and providing input to national and international organizations.

In FY 2006, the National Office staff:

- Completed the new FIA Strategic Plan for publication.
- Facilitated one FIA management team meeting and dozens of briefings for internal and external partners, customers, collaborators, and supporters.
- Collaborated with the Society of American Foresters and assisted with the sixth national user-group meeting for FIA customers, which was held in Washington, DC.

- Provided indicator data to the Heinz Center for update of Status of The Nation’s Ecosystems report.
- Completed and signed a memorandum of understanding with the National Park Service (NPS) to improve access to NPS lands and encourage opportunities for collaborative work. Also completed a users guide to assist NPS in gaining access to plot coordinates.
- Completed and signed Memorandums of Agreement to provide FIA coordinate access to Resources Planning Act specialists and a study group on privacy issues related to FIA data.
- Finalized the directive on FIA data privacy to extend its provisions permanently.
- Continued working with the Conservation Biology Institute in Corvallis, OR, to develop and improve the Protected Areas Database.
- Participated in Food and Agriculture Organization/ North American Forestry Commission Inventory Working Group project on a large-scale summary database for North America. Completed a joint peer-reviewed publication with Canada and Mexico on estimating tree species diversity from national inventory data.
- Organized working meeting with Brazil to assist in development of their new national inventory modeled after the FIA system.
- Began design, layout, and author selection for the upcoming RPA assessment report on forest resources.
- Completed reviews of the draft National Vegetation Classification System for use with FIA data in the Eastern United States developed in cooperation with FIA by NatureServe.

Spatial Data Service Center

A point of contact for FIA, called National Forest Inventory and Analysis Spatial Data Services (SDS), is located in Newtown Square, PA. FIA SDS was created to facilitate access to FIA data without compromising the security of the plot locations or landowner privacy. We connect geospatial data submitted by interested parties to the geospatial information collected by FIA. We return data to the customer

that both meets their needs and follows the confidentiality laws set out by Congress. FIA data is a valuable resource that we feel should remain accessible within the law.

There were 347 requests active in FY 2006 (figs. 7, 8, and 9). National or multiregional data requests accounted for 11 percent of the total number of requests. Of all the received requests, 78 percent were completed by the end of the fiscal year and 15 percent remain in progress. The remaining 7 percent were either canceled by the client, put on hold by the client, or the client has not remained in contact with Spatial Data Service.

The two largest categories are consultations and those for spatial intersections with the data. 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 layer and returning information to the client.

Our largest SDS customer group continues to be academia, accounting for 29 percent of all new requests. The group, “other Forest Service,” consists of Forest Service groups that are not part of S&PF and are not FIA. The “other” group includes the Forest Service Research community, which has become an important client for FIA.

MapMaker/TableMaker

Earlier reports for years back to 2002 are available upon request. The following tabulations provide information about who our users are and in what population estimates and classification variables they are interested. Data for this summary are compiled from the national FIA database server in St. Paul, MN.

During FY 2006, over 24,000 retrievals were completed by using the following Web applications:

Web tool	2002	2003	2004	2005	2006
MapMaker/ TableMaker	11,579	14,577	26,034	55,062	22,906
Forest Veg Simulator		396	514	763	566
Fuel Treatment Evaluator				650	863
Total	11,579	14,973	26,548	56,475	24,335

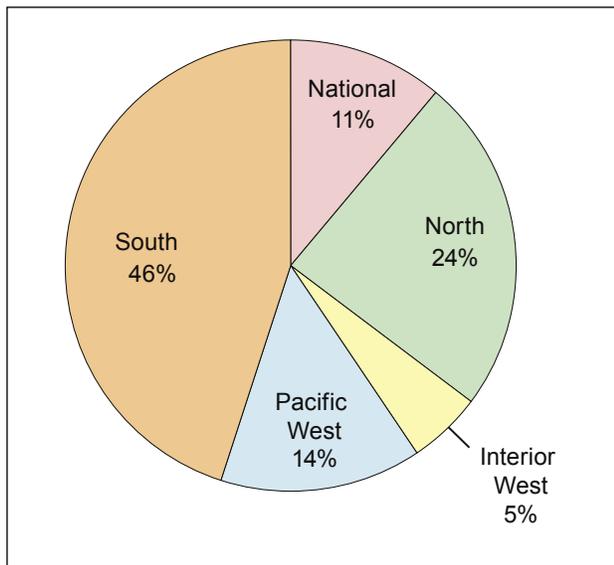


Figure 7—Requests made to the FIA Spatial Data Service Center, by unit, 2006.

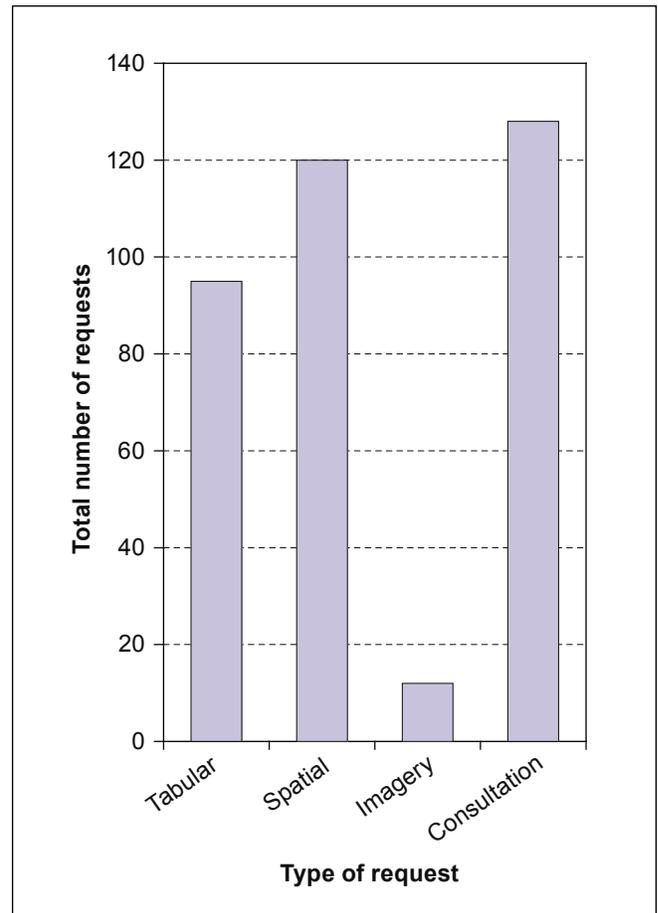


Figure 8—Requests made to the FIA Spatial Data Service Center, by type, 2006.

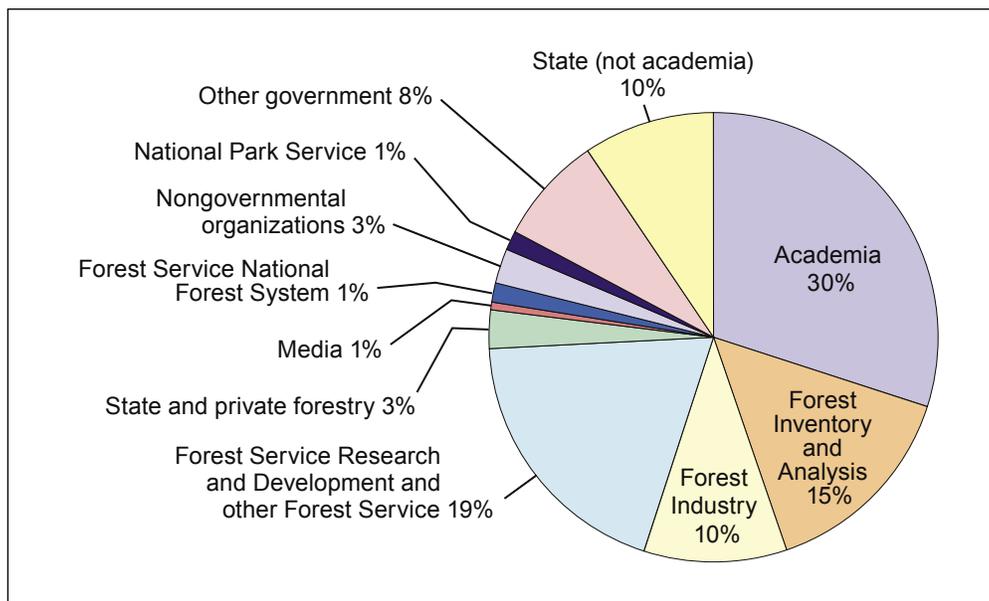


Figure 9—Requests made to the FIA Spatial Data Service Center, by organization, 2006.

Number of Mapmaker retrievals by state in 2006

State	Number	State	Number	State	Number
AK	231	LA	1,951	OH	1,470
AL	2,569	MA	712	OK	939
AR	2,031	MD	1,506	OR	726
AZ	888	ME	1,171	PA	1,773
CA	574	MI	2,148	RI	632
CO	810	MN	1,525	SC	2,369
CT	726	MO	1,629	SD	470
DE	832	MS	1,455	TN	2,095
FL	1,523	MT	549	TX	1,290
GA	2,963	NC	2,608	UT	651
HI	67	ND	339	VA	2,429
IA	526	NE	365	VT	861
ID	587	NH	952	WA	572
IL	978	NJ	707	WI	1,897
IN	1,008	NM	682	WV	1,972
KS	439	NV	396	WY	60
KY	2,171	NY	1,762		3
Total				60,129	

Additionally, beginning November 30th, 2005, the following records were kept for the number of data sets downloaded:

Download data set type	Number
NIMS_FIADB by state	4,827
SNAPSHOT_FIADB by state	1,381
RPA_SummaryDB (ESRI shapefiles)	573
NIMS_FIADB Phase 3 data by state (available 8/12/2006)	100
Total	6,881

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 62 grants and agreements funded in FY 2006, comprising \$10,066,521 or approximately 15 percent of the total available FIA program budget. This amount is an increase of \$1.9 million above those awarded in FY 2005. 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 (65 percent of funds) and university partners (18 percent of funds) (fig. 10).

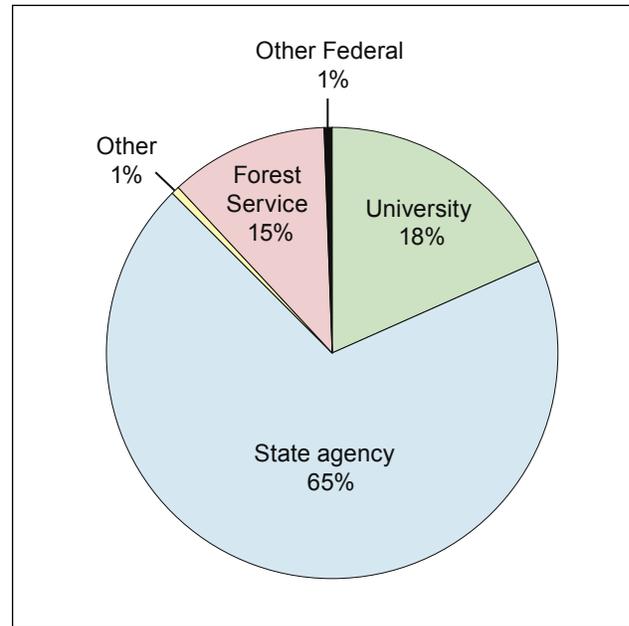


Figure 10—Grants and agreements, by recipient group, 2006.

Additional cooperators included other Federal and Forest Service offices (16 percent of funds) and other non-Federal partners (1 percent of funds). The major purpose for grants was for collaboration in data collection and for 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.

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 questions. Appendix 6 shows the number of significant consultations that FIA staff provided in FY 2006, 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 1,608 significant consultations requiring 5,527 staff hours to complete—equivalent to over 2.5 full-time staff-years. Half of the time and approximately a third 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 22 percent of the consultations and 19 percent of the time), industry (17 percent of the consultations and 13 percent of the time), and nongovernmental organizations (9 percent of the consultations and 6 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.

FIA 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 its 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 the 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:

Northern Research Station—

Four FIA employees were members of the Northern Research Station Safety Committee and Northern Research Station-FIA formed a safety committee with representatives from the field and two from the office staff to oversee program safety.

Southern Research Station—

The Southern Research Station-FIA program provided annual training in defensive driving, first aid and CPR, and proper use of Southern Research Station-FIA watercraft. Southern Research Station-FIA received a Station Directors Safety Award.

Interior West—

The program has a safety committee that consists of 10 members including the program manager. Interior West-FIA participated in a baseline safety review and several facilities safety reviews and was recognized for safety leadership by the station and the National Office.

Pacific Northwest Research Station—

The Pacific Northwest formed a safety committee represented by both office and field staff from the Portland and Anchorage labs and puts out a monthly newsletter during the field season and safety alerts when accidents occur. The unit received awards for 10 years of accident-free aviation in Region 10, and 28 years of accident-free aviation within Pacific Northwest-FIA.

FIA program safety summary for FY 2006

Incident measure	PNW	RMRS	SRS	NRS
Injury and illness frequency rate ¹	10	12	1	Not available
Motor vehicle accident frequency rate ²	7	2	3	7
Fixed-wing aircraft accident frequency rate ³	0	0	Not applicable	Not applicable
Rotary-wing aircraft accident frequency rate ⁴	0	Not applicable	Not applicable	Not applicable

¹Injury/illness frequency rate = number of chargeable injuries (incidents) per 100 full time equivalents.

²Motor vehicle accident frequency rate = number of chargeable motor vehicle accidents per million miles driven.

³Fixed-wing aircraft frequency rate = number of fixed-wing aircraft accidents per 100,000 miles flown.

⁴Rotary-wing aircraft accident frequency rate = number of rotary-wing aircraft accidents per 100,000 miles flown.

FIA-National Forest Collaboration

In FY 2002, the Deputy Chief for Research and Development and the Deputy Chief for NFS signed an internal memorandum of understanding 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 2006, 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 2007. Increasing demands from NFS customers for additional forest planning data and the move toward an Environmental Monitoring Systems (EMS) approach to planning will most certainly require changes in current financial arrangements with stronger NFS funding support at the national level. In a meeting with NFS inventory specialists on inputs to the FIA Strategic Plan, the following issues were raised as NFS priorities:

- Implementation of the annual system in all States.
- Collect data on all lands.
- Collect a full set of vegetation and associated information.
- Follow standard protocols across all NFS lands.
- Allow for “a la carte protocols.”
- Allow for increasing the intensity of the core grid as needed.
- A mid-level vegetation map product meeting Federal Geographic Data Committee standards.
- 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 2006 FIA Accomplishments with Plans from FY 2005

In the FY 2005 business report for FIA, we included a section stating our plans for FY 2006. Below we show how our actions in FY 2006 matched our plans from FY 2005.

In the FY 2005 business report, we said that in FY 2006 we would—	In FY 2006, we—
Continue transition to an annual inventory system by continuing annual inventories on all forested lands in all current States and evaluating damage from Hurricane Katrina in Mississippi.	Continued annual inventories on all forested lands in all current States. A pilot study in new techniques continues in Nevada. We completed the inventory of the Federated States of Micronesia. Emergency funds were secured to begin closeout periodic survey of Mississippi after Hurricane Katrina. This funding for Mississippi is not currently permanent.
Continue engaging partners, users, and clients to develop and finalize the new strategic plan to guide the program for FY 2007 through FY 2011, setting priorities as well as staffing, funding, and implementation goals.	Completed the new FIA Strategic Plan for 2007–2011 and revised core variables. The new plan has been edited and prepared for printing. A final draft is available on the Web at http://fia.fs.fed.us .
Continue to publish the comprehensive 5-year State reports that integrate information on forest health in Indiana, Iowa, Minnesota, Missouri, Pennsylvania, Arkansas, Kentucky, east Texas, Virginia, and Oregon. North Carolina and Alabama final periodic reports should also be completed.	Published State report for Indiana and North Carolina. Owing to processing delays, reports were in final publication review but not published for Iowa, Minnesota, Missouri, Pennsylvania, West Virginia (closeout), Arkansas, Kentucky, east Texas, Virginia and Oregon in FY 2006.
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 holding one scientific symposium on FIA.	Held user group meetings and management team meetings in all regions of the country, and the national user group met in December 2006. Held national FIA science symposium in Monterey, CA, in October 2006 with over 100 participants. Shared the strategic plan with our partners and users and used their feedback to complete final plan.
Continue to make our data more accessible and usable by adding analytical tools and program documentation to online FIA databases and Web pages. Release a Web Services data distribution tool.	Developed a prototype of the FIDO system, which will replace Mapmaker as FIA's primary delivery tool for clients. The prototype may be viewed on the FIA Web site at http://fia.fs.fed.us .
Publish national forest/non forest mask, cover type map, and biomass map based on FIA data. Finalize a prototype set of core map products based on FIA data.	Prepared forest cover and biomass publications for peer review. Both articles accepted, reviewed, and revised. Published papers expected in 2007. Map team began work on developing standards and protocols for FIA map atlas. Preliminary maps have been proposed and are being reviewed.
Complete a periodic report for Puerto Rico, including a Spanish translation.	Report is scheduled for publication in mid-2007.
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 estimation engine for Phase 2 data.	Continued to evaluate remote sensing options for efficient field data collection, Phase 1 sampling, and for the development of core map products such as the biomass map. Added the official down woody material processing procedures to the estimation engine in FY 2006 as well.
Complete the beta release of the portable data recorder data collection program (e-Plot) with national and regional variables.	Based on the results of a recent review of the project, the goals have been refined and a new team has been charged to complete the project in 2008. Field data measurement quality objectives are being evaluated and the quality assurance results have been published.
Complete production release of NIMS V3.0.	Completed NIMS 3.0 and are in various stages of testing at regional units.

Fiscal Year 2007 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, although 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, as we will not receive an increase in funds in 2007, we will continue to maintain annual inventory only in those States currently in the program. We continue to be optimistic that funding will increase in 2008 to allow continued implementation of the program for those States not currently being inventoried.

In FY 2007, to continue progress toward full program implementation, we intend to accomplish the following:

- Continue transition to an annual inventory system by continuing annual inventories on all forested lands in all current States. Complete closeout inventory of Mississippi following Hurricane Katrina. Continue Nevada pilot study and work on securing permanent funds for Mississippi to enter the annualized inventory. For 2007, in terms of permanent funding, Mississippi, Oklahoma, New Mexico, Wyoming, Hawaii, and interior Alaska still await annualized inventory (fig. 11).
- Publish new FIA Strategic Plan to guide the program for FY 2007 through FY 2011. Continue engaging partners, users, and clients to implement the new strategic plan to guide the program.
- Continue to publish the comprehensive 5-year State reports that integrate information on forest health. States scheduled for publication in 2007 include Oregon, Utah, Iowa, Missouri, Minnesota, Pennsylvania, North Carolina, Kentucky, east Texas, Virginia, and Puerto Rico (English and Spanish versions).
- Publish peer-reviewed national cover type map and biomass map based on FIA data. Finalize a prototype set of core map products based on FIA data.
- 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 holding one scientific symposium on FIA every other year.
- Continue to make our data more accessible and usable by adding analytical tools and program documentation to online FIA databases and Web pages. Continue development of FIDO system to replace MapMaker as the primary FIA data delivery tool for customers.
- 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.
- Continue development of the portable data recorder data collection program with national and regional variables for delivery in 2008.
- Release FIADB 3.0 and validate use of NIMS V3.0 for primary data loading/processing in all regions for all State inventories begun after January 2000.
- Develop a prototype for FIAtlas, the first electronic atlas of mapped FIA data layers. Complete the first 15 core layers as input to a mini-atlas in the 2007 Forest Resources of the United States RPA publication.
- 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.

Goal	Performance measure	2003 level	2004 level	2005 level	2006 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	100
Outputs						
Keep fieldwork current	Percentage of States actively engaged in the annualized inventory program	78	88	90	90	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	100
Outcomes						
Keep analysis current	Percentage of States with FIA State report less than 5 years old	48	52	48	42	100
Keep online data current	Percentage of States with FIA online data less than 2 years old	38	56	80	84	100
Improve/maintain customer satisfaction	Percentage of customers rating service as “satisfactory” or better	89	85	85	85	100
Improve/maintain partner participation	Partner financial contributions expressed as percentage of total Federal FIA budget	18	10	10	11	20

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, 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.

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 (including vehicle fleet support).

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 (including Spatial Data Center personnel).

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.

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 landowners)—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 Resource 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.

Appendix 1. Performance Measures for the FY 2006 FIA Program

Revised 1/14/2008

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Total available federal funds, FY 2006	\$13,664,920	\$11,998,926	\$16,080,781	\$15,985,038	\$7,686,200	\$65,415,865
Total appropriated federal funds, FY 2006	\$13,424,100	\$11,644,500	\$14,647,700	\$15,355,000	\$7,686,200	\$63,641,000
Estimated % of FY 2006 full funding	86%	84%	89%	96%	73%	83%
Contributions from partners:						
Supporting the 20% FIA program	\$85,000	\$0	\$1,334,085	\$1,555,957	\$0	\$2,975,042
Value-added contributions	\$91,224	\$531,528	\$-	\$3,074,007	\$361,791	\$4,058,550
Base grid plots sampled:						
Phase 2, forested	1,961	2,127	6,532	6,340		16,960
Phase 2, nonforested	2,099	5,062	3,943	11,790		22,894
Total Phase 2 plots	4,060	7,189	10,475	18,130		39,854
Phase 3, forested	368	121	425	371		1,285
Phase 3, nonforested	120	117	369	690		1,296
Total Phase 3 Plots	488	238	794	1,061		2,581
Total base plots	4,548	7,427	11,269	19,191		42,435
Number of quality assurance plots						
Phase 2 (forest + nonforest)	116	740	1,461	869		3,186
Phase 3 (forest + nonforest)	13	44	62	77		196
Total quality assurance plots	129	784	1,523	946		3,382
Total plots and percent sampled^a:						
Total Phase 2 and 3 grid plots	46,951	91,557	89,443	101,359		329,310
Phase 2 and 3 Target (with State buydown)	10%	10%	20%	20%		16%
Phase 2 and 3 Accomplishment	10%	8%	13%	19%		13%
Percentage of States with annual FIA activity^b	80%	75%	85%	100%		90%
Number of publications:						
National forest reports	-	1	-	1	-	2
State resource reports	8	1	-	16	-	25
State timber product output reports	1	1	7	3	-	12
Regional reports	-	-	1	-	-	1
National reports	-	-	-	1	1	2
Subtotal--core reports	9	3	8	21	1	42
Peer-reviewed journal articles	8	6	3	25	3	45
Proceedings articles	3	7	8	28	1	47
Other station publications	6	5	3	11	-	25
Other publications	1	3	11	4	4	23
Total, all reports	27	24	33	89	9	182
Number of publications per federal full-time equivalent	0.30	0.22	0.38	0.72	4.50	0.44
Consulting activities:						
Number of significant consultations	132	233	844	379	20	1,608
Total hours of significant consultations	1,256	1,318	1,790	1,058	105	5,527
Meetings:						
User-group meetings held	2	2	0	0	1	5
Management meetings held	2	1	1	4	3	11

^a Plot counts include Puerto Rico, Virgin Islands, and Pacific Island territories at P2 intensity and interior Alaska at P3 intensity.

^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 2006 FIA Program

Revised 1/14/2008

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Available funds:						
Previous year end-of-year balance	305,668	425,000	776,000	137,763	12,522	1,656,953
Post-year adjustments ^a	(64,848)	(70,574)	(382,919)	294,592	(12,522)	(236,271)
Subtotal pre-year adjustments	240,820	354,426	393,081	432,355	0	1,420,682
FY appropriated funds						
Research	12,749,000	10,704,000	14,317,000	15,355,000	6,204,000	59,329,000
State and Private-FRIA	675,100	940,500	330,700	883,500	1,482,200	4,312,000
Subtotal appropriated funds	13,424,100	11,644,500	14,647,700	16,238,500	7,686,200	63,641,000
Special project funding			1,040,000 ^b	(685,817) ^c		354,183
Total available funds	13,664,920	11,998,926	16,080,781	15,985,038	7,686,200	65,415,865
Direct expenses:						
Salary--						
Administration	360,681	543,399	461,425	549,967	223,429	2,138,901
Phase 1 production	0	173,769	367,302	321,562	0	862,633
Field support	957,911	677,306	546,882	1,104,852	0	3,286,951
Data collection	2,358,880	2,590,825	711,287	2,578,613	0	8,239,605
Quality assurance	349,136	853,901	1,205,652	501,562	0	2,910,251
Information management	1,459,289	1,140,191	1,132,464	1,243,502	0	4,975,446
Analysis	951,244	419,735	1,790,777	1,337,240	0	4,498,996
Techniques research	628,426	489,858	499,322	744,940	0	2,362,546
Travel--						
Office travel	165,829	129,654	356,099	278,153	35,625	965,360
Field/quality assurance crew travel	1,925,526	1,094,571	757,592	643,356	0	4,421,045
Equipment--						
Imagery	9,445	39,025	0	7,413	0	55,883
Vehicles	223,739	488,280	254,402	527,468	0	1,493,889
Field equipment	37,897	113,388	7,430	71,848	0	230,563
Information technology/communication	94,592	152,433	9,400	395,283	0	651,708
Other	0	20,053	0	71,764	0	91,817
Publications	10,533	15,650	0	21,780	18,423	66,386
Grants and agreements ^d	527,957	896,856	5,631,037	1,800,033	1,210,638	10,066,521
Office space and utilities ^e	534,901	428,319	340,649	464,304	0	1,768,173
Other direct expenses	1,920,014	655,114	387,016	409,213	0	3,371,357
Total direct expenses	12,516,000	10,922,327	14,458,736	13,072,853	1,488,115	52,458,031
Effective indirect expenses						
Total effective indirect ^f	1,148,920	929,419	1,584,840	2,742,949	6,180,406	12,586,534
Total effective indirect rate	8%	8%	10%	17%	80%	19%
2006 EOY balance	0	147,180	37,205	169,236	17,679	371,300

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

^b In SRS for FY 2006, special funds of \$40,000 for an urban forestry project and and \$1,000,000 for re-inventory of Mississippi after hurricane Katrina.

^c In NRS for FY 2006, a temporary re-direction of funds was needed to offset costs related to the merger of the Northeast and North Central Stations. This amount will be repaid for 2006 and restored in FY 2007.

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

^e Grants and Agreements for SRS include special contracts for post-Katrina field work in Mississippi.

^f 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. Program charges for Albuquerque Service Center included in National Office column.

Appendix 3a—Federal Staffing (Full-Time Equivalents) for the FY 2006 FIA Program

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Administration	4.5	11.0	6.6	6.4	2.0	30.5
Phase 1 production work	0	2.0	6.7	4.8	0	13.5
Field support	13.2	9.7	5.9	15.1	0	43.9
Data collection	36.3	50.5	9.0	51.7	0	147.5
Quality assurance crew	4.7	12.7	18.2	8.1	0	43.7
Information management	14.9	11.1	14.5	16.7	0	57.2
Analysis	10.1	5.3	20.0	13.1	0	48.5
Techniques research	6.7	4.7	5.1	8.2	0	24.7
Total	90.4	107.0	86.0	124.1	2.0	409.5

Appendix 3b—Estimate of Cooperator Staffing Funded by FIA Grants and Agreements (Full-Time Equivalents) for the FY 2006 FIA Program

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Administration	0	0	2.1	0	0	2.1
Phase 1 production work	0	0	0	0.2	0	0.2
Field support	0.5	1.0	7.9	2.7	0	12.1
Data collection	8.0	9.0	102.8	15.1	0	134.9
Quality assurance crew	0.5	0	0	0	0	0.5
Information management	1.0	0	0	4.3	5.0	10.3
Analysis	0	0	0	0.8	5.0	5.8
Techniques research	0	0	0	4.1	1.0	5.1
Total	10.0	10.0	112.8	27.2	11.0	171.0

Appendix 3c—Estimate of Total Federally Funded Staffing (Full-Time Equivalents) for the FY 2006 FIA Program

	Pacific Northwest	Interior West	Southern	Northern	National Office	Total
Administration	4.5	11.0	8.7	6.4	2.0	32.6
Phase 1 production work	0	2.0	6.7	5.0	0	13.7
Field support	13.7	10.7	13.8	17.8	0	56.0
Data collection	44.3	59.5	111.8	66.8	0	282.4
Quality assurance crew	5.2	12.7	18.2	8.1	0	44.2
Information management	15.9	11.1	14.5	20.9	5.0	67.4
Analysis	10.1	5.3	20.0	13.9	5.0	54.3
Techniques research	6.7	4.7	5.1	12.3	1.0	29.8
Total	100.4	117.0	198.8	151.2	13.0	580.5

Appendix 4—Partner Contributions Toward Implementing FIA in FY 2006

Unit and partner	Contributions toward the base program	Contributions that add value
	<i>Dollars</i>	
Interior West:		
Arizona State Department of Lands		3,000
Colorado State Forest Service		213,060
Montana State Department of Natural Resources		200
University of Montana, Bureau of Business and Economics Research		83,130
Forest Service Northern Region		148,600
Forest Service Rocky Mountain Region		3,000
USDI Bureau of Land Management		2,000
USDI Bureau of Land Management—Analysis		36,518
Utah State Division of Forestry, Fire, and State Lands		2,420
National Rangeland Pilot		39,600
	Interior West total	0
National Office:		
University of Nevada in Las Vegas		291,630
University of Wisconsin		70,161
	National Office total	0
Northern:		
Auburn University		29,437
Conservation Biology Institute		7,500
Delaware Department of Agriculture	34,414	
Hoosier National Forest		8,085
Illinois Division of Forest Resources	19,000	
Indiana Department of Natural Resources	57,578	
Iowa Department of Natural Resources	17,953	
Kansas State Forest Service	34,938	
Lumberjack Research Conservation and Development	12,937	
Maine Forest Service	196,798	233,905
Mark Twain National Forest		57,330
Maryland Department of Natural Resources Forest Service	11,200	
Massachusetts Department of Conservation & Recreation	7,200	
Michigan Division of Forest Management	40,200	1,358,326
University of Michigan	5,830	
Minnesota Department of Natural Resources	162,000	346,502
Missouri Department of Conservation	67,492	
Nebraska Department of Forestry, Fish, and Wildlife	9,076	
New Hampshire Department of Resources and Economic Development Division of Forests & Lands	20,400	
New York Department of Environmental Conservation	354,284	
North Dakota Forest Service	7,200	
Ohio Department of Natural Resources	7,030	
Oregon State University		6,225
Pennsylvania Department of Conservation and Natural Resources	353,443	189,952
Resources Planning Act		30,000
Rhode Island Department of Environmental Management	14,400	
Shawnee National Forest		34,800
South Dakota Department of Forestry and Natural Resource Management	22,778	
University of Minnesota		17,820
Vermont Department of Forests, Parks & Recreation	8,600	
West Virginia Division of Forestry	49,300	
Wisconsin Department of Natural Resources	41,906	754,125
	Northern total	1,555,957
		3,074,007

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Unit and partner	Contributions toward the base program	Contributions that add value
		<i>Dollars</i>
Pacific Northwest:		
Alaska Department of Natural Resources	15,000	
California Department of Forestry	15,000	
Oregon Department of Forestry	35,000	
University of Montana, Bureau of Business and Economics Research		61,224
Forest Service National Office		20,000
Forest Service Region 6		10,000
Washington State Department of Natural Resources	20,000	
Pacific Northwest total	85,000	91,224
Southern:		
Alabama Forestry Commission	178,333	
Arkansas Forestry Commission	163,345	
Florida Department of Agriculture and Consumer Services	72,873	
Georgia Forestry Commission	195,499	
Kentucky Division of Forestry	121,442	
Mississippi Forestry Commission	77,258	
South Carolina Forestry Commission	112,206	
Texas Forest Service	271,646	
Virginia Department of Forestry	141,483	
Southern total	1,334,085	0
Grand total, all FIA units	2,975,042	4,058,550
		\$7,033,592

Appendix 5—Grants and Agreements Entered Into by FIA Units, FY 2006

Unit	Amount	Recipient	Purpose
	<i>Dollars</i>		
Interior West	367,490	Colorado State Forest Service	Implementation of annual FIA
	34,750	Colorado State Forest Service	Urban Forest Health Monitoring pilot, field plots
	83,655	Rocky Mountain Research Station	Soils indicator lead and sample analysis
	19,358	Rocky Mountain Research Station	Wilderness applications
	184,603	University of Montana, Bureau of Business and Economic Research	Ongoing timber product output, removal, and forest industry analysis for the Interior West States
	207,000	Forest Service Remote Sensing Application	Nevada Pilot Center
Interior West total	896,856		
National Office	668,250	University of Nevada at Las Vegas	Information management support
	293,040	Research Triangle Park Forest Health Monitoring Unit	National Forest Health Monitoring support
	122,148	University of Wisconsin	Lichen communities for FIA
	79,200	International Institute of Tropical Forestry	Implementation of annual FIA
	33,000	Northeastern Area State and Private Forestry	Damage indicators
	15,000	Conservation Biology Institute	Protected areas database
National Office total	1,210,638		
Northern	433,297	Maine Forest Service	Phase 2 and 3 data collection and expertise
	40,063	University of Massachusetts	National ozone indicator advisor
	346,502	Minnesota Department of Natural Resources	Implementation of annual FIA
	61,383	South Dakota Department of Forestry and Natural Resource Management	Implementation of annual FIA
	64,434	Kansas State University	Implementation of annual FIA
	49,725	North Central Research Station Grand Rapids	Soil analyses
	38,132	Lumberjack Resource Conservation and Development Council	Implementation of annual FIA
	22,423	University of Michigan	Implementation of annual FIA
	63,971	Indiana Department of Natural Resources	Implementation of annual FIA
	6,107	University of Nebraska	Implementation of annual FIA
	4,100	North Dakota Forest Service	Implementation of annual FIA
	1,896	Iowa Department of Natural Resources	Implementation of annual FIA
	425,000	University of Nevada Las Vegas	Information Management
	36,000	University of Minnesota	Remote sensing research
	15,000	Oregon State University	Down woody material/carbon research
	18,000	Auburn University	Family forest owners research
	15,000	Conservation Biology Institute	Protected areas database enhancement
	10,000	Earth Resources Observation and Science Data Center	Remote sensing research
	149,000	Forest Service Remote Sensing Application Center	Remote sensing research
	Northern total	1,800,033	

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Unit	Amount	Recipient	Purpose
	<i>Dollars</i>		
Pacific Northwest	121,726	Oregon State University	Developing climate and air quality gradient models of lichen communities in California
	92,811	Oregon State University	Imputation and modeling methods to estimate potential productivity of Pacific Northwest forests
	47,000	USDA Foreign Agriculture Service	Remotely sensed image data for the United States-affiliated Pacific Islands
	50,000	Oregon Department of Forestry	Integrating annual forest inventories into ongoing Oregon forest assessment work
	59,820	Pacific Southwest Institute of Pacific Islands Forestry	Yap field guide and trees of the Federated States of Micronesia database
	28,000	Forest Service Pacific Southwest Region	Fisher habitat modeling in northwestern California
	2,600	Forest Service Remote Sensing Application Center	Analysis of remotely sensed data
	116,000	Forest Service Remote Sensing Laboratory	Field plot work
	10,000	U.S. Geological Survey Earth Resources Observation Systems	Satellite image purchase
Pacific Northwest total	527,957		
Southern	535,000	Alabama Forestry Commission	Implementation of annual FIA
	490,035	Arkansas Forestry Commission	Implementation of annual FIA
	85,917	Arkansas Forestry Commission	Mississippi inventory assistance
	218,619	Florida Department of Agriculture and Consumer Services	Implementation of annual FIA
	586,497	Georgia Forestry Commission	Implementation of annual FIA
	126,000	Georgia Forestry Commission	Mississippi inventory assistance
	364,325	Kentucky Division of Forestry	Implementation of annual FIA
	236,921	Mississippi Forestry Commission	Implementation of annual FIA
	488,101	North Carolina Department of Environment and Natural Resources	Implementation of annual FIA
	57,144	North Carolina Department of Environment and Natural Resources	Mississippi inventory assistance
	23,636	Oklahoma Forestry Commission	Mississippi inventory assistance
	336,617	South Carolina Forestry Commission	Implementation of annual FIA
	94,541	South Carolina Forestry Commission	Mississippi inventory assistance
	398,319	Tennessee Department of Agriculture	Implementation of annual FIA
	937,936	Texas Forest Service	Implementation of annual FIA
	70,653	Texas Forest Service	Mississippi inventory assistance
	424,448	Virginia Department of Forestry	Implementation of annual FIA
	60,000	Forest History Society	FIA history national commitment
	10,000	University of Wisconsin	Lichen communities
	18,000	Auburn University	Doctoral student
	63,328	University of Tennessee	Programmer assistance
	5,000	U.S. Geological Survey Earth Resources Observation Systems	Mississippi inventory assistance
Southern total	5,631,037		
Grand total, all FIA units	10,066,521		

Appendix 6—Number and Hours of Significant Consultations by FIA Staff, by Customer Group, FY 2006

Customer group	Pacific Northwest		Interior West		Southern		Northern		National Office		Total	
	No.	Hours	No.	Hours	No.	Hours	No.	Hours	No.	Hours	No.	Hours
Academic	28	115	78	344	158	397	78	196	4	20	346	1,072
Government	74	828	108	615	214	580	175	622	5	30	576	2,675
Industry	6	111	2	4	242	507	28	64	2	5	280	691
NGO ^a	11	73	16	34	44	39	66	134	3	30	140	310
NIPF ^b	—	—	—	—	116	101	16	26	1	3	133	130
Media	—	—	2	7	15	17	5	4	4	15	26	43
Other	13	130	27	314	55	149	11	12	1	2	107	607
Total	132	1,256	233	1,318	844	1,790	379	1,058	20	105	1,608	5,527

^aNGO = nongovernmental organization.

^bNIPF = nonindustrial private forest landowner.

Appendix 7—Land and Forest Area and FIA Annualized Implementation Status by State and Region, FY 2003–2007^a

Region and State	Land area	Forest area	Entry year	Annualized FIA implementation (forest area)				
				2003	2004	2005	2006	2007 (plan)
--- Thousand acres ---				----- Thousand acres -----				
Northern:								
Connecticut	3,101	1,859	2003	1,859	1,859	1,859	1,859	1,859
Delaware	1,251	383	2004	383	383	383	383	383
Illinois	35,580	4,331	2001	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
Iowa	35,760	2,050	1999	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
Maine	19,753	17,699	1999	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
Massachusetts	5,016	3,126	2003	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
Minnesota	50,955	16,680	1999	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
Nebraska	49,201	947	2001	947	947	947	947	947
New Hampshire	5,740	4,818	2002	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
New York	30,223	18,432	2002	18,432	18,432	18,432	18,432	18,432
North Dakota	44,156	672	2001	672	672	672	672	672
Ohio	26,210	7,855	2001	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
Rhode Island	668	385	2003	385	385	385	385	385
South Dakota	48,574	1,619	2001	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
West Virginia	15,415	12,108	2004	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
Southern:								
Alabama	32,481	22,987	2001	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
Florida	34,520	16,285	2001	16,285	16,285	16,285	16,285	16,285
Georgia	37,068	24,405	1998	24,405	24,405	24,405	24,405	24,405
Kentucky	25,428	12,684	1999	12,684	12,684	12,684	12,684	12,684
Louisiana	27,883	13,812	2000	13,812	13,812	13,812	13,812	13,812
Mississippi	30,025	18,580						18,580
North Carolina	31,180	19,302	2003	19,302	19,302	19,302	19,302	19,302
Oklahoma	43,955	7,665						
South Carolina	19,272	12,495	1998	12,495	12,495	12,495	12,495	12,495
Tennessee	26,381	14,396	1999	14,396	14,396	14,396	14,396	14,396
Texas	167,626	17,149	2000	17,149	17,149	17,149	17,149	17,149
Virginia	25,343	16,074	1998	16,074	16,074	16,074	16,074	16,074
Rocky Mountain:								
Arizona	72,732	19,427	2001	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
Idaho	52,960	21,646	2004	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
Nevada	70,276	10,204			10,204	10,204	10,204	10,204
New Mexico	77,674	16,682						
Utah	52,587	15,676	2000	15,676	15,676	15,676	15,676	15,676
Wyoming	62,147	10,995						
Pacific Northwest:								
Alaska, Coast	39,041	13,718	2003	13,718	13,718	13,718	13,718	13,718
Alaska, Interior	326,000	113,151						
California	99,824	40,233	2001	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
Washington	42,612	21,790	2002	21,790	21,790	21,790	21,790	21,790
Total	2,263,230	748,923		531,063	569,898	580,102	580,102	598,682
Forest area performance measure, excludes Hawaii, interior Alaska				84%	90%	91%	91%	94%
Forest area performance measure, includes Hawaii, interior Alaska				71%	76%	77%	77%	80%
State activity performance measure, includes all active States				78%	88%	90%	90%	92%

^aBased on area from Forest Resources of the United States, 2002, and year of entry 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
----- Acres -----									
Pacific (PNW):									
American Samoa	48,434	43,631	90	4	2001	2004	21		Yes
Guam	135,660	63,833	47	1	2002	2004	46		Yes
Palau	111,544	96,688	87	10	2003	1988	55		Yes
Commonwealth of the Northern Mariana Islands	73,536	53,665	73	3	2004	1989	50		No
Federated States of Micronesia	149,660	135,668	91	10	2005–2006	1986–87	75		No
Marshall Islands	44,800	44,460	99	5	2007				No
Hawaii	4,141,469	1,990,000	48	8	2008	1988			
Atlantic (SRS):									
Commonwealth of Puerto Rico	2,200,000	710,000	32	3	2003	1997	367	55	No
U.S. Virgin Islands	86,000	35,000	41	3	2004		70	45	No
Total	6,991,103	3,172,945	45	47			684	100	

^aPartial set of Phase 3 data collected on all plots in Pacific region.

Publications

American Samoa

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Guam

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Republic of Palau

MacLean, C.D.; Cole, T.G.; Whitesell, C.D.; McDuffie, K.E. 1988. Timber resources of Babelthuap, Republic of Palau. Resour. Bull. PSW-RB-23. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 8 p.

Commonwealth of the Northern Mariana Islands

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Federated States of Micronesia

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Marshall Islands

Figures reported above are from National Association of State Foresters: 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.

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Puerto Rico

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U.S. Virgin Islands

Report for current inventory in preparation. Figures reported here are from Food and Agriculture Organization Forest Resources Assessment 2005 Country Report and are not based on current inventory data.

Appendix 9. - FIA summary statistics and performance measures for 1999-2006

Revised 1/14/2008

	1999	2000	2001	2002	2003	2004	2005	2006
Program funds	-----Thousand dollars-----							
Apropriated funds*	32,470	39,497	45,697	50,523	56,234	56,652	60,881	63,641
Other federal funds**	508	601	3,460	5,397	3,437	6,073	1,776	1,775
Total federal funds	32,978	40,098	49,157	55,920	59,671	62,725	62,657	65,416
Total partner funds	4,586	7,437	8,291	8,656	10,164	7,479	6,379	7,034
Total available funds	37,564	47,536	57,179	64,574	69,834	70,204	69,036	72,450
% Full federal appropriated funding	47%	67%	75%	79%	84%	82%	83%	87%
Program expenses and balances								
Administration	1,910	2,607	2,867	3,306	3,172	3,430	3,065	3,104
Image processing	951	1,305	1,362	905	967	940	1,218	919
Field support	1,618	1,801	2,253	2,154	2,252	2,786	2,940	3,287
Data collection	14,009	13,472	17,323	20,891	22,514	22,461	23,470	25,106
Information management	3,647	5,512	5,849	5,801	6,719	9,448	7,394	6,890
Analysis	2,406	3,019	3,493	3,440	3,484	3,967	4,161	4,499
Research	2,173	4,055	4,117	3,413	4,312	3,975	3,477	3,422
Miscellaneous/other	686	1,206	1,180	627	3,829	4,351	3,963	5,231
Total direct expense	27,402	32,976	38,444	40,535	47,249	51,357	49,687	52,458
Total Indirect expenses	4,858	6,892	9,228	13,025	11,123	8,919	11,313	12,587
Total federal expense	32,260	39,868	47,672	53,560	58,372	60,277	61,000	65,045
Total EOY balance	718	230	1,485	2,359	1,298	2,448	1,657	371
Total federal funds	32,978	40,098	49,157	55,920	59,671	62,725	62,657	65,416
Category as % of total federal funds								
Administration	5.8%	6.5%	5.8%	5.9%	5.3%	5.5%	4.9%	4.7%
Image Processing	2.9%	3.3%	2.8%	1.6%	1.6%	1.5%	1.9%	1.4%
Field support	4.9%	4.5%	4.6%	3.9%	3.8%	4.4%	4.7%	5.0%
Data collection	42.5%	33.6%	35.2%	37.4%	37.7%	35.8%	37.5%	38.4%
Information management	11.1%	13.7%	11.9%	10.4%	11.3%	15.1%	11.8%	10.5%
Analysis	7.3%	7.5%	7.1%	6.2%	5.8%	6.3%	6.6%	6.9%
Research	6.6%	10.1%	8.4%	6.1%	7.2%	6.3%	5.5%	5.2%
Miscellaneous/other	2.1%	3.0%	2.4%	1.1%	6.4%	6.9%	6.3%	8.0%
Indirect	14.7%	17.2%	18.8%	23.3%	18.6%	14.2%	18.1%	19.2%
EOY balance	2.2%	0.6%	3.0%	4.2%	2.2%	3.9%	2.6%	0.6%
Total % all categories	100%	100%	100%	100%	100%	100%	100%	100%
Grants as % of total federal funds								
Fieldwork grants	4.7%	12.1%	11.4%	9.8%	14.4%	10.1%	9.6%	11.8%
Research grants	3.3%	6.3%	5.0%	2.7%	3.4%	2.7%	1.5%	1.8%
Data/information grants	0.2%	2.3%	1.6%	1.2%	2.6%	4.1%	2.0%	1.7%
Total % all federal grants	8.2%	20.7%	18.0%	13.6%	20.4%	16.9%	13.1%	15.4%
Partner funds as % of total program funds								
All partner contributions	14.4%	15.7%	14.8%	13.9%	14.8%	11.0%	9.5%	9.7%
Other measures								
% States with annual activity	20	34	56	64	78	88	88	88
% States with FIADB 1-2 yrs old	n/a	n/a	n/a	10	28	56	80	84
Federal employees	296	342	374	400	403	426	447	410
Other employees	45	169	179	160	180	166	179	171
Total employees	341	511	553	560	583	592	626	581
P2/3 forest plots	8,943	11,582	14,927	16,108	17,182	16,036	15,675	18,245
P2/3 nonforest plots	14,845	16,767	24,982	24,459	29,592	29,532	24,445	24,190
Total plots	23,788	28,349	39,909	40,567	46,774	45,568	40,120	42,435
All QA plots	1,427	1,701	1,658	1,889	2,332	2,874	3,584	3,382
Percent QA plots	6%	6%	4%	5%	5%	6%	9%	8%
All publications	91	167	116	167	138	114	164	182
Journal publications	24	28	28	28	23	25	34	45
Percent journal publications	26%	17%	24%	17%	17%	22%	21%	25%
Consultations, number	n/a	n/a	921	819	1,450	1,566	1,510	1,608
Consultations, hours	n/a	n/a	3,751	2,978	4,514	4,899	5,612	5,527
User/mangement meetings	8	7	14	18	16	20	23	16
Spatial data requests filled	n/a	n/a	n/a	29	44	66	145	347
MapMaker accesses	n/a	n/a	n/a	11,579	14,577	26,034	55,000	24,335

* Net of rescissions.

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

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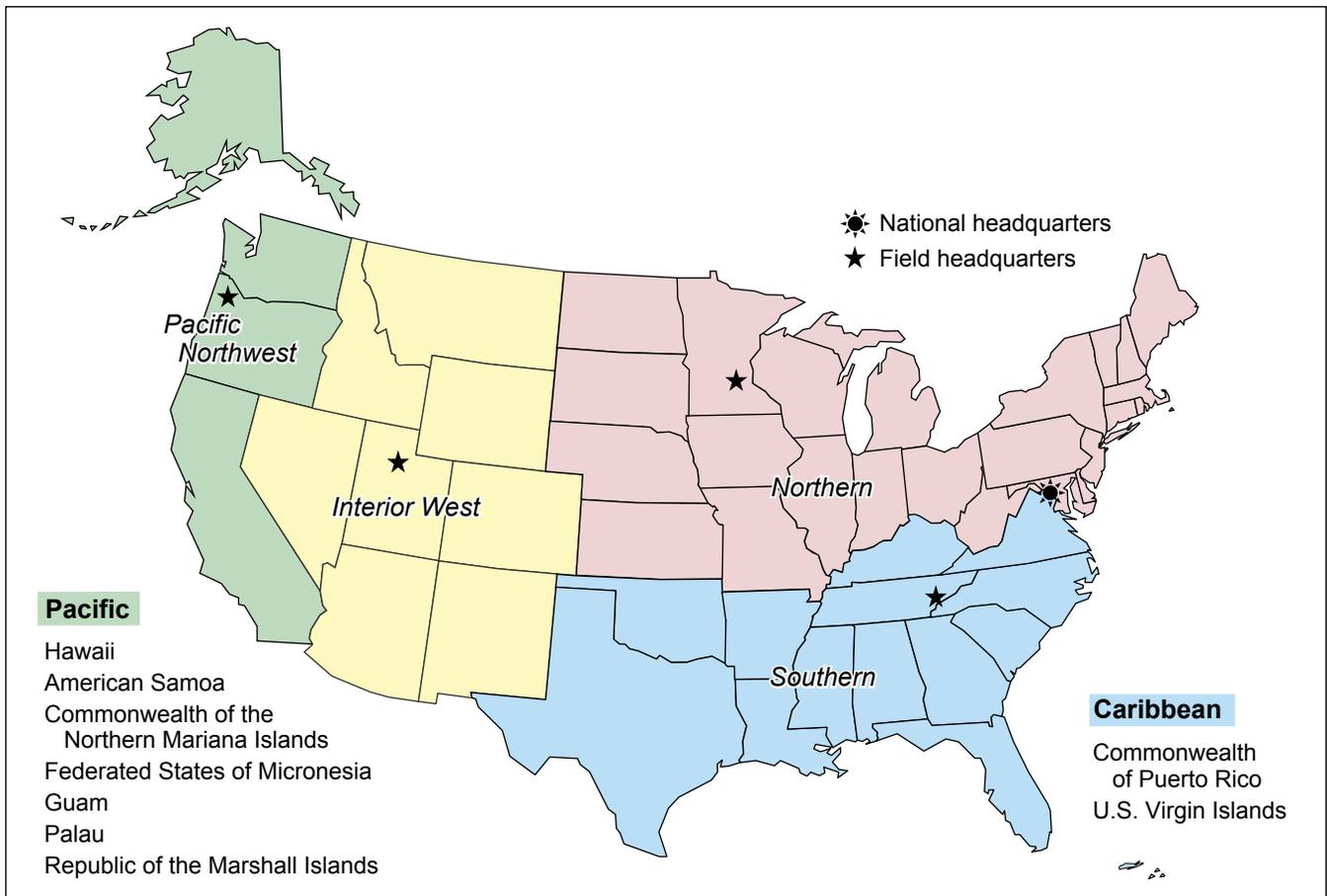


Figure 12—Regional FIA units.

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