

Assignment 3 – Understanding Limitations

Introduction

All models are imperfect, but this doesn't mean they're not useful. Among different models and within a given model used for different applications models have different strengths and weaknesses. For example, as we've spoken in class, FVS is probably most reliable for short projection intervals. But this depends on how you use FVS; if you collect calibration data performance can be dramatically improved.

In this assignment you will bench test the FVS system using your own understanding as the frame of reference. Throughout this assignment, remember my argument that 95% of the time you should be able to recognize an error of an order of magnitude or more.

Instructions

TIP: First, before you do anything else, create a new folder in your H: drive for this assignment. Then, duplicate your three FVS files from the last assignment, and put them in the new folder. This way you don't delete or overwrite files from past assignments.

In this assignment you will simulate the development of your stand for 100 years, in 10-year cycles, under two management scenarios. The first is "no management", which really **is** management because you're actively choosing not to harvest a previously managed stand. The second is a management regime of your choice.

When you choose your silvicultural regime consider timber production as a core value. FVS is capable of a wide range of silvicultural options; refer to the tutorial or just poke around the software options to see what you might be able to do. The most straightforward approach would be a typical single-tree selection prescription.

Then, examine the sensitivity of the model in terms of change in stand structure over time and compare cumulative volume removal under your two scenarios. Use the Stand and Stock Table post-processor to generate output data that you can import into Excel.

Start with the following, **but you aren't limited to this:**

1. Generate three line plots each with diameter class on the X axis:
 - i. trees per acre;
 - ii. basal area per acre; and,
 - iii. volume per acre.

Plot three lines on each, one for initial conditions one for no harvesting and one for your timber management scenario.

2. Construct a table similar to this, but with appropriate units, formatting, etc. noted:

Attribute	Initial 2002 Conditions	Ending 2102 Conditions	
		No Harvesting	Timber Management
Trees per acre			
Basal area per acre			
Volume per acre			
Cumulative removal			

3. In a short paragraph, summarize your conclusions. How “good” was each simulation? Do you believe the model properly captured the basic system properties in your simulation? What seems to have worked well? What seems to have worked poorly? Think about this for an hour or so before you finalize your answer.

Your memo should be no longer than one **double-sided** page!

Due Date

This assignment is due at the beginning of lab on **Thursday March 6, 2008**.