Silviculture Lab: Stand Delineation

Learning Objective: Following this lab students will be able to define a stand, delineate stands from one another, and identify forest cover types using maps, aerial imagery, and observations in the field.

Introduction

Stands are groups of trees that are sufficiently uniform in age class distribution, composition, and structure; grow on a site of sufficiently uniform quality; and are a distinguishable unit (Adams et al. 1994). Silviculture is practiced at the stand scale. A stand can range from less than ten acres to thousands of acres in size. Most large ownerships contain more than one stand. The process of spatially bounding stands is known as stand delineation. Factors such as soils, topography, stand composition, and age-class structure must be considered in stand delineation. To create a management plan it is necessary to first delineate all stands and then develop individual silvicultural prescriptions for each. As with most activities in silviculture, this requires the forester to observe stands in the field.

Forest cover types are "descriptive classifications of forestland based on present occupancy of an area by tree species," (Eyre 1980). Forest cover types have been defined for all common forest communities in the United States and Canada, and are named by the most common overstory tree species in a stand. Determining the cover type of a stand provides a useful way to communicate its overstory composition, likely understory composition, and probable age-class structure to other experienced foresters.

Procedure

Methods

Each student will delineate all the stands in a tract in the SFA Experimental Forest that is shown on the attached maps. You should begin by formulating an initial idea of how the stands are delineated by examining maps, keeping in mind soil series, topography, roads, landmarks, and CIR imagery.

Next, we'll walk the tract as a group. As we walk pay attention to the forest around you. We'll periodically stop to take notes about:

1. Your precise location on the map
2. Dominant overstory composition and forest cover type
3. Age class structure
4. Any relevant observations relating to stand history, site features, etc.

Use your observations to decide how you think the area should be delineated into stands. You can mark out your delineation on one of the provided maps. See Figure 1 for more guidance.

Literature Cited

Adams, D. L., J. D. Hodges, D. L. Loftis, J. N. Long, R. S. Seymour, and J. A. Helms. 1994. Silviculture Terminology with Appendix of Draft Ecosystem Management Terms. Silviculture Instructors Subgroup of the Silviculture Working Group of the Society of American Foresters.

Eyre, F. H. 1980. Forest cover types of the United States and Canada. Society of American Foresters, Washington D. C.

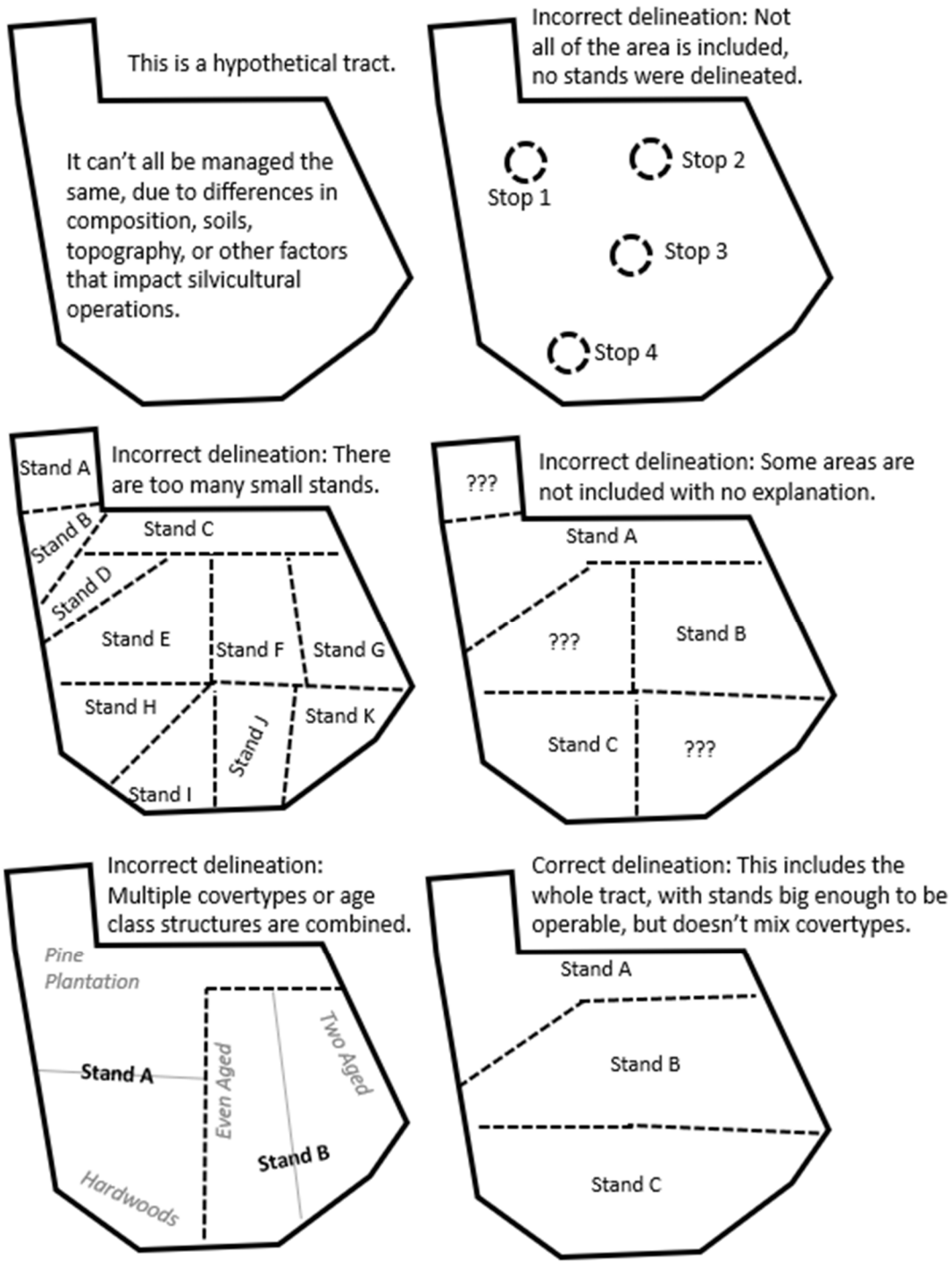

Figure 1. Hypothetical examples of the four most common mistakes made in stand delineation.

Stand Delineation Lab Grading Key

Annotation	Explanation
1	You mixed multiple cover types, age classes, or stand structures within a single stand. These areas were different enough that the stand would be too heterogeneous for convenient management for most objectives.
2	The stand is too small for most loggers to agree to a harvest contract. Although you did not have a dot grid or access to GIS, a very rough estimate from the scale bar could be made. 330 feet = 5 chains, 660 feet = 10 chains, 1320 feet = 20 chains 1 acre = 10 squared chains Multiply longest by shortest axis of a stand in chains, and divide by 10 to get acres. This makes the simplifying assumption that the stand is a rectangle, but this is good enough for a rough estimate in the field. Thus a 660 x 660 foot area = 10 x 10 chains = 100 squared chains = 10 acres
3	Areas in the tract are left out of management with no explanation. Explanations do not need to be detailed; a word or two will suffice (e.g. AMZ, SMZ, grassy wetland, etc.).