

NGDA Dataset Report

Official NGDA Title: US Forest Service Forest Inventory and Analysis Database

Metadata Record Title: US Forest Service Forest Inventory and Analysis Database

A-16 NGDA Theme: Land Use - Land Cover

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Metadata:

Registration Status: Complete

Registered on 4/6/2015

GeoPlatform Link*: <https://www.geoplatform.gov/node/243/4d93415f-abb4-44d6-be49-142e49b61295>

Data.gov Metadata Link*: <http://catalog.data.gov/harvest/object/08346ab8-f9ba-42e1-a554-76390f717729/html>

*If the metadata has been updated and reharvested after publication of this report, the link may no longer be valid. The dataset may be searched for manually in Data.gov or GeoPlatform.gov.

NGDA Lifecycle Maturity Assessment (LMA) Report

Time Frame:

Baseline assessment responses include dataset activities from 1998 to 2015

LMA Submission:

Status: Complete

Date: 10/30/2015

Extension Requested: No

LMA Reviewer(s):

Supervisor: Did not review

Theme Lead: Greg Reams

Executive Champion: Did not review

SAOGI*: Did not review

Other: Did not review

LMA Verifier:

Name: Greg Reams

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Attachments:

To get access to any attachments referenced in the report, email the LMA Help Desk at NGDA_LMA_help@fgdc.gov. Please use the subject "Dataset Report Attachment(s)" and indicate the associated official NGDA title.

*Senior Agency Official for Geospatial Information (SAOGI)

Lifecycle Maturity Assessment (LMA) Summary

Overall Maturity:

Mature; Consistent

General Questions: 90%

Optimized; Established

Stage 4 - Access: 100%

Optimized; Established

Stage 1 - Define/Plan: 100%

Optimized; Established

Stage 5 - Maintain: 100%

Optimized; Established

Stage 2 - Inventory/Evaluate: 100%

Optimized; Established

Stage 6 - Use/Evaluate: 100%

Optimized; Established

Stage 3 - Obtain: 91%

Optimized; Established

Stage 7 - Archive: 33%

Transition; Transformation

NGDA Dataset Maturity Definitions:

How To Calculate Maturity: https://www.geoplatform.gov/sites/default/files/How_to_Calculate_Maturity.pdf

Maturity	Maturity Characteristics for All Lifecycle Stages
Optimized; Established Rank = 5	Dataset meets virtually all business needs of all users. The dataset is considered authoritative by owners and secondary users. It is curated across all stages of the approved lifecycle. Future needs are defined on a regular basis and resources for addressing both current and future business requirements are available.
Mature; Consistent Rank = 4	Dataset meets all the business needs of the primary owner and most of the secondary users. The dataset is curated and used as authoritative by the primary owner. Dataset is used widely by secondary users actively engaged in sustaining the dataset. Future needs are identified and steps are planned to address these. All stages are supported and reviewed on a recurring basis. The dataset is well managed in relation to the approved lifecycle.
Managed; Predictable Rank = 3	Dataset meets a significant number of the business needs of the primary owner and is widely used as an authoritative resource by secondary users. Benchmark activities are occurring in at least four of the approved lifecycle stages. Management practices in relation to the approved lifecycle is moderate but consistent. Dataset is integrating changing business requirements in lifecycle stages impacting overall maturity.
Transition; Transformation Rank = 2	Dataset meets business needs of the primary owner and has moderate use by secondary users. Benchmark activities are occurring in at least three stages. Efforts to integrate funding, include partners, and obtain data are not supported in a sustained manner. Management practices in relation to the stages of the approved lifecycle is limited.
Planned; Initial Development Rank = 1	Dataset limited in meeting business needs of the primary owner. Benchmark activities in the approved lifecycle are just starting to consider secondary uses, partnerships are forming to support additional dataset uses. Dataset development is in a very early stage. Minimal or limited management against the benchmarks in the approved lifecycle.
No Activity Rank = no activity	Dataset meets project or local business needs of the primary owner, secondary or additional uses or users were not considered, not recognized as an authoritative data or is part of a similar dataset. Not managed to any of the benchmarks in the approved lifecycle.

General Questions for All Stages

1) Is there a recurring process to obtain funding for all lifecycle stages of this dataset?

Answer: Funding support is part of agency budget on a recurring basis, funding is consistent and tied to business processes, and supports all lifecycle stages.

Justification Comment:

Attachment(s): 0

Funding: Total funding from all sources for the FIA program in FY 2014 was \$77.7 million, a net increase of \$1.8 million from FY 2013 (appropriated funding increased \$1.2 million). FY 2014 funding consisted of \$66.8 million appropriated by Congress plus \$1.7 million in net adjustments from the previous fiscal year, special funding of \$1.4 million, and \$7.8 million in partners' funds. State partners' funds are used to maintain an annual measurement and 5-year State report cycles. In FY 2014, total funding from all sources was 14 percent less than the amount needed for full program implementation.

Partners' support: Partners contributed \$7.8 million to the program in FY 2014. Using cost share, 36 States contributed \$3.9 million toward buying down their Layout Draft 2014 Annual Report 04/15/2015 8 measurement and reporting cycles to 5 years or to intensify their plot network. Overall, partners' contributions increased by \$166,000 from FY 2013.

Grants and agreements: When external cooperators can complete critical FIA work with equal quality for less cost, FIA contracts for these services—a total of \$15.8 million was spent in this way in FY 2014.

2) Is there a process in place to ensure that open government and transparency guidelines are followed in all lifecycle stages for this dataset?

Answer: Process is published as appropriate with respect to sensitivity requirements, process is transparent, published appropriately.

Justification Comment:

Attachment(s): 0

National and regional FIA Users groups provide support and direction for the program. Some states provide support to intensify the sample in their state by providing field crews who are trained by FIA personnel.

Forest Inventory and Analysis produces and maintains a set of public databases that can be downloaded and used by anyone.

These databases are a valuable resource for many different natural resources questions, such as forest resource assessment, wildlife habitat modeling, fire and pests threat assessment, forest economics, forest change detection.

In order to protect the integrity of the FIA sample, the exact coordinates of our sample plot locations are kept confidential. This protects the privacy of landowners who allow FIA field crews on their land, as well as protects the plots from any tampering. In fact, this policy of location confidentiality is incorporated into law through the Fiscal Year 2000 Consolidated Appropriations Bill (PL 106-113) which amended the Food Security Act of 1985 (7 U.S.C. 2276(d)) to include FIA data to the list of items that require confidential treatment.

The Spatial Data Services team was created to provide a connection between researchers and FIA data. We work to provide customers with the information they need in a way that does not compromise the security of the plot locations. We also provide advice and guidance on the proper use of FIA data.

The Spatial Data Services team provides several services, such as:
Helping clients acquire and use the public FIA database, which includes perturbed plot coordinates to protect landowner's identities
Performing spatial summaries of FIA variables for a particular area of interest
Performing spatial overlays between plots and geospatial data provided by our customers
Providing facilities where a customer may visit and perform their own analysis of FIA data. Spatial Data Services will review the results to insure they comply with the law.

Source- <http://www.fia.fs.fed.us/tools-data/spatial/index.php>

3) Are there processes and tools in place so that staff are sufficiently knowledgeable to ensure a continuity of the dataset for all stages of the lifecycle, especially during staffing transitions?

Answer: Processes and tools to ensure dataset continuity are defined and beginning to be implemented.

Justification Comment:

Attachment(s): 0

The FIA National Information Management System (NIMS) generates the FIADB dataset. The FIADB dataset contains all of the core FIA variables collected nationally. The FIADB also contains many regional variables that are needed for computing the national core variables. FIADB database documentation is available at this website: <http://www.fia.fs.fed.us/library/database-documentation/index.php>

This document is based on previous documentation of the nationally standardized Forest Inventory and Analysis database (Hansen and others 1992; Woudenberg and Farrenkopf 1995; Miles and others 2001; Woudenberg and others 2010). Documentation of the structure of the Forest Inventory and Analysis database (FIADB) for Phase 2 data, as well as codes and definitions, is provided. Examples for producing population-level estimates are also presented. This database provides a consistent framework for storing forest inventory data across all ownerships for the entire United States. These data are available to the public.

STAGE 1 - Define/Plan

4) Are user and business requirements defined and formalized?

Answer: A recurring process is in place, including defining new partner and stakeholder business needs as they arise, and is fully implemented.

Justification Comment:

Attachment(s): 0

The Forest Service Handbook sets an accuracy goal of +/- 3% per million acres of forest land and +/- 5% per billion cubic feet of timber. Historic sampling errors indicate that a sampling intensity of about one plot per 6,000 acres is required to satisfy national FIA precision guidelines.

Users groups: FIA relies heavily on periodic meetings with users and clients to ensure that the program is providing the highest quality service and meeting its planned objectives. In 2014, FIA held six regional and one national users group meetings to gauge how well it is meeting the goals stated in the strategic plan and the previous year's annual report.

Source: Forest Inventory and Analysis Fiscal Year 2014 Business Report. July 2015. FS-1053.

5) How are partners/stakeholders involved in the requirements collection process?

Answer: A recurring process is in place, including defining new partner and stakeholder business needs as they arise, and is fully implemented.

Justification Comment:**Attachment(s):** 0

Users groups: FIA relies heavily on periodic meetings with users and clients to ensure that the program is providing the highest quality service and meeting its planned objectives. In 2014, FIA held six regional and one national users group meetings to gauge how well it is meeting the goals stated in the strategic plan and the previous year's annual report.

Source: Forest Inventory and Analysis Fiscal Year 2014 Business Report. July 2015. FS-1053.

6) Is there a quality assurance process for the dataset?**Answer:** Quality assurance published as appropriate with respect sensitivity requirements.**Justification Comment:****Attachment(s):** 0

Quality assurance: FIA field-checked 8 percent of all field plots measured in FY2014 to ensure that FIA databases comprise only the highest quality data. All plots are further checked for consistency when loaded into the FIA database.

Source: Forest Inventory and Analysis Fiscal Year 2014 Business Report. July 2015. FS-1053.

The Forest Inventory and Analysis (FIA) Program of the USDA Forest Service is committed to achieving a high level of consistency through well planned Quality Assurance (QA) activities in all stages of its national core inventory system – planning, data collection, photo and image interpretation, information management, compilation and analysis.

Quality Assurance Program. All elements in the FIA program include QA operational techniques designed to assure and improve the quality of FIA data. These include: planning, method documentation, training for data collectors, checks of data quality, evaluation of uncertainty in survey data, peer review of analysis products, and continuous feedback to ensure that the data collection and processing system improves over time.

For more information see - <http://www.fia.fs.fed.us/library/fact-sheets/data-collections/QA.pdf>

7) Is there a process to evaluate the sensitivity, privacy, and confidentiality of this dataset?**Answer:** Sensitivity, privacy, and confidentiality evaluations fully implemented, reviewed and updated on a recurring basis.**Justification Comment:****Attachment(s):** 0

In order to protect the integrity of the FIA sample, the exact coordinates of our sample plot locations are kept confidential. This protects the privacy of landowners who allow FIA field crews on their land, as well as protects the plots from any tampering. In fact, this policy of location confidentiality is incorporated into law through the Fiscal Year 2000 Consolidated Appropriations Bill (PL 106-113) which amended the Food Security Act of 1985 (7 U.S.C. 2276(d)) to include FIA data to the list of items that require confidential treatment.

Source - <http://www.fia.fs.fed.us/tools-data/spatial/index.php>

8) Are defined data standards used in collecting, processing, and/or rendering the data?**Answer:** Standards fully implemented documented and published as appropriate.**Justification Comment:****Attachment(s):** 0

Field guide methods and procedures are available online at <http://www.fia.fs.fed.us/library/field-guides-methods-proc/index.php>

Database documentation is available online at <http://www.fia.fs.fed.us/library/database-documentation/index.php>

Computed variables such as volume are fully documented in research publications. For example volume equations are documented in:

Title: Methods and equations for estimating aboveground volume, biomass, and carbon for trees in the U.S. forest inventory, 2010

Author: Woodall, Christopher W.; Heath, Linda S.; Domke, Grant M.; Nichols, Michael C.; Date: 2011

Source: Gen. Tech. Rep. NRS-88. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 30 p.

STAGE 2 - Inventory/Evaluate

9) Is there a process for determining if data necessary to meet requirements already exist from other sources (either within or outside the agency) before collecting or acquiring new data?

Answer: Process for determining appropriate data is being reused fully implemented, reviewed, and updated on a regular basis.

Justification Comment:

Attachment(s): 0

FIA field plots are measured on all ownerships across the entire United States. The national grid intensity is approximately 1 plot for every 6 thousand acres. FIA is the only program that collects forest inventory field information at this scale. Other programs collect remote sensing information at a national scale and where appropriate this information is utilized by the FIA program, most notably the use of the National Land Cover Dataset.

STAGE 3 - Obtain

10) Is there a process for obtaining data in relation to this dataset?

Answer: Process is fully implemented, reviewed and updated on a regular basis.

Justification Comment:

Attachment(s): 0

The Forest Service has significantly enhanced the FIA program by changing from a periodic survey to an annual survey, by increasing our capacity to analyze and publish data, and by expanding the scope of our data collection to include soil, under story vegetation, tree crown conditions, coarse woody debris, and lichen community composition on a subsample of our plots. The FIA program has also expanded to include the sampling of urban trees on all land use types in select cities.

Source - <http://www.fia.fs.fed.us/>

Plots are measured in each state each year. All plots are remeasured within a 5 to 10 year period.

11) Is the metadata in a FGDC endorsed geospatial metadata standard?

Answer: Metadata is available in a format endorsed by the FGDC, it fully describes the dataset and provides all the information required to make the dataset discoverable, accessible, and usable.

Justification Comment:

Attachment(s): 0

Forest Inventory and Analysis Database

Metadata Updated: Nov 11, 2014

The Forest Inventory and Analysis (FIA) research program has been in existence since mandated by Congress in 1928. FIA's primary objective is to determine the extent, condition, volume, growth, and depletion of timber on the Nation's forest land. Before 1999, all inventories were conducted on a periodic basis. The passage of the 1998 Farm Bill requires FIA to collect data annually on plots within each State. This kind of up-to-date information is essential to frame realistic forest policies and

programs. Summary reports for individual States are published but the Forest Service also provides data collected in each inventory to those interested in further analysis. Data is distributed via the FIA DataMart in a standard format. This standard format, referred to as the Forest Inventory and Analysis Database (FIADB) structure, was developed to provide users with as much data as possible in a consistent manner among States. A number of inventories conducted prior to the implementation of the annual inventory are available in the FIADB. However, various data attributes may be empty or the items may have been collected or computed differently. Annual inventories use a common plot design and common data collection procedures nationwide, resulting in greater consistency among FIA work units than earlier inventories. Links to field collection manuals and the FIADB user's manual are provided in the FIA DataMart.

Source - <http://catalog.data.gov/dataset/forest-inventory-and-analysis-database>

12) How complete is the geographic coverage as defined in the requirements for the dataset?

Part 1 Answer: Business requirements for cyclic updates identified and a process is in place.

Part 2 Answer: Dataset presently about 75% complete per current requirement.

Justification Comment:

Attachment(s): 0

Data is available for the 48 contiguous states and Southeast Alaska. Data is not currently available for Hawaii and Interior Alaska.

STAGE 4 - Access

13) Do you have a process for providing users access to the data in an open digital machine readable format?

Answer: User access process is fully implemented, data is available, process is reviewed and updated on a recurring basis.

Justification Comment:

Attachment(s): 0

The entire FIADB is available to the public via the FIA DataMart - <http://apps.fs.fed.us/fiadb-downloads/datamart.html>

The DataMart provides data in comma-delimited format or as individual MS-Access databases for each State. The MS-Access databases include a reporting tool for generating estimates of forest statistics (eg. area, tree volume, tree biomass, tree growth, removals and mortality).

Web applications are also available for querying the FIADB. These include FIDO and the EVALIDator which can be found here: <http://www.fia.fs.fed.us/tools-data/index.php>

STAGE 5 - Maintain

14) Is there a maintenance process for updating and storing the dataset?

Answer: Dataset maintenance process is fully implemented and processes are reviewed and periodically updated.

Justification Comment:

Attachment(s): 0

The FIADB is currently at version 1.6.0.03. Releases are carefully coordinated with releases of the FIADB documentation (<http://www.fia.fs.fed.us/library/database-documentation/index.php>).

15) Is there an error correction process as part of dataset maintenance?

Answer: Error correction process includes user notification, process reviewed on a recurring basis.

Justification Comment:

Attachment(s): 0

Data errors are corrected as they are identified. The FIADB is recreated and redeployed every weekend. When changes have occurred to a State's dataset users are notified via this webpage -

STAGE 6 - Use/Evaluate

16) Is there a process to determine if the dataset meets user needs?

Answer: Process is fully implemented and repeated on a recurring basis.

Justification Comment:

Attachment(s): 0

Users groups: FIA relies heavily on periodic meetings with users and clients to ensure that the program is providing the highest quality service and meeting its planned objectives. In 2014, FIA held six regional and one national users group meetings to gauge how well it is meeting the goals stated in the strategic plan and the previous year's annual report.

Source: Forest Inventory and Analysis Fiscal Year 2014 Business Report. July 2015. FS-1053.

17) Is there a process to provide users information on how to access and properly use the dataset?

Answer: Process is fully implemented supporting access and proper use, process is reviewed on a recurring basis.

Justification Comment:

Attachment(s): 0

Customer Service - <http://www.fia.fs.fed.us/tools-data/customer-service/index.php>

Training and tutorials webpage - http://www.fia.fs.fed.us/tools-data/tutorials_training/index.php

18) Are the business processes and management practices assessed to meet changing technology?

Answer: Assessment process is fully implemented for taking advantage of changing technology, process is reviewed on a recurring basis.

Justification Comment:

Attachment(s): 0

Users groups: FIA relies heavily on periodic meetings with users and clients to ensure that the program is providing the highest quality service and meeting its planned objectives. In 2014, FIA held six regional and one national users group meetings to gauge how well it is meeting the goals stated in the strategic plan and the previous year's annual report.

Source: Forest Inventory and Analysis Fiscal Year 2014 Business Report. July 2015. FS-1053.

STAGE 7 - Archive

19) Is there an archiving process for the dataset?

Answer: Archival and/or disposition processes are in development.

Justification Comment:

Attachment(s): 0

The FIADB was archived as a series of State MS-Access database on the DVD included with this publication. Title: Forest Resources of the United States, 2012: a technical document supporting the Forest Service 2015 update of the RPA Assessment. Author: Oswalt, Sonja N.; Smith, W. Brad; Miles, Patrick D.; Pugh, Scott A.; Date: 2014. Source: Gen. Tech. Rep. WO-91. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. 218 p.

There is currently no annual archiving process for the FIADB. The CIO is responsible for backing up the FIA National Information Management System (NIMS). NIMS generates the FIADB. NIMS is not archived beyond the CIO's back up procedures.

