

INDIAN AFFAIRS MANUAL

1.1 Purpose. This chapter documents the policy, responsibilities, and standards applicable to the collection, analysis, and use of scientifically based inventory data for monitoring and management of forest resources on Indian lands (25 CFR 163.11, 163.1 Forest Land Management Activities (b)).

1.2 Scope. This policy applies to all Indian Affairs (IA) offices and programs participating in the management, accountability, and protection of Indian forest lands. Other federal agencies and programs also involved in the administration of Indian forest lands are encouraged to ensure that the standards prescribed herein are met.

1.3 Policy. It is IA's policy that sound forest inventory, analysis of that inventory, and monitoring information should guide decisions related to the management and protection of Indian forest resources.

1.4 Authority.

A. Statutes and Regulations.

- 1) P.L. 273, The Cooperative Sustained Yield Act, March 29, 1944
- 2) P.L. 88-301, Amendment to the Act of June 25th, 1910, with respect to the sale of Indian timber, April 30, 1964
- 3) P.L. 101-630, Title III - Indian Forest and Woodlands, National Indian Forest Resources Management Act, November 28, 1990
- 4) 16 U.S.C. § 594, Protection of timber owned by United States from fire, disease, or insect ravages
- 5) 25 U.S.C. § 406 and § 407, Sale of timber on lands held under trust, and Sale of timber on unallotted lands
- 6) 25 U.S.C § 5109, Indian forestry units; rules and regulations
- 7) 25 CFR 163, General Forestry Regulations

B. Guidance.

- 1) 303 Departmental Manual (DM) 2, Indian Trust Responsibilities – Principles for Managing Indian Trust Assets
- 2) 586 DM 1, Timber Management – General Policies and Responsibilities

C. Handbooks.

- 1) 53 IAM 2-H: Indian Forest Management Handbook - Forest Management Planning
- 2) 53 IAM 3-H: Indian Forest Management Handbook - Contract Sales of Forest Products
- 3) 53 IAM 4-H: Indian Forest Management Handbook - Permit Sales of Forest Products
- 4) 53 IAM 7-H; Indian Forest Management Handbook - Forest Trespass
- 5) 53 IAM 9-H; Indian Forest Management Handbook - Silviculture

1.5 Responsibilities.

A. Director, Bureau of Indian Affairs (BIA) is responsible for:

- 1) developing national inventory and trust monitoring policies, standards, and procedures;
- 2) providing national forest inventory program direction, oversight, guidance, and technical assistance;
- 3) assuring state-of-the-art forest inventories are implemented, maintained, and analyzed for forest management planning and trust monitoring purposes;
- 4) maintaining continuous forest inventory data for all forest lands in trust;
- 5) maintaining a document archive for each Forest Inventory Analysis (FIA) Report for forest lands in trust; and
- 6) annually compiling and maintaining the Status of Forest Management Inventories and Planning Report and the Catalog of Forest Acres.

B. Regional Directors (RDs) are responsible for:

- 1) developing regional inventory guidelines for program implementation within the scope of this policy and in compliance with all other national policies, directions, and standards;
- 2) assuring national and regional inventory and trust monitoring standards, policies, and procedures are met and followed;

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- 3) providing regional forest inventory program direction, oversight, and guidance within the scope of this policy and in compliance with all other national policies, directions, and standards;
- 4) approving forest inventory field procedure guides prior to project initiation;
- 5) maintaining all strategic planning inventory data from temporary plots for forest lands in trust; and
- 6) approving each FIA Report.

C. BIA Agency Superintendents are responsible for:

- 1) planning and budgeting for field inventory activities;
- 2) organizing and conducting field inventory activities;
- 3) developing forest inventory project field procedure guides;
- 4) analyzing inventory data and developing FIA Reports; and
- 5) assuring inventory quality control.

1.6 Definitions. The following definitions are derived from multiple sources including 25 CFR, The Society of American Foresters Dictionary of Forestry, BIA Forest Land Classification – Catalog of Forest Acres, and 53 IAM 10 Woodland Management.

- A. Accessible Forest Land** is forest land that is physically, administratively, and economically accessible to harvest or is anticipated to become so during the management plan period.
- B. Allowable Annual Cut (AAC)** is the maximum harvest level allowed during a planning period as per management goals and objectives. It is determined either by the scientific calculation of the Indicated Annual Cut (IAC) under a RD's policy directive, or defined by the Tribe's preferred management alternative documented in an approved Forest Management Plan (FMP). The cumulative AAC, or portion thereof, may be defined by regional addenda and can be harvested any time during the planning period, but cannot be carried as surplus volume to the next planning period.
- C. Commercial Forest Land** is forest land that is producing or capable of producing crops of marketable forest products, and is administratively available for intensive management and sustained production.

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- D. Commercial Woodland** is land qualifying as forest, containing less than five percent of commercial timber species crown cover, diameters at least three inches at root collar (DRC) of woodland species, and considered of high site quality capable of growing at least five cubic feet/acre/year of merchantable material. Commercial woodland describes that portion of the woodland producing marketable woody products which are currently or prospectively accessible, not withdrawn from such use, and not already accounted for within commercial or noncommercial timberland.
- E. Continuous Forest Inventory** is a system of permanent sample plots that are installed on a forest-wide basis and periodically remeasured to provide data to guide forest management planning.
- F. Cruise** is a forest survey to locate and estimate the quantity of timber on a given area according to species, size, quality, possible products, or other characteristics.
- G. Forest Inventory Analysis (FIA)** is a technical report that summarizes and interprets data from a Continuous Forest Inventory or other Planning Inventory to provide objective information for land managers to support the development of a forest management plan. An FIA report typically includes: forest-wide stocking summaries; stocking, growth, and mortality trends; projections for future growth and volume; targets for forest regulation; and the calculations of an IAC and a Regulated Annual Cut (RAC).
- H. Forest Inventory** is a set of objective sampling methods designed to quantify the spatial distribution, composition, and rates of change of forest parameters within specified levels of precision for the purposes of management.
- I. Forest Management Plan (FMP)** is the principal document, approved by the Secretary, reflecting and consistent with any existing integrated resource management plan, which provides for the regulation of the detailed, multiple-use operation of Indian forest land by methods ensuring that such lands remain in a continuously productive state while meeting the objectives of the Tribe, and which must include: standards setting forth the funding and staffing requirements necessary to carry out each management plan, with a report of current forestry funding and staffing levels; and standards providing quantitative criteria to evaluate performance against the objectives set forth in the plan.
- J. Forest or Forest Land** is an ecosystem at least one acre in size, including timberland and woodland, which is characterized by a more or less dense and extensive tree cover; contains, or once contained, at least ten percent tree crown cover; and is not developed or planned for exclusive non-forest resource use.

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- K. Forest Products** are marketable products extracted from Indian forests, such as timber; timber products, including lumber, lath, crating, ties, bolts, logs, pulpwood, fuelwood, posts, poles, and split products; bark; Christmas trees, stays, branches, firewood, berries, mosses, pinyon nuts, roots, acorns, syrups, wild rice, mushrooms, and herbs; other marketable material; and gravel which is extracted from, and utilized on, Indian forest land.
- L. Forest Resources** are all of the benefits derived from Indian forest land, including forest products, soil productivity, water, fisheries, wildlife, recreation, and aesthetic or other traditional values of Indian forest land.
- M. Inaccessible Forest Land** is forest land that is inaccessible by conventional logging methods (i.e., steep terrain or cut-off ridges or canyons) or restricted by special treatments (i.e., disease and insect areas), and is excluded from land that is suitable for timber management.
- N. Indian Forest Land** is Indian land, including commercial, non-commercial, productive and non-productive timberland and woodland, that are considered chiefly valuable for the production of forest products or to maintain watershed or other land values enhanced by a forest cover, regardless of whether a formal inspection and land classification action has been taken.
- O. Indian Land** is land title which is held in trust by the United States for an Indian, an individual of Indian or Alaska Native ancestry who is not a member of a federally recognized Indian Tribe, or an Indian Tribe; or by an Indian, an individual of Indian or Alaska Native ancestry who is not a member of a federally recognized Tribe, or an Indian Tribe subject to a restriction by the United States against alienation.
- P. Indian Tribe or Tribe** is any Indian Tribe, band, nation, rancheria, Pueblo, or other organized group or community which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians and shall mean, where appropriate, the recognized Tribal government of such Tribe's reservation.
- Q. Indicated Annual Cut (IAC)** is the scientific calculation of expected annual harvest "under the constraints of current management" during a conversion period from present to regulated forest condition. In the case of an Integrated Resource Management Plan (IRMP) or FMP when multiple planning alternatives are presented, an IAC will be calculated for each alternative reflecting the management constraints of each alternative.

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- R. Integrated Resource Management Plan (IRMP)** is a document, approved by an Indian Tribe and the Secretary of the Interior, which provides coordination for the comprehensive management of the natural resources of such Tribe's reservation.
- S. Inventory Stratum (plural Strata)** is a grouping of vegetation sampling units sharing similar characteristics for the purpose of analysis or summary.
- T. Non-Commercial Forest Land** is forest land that is available for extensive management, but is incapable of producing sustainable forest products within the general rotation period. Such land may be economically harvested but the site quality does not warrant significant investment to enhance future crops.
- U. Non-Commercial Woodland** is woodland that is available for extensive management, but is incapable of producing sustainable forest products within the general rotation period. Such land may be economically harvested but the site does not warrant significant investment to enhance future crops.
- V. Non-Forest Land** is land that does not fall under the definition of Forest Land. This is land that: (1) has never supported forests (e.g., barren, alpine tundra), (2) was formerly forested, but has been converted to a non-forest area class (e.g., rangeland, cropland), or (3) presently meets the stocking requirements for forest land, but human activity on the site will preclude the natural succession of the stand (residential development). Other examples of non-forest land are improved roads of any width, graded or otherwise regularly maintained for long-term continuing use, and rights-of-way of all power lines, pipelines, other transmission lines, and operating railroads. If intermingled in forest areas, unimproved roads and non-forest strips must be at least 120-feet wide and one acre in size to qualify as non-forest land.
- W. Planning Inventory** is a forest survey designed to assess the stocking, growth, mortality, health conditions, and long-term trends of the forest as a whole for the purposes of management planning. On Indian reservations this is typically implemented as a Continuous Forest Inventory (CFI).
- X. Productive Forest Land** is forest land producing, or capable of producing, marketable forest products that is unavailable for harvest because of administrative restrictions or because access is not practical.
- Y. Realty Cruise** is a timber/woodland inventory performed for the purpose of land valuation.
- Z. Regulated Annual Cut (RAC)** is the calculated sustainable yield for the future forest after regulation is attained and as management is constrained by a continuation of the requirements of the management alternative. In the case of an IRMP or FMP where

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multiple planning alternatives are presented, a RAC will be calculated for each alternative reflecting the management constraints of each alternative.

- AA. Regulated Forest** is a forest under sustained-yield management with regular cuttings determined by the growth of the forest. It is a forest which has been brought to a balanced and stable condition through technical (in contrast to the administrative and business) management yielding a sustainable flow of forest products from regular harvests determined by the growth of the forest.
- BB. Reservation** is an Indian reservation established pursuant to treaties, Acts of Congress, or Executive Orders and public domain Indian allotments, Alaska Native allotments, rancherias, and former Indian reservations in Oklahoma.
- CC. Reserved Forest Land** is forested land that is unavailable for harvest because of administrative restrictions.
- DD. Stand Exam** is an inventory to collect site-specific forest data and other information for silvicultural and other forest management purposes.
- EE. Sustained Yield** is the yield of forest products that a forest can produce continuously at a given intensity of management.
- FF. Timberland** is forest land stocked, or capable of being stocked, with tree species that are regionally utilized for lumber, pulpwood, poles, or veneer products.
- GG. Trespass** is the removal of forest products from, or damaging forest products on, Indian forest land, except when authorized by law and applicable federal or Tribal regulations. Trespass can include any damage to forest resources on Indian forest land resulting from activities under contracts or permits or from fire.
- HH. Unproductive Forest Land** is forest land that is not producing or capable of producing marketable forest products and is also unavailable for harvest because of administrative restrictions or because access is not practical.
- II. Unreserved Forest Land** is forest land that is administratively available for harvest.
- JJ. Woodland** is forest land not included within the timberland classification, stocked, or capable of being stocked, with tree species of such form and size to produce forest products that are generally marketable within the region for products other than lumber, pulpwood, or veneer.

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1.7 Standards, Requirements, and Procedures.

The National Inventory Standards described below are tiered to the Reservation Categories defined in 25 CFR § 163.36, and 53 IAM 2, 1.7 A. Inventory design must be correlated with the basic purpose and need for data collection. The BIA recognizes the following inventory types:

A. Forest Inventory for Management Planning & Trust Monitoring (Planning Inventory). The Planning Inventory, also known as the CFI system on Category 1 Reservations, provides accountability for the management of Indian forest resources and the scientific basis for long-term planning.

1) Planning Inventories must meet or exceed the following BIA national standards:

	Category 1	Category 2	Category 3	Category 4
Scheduling	15 years or less	15 years or less	20 years or less	As necessary for plan
Design	Permanent fixed-area plot for entire timberland ownership on a systematic grid with 100% of plots measured. Category 3 standards applied on woodland areas.	Temporary plot for entire timberland ownership on systematic grid with 100% of plots measured. Category 3 standards applied on woodland areas.	Forest-wide inventory based on regional discretion.	Forest-wide inventory based on regional discretion.
Mapping Requirements (See 1.7.A.2. Mapping)	Ownership, Forest Land Classification, Cover Type, Stratum Boundaries, Acres, Plot Location.	Ownership, Forest Land Classification, Cover Type, Stratum Boundaries, Acres.	Ownership, Forest Land Classification, Cover Type, Acres.	Ownership, Forest Land Classification, Cover Type, Acres.

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	Category 1	Category 2	Category 3	Category 4
Accuracy of Inventory and Trust Monitoring (Sampling Error at 1 Standard Deviation)	<u>TIMBERLAND:</u> ≤ 5% for BA <u>Commercial Timberland:</u> Stratified: ≤ 5% for pooled strata for primary unit of volume and ≤ 15% per stratum. Unstratified: ≤ 5% for primary unit of volume. <u>WOODLAND:</u> Category 3 standards.	<u>TIMBERLAND:</u> ≤ 10% for BA <u>Commercial Timberland:</u> Stratified: ≤ 10% for pooled strata for primary unit of volume and ≤ 15% per stratum. Unstratified: ≤ 10% for primary unit of volume. <u>WOODLAND:</u> Category 3 standards.	<u>Commercial Woodland:</u> ≤ 20% for BA.	Regional discretion
Data	Species, Frequency, Diameter, Height, Tree condition, Plot description, Site quality, Regeneration.	Same as Category 1	Same as Category 1	Same as Category 1
Analysis	See 53 IAM Chapter 8 1.8 A.	See 53 IAM Chapter 8 1.8 A.	See 53 IAM Chapter 8 1.8 A.	See 53 IAM Chapter 8 1.8 A.
Quality Control	10% plot verification, Crew qualifications as per Forest Inventory Field Procedure Guide.	Same as Category 1	Same as Category 1	Regional discretion
Data Retention	CFI data archived in Central Office.	CFI data archived in Central Office and temporary plot inventory data retained at the region.	Same as Category 2	Same as Category 2
Document Retention	Approved FIA archived in Central Office.	Same as Category 1	Same as Category 1	Same as Category 1

Trust Standards are not specified for Category 5, as they are non-trust.

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2) Mapping for Planning Inventories must meet or exceed the following BIA national standards:

	All Categories
Scheduling	15 Years or less (Categories 1-2), 20 years or less (Category 3), and consistent with forest inventory schedule for Category 4.
Data Format	GIS spatial data, regionally defined.
Map Types and Data Element	<p>Ownership: Trust lands</p> <p>Cover Type: Species composition, regionally defined.</p> <p>Forest Land Classification: Consistent with classification system in Catalog of Forest Acres.</p> <p>Stratum Boundaries: Required for Categories 1-2; Categories 3-4 at the region's discretion.</p> <p>Plot Locations: Required for all planning inventories.</p> <p>Administrative Restrictions and Limitations: Required for Categories 1-2; Categories 3-4 at the region's discretion.</p>
Quality Control	<p>Cover Type: Minimum 5% of stands ground-truthed/photo interpretation checked (Category1). Regional discretion for Categories 2-4.</p> <p>Other map types per regional discretion.</p>
Accuracy	<p>Cover Type: Minimum 90% accuracy on quality control checks.</p> <p>Other map types per regional discretion.</p>
Data Source	<p>Ownership: Land Titles and Records Office (LTRO), Realty.</p> <p>Cover Type: Based on current remote sensing data.</p> <p>Other Map Types: Regional discretion.</p>
Document Retention	Maps and associated descriptions per requirements in FIA (see section 1.7, A.1 of this policy) and FMP (see 53 IAM 2 1.7.B). GIS data layers stored in GIS data library per regional discretion.

B. Forest Inventory for Timber Products Sales (Cruise). The purpose of the Cruise is to accurately estimate the timber products and volume of the forest resources. Cruise design will vary depending upon product values, extent of the resource, harvest policies, etc. However, the Cruise standards below must be met as a minimum and further constrained as necessary by the appropriate regional office to fulfill the Secretary's trust obligations.

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\	All Categories		
Scheduling	Within 2 years of advertisement of predetermined volume sale and within 5 years of advertisement of estimated volume sales. This will occur as detailed in the FMP harvest schedule.		
Design	As regionally required.		
Accuracy (Sampling Error at 2 Standard Deviations 95% Confidence Level)	Estimated Sale Stumpage Value	Sampling Error – based on Net Volume	
		Estimated Volume Sale	Predetermined Volume Sale
	< \$15,000	≤ 35%	≤ 25%
	> \$15,000 ≤ \$100,000	≤ 30%	≤ 20%
	> \$100,000 ≤ \$250,000	≤ 25%	≤ 15%
	> \$250,000	≤ 20%	≤ 10%
Data	Acres, Species, Products, Volume and Value variables.		
Analysis	Compile and process data; and summarize statistics.		
Quality Control	Standards will be set by RDs.		
Document Retention	Consistent with the Indian Affairs Records Schedule.		

C. Forest Inventory for Other Forest Product Sales (Other Products Inventory).

The purpose of the Other Products Inventory is to accurately estimate forest data and other information for other forest products (defined in 25 CFR 163.1). Design standards will vary depending upon product values, extent of the resource, harvest policies, etc., and will be determined by the RD to fulfill the Secretary's trust obligations.

D. Forest Inventory for Real Estate Value (Realty Cruise).

Timber and woodland are part of the "Real Property" and thus a trust resource under the protection and care of the Secretary. The fair market value of the timber/woodland must be accounted for as a part of a realty appraisal. A Realty Cruise will be performed to the standards determined by the RD to fulfill the Secretary's trust obligations.

E. Forest Inventory for Stand Management (Stand Exam).

The purpose of this type of inventory is to collect site-specific forest data and other information for silvicultural and other forest management purposes. Stand Exams will be performed to the standards determined by the RD to fulfill the Secretary's trust obligations.

F. Forest Inventory for Trespass Investigation (Trespass Inventory).

When unauthorized use or damage of the resource is reported, a determination of extent and value is to be made using Trespass Inventory methods to substantiate claims for

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compensation. The extent and nature of the damage and the physical evidence present will influence the design and accuracy (refer to 53 IAM 7). A Trespass Inventory must be performed to the standards below.

	For All Occurrences
Scheduling	Promptly upon reported detection.
Design	Sampling design is approved by the RD. Examples of inventory methods include: stump cruise, comparison cruise, 100% cruise or scale, or CFI data.
Accuracy	Sampling error requirements are the same as the accuracy established for predetermined volume sale of timber in section 1.7.B, Forest Inventory for Timber Products Sales (Cruise). Adjustments to the sampling error requirements can be made through an exemption approved by the RD. The accuracy standards are dependent on the extent and nature of the damage and the physical evidence present.
Data	Refer to Trespass Handbook, 53 IAM 7-H, Chapter 5, The Trespass Report. All measurements necessary to yield quantity and value will be recorded and become part of the Trespass Report and the Administrative Record (53 IAM 7-H, Chapter 5 and Chapter 6.4).
Analysis	Compile and process data, and summarize statistics.
Quality Control	Regional discretion.
Document Retention	Consistent with BIA file maintenance plans. Refer to 53 IAM 7-H, Chapter 10, Records Management.

G. Forest Inventory for Research (Stocking Studies). BIA research studies are designed to demonstrate and understand local forest potential. Research inventories for other purposes, such as genetic improvement, must have applicable scientifically-based procedures established and record analysis maintained.

H. Forest Inventory for Cultural, Traditional, and Other Tribal Values. This standard requires adequate documentation of forest-related data collected in all types of inventory to facilitate use by other disciplines. Standards are developed by the RD.

1.8 Reports and Forms.

A. Minimum Content Standards for a FIA. The analysis of Planning Inventory data is documented in a FIA report, which is approved by the appropriate RD.

The FIA content will be unique to the resource and the beneficial owners' expectations for management. Therefore, there is no template provided by BIA.

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However, prior to approval, the FIA must meet or exceed the following content standards according to the Reservation Categories defined in 53 IAM 2, 1.7 A. The identified basic elements within each function must be addressed with sufficient detail for clarity and understanding of the data.

	Category 1	Category 2	Category 3	Category 4
Approval	Required	Required	Required	Required
Preface	Required	Required	Required	Required
Synopsis	Required	Required	Required	Required
Description of Forest	Required	Required	Required	Required
Summary of Results	Previous Inventories. <u>Current Inventory:</u> Sample Methods Area (Acres) Volume Growth Forest Condition Forest Trends <u>Cut Calculations:</u> Indicated Annual Cut Regulated Annual Cut Comparative Analysis	Previous Inventories (if any). <u>Current Inventory:</u> Sample Methods Area (Acres) Volume, Growth Forest Condition <u>Cut Calculations:</u> Indicated Annual Cut Regulated Annual Cut Comparative Analysis	Regional discretion	Regional discretion
Compilation and Analysis of Data	Forest Strata Description Statistical Analysis Method of Forest Regulation Volume and Growth Cutting Cycle / Rotation Age Planning Period Objectives Present Forest Objectives Indicated Annual Cut Regulated Annual Cut	Same as Category 1	Regional discretion	Regional discretion
Recommendations	Examples: <ul style="list-style-type: none"> ▪ Mapping and Area Classification ▪ Data Stratification ▪ Reinventory Procedures and Data Needs ▪ Data Processing ▪ Analysis and Modeling ▪ Plot Maintenance 	Same as Category 1	Same as Category 1	Regional discretion

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	Category 1	Category 2	Category 3	Category 4
Appendix	Forest Inventory Field Procedure Guide Volume Equation Reference Height Regression Coefficients and Equations Site Index Curves/Equations CFI Plot Coordinates Supporting Data Summary Inventory Project Cost Data Plot Listing by Stratum	Same as Category 1	Same as Category 1	Regional discretion

Trust Standards are not specified for Category 5, as they are non-trust.

Approval



3-10-2020

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Director, Bureau of Indian Affairs

Date