

## *The Forest Inventory and Analysis Program: A Source of Broad-scale Data About BLM Forestland*

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### Background

The mission of the Forest Inventory and Analysis (FIA) program of the U.S. Forest Service is to “make and keep current a comprehensive inventory and analysis of the present and prospective conditions of and requirements for the renewable resources of the forest and rangeland of the United States.” The FIA has been in operation under various names (e.g., Forest Survey, Forest Inventory and Analysis) for about 70 years. This program, which includes all forestland within the United States, is managed by the Research and Development organization of the U.S. Forest Service. An inventory of Bureau of Land Management lands is taken by the FIA units at the Rocky Mountain Research Station (Fort Collins, Colorado) and the Pacific Northwest Research Station (Portland, Oregon).

### Discussion

The FIA provides status and trend information about forest

area, location, and ownership. State reports are published as Resource Bulletins; occasionally, reports cover a sub-State area. Reports include information, by species, on the size and number of trees, wood volume, and health of trees, as well as tree growth, harvest removals, and mortality. The program conducts special surveys to determine wood production and use rates in various products within a State.

The FIA sampling procedure consists of three phases. The first is a remote-sensing phase in which the land is classified into forest and nonforest areas and spatial measurements are taken to determine fragmentation, urbanization, and distance variables. Although aerial photography has traditionally been carried out, satellite-imagery is now frequently used.

In phase two, a set of field sample locations is distributed across the landscape, with one sample location every 5,000 meters—about one plot every 2,430 ha (6,000 acres). Field crews record measurements and observations at the sample locations.

Phase three consists of a subset of the phase-two plots—about one plot every 38,880 ha (96,000 acres). These plots are visited during the growing season to collect an extended suite of ecological data, including full vegetation inventory, tree and crown conditions, soil data,

lichen diversity, coarse woody debris, and evidence of ozone damage. Phase three is a relatively recent addition to the program. This enhanced program includes information relating to tree crown condition, lichen community composition, soils, ozone indicator plants, complete vegetative diversity, and coarse woody debris.

Historically, the FIA conducted a complete inventory for each State about every 10 years. The Agricultural Research, Extension, and Education Act of 1998 (Public Law 105-185), however, directed all FIA units to switch to an annual inventory system in which they measure a portion of the plots in each State each year. The law requires more data collection on a wider array of parameters and requires analysis and reporting for States at 5-year intervals. The move to an annual system nationwide depends on funding levels in the Federal budget and on cooperator contributions. The present target for western States is to measure 10% of the plots each year. The status of the program and additional information are found on the FIA Web site at <http://fia.fs.fed.us/>.

In the past, FIA data were primarily available through tables in the published reports. Recently, FIA created a database and a Web site to provide custom reports. You can create standard or custom output tables by selecting options provided.



For example, you can generate tables showing acres of forestland by forest type, stand size class, and site class on BLM land in a selected set of Counties in a State. The tables available are for nonreserved productive timberland—land capable of growing more than 20 cubic feet per acre, per year, of species considered useful for wood products. The table descriptions and options use terminology associated with the production of wood products. The Web site address is <http://www.ncrs.fs.fed.us/4801/fiadb/>.

The FIA is taking advantage of developing technology to analyze and present information in new ways and to produce new products. The Interior West Resources, Inventory, Monitoring, and Evaluation Program (Rocky Mountain Research Station FIA) has combined digital data sets—elevation, aspect, slope, geology, precipitation, and

AVHRR- and TM-based vegetation cover types—with forest inventory ground and photo plots to produce map products of several forest attributes for ecoregions in the Interior West. These maps are generated by modeling forest inventory variables as functions of the digital data.

### Conclusion

The FIA, as a national, strategic-scale program, does not provide data for operational planning or monitoring. A generalization, based on one field sample location per 2,430 ha (6,000 acres), is that a reasonably precise estimate of forest growth, mortality, or structure can be produced for an area of 81,000 ha (200,000 acres). An estimate for an area less than that will probably lack the precision desired. This is presently a limitation for BLM because of the ownership pattern and scattered distribution

of timberland and commercial forestland.

Nevertheless, the FIA provides the only consistent inventory data across administrative boundaries. The data can be considered for assessing landscape scale—particularly in areas adjacent to National Forests—or in writing land use plans for units having extensive pinyon–juniper areas. The new maps and spatial coverages are in formats that are relevant and readily usable by analysts and planners.

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