

## What to Expect in a Forest Inventory<sup>1</sup>

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### Introduction

Forest inventory is an essential element of resource management, but many private landowners question the necessity of an inventory for their property. What is a forest inventory? When is it necessary? What kinds of information can an inventory provide? Who can assist you with one?

A traditional forest inventory, or *timber cruise*, is conducted to determine the location of timber and its quantity by species and product potential. Today, forest inventories are often conducted not only to determine the location and value of timber, but also to provide a foundation for other forest management decisions. An inventory can help you evaluate non-timber forest values such as wildlife habitat (food sources, snags, wetlands, den trees, nests, etc.), recreational opportunities, and soil characteristics. This summary of present economic and biological conditions provides the basis for management plans that utilize, protect and enhance all your forest resources.

Landowners may also inventory their property for very specific reasons, such as to:

- determine property insurance needs,
- prepare property settlements and rental agreements,
- assist in the preparation of net worth statements,
- calculate the proper depletion that can be claimed for income tax.

Do any of these reasons apply to you? If so, a forest inventory may be the next order of business on *your* property.

### Forestry Services

Once you decide to inventory your forestland, the next step is to determine who will do it. This decision will depend on your experience, budget, and how you will use the inventory data. For example, to simply determine if your trees are overcrowded, you could probably cruise the timber stand yourself after a little research and practice. However, if the inventory will be the basis for a timber sale, the services of a resource management professional will often help you realize the highest return.

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Resource management consultants can provide valuable assistance, but before you hire one, do some research on the consultants in your area. Talk to other clients and people who have had long business experience with consultants. Managing forestland can be a highly technical and long-term endeavor. It is worth spending some time finding the best available assistance to meet your needs. See publication SS-FOR-16, *Selecting a Consulting Forester*, for more information.

## Before the Inventory

Some important background information is needed before the inventory.

1. Obtain a map of your property if you do not have one. Your county courthouse, library, or surveyor's office are good places to find the map that shows your property. If your property is small, the section of the map showing your property can be enlarged to a more convenient scale. On-line resources on the World Wide Web like Florida Department of Environmental Protection's Land Boundary Information System (LABINS) at [www.labins.org/](http://www.labins.org/), have many types of survey and mapping data available for download. These images can be used in a Geographic Information System (GIS) to construct an informative, highly detailed, color-coded map of your property. State foresters and biologists use this method to produce maps for Forest Stewardship Program management plans.

2. Dig out your deed and make sure the location and size of your property are clearly specified. Walk your property boundaries as they are described in the deed and make sure that they are clearly marked. This will prevent accidental trespass and potential conflicts with adjacent landowners. Your consultant or county forester can help you identify your property on a map and locate property boundaries on the ground.

3. Divide your property into compartments. If your forest property is large (over 100 acres) and/or contains several forest types based on site and plant community characteristics, it may be necessary to divide your property into different compartments or management units. Why?

- Different stands may require different management activities.
- Some stands have greater timber-producing potential than others.
- Compartments make it easier to keep financial and work-progress records.
- Separate compartment records may be necessary for tax purposes.

If it is necessary to organize your property into compartments, each compartment may need to be inventoried separately to meet your information needs.

4. An aerial photograph of your land can be a useful aid for locating different forest types and determining compartment boundaries. A professional forester will be able to assist you in obtaining and analyzing aerial photographs.

## The Inventory

To inventory your forest you could measure every tree, but it is more feasible to measure an adequate sample of the trees or other resources. Sampling procedures are beyond the scope of this publication but in general, the size of the sample depends on the size of the area to be inventoried, the purpose of the inventory, and the variability within the forest (plant species, sizes, density, etc.). The important consideration for you the landowner is that a large enough sample is measured to provide a reliable, cost effective estimate of your natural resources. A professional forester will be able to plan an efficient sampling system for your property. Following are some examples of the types of information you may gather in an inventory.

### Timber

Timber volumes and values should be determined and summarized by species and product category (or diameter class). Key measurements on sample trees are usually: DBH, or the diameter at breast height (4.5 feet from the ground) and merchantable height or total tree height of a tree. Heights of certain sample trees may also be used to determine site

quality. Foresters use these measurements to calculate volumes from tables or computer models.

Past growth rates can be estimated using an increment borer to remove cores of wood from the trunks of a few trees in each diameter class. The number of annual growth rings in the outside inch of the wood core estimates the number of years required for the tree to produce the last inch of radial growth.

### **Wildlife habitat**

The animals that use your property will vary by the type and quality of food sources and cover that are present there. To determine the location and quantity of understory vegetation used by animals for food or shelter, a common practice is to use sample plots to record the percent cover of different species. Observations of animals, scat, tracks, burrows, or nests should also be recorded. This information can be used by a biologist to evaluate the wildlife habitat conditions on your land and recommend specific treatments.

### **Range resources**

You may wish to take advantage of forage plants and other features to produce livestock. An inventory of grazing resources will identify the types and location of forage grasses, and physical features such as fences, watering sites and pens. The forage resource inventory will be used to develop grazing system alternatives so that livestock can be rotated to different forage areas to conserve the resource.

### **Recreational and aesthetic resources**

Depending on your recreational use objectives, you may want to enhance certain resources on your property. A recreation assessment should provide a basis for selecting the most strategic locations for access roads, trails, bridges, wildlife observation stands, or other facilities. On a copy of your property map, record the presence of unique ecosystems, wildlife habitat, trees with exceptional fall colors, historic features, panoramic views, hazards, and unsightly land uses on yours or adjacent properties that may need screening.

### **Soil and water**

Although not usually a part of a forest inventory, it is important to identify the soil types on your property early in the planning process. Soil types vary greatly in productive capacity and noting their locations on your property map will facilitate management decisions. You will also want to note soil erodibility and slope, which determine the best management practices (BMPs) that need to be applied in order to protect water quality and fragile sites.

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) has soil surveys for most counties, which include descriptions of the soils and a discussion of their suitability for crops, tree farms, pasture, engineering applications, and wildlife habitat. Your local NRCS office can provide you with a survey summary for your county, and a consulting forester, county forester, or extension agent can help you analyze the information.

### **After the Cruise**

When the cruise is completed you should have some or all of the following records:

- A description of the sampling system (technique, sample size, parameters) that includes a statement about the statistical reliability of the results.
- A map (or several maps) of your property that display compartment boundaries, facilities, soils and special features.
- A summary, by compartment and product class, of tree sizes, stocking and/or volumes.
- A resource analysis (qualitative or quantitative) of your non-timber resources.
- Estimates of resource value.
- Cost estimates for all phases of the inventory.

The storage of this information is as important as the information itself. Be sure to back up all computer files, and keep duplicate copies of printed files in a safe place.

## Conclusion

Keep in mind that a forest inventory is helpful only if:

- it provides enough information for you to make well-reasoned decisions about the long-term management of your forestland;
- sampling is intensive enough to reliably meet your data needs;
- the numerical data from the inventory are accompanied by descriptive, qualitative information;
- the information is available for future reference.

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