

## LAB #12

### Introduction to Forest Inventory Software

#### SUBJECT:

Forest Inventory software programs simplify field data entry and data management, as well as allow users to efficiently derive summary volume and value information of forest resources for forest management purposes.

#### PURPOSE:

- To provide experience in preparing and managing the necessary organizational information required to utilize a forest inventory software database.
- To provide experience in entering, compiling and summarizing forest inventory data for reporting purposes, including evaluating the accuracy of the information produced.

#### OBJECTIVES:

- Use the Inventory and Analysis Modules of the NED-2 Software program to compute the total value, volume, basal area and density (stems per ac) for a forest property (and its precision) composed of three distinctly different forest stands, and for each stand individually.

#### GENERAL PROCEDURES

- A. Configure the NED-2 Forest Inventory Program to include the current stumpage prices for tree species in central New York
- B. Use the inventory program to open a computer database file containing field tally data from two of three stands within a forest property
- C. Add additional field tally data from a third forest stand into the dataset
- D. Summarize forest and stand-level information.

#### OFFICE PROCEDURES:

- 1) Open the most recent stumpage prices for major tree species in Onondaga County, NY.
- 2) The dataset for this lab is a 120-ac forest property composed of three stands,
  - a) a 55-ac northern hardwood stand,
  - b) a 25-ac mixedwood stand, and
  - c) a 40-ac multi-species softwood plantation.
- 3) Download from the course webpage and save the file *LAB12\_data.mdb* to the following folder: *C:\My Documents\My NED Files* (or if that folder does not exist, use *C:\workspace\*)

- 4) Start the NED-2 Software Program  
*Start > All Programs > NED Programs > NED-2*
- 5) Open the file saved in step (3) into NED-2
- 6) Add the stumpage price information you found into NED-2 using the *Inventory > Plant Species Information* Module
- 7) To add the stumpage prices into the database, select the second radio button beside **Tree Species**
- 8) Use the following as a guide for adding stumpage prices for each species from the NY DEC Stumpage Price Report



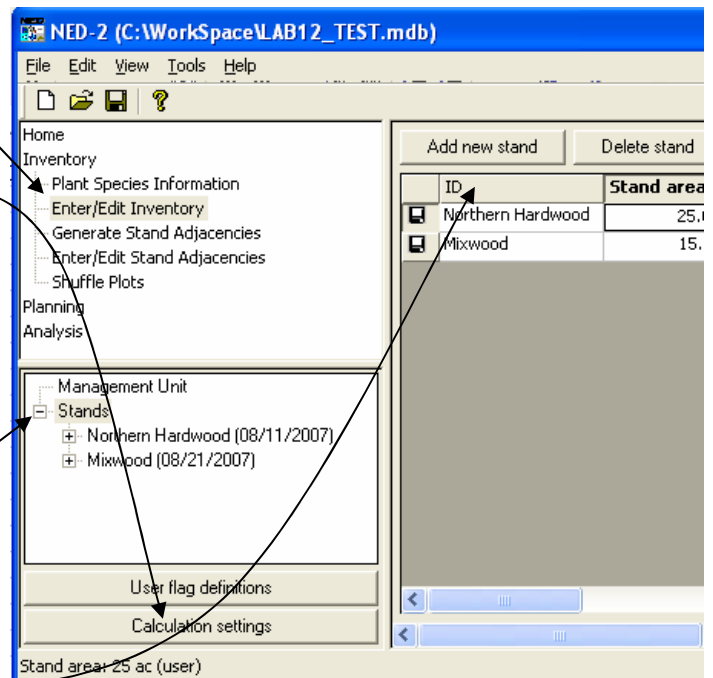
- a) Veneer Grade – Upper limit of the High Price Range
- b) Grade 1 Lumber – Median value of the High Price Range
- c) Grade 2 Lumber – Median value of the Average Price Range
- d) Grade 3 Lumber – Median value of the Low Price Range
- e) Pulpwood – Median value of the Average Price Range (may need to change units in NED-2 from \$/100 cu.ft to \$/cord)

- 9) Access the field data via the *Inventory > Enter/Edit Inventory*

- 10) Click on the **Calculation settings** button to verify that the volume calculations use the correct log rule for Onondaga County

- 11) Add field tally data from the third stand.

- a) Click on the '+' sign beside the *Stands* item to get the list of stands currently in the database
- b) Click on the **Add new stand** button to begin the process of adding data from the third stand

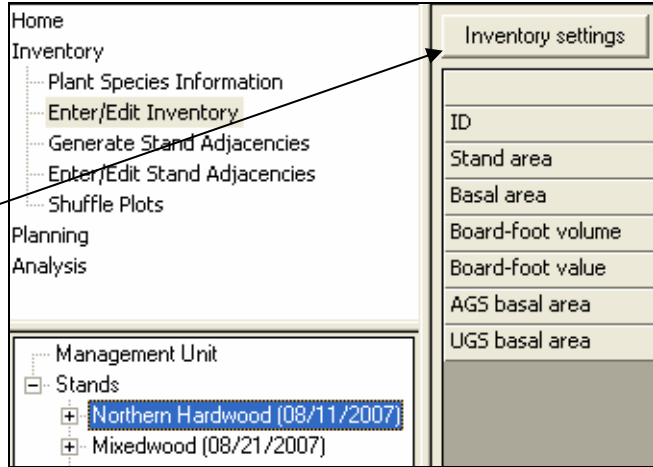


12) Once you've added a stand, give it the name 'Softwood Plantation' and highlight the stand within the Table of Contents.

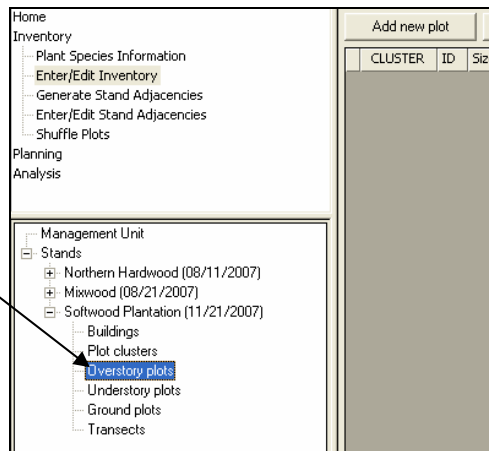
13) Add the stand area in the appropriate text box.

14) Click on **Inventory Settings**,

- a) add your name under *Tallied By*,
- b) change the settings to indicate that the data was collected using  $1/20$ -acre, fixed area sample plots.



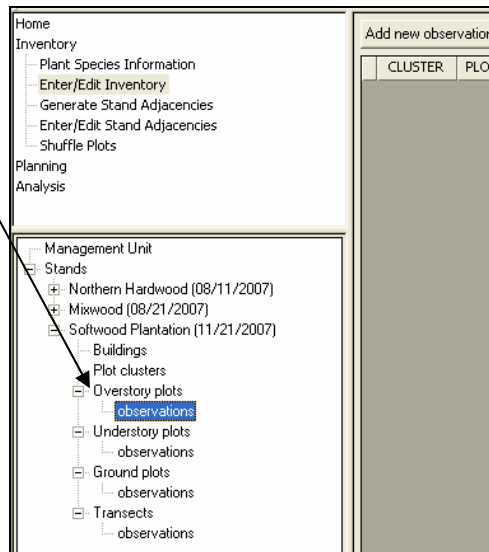
15) Click the '+' sign beside *Softwood Plantation* in the Table of Contents, and select *Overstory plots*



16) Then click on **Add new plot**.

17) Give the first plot of this stand an ID value of 1.

18) Once a plot been added, select *observations*



19) Then click on **Add new observation**

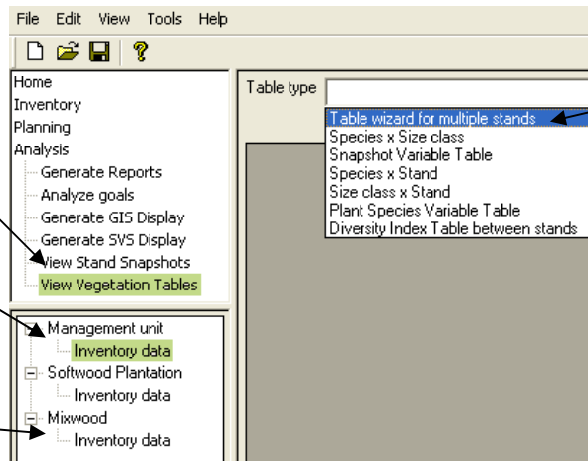
20) Enter all the data measured on each tree in plot 1. Use the **NED-2 Help** files to find the data entry codes used for species, quality and grade data, and to determine units for merch. height.

21) Repeat steps 14 to 19 until all of the trees tallied in the inventory are in the database.

## ANALYSIS

Access the summary analysis modules via the *Analysis > View Vegetation Tables*

- For summary information of the whole property, select the *Inventory data* under Management unit
- For summary information on any individual stand, select *Inventory data* for the selected stand



Under *Table type* the *Table wizard* allows the user to control how the data should be summarized

### Summary Analysis to be completed:

Focus the summary analysis on only the Overstory observations, and only AGS and crop trees. (NOTE: You can select, copy and paste the summary tables into MSEXcel for proper formatting and printing.)

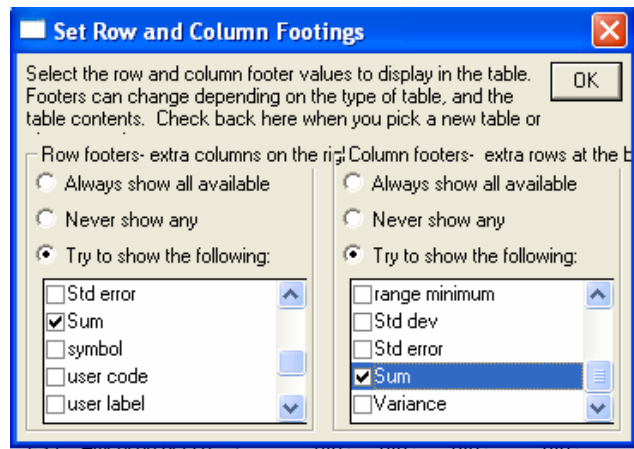
- 1) For the whole forest,
  - a. use the *Table Wizard* to compute:

*boardfoot value* (\$)

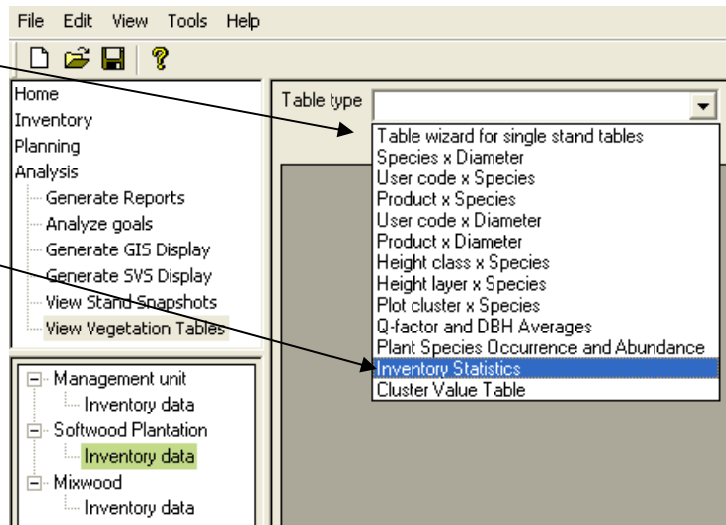
by

*size class* (columns) (saps, poles, sm saw, med saw, lg saw) and *species* (rows).

Change the '*Footers*' so that the rows and columns are totaled (i.e., Summed) ONLY (uncheck all other options).



- 2) For each stand,
- use the *Table Wizard* to compute the DBH (2" classes) (rows) distribution for each species (column), and all species combined
  - use the *Inventory Statistics* table option to compute the total stems, basal area, board foot volume and dollar value per acre, including a 95% confidence interval and number of plots required to be within 10% of the mean.



### CRITICAL THINKING QUESTIONS:

- Was the same field sampling protocol used in each stand?
- What species provides the most board foot volume on the property?
- What species provides the most value on the property?
- Which of the stands need additional plots to achieve an accuracy with 10% of the basal area mean?
- Are the required number of plots required to be within 10% of the mean the same if the criteria is based on board foot volume or basal area? Why/why not?
- How intuitive was the inventory software program in terms of data entry? Data analysis?
- What recommendations would you make to improve the user-friendliness of the software?

### Report:

Each student must turn in their summary data analysis and answers to critical thinking questions by end of the lab.