



Resource Inventory Notes

No. 4

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INVENTORY PLANNING

One of the most important steps in designing an inventory is to develop a comprehensive plan. Such a plan insures that all facets of the inventory, including the data to be collected, financing and logistical support needed, and the compilation procedures are thought out before the inventory begins.

One of the finest and most thorough sample outlines for preparing inventory plans is contained in FAO Forestry and Forest Products Studies No. 17, entitled "Planning a Forest Inventory" by Bertram Husch (1971). A slight modification of that outline is presented below, for your use, through the courtesy of the Food and Agricultural Organizations of the United Nations. Each and every item should be considered before you undertake your inventory.

"The following outline is presented as but one example of a form which could be used in preparing the plans for a forest inventory. No single outline can be used for all situations, because outlines will necessarily vary to fit the inventory under consideration. However, in the plans for any inventory, it would be well to consider all the topics included below."

1. Purpose of Inventory
 - (a) Why inventory is required
 - (b) How information will be utilized
 - (c) Under what auspices or support inventory will be executed
 - (d) Available information including past surveys, reports, maps or photographs

2. Description of Area to be Inventoried
 - (a) Location
 - (b) Size
 - (c) Condition of terrain, accessibility, transport facilities
 - (d) General description of forest

3. Information Required from the Inventory

- (a) Expected results in form of table outlines with all headings
- (b) Desired precision of results
- (c) Maps, mosaics, or other pictorial material desired, including scales and kind of information

4. Inventory Design

- (a) Funds available, estimates of time and costs for all phases of work
- (b) General description of methods to be used
 - (i) Aerial photography and photo interpretation, including how photos are obtained
 - (ii) Complete tally or sampling methods for forest information
 - (iii) Area estimation procedures
 - (iv) Relationships to be used for expressing estimated stand quantities, e.g. volume tables

5. Measurement Procedures

- (a) Description of design for both photo interpretation and field work
 - (i) Size, shape, and distribution of sampling units for stand information
 - (ii) Calculation of intensity of sampling to meet required precision
 - (iii) Measurement procedures for other parameters such as area, growth, insect damage, mortality
 - (iv) Standardization of coding and procedures.
- (b) Photo interpretation procedures
 - (i) Detailed instructions on all techniques
 - (ii) Staffing and description of duties
 - (iii) Instruments
 - (iv) Forms and recording of observations
 - (v) Quality control
 - (vi) Data conversion and editing
- (c) Field organization
 - (i) Crew organization and description of duties
 - (ii) Transportation procedures and directives
 - (iii) Camping instructions
 - (iv) Provisions for logistical support

- (d) Field procedures including detailed procedures on:
- (i) Sampling unit location
 - (ii) Establishment of sampling unit
 - (iii) Measurements on sample unit
 - (iv) Instruments and directives for use
 - (v) Tree and plot measurements
 - (vi) Other field measurements such as growth, mortality, soil and topographic conditions
 - (vii) Design of forms and recording of observations
 - (viii) Quality control
 - (ix) Data conversion and editing

6. Compilation Procedures

- (a) Detailed instructions on reduction of photo interpretation and field measurements
- (i) Formulae for estimates of totals and their sampling errors
 - (ii) Relationships to be used for converting photo or field measurements to desired expressions of quantity; e.g., photo volume tables, individual tree volume tables, etc.
- (b) Calculation and compilation methods
- (i) Description of procedure, e.g., desk calculation, electronic computers, etc.
 - (ii) Detailed description of all phases of calculation from raw data on original forms to final results (for electronic computation, description of inputs, programmes, and outputs)

7. Final Report

- (a) Outline (note that the inventory plan, with some modifications, can serve as a basis for the final report)
- (b) Estimated time for preparation
- (c) Responsibilities for preparation
- (d) Method of reproduction
- (e) Number of copies
- (f) Distribution

8. Maintenance

(a) Storage and retrieval of inventory data

(b) Plans for updating inventory

Copies of the FAO Study No. 17 are available in the United States from UNIPUB, Inc., 650 First Avenue, P.O. Box 433, New York, N.Y., 10016. The cost for the 121-page book is \$2.50. For sources in other countries, contact:

Forest Resources Division
FAO of the United Nations
Via delle Terme di Caracalla
00100 - Rome, Italy

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CURRENT LITERATURE

Forestry

If you want a book that gives the background to solve current problems, to modify techniques, and to develop new methods of measuring all the forest resources, get a copy of "Forest Mensuration" (1972) by Husch, Miller and Beers. This 410-page book is available for \$13.50 from The Ronald Press Company, 79 Madison Avenue, New York, New York 10016.

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"The Manual of Forest Mensuration" (1973) by Beers and Miller, a companion piece to the above book contains numerous innovative point and line sampling tally sheets, and important field techniques for point and line sampling, forest surveying, individual tree measurement, reproduction surveys, ecological measures, and much more. This 160-page Manual is available for \$5.50 from T and C Enterprises, P.O.Box 2196, West Lafayette, Indiana 47906.

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A limited number of the "Conference on Continuous Forest Inventory" proceedings, which was held in 1965, are still available. If you are interested in obtaining a copy of the 296-page proceedings, write Jim Meteer at the Ford Forestry Center at L'Anse, Michigan, 49946. It's worth having.

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Research Note SE-224, "A Preview of North Carolina's Timber" 1974, describes in brief, the findings of the fourth Statewide survey of North Carolina's forest resources. Copies may be ordered from Southeastern Forest Experiment Station, Post Office Building, P.O. Box 2570, Asheville, N. C., 28802.

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Bell and Dilworth have come out with a revised edition (1974) of "Variable Probability Sampling: Variable Plot and 3P". The 130-page booklet is avail-

able from O.S.R. Bookstores, Inc., Oregon State University, Corvallis, Oregon, 97331, at a cost of \$2.70.

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Harry Wiant has come out with two additional articles on 3P sampling entitled, "Influence of Rounding on Calculations of Relative Errors of Combined 3P and Point Sample Cruises", and "Updating a Line-Plot Cruise on the West Virginia University Forest by 3P and Point Sampling". Both articles are contained in West Virginia Forestry Notes #4, available from the Division of Forestry, West Virginia University, Morgantown, West Virginia 26506.

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Land Classification

"ECO-CLASS - A Method for Classifying ECO Systems" is a task force analysis of a classification system for the Pacific Northwest. The vegetative, land, and aquatic systems are described. Copies of the report may be obtained from Robert D. Pfister, USFS Forestry Sciences Laboratory, University of Montana, Drawer G, Missoula, Montana 59801.

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Another publication on scenery classification is EM-7700-3 "Smith River Highway Visual Analysis Study". It describes a computer method to analyze the visual impacts of a proposed highway improvement project in a scenic canyon in Oregon. Copies of the report may be obtained from Chief, Forest Service, U. S. Department of Agriculture, South Building, 12th and Independence Avenue, SW, Washington, D. C. 20250.

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"Massachusetts Map Down", Publication No. 97, is a classification manual for mapping land-use and vegetative cover. A classification system for agriculture, forests, wetlands, mining areas, urban areas, and outdoor recreational facilities is described. The publication is available from Holdsworth Natural Resources Center, Experiment Station, College of Food and Natural Resources, University of Massachusetts, Amherst, Massachusetts 01002.

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Land use planners will also be interested in "VIEWIT: Computation of Seen Areas, Slope, and Aspect for Land Use Planning" by Travis, Elsner, Iverson, and Johnson. This user's guide is available from the Pacific Southwest Forest and Range Experiment Station, Post Office Box 245, Berkeley, California, 94701.

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"Land Systems Inventory" and "Land Capability Classification of the Lake Tahoe Basin, California, Nevada" describe a systems approach and a guide for land use planning. Both are available from USDA Forest Service, Region 4, 324 25th Street, Ogden, Utah 84401.

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A good example of an inventory and analysis of soil, water, and other resources is found in Publication No. RI-73-010, "Spotted Bear Country", available from USDA Forest Service, Region 1, Federal Building, Missoula, Montana, 59801. The resources on each ecological land unit are discussed individually.

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Recreation

Dr. Douglas McAlister has recently published "A Guideline for Recreational Surveys". This booklet provides an outline of a comprehensive recreational service survey of a community. The publication, #658, is available from Extension Division, Cooperative Extension Service, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061.

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Recreationists will also be interested in Department of Forestry Publication No. 13, "A Computer Approach to Determining Outdoor Recreation Capability of a Large Tract of Land, Shawnee National Forest, Illinois", by Dwight McCurdy and Robert Wilkins. This publication describes a system to obtain fast, rough estimates of land capability for potential camping and picnicking sites. Write School of Agriculture, Southern Illinois University, Carbondale, Illinois 62903, for a copy.

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Two recent Forest Service publications will be of interest to landscape planners for inventorying or for classifying the landscape. They are Agriculture Handbook No. 434, "National Forest Landscape Management Vol. 1", and Agriculture Handbook No. 478, "National Forest Landscape Management Vol. 2, Chapter 2, Utilities". Volume 1 provides definitions and illustrations of basic landscape management concepts. Volume 2, Chapter 2, applies the concepts in planning a utility system. Both handbooks are available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., 20402, at a cost of \$1.80 and \$3.55, respectively.

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Other Publications of Interest

Trying to sample insect populations without destroying the trees? Get a copy of Research Note RM-290, "A Non-destructive Method of Whole-tree Sampling for Spring Cankerworm", by Stein and Doran. The procedure outlined can be used as a general collecting tool for determining the density and mathematical distribution of insect populations. The note is available from the Rocky Mountain Forest and Range Experiment Station, 240 West Prospect Street, Fort Collins, Colorado 80521.

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The Montana Agricultural Experiment Station, Montana State University, Boyerman, Montana 59715, has recently released Research Report 73, "Preliminary Range Resource, Tanner Creek Study Area", by R. L. Hodder. The report gives a brief description of the survey methods used and describes 15 range types found in the study area.

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Merle Meyer of the University of Minnesota and personnel from the Bureau of Land Management, Montana State Office, have been working on a resource inventory and monitoring system using a 35mm camera mounted in a fixed-wing aircraft. The camera mount can be homemade and mounted in almost any type of aircraft. The beauty of this system is that it can provide low-cost, quickly obtained aerial photography of small areas for monitoring change in field plots or study areas. Some of the publications available on the subject include:

IARSL Research Report 73-4 "Forest and Rangeland Resource Inventory with Small-scale, Color-infrared, aerial photography"

Minnesota Forestry Research Notes No. 240 "A 35 mm Aerial Photography System for Forest and Range Resource Analysis"

Reprint "Waterfowl Management Using Color IR"

Reprint "Montana Public Land Resource Management Applications of Remote Sensing"

All are available from the Institute of Agriculture, Remote Sensing Laboratory, College of Forestry, University of Minnesota, St. Paul, Minn. 55101.

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MEETINGS

If you know of any workshops, meetings, symposia, etc., that you think the readers of Resource Inventory Notes will be interested in, let us know. We do need at least a two-month advance notice to insure that it gets into the Notes in time to be of use.

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MISCELLANEOUS

NEED HELP PLANNING AN INVENTORY?

If you are a State Land Manager or a large property owner who need to make an inventory of the renewable resources on your land, perhaps we can help. The USDA Forest Service's State and Private Forestry branch has four Forest Management Systems Specialists located strategically throughout the Nation to assist you.

We can't do the inventories for you (most states and industries have their own internal capabilities; and, if not qualified, consultants are available to help out), but we will help you get started by providing technical advice on what you'll need and how to proceed.

Chuck Chehock and his assistant, Guy Thornburg, are our men in the Southeastern United States. Chuck and Guy operate out of Atlanta, Georgia and cover the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana,

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