



## Forest Inventory Part I

From my perspective, there are two initial questions that relate to a forest inventory:

1) What is it and 2) Why do I need one?

So, what is a forest inventory? A forest inventory identifies what you have and its condition. Most people know that in their forest they have trees. But, management of those trees, and the larger forest, will be greatly enhanced if we can understand more about the trees themselves and why they are there. An inventory should identify the species of trees you have. It will often be presented by grouping trees that grow on similar sites. In forestry terms, these groupings of trees are referred to as forest stands. By default then, a forest is made up of multiple stands. Stands occur on different sites within a forest.

Often foresters will talk about site conditions and how these factor into management decisions. What do they mean? A few very important site conditions are the **soils**, the **aspect** and the **slope position**. The combination of these natural site conditions will drive the overall productivity of a site. **Soils** provide an anchor point for trees and retain/hold water and nutrients. Porosity plays a large role in retaining water and nutrients. Not enough porosity and soils become water logged; too much porosity and even the best soils are draughty over our Missouri summers. Soils can also inhibit rooting. For instance, an excess of clay makes it difficult for roots to penetrate and access moisture and nutrients. **Aspect** refers to the direction a slope faces. How does this impact productivity - primarily in relation to moisture retention and availability. For example, southwest and southern slopes are notoriously dry. North and northeastern facing slope usually retain better moisture, and are often cooler. Many times you can even see a change in the trees living on one side of a hill or the other. They are there because of their adaptation to the moisture availability, or lack thereof. This leads us to **slope position** and its importance to the forest. In general, hill tops are dryer than creek bottoms. So, similar to the role of aspect, we usually see a shift in tree species from the upper

slope position to the lower slope position. Trees that do better with good moisture, such as black walnut and northern red oak, will usually be found growing best on the lower to bottom portion of a slope. The totality of these terms comes together as a **site index**. Site index expresses the average height of dominant trees in a forest at 50 years of age. The higher the site index the better quality the site.

So, an inventory should identify the species of trees growing in a forest stand. Often these forest stands are grouped and created due to similar site conditions. Why? Because many tree species have preferences, and grow best, under similar soils and moisture conditions. Information about a forest stand should also include measurements of tree density, size, age and volume estimates. These measurements are important because only so many trees of a given size can be supported under a given set of site conditions. The results of overcrowding are growth-stunted trees and trees that begin to die. This is a part of natural thinning that will occur in forests. In Part II of our Forest Inventory discussion we will talk about forest density terminology and what it means. I will also provide some general input toward interpreting forest inventory information and how it can assist you in management decisions. Hopefully you will find Parts I and II provide you with what a forest inventory is and why it can be a useful tool for you – the forest management decision maker. You have to know what you've got in order to implement plans for some future forest state. Inventories can be great tools and assist you in reaching your forest objectives.

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