- **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.
- **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) 16 U.S.C. § 594, Protection of timber owned by United States from fire, disease, or insect ravages
- 2) 25 U.S.C. § 406, Sale of timber on lands held under trust
- 3) 25 U.S.C. § 407, Sale of timber on unallotted lands
- 4) 25 U.S.C. Chapter 33, National Indian Forest Resources Management
- 5) 25 U.S.C § 5109, Indian forestry units; rules and regulations
- 6) 25 CFR 163, General Forestry Regulations
- 7) 25 CFR 169, Rights-of-Way over Indian Land

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 the National Indian Forestry Library for each Forest Inventory Analysis (FIA) report for forest lands in trust;
 - 6) maintaining the document archive of regional inventory guidelines for program implementation wherever inventory standards, requirements, and procedures are determined by the Regional Director (RD); and
 - 7) annually maintaining and verifying the status of forest management inventories and planning documents including the Catalog of Forest Acres.
- **B.** <u>**RD**</u> is responsible for:
 - 1) developing regional inventory guidelines for program implementation within the scope of this policy and in compliance with all other national policies, directives, 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, a within the scope of this policy and in compliance with all other nat directives, and standards;	•
4)	approving regional procedures and standards to establish the "regionelements within this policy;	onal discretion"
5)	maintaining all strategic planning inventory data from temporary p lands in trust; and	lots for forest
6)	approving each FIA and any required justifications.	
С. <u>Ар</u>	proving Officer is responsible for:	
1)	planning, organizing, conducting, and budgeting for inventory acti	vities;
2)	completing planning inventory activities within specified timelines Table 1 in section 1.7. of this policy;	s as described in
3)	developing the planning inventory field manual;	
4)	analyzing inventory data and developing FIA reports within specif described in section 1.9 of this policy;	ied timelines as
5)	preparing or reviewing a justification for submission to the RD if d from the standards described in sections 1.7 and 1.9 of this policy;	
ഖ	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 as documented in an approved Forest Management Plan (FMP). The cumulative AAC, or portion thereof, can be harvested any time during the planning period, but cannot be carried as surplus volume to the next planning period.

- **C. Approving Officer** is the officer approving instruments of sale for forest products, or his/her authorized representative. The Approving Officer may be an RD, BIA Agency Superintendent, or any Line Officer with designated authority.
- **D.** 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.
- **E.** Continuous Forest Inventory (CFI) 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 designed to locate and estimate the quantity of timber on a given area according to species, size, quality, possible products, or other characteristics.
- **G. Data book** is a compilation of digital files from CFI data that supports the development of the FIA report. Data book materials contain the processed inventory data, volume, and height equations, verified analysis program output reports, and other supporting materials that assist in the analysis of inventory data.
- **H.** Forest Inventory Analysis (FIA) report is a technical report that summarizes and interprets data from a planning inventory to provide objective information for land managers to support the development of a forest management plan. A 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).
- **I. 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.
- J. Forest Management Plan (FMP) is the principal document, approved by the Secretary of the Interior, reflecting and consistent with any existing integrated resource management plan (IRMP), which provides for the regulation of the detailed, multipleuse 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.

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- **K.** 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.
- L. Forest Land Classification (FLC) is a standard classification system used to describe forested Indian trust lands in accordance with the BIA Catalog of Forest Acres.
- **M.** 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.
- **N.** 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.
- **O. 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.
- **P. Indian forest land** is Indian land, including commercial, non-commercial, productive and non-productive timberland and woodland, that is 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.
- **Q. 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.
- **R.** 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.

- **S. 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 IRMP or FMP when multiple planning alternatives are presented, an IAC will be calculated for each alternative reflecting the management constraints of each alternative.
- **T. 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.
- **U. Inventory stratum (plural strata)** is a grouping of vegetation sampling units sharing similar characteristics for the purpose of analysis or summary.
- V. National Indian Forestry Library is the digital repository for copies of forest planning documents maintained at Central Office.
- **W. 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.
- X. 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.
- **Y. Planning Inventory** is a strategic 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. The assessment resulting from a Planning Inventory is documented in an FIA.
- **Z. 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.

- **AA. Realty cruise** is a timber/woodland inventory performed to assess the current stumpage value contributing to the land valuation appraisal.
- **BB.** 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 multiple planning alternatives are presented, a RAC will be calculated for each alternative reflecting the management constraints of each alternative.
- **CC. 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.
- **DD.** 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.
- **EE.** Reserved forest land is forested land that is unavailable for harvest because of administrative restrictions.
- **FF.** Sampling error is the difference between a population parameter value and a samplebased estimate of that parameter that is attributable to the sample, as distinct from errors due to bias in estimation, measurement errors, and errors in observation.
- **GG.** Standard Error (SE) is the standard deviation of a distribution of means from samples with the same number of observations. SE is calculated by dividing the standard deviation by the square root of the number of observations.
- **HH. Stand Based Inventory (SBI)** is an inventory where the sampling unit is the stand. The inventory is derived from temporary plots allocated to individual stands in a stratified forest. Typically, stands are sampled to meet a specified precision standard, and an initial number of stands are selected from each stratum to ensure that strata sampling errors meet specified precision standards.
- **II. Stand exam** is an inventory to collect site-specific forest data and other information for silvicultural and other forest management purposes.
- **JJ.** Sustained yield is the yield of forest products that a forest can produce continuously at a given intensity of management.

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- **KK. Timberland** is forest land stocked, or capable of being stocked, with tree species that are regionally utilized for lumber, pulpwood, poles, or veneer products.
- LL. 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.
- **MM. 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.
- NN. Unreserved forest land is forest land that is administratively available for harvest.
- **OO. 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.
- 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 in 53 IAM 2, 1.7 A. Inventory designs must be correlated with the basic purpose and need for data collection.

The BIA recognizes the following inventory types: Management Planning and Trust Monitoring, Timber Product Sales, Real Estate Value, Stand Management, Trespass Investigation, and Research.

A. Management Planning & Trust Monitoring (Planning Inventory).

The Planning Inventory provides accountability for the management of Indian forest resources and the scientific basis for long-term planning. A Planning Inventory is required for all category 1, 2, and 3 Tribes. If there is active commercial management, an FIA is required for category 4 Tribes.

- 1) Planning Inventory implementation:
 - i. **CFI:** The Division of Forestry, Branch of Forest Inventory and Planning (FIP) will assist the regions with their CFI projects by preparing materials, providing field training, data processing, and providing technical assistance.
 - ii. SBI: The regions are responsible for the oversight of the SBI projects, which

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includes reviewing and ensuring the measurement protocol is adequate and for providing technical assistance to the Tribes.

2) Planning Inventories must meet or exceed the following BIA national standards as documented in Table 1 below:

Table 1: Planning Inventory Standards, Requirements, and Procedures by Reservation Category

Standard Catagomy 1 Catagomy 2 Catagomy 4				
Standard	Category 1	Category 2	Category 3	Category 4
Scheduling	CFI - Full remeasure every 15 years or less	CFI - Full remeasure every 15 years or less	CFI - Full remeasure every 20 years or less	As necessary for FMP plan
	SBI - each stand will be measured once every 15 years minimum	SBI - each stand will be measured once every 15 years minimum	SBI - each stand will be measured once every 20 years minimum	
CFI Data Collection Completion Timeline (maximum)	3 years	2 years	2 years	1 year
SBI Completion Timeline	Initiation - Not to exceed 5 years to measure 30% of forest	Initiation - Not to exceed 2 years to measure 50% of forest	Initiation - Not to exceed 2 years to measure 50% of forest	Regional discretion
CFI Design	Permanent fixed- area plot design	Permanent fixed- area plot design	Permanent fixed- area plot design	Permanent fixed- area plot design
	Timberland - for the entire timberland ownership on a systematic grid	Timberland - for the entire timberland ownership on a systematic grid	Plot distribution across the forestland is regional discretion	Plot distribution across the forestland is regional discretion
	Woodland - Plot distribution is regional discretion	Woodland - Plot distribution is regional discretion		
SBI Design	Temporary plots for entire forest land ownership. Consult regional office for design.	Temporary plots for entire forest land ownership. Consult regional office for design.	Temporary plots for entire forest land ownership. Consult regional office for design.	Temporary plots for entire forest land ownership. Consult regional office for design.

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Table 1 continued

Standard	Category 1	Category 2	Category 3	Category 4
Standard Spatial Data Requirements (Layers will be updated prior to performing inventory)	Category 1 Geographic Information System (GIS) layers (including metadata): Ownership, Reservation Boundary, Catalog of Forested Acres, Cover Type, Stratum Boundaries, Plot Location- Universal Transverse Mercator (UTM)	Category 2 Same as Category 1	Category 3 Same as Category 1	Category 4 Same as Category 1
Accuracy of Inventory and Trust Monitoring (SE at 1 Standard Deviation)	Mercator (UTM) <u>Coordinates</u> <u>TIMBERLAND</u> : ≤ 5% for Basal Area (BA) <u>Commercial</u> <u>Timberland</u> : ≤5% for primary unit of volume Stratified : Required to report for primary unit of volume per stratum; SE Accuracy is regional discretion. <u>WOODLAND</u> : Category 3 standards	TIMBERLAND: ≤ 10% for BA Commercial Timberland: ≤10% for primary unit of volume Stratified: Required to report for primary unit of volume per stratum; SE Accuracy is regional discretion. WOODLAND: Category 3 standards	WOODLAND: BA SE regional discretion Commercial Woodland: ≤ 20% for BA	Regional discretion

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Table 1 continued

Standard	Category 1	Category 2	Category 3	Category 4
Data	Species, Tree Count, Diameter, Height, Tree Condition, Site Quality, Regeneration.	Same as Category 1	Same as Category 1	Same as Category 1
Quality Control	10% plot field inspection, 100% office inspection	Same as Category 1	Same as Category 1	Regional discretion
Document Retention	Field Manual and signed FIA at the region, and a digital copy in the National Indian Forestry Library.	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.

B. Timber Products Sales (Cruise).

The purpose of the cruise is to accurately estimate the timber products and volume of the forest resources. The cruise must meet or exceed the following BIA standards as documented in Tables 2 and 3 below:

Scheduling	Within 2 years prior to advertisement of predetermined volume sale and within 5 years prior to advertisement of estimated volume sales. This will occur as detailed in the FMP harvest schedule.
Design	Regional discretion.
Accuracy	See Table 3 (below).
Data	Acres, Species, Products, Volume and Value variables.
Analysis	Compile and process data, and summarize statistics.
Quality Control	Standards will be set by the Approving Officer.
Document Retention	Consistent with the IA Records Schedule.

Table 2: Timber Products Cruise Standards

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Table 3: Accuracy Standards (SE requirements) at 1 Standard Deviation for Timber ProductsCruise Estimated Stumpage Values

Type of Sale	≤ \$15,000	> \$15,000
Estimated Volume Sale based on Net Volume	$\leq 20\%$	$\leq 15\%$
Predetermined Volume Sale based on Net Volume	≤ 15%	≤ 10%

C. Real Estate Value (Realty Cruise).

Commercial wood products are part of "real property" and therefore are a trust resource under the protection and care of the Secretary of the Interior. The fair market value of the commercial wood products must be accounted for as a part of a realty appraisal. A Realty Cruise will be performed as determined by the Approving Officer.

D. Stand Management (Stand Exam).

The purpose of this type of inventory is to collect site-specific forest data for silvicultural and forest management purposes besides SBI. Stand Exams will be performed to the standards determined by the Approving Officer.

E. 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 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 BIA standards below in Table 4:

Scheduling	Promptly upon reported detection.
Design	Sampling design is approved by the Approving Officer. Examples of inventory methods include: stump cruise, comparison cruise, 100% cruise or scale, variable plot cruise, 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. of this policy. 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.

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Table 4 continued

Data	Refer to the Trespass Handbook (53 IAM 7-H, chapter 5: The Trespass Report).
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.

F. Research.

The purpose of this type of inventory is to improve the basis for determining appropriate land management activities on Indian forest land and should consist of sound scientific practices and methodologies. If funded by the BIA, a final research report will be provided to the RD and a digital copy maintained in the National Indian Forestry Library.

1.8 Emerging Technology for use in Forest Inventory.

Technological innovations in forest inventory methods are constantly advancing and may improve forest management on Tribal lands. The use of emerging technology such as Light Detection and Ranging (LIDAR) in forest inventory is encouraged when the subject technology can be verified as scientifically defensible. The methods to incorporate the new technology must be assessed using statistically sound measures of accuracy, which will be developed and approved by the Approving Officer.

1.9 Reports and Forms.

The analysis of data collected as part of the Planning Inventory is documented in a FIA report. The FIA report must be completed based on the following requirements:

- **CFI:** Analysis of the inventory data and development of the FIA report should be completed within two years of receiving the processed CFI data.
- **SBI:** Upon initiation, an FIA report should be completed within two years after 30% of the forest lands have been inventoried. After the initial FIA, Tribes should follow the schedule as stated in section 1.7 of this policy for subsequent FIAs.

The FIA report should contain the content as documented in Table 5 below, and is approved by the RD in accordance with these standards:

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Table 5: Minimum Content Standards for a FIA by Reservation Category

Content	Category 1	Category 2	Category 3	Category 4
Approval	Required	Required	Required	Required
Key Metrics Table	- Commercial Acres Timber Woodland	Same as Category 1	Same as Category 1	Regional discretion
	- Number of Plots - Number of Plots Analyzed			
	- SE Accuracy Standard Results as defined in Table 1.			
	- Cut calculations: IAC RAC			
Introduction	Required	Required	Required	Required
Description of Forest	Required	Required	Required	Required
Summary of Results	Previous Inventories Description <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	Same as Category 1	Regional discretion	Regional discretion

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Table 5 continued

Content	Category 1	Category 2	Category 3	Category 4
Compilation and	Forest Strata:	Same as Category 1	Regional discretion	Regional
Analysis of Data	Description			discretion
	Standard Error per			
	stratum by primary unit of			
	measure			
	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			
Future Action	Recommended action	Same as Category 1	Same as Category 1	Same as
Items	items to address in future inventory			Category 1
Appendix	Catalog of Forested	Same as Category 1	Same as Category 1	•
	Acres,			discretion
	Volume Equation			
	Reference,			
	Height Regression			
	Coefficients and			
	Equations,			
	Site Index,			
	Curves/Equations			

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

Approval

Darryl LaCounte Digitally signed by Darryl LaCounte Date: 2024.01.17 10:58:00 -05'00'

Darryl LaCounte Director, Bureau of Indian Affairs

Date