



'75

## Resource Inventory Notes

No. 3

November 1975

### Regional, Management-Based and Intensive Inventories

There are many levels of resource inventories. However, the three predominant levels or categories most generally recognized are (1) regional or national inventories, (2) management-based inventories, and (3) intensive or in-place inventories (Avery 1974). Each is designed for a specific purpose and fills a definite need; yet each are mutually complementary. Those who work in inventory planning and designs should understand the differences between and the utility of each inventory category.

Regional or national inventories provide information over a wide range of management units. They may include an overlap of a large variety of vegetative types, ownerships, and political boundaries. An example is work done by the USDA Forest Service, Forest Survey Units. In general, data is collected on a statewide basis, with the use of extensive sampling methods. The information obtained provides reliable estimates of each state's overall forest resources to the resources found at the county level.

The information is used primarily by governmental agencies, although industries are also interested in the estimates of current areas, volumes, and trends. Emphasis is placed on appraisals of the changing resource demand-supply situation, the outlook for the future, and how this outlook may be altered by changes in programs and policies (Spada 1974). Regional inventories are often called broad-based inventories.

Management-based inventories are usually conducted on a single management unit or on properties that are administered under or as an individual ownership. A management unit might be a state forest, a national forest, a military reservation, etc. Sampling is more intensive than on regional inventories. The inventory provides information about the general condition of the resource on the property as a whole, often on a continuous basis (Avery 1974). Specific area, volume, or production estimates are not tied to any specific parcel. The information obtained is used for financial and management planning and for policy-making on the management unit level. Examples of a management-based inventory would be the continuous forest inventory of a company forest or a wildlife-habitat survey of a refuge. Other names for management-based inventories include Phase I, Stage I, and extensive inventories.

Intensive or operational inventories provide in-place information of a specific stand or compartment within a management unit. Such inventories are used in the day-to-day operations of a forest or range. The inventory deals directly with the location and identity of areas to be treated (Meteer 1974). The sampling is usually done one compartment at a time. The time required to cover a management unit as a whole generally ranges from 5 to 10 years. Stand examinations, compartment inventories, and Stage II or Step II inventories are forms of intensive inventories.

Regional inventories are used to develop and predict the supply-and-demand trend of the resource. Management inventories are used to evaluate the potential and the finances needed of a given area to meet the demands for that resource. Operational inventories then are used.

Regional inventories are used to develop supply and demand trends of a particular resource. Land managers use extensive inventories to determine the potential of their lands and how much manpower and finances will be needed to produce the resource. The operational inventory shows exactly what and where the resource is.

Several attempts have been made to combine operations and management-based inventories. Stage and Alley (1972) describe a system that is transitory between previous management-based inventories and later inventories that could use a complete forest record of in-place data. The procedure uses field examinations of stands in sample subcompartments augmented by photo interpretation of conditions in compartments not examined on the ground. This system is undergoing field testing in the northern Rocky Mountains. The Bureau of Land Management (BLM) is conducting extensive inventories, using a stratified double sample with estimated stratum weights (which also uses photo-interpreted data and field plots). Regressions equations are developed between the field data and gridded photo interpreted point. By using the prediction equations and coordinates of the photopoints, crude computer generated stand maps may be produced (Lund 1974). This serves as a quasi-operational inventory, giving rough in-place data over the inventory unit as a whole.

The Washington State Department of Natural Resources is also using gridded photo and field information to produce computer generated estimates and maps of the State's forest resources (Harding 1974). About one acre out of every ten are photo-interpreted; and the resulting data, coupled with field information, are stored in a computer file. The information can be played back giving both in-place data and information for management planning.

No inventory is an end in itself. It is an integral part of the complex management and operation of a business. No matter what class of inventories are being conducted, high costs are incurred each time the inventory is undertaken. Each inventory should be designed to obtain the desired information - no more and no less - for the lowest possible expenditure (Avery 1974).

In future issues of Resource Inventory Notes, we'll be discussing planning needs, sampling schemes, etc. In the meantime, we would like to hear from you to know what kinds of inventories you're doing. If you want your system published in the Notes, let us know. Please keep your write-ups short (one or two pages).

### Literature Cited

Avery, Thomas Eugene

1974. Management-based and broad inventories. In Inventory Design and Analysis Proc., Workshop sponsored by the Inventory Working Group. SAF, Colo. State Univ., p. 186-194.

Harding, Roger A.

1974. GRIDS works for DNR. State of Wash., Dept. of Nat. Res. Rep. No. 25, 68 p.

Lund, H. Gyde

1974. So we know what we have, but where is it? In Proc. Monitoring Forest Environ. through successive sampling. State Univ. of N.Y., Syracuse, N.Y. p. 133-141.

Meteer, James W.

1974. Forest management inventories in the computer age. Paper presented at the Joint Conference, Society of American Foresters, Biometric Working Group, and Midwest Forest Mensurationists. Sep. 8 p.

Spada, Benjamin

1974. The need for broad inventories. In Inventory Design and Analysis Proc., Workshop sponsored by the Inventory Working Group, SAF, Colo. State Univ. p. 204-211.

Stage, Albert R. and Jack R. Alley

1972. An inventory design using stand examinations for planning and programming timber management. USDA For. Serv. Res. Pap. INT,-126, 17 p.

\* \* \* \* \*

### Current Literature

Two new publications have recently been published about the Forest Service Wildland Resource Information System (WRIS). Research Paper PSW-107 describes the computer system for processing, storing, retrieving, updating, and displaying geographic data. A companion publication, General Technical Report PSW-10, serves as a user's guide to the system. Both publications are available from:

Pacific Southwest Forest & Range Exp. Sta.  
P. O. Box 245  
Berkeley, Calif. 94701

\* \* \* \* \*

An interesting review of some current systems of land classifications is found in a report by Gerald Olson. The publication also included an excellent bibliography and appendix on soils. Write:

Cooperative Extension  
Cornell University  
Department of Communication Arts  
Roberts Hall, Ithaca, N.Y. 14850

and ask for a copy of SEARCH, Vol. 4, No. 7, Agriculture Agronomy 4, 1974, entitled LAND CLASSIFICATIONS.

\* \* \* \* \*

Forestry Research Report No. 74-7 from the Department of Forestry, Agricultural Experiment Station at the University of Illinois, Urbana, Ill. 61801, describes "The Sampling Systems for the Rapid Measurement of Forested Areas for Environmental Impact Analysis". The authors, Stanley Sipp and David Bell, recommend a combination point sampling and fixed-radius plot method to determine basal area and diversity or density. Write for a copy of the report for details.

\* \* \* \* \*

Speaking of point sampling, Ralph Nyland and Kermit Remele outline a procedure for using a calibrated prism to lay out plot boundaries. Their procedure is given in Research Note No. 17 available from the Applied Forestry Research Institute, State University of New York, College of Environmental Science and Forestry, Syracuse, N.Y. 13210.

\* \* \* \* \*

Chuck Chehock and Raymond Walker describe a system of using weight scaling of truck loads of logs and detailed measurements of 3P sampled logs within truckloads to determine volumes by product. This system reduces time and improves accuracy of scaling of tree length logs. Sample forms, inputs, outputs, and computer programs are given in "Sample Weight Scaling with 3P Sampling for Multi-product Logging". This publication is available from:

Southeastern Area, S&PF  
USDA Forest Service  
1720 Peachtree Road, NW  
Atlanta, Ga. 30309

\* \* \* \* \*

Al Stage presents some interesting thoughts and features for predicting future characteristics of growing stock in a paper presented at the Permanent Association Committee Proceedings, 1973, Western Forestry and Conservation Association. While the article "Predicting the Future Forest" addresses timber, the principles discussed can apply to many other resources. Write to the Intermountain Forest and Range Experiment Station for a reprint at 507 25th Street, Ogden, Utah, 84401.

\* \* \* \* \*

Are you a novice in inventory techniques or are you an "old timer" looking for a simple way of explaining sampling of the range, wildlife, watershed, and recreation resources? Get a copy of Gene Avery's second revision of "Natural Resources Measurements" dated 1975. This 339-page book is available for \$12.50 from:

College and University Division  
McGraw-Hill Book Company  
1221 Avenue of the Americas  
New York, New York 10020

\* \* \* \* \*

The 1974 Proceedings of the Timber and Wildlife Management Symposium (Missouri Academy of Science, Occasional Paper 3) contains several articles that will be of interest to wildlife inventory specialists. Among them are "Inventory for Managing Timber and Wildlife Habitat" by John Gill and David Worley and "Monitoring Bird Population Trends" by Chandler Robbins. Copies of the proceedings may be ordered from:

Secretary of Publications  
Missouri Academy of Science  
312 Curtis Hall  
University of Missouri  
Columbia, Missouri 65201

The cost is \$3.50.

\* \* \* \* \*

An excellent publication that is a must to any inventory specialist is "Inventory Design and Analysis", which is available from the Society of American Foresters, 1010 Sixteenth Street, NW, Washington, D.C. 20036 (Price \$4.00). This is the Proceedings of the Inventory Working Group Workshop held at Ft. Collins, Colorado, in July 1974.

\* \* \* \* \*

Another Proceedings that will be of interest is "Monitoring Forest Environment Through Successive Sampling". A limited supply is available from:

T. Cunia  
School of Environment and Research Management  
State University of New York  
Syracuse, New York 13210

\* \* \* \* \*

#### MEETINGS:

Plans are underway for an Inventory Workshop sponsored by the University of New Hampshire, the Society of American Forester's Inventory Working Group, and the USDA Forest Service to be held in November 1976 at

Durham, New Hampshire. At this time, we envision having two concurrent training sessions: one on sampling designs and the other on inventory data processing systems. We will keep you posted as plans materialize.

\* \* \* \* \*

### Miscellaneous

The USDA Forest Service's Forest Survey has the responsibility of conducting inventories of the Nation's forest resources. Data are collected and analyzed, and Resource Bulletins are published on a state-by-state basis by six Forest Survey Research work units located throughout the Nation. The two latest Resource Bulletins are SE-32, "Forest Statistics for the Piedmont of North Carolina", and NE-38, "The Forestland owners of Delaware", available from the Southeastern and Northeastern Forest Experiment Station respectively. Addresses of each Forest Survey project location and their areas of responsibilities are listed below:

- |  |   |
|--|---|
| <p>1. Intermountain Forest &amp; Range<br/>Experiment Station<br/>U.S.D.A. Forest Service<br/>507 25th Street<br/>Ogden, Utah 84401</p>                | <p>Arizona, Colorado, Idaho<br/>Montana, Nevada, New Mexico<br/>South Dakota, Utah, and<br/>Wyoming</p>   |
| <p>2. North Central Forest Exp. Sta.<br/>U.S.D.A. Forest Service<br/>Folwell Avenue<br/>St. Paul, Minnesota 55108</p>                                  | <p>Illinois, Indiana, Iowa,<br/>Kansas, Michigan, Minnesota,<br/>Missouri, Nebraska, North<br/>Dakota, and Wisconsin</p>  |
| <p>3. Northeastern Forest Experiment<br/>Station<br/>U.S.D.A. Forest Service<br/>6816 Market Street<br/>Upper Darby, Penna. 19082</p>                  | <p>Connecticut, Delaware,<br/>Kentucky, Maine, Maryland,<br/>Massachusetts, New Hampshire,<br/>New Jersey, New York, Ohio,<br/>Pennsylvania, Rhode Island,<br/>Vermont, and West Virginia</p> |
| <p>4. Pacific Northwest Forest &amp;<br/>Range Experiment Station<br/>U.S.D.A. Forest Service<br/>P.O.Box 3141<br/>Portland, Oregon 97208</p>          | <p>Alaska, California, Hawaii,<br/>Oregon and Washington</p>  |
| <p>5. Southeastern Forest Experiment<br/>Station<br/>U.S.D.A. Forest Service<br/>P. O. Box 2570<br/>Asheville, N. C. 28802</p>                         | <p>Florida, Georgia, North<br/>Carolina, South Carolina,<br/>and Virginia</p>   |
| <p>6. Southern Forest Experiment Station<br/>U.S.D.A. Forest Service<br/>T-10210 Federal Building<br/>701 Loyola Avenue<br/>New Orleans, La. 70113</p> | <p>Alabama, Arkansas, Louisiana,<br/>Mississippi, Oklahoma,<br/>Tennessee, and Texas</p>  |

You may write to each of these stations and request to be placed on the mailing list to receive any new Forest Survey reports.

\* \* \* \* \*

Having problems with your subscription to Resource Inventory Notes? Send us your old mailing label and we will remedy this situation. Address all inquiries and comments to:

Resource Management Staff  
Cooperative Forestry, USFS  
6816 Market Street  
Upper Darby, Pa. 19082

\* \* \* \* \*

U.S. Department of Agriculture  
Forest Service  
6816 Market Street  
Upper Darby, Penna. 19082

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, \$300

AN EQUAL OPPORTUNITY EMPLOYER

POSTAGE AND FEES PAID  
U. S. DEPARTMENT OF AGRICULTURE  
AGR-101

