CRUISECOMP END USE SORT MODULE USER MANUAL

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IFS

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1 CRUISECOMP END USE SORT MODULE

1.1 Introduction

The **End Use Sort Module** is used to generate timber volume estimates for user specified end products or sorts, prior to harvesting. It can even adjust cruise volume estimates to more accurately reflect the scaling results from previous cut/cruise comparisons. The output is summarized and displayed in easy to read reports.

1.2 Getting the Best Estimate

If the timber cut does not change drastically in quality from one year to the next, and the **End Use Sort** is an accurate reflection of the cut, the sort volume estimates over the year should be correct. However, the volume estimate may differ for an individual cut block because it may be different from the "average" that the matrix produced. Continuous comparisons between the EUS output and the scale plus periodic fine tuning of the matrix are necessary to ensure reliable answers.

If the timber characteristics vary significantly within an operating area, it may be necessary to create additional **Matrices** for each homogeneous unit. Summarize the scale in each of these units then create a new **Matrix**. Give each **End Use Sort Matrix** a descriptive label to uniquely identify it.

Matrices can be created for a number of situations including different geographic locations, timber types, maturities, and second/old growth. It's up to the user to decide what criteria to use. The main purpose of the exercise is to more accurately estimate the value that is expected to come from a block or unit before it is harvested. Using more than one matrix in a single compilation may help.

1.3 End Use Sort Module Components

An **End Use Sort** can seem to be quite complex at first glance. The cruise data is interwoven with the various **End Use Sort** components much like a spider web. Looking at each component and seeing how it relates to the others makes it easier to understand the whole process.

The **End Use Sort** has five key components:

1.3.1 End Use Sort Cruise Data

The cruise data can be fixed area or prism plots but it must include **Cruiser Call Grade Net Factor** information.

1.3.2 Sort Groups & Sorts

Sort Groups are broad log quality classifications, while **Sorts** are sub-groups that can be normally divided by species, size, and quality. Both are user defined.
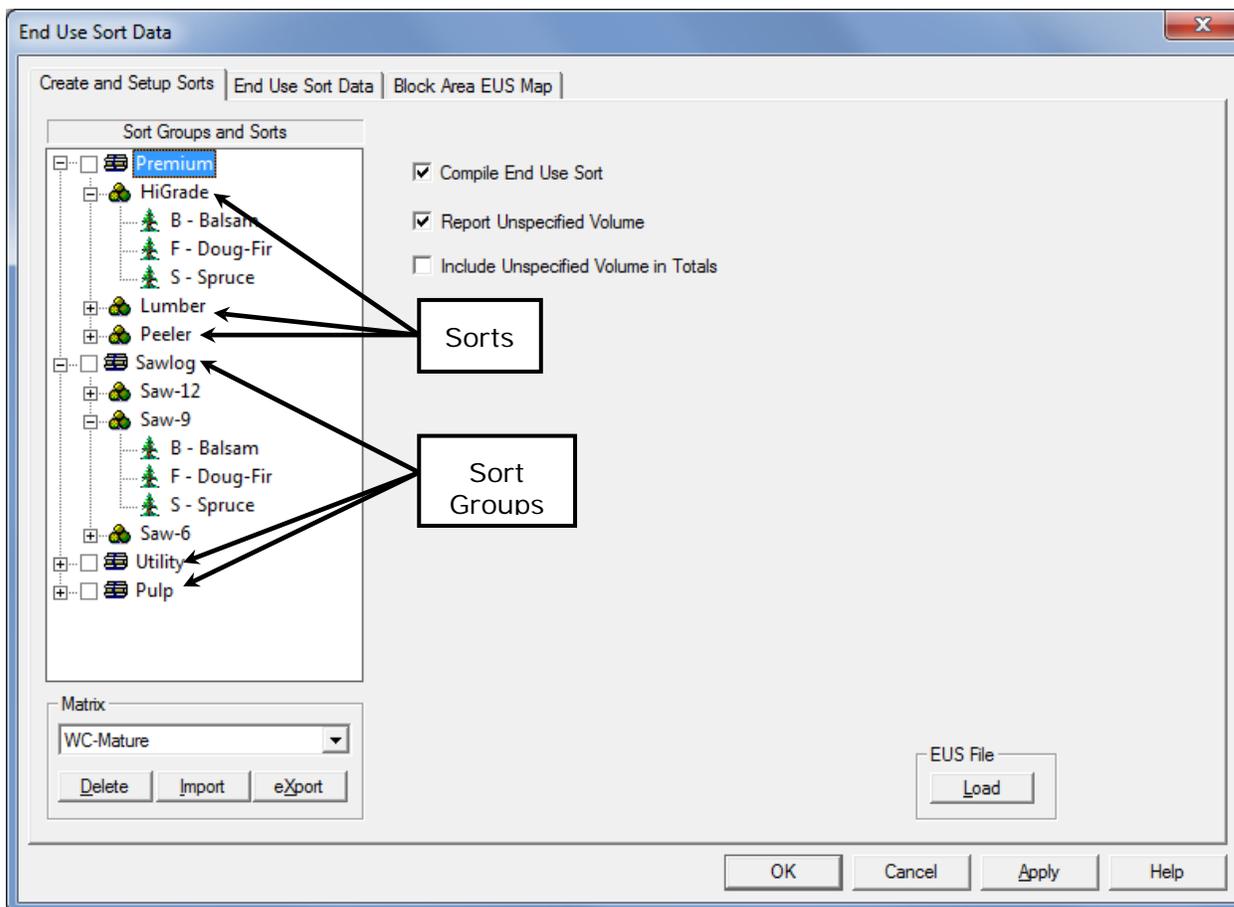
Figure 1- Create and Setup Sorts Example

1.3.3 Sort Matrix

The matrix determines how the volume is distributed to each sort. A percentage is assigned to one or more sorts in each log class (species, grade and log top diameter class combination).

The percentages are derived from historical scale data and/or field estimates. Normally, the percentages in a log class should add up to about 100%. If comparisons of historical cut vs cruise data show the cruise is under or over reporting volumes in one or more log classes, the matrix can be adjusted so the final volumes will more accurately reflect reality. For example, if the cut vs cruise comparison shows that the cruise volume of J grade Fd in the 25cm diameter log class is consistently under reported by 10%, then the percentage in that log class can be adjusted upwards so the final volume will be closer to the anticipated amount.
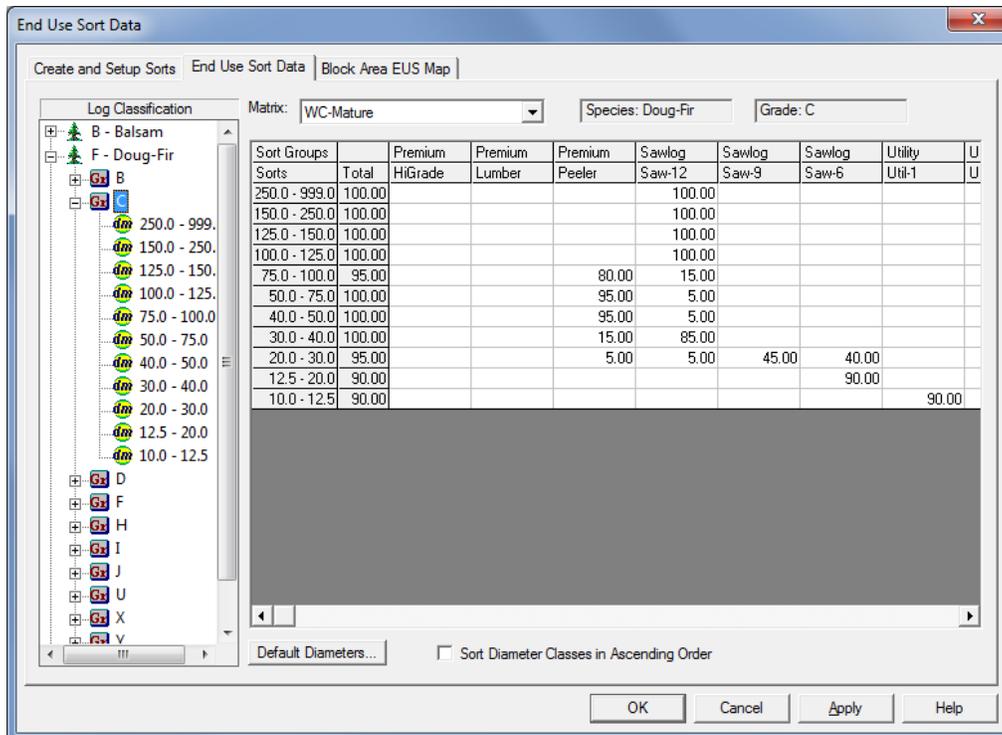
Figure 2 - Sort Matrix Example – Douglas Fir Grade C logs

The matrix can accommodate anomalies such as tree taper that is greater than the taper calculated by the compilation program, or if the cruiser has incorrectly estimated the top diameter for a log. This can be done by entering percentages in diameter classes that are outside what would normally be expected for a given grade. For example, in Figure 2 above, there are entries in diameter classes well outside the normal range for Fd Grade C logs. The program now has instructions on how to handle an odd sized log if it is encountered. Otherwise, the log will be put in the unspecified sort.

The default sorting order for the diameter classes is descending. There is a checkbox at the bottom of the sort matrix that will sort the diameter classes in ascending order if it is required.

1.3.4 Block Area EUS Map

In cases where the timber quality may vary significantly by block, type, and/or maturity, more than one matrix may be used in a compilation. The matrices are assigned to their respective block/type/maturity combinations in the **Block Area EUS Map.**

2 CREATING AN END USE SORT

2.1 Introduction

There have been major changes to the **End Use Sort** module from previous versions. Creating and major editing of matrices is now done using csv files in **MS Excel**. This makes managing matrices much easier.

2.2 Planning an End Use Sort

Careful planning is very important prior to building an **End Use Sort Matrix**. All timber volumes must be accounted for and that no volumes are duplicated. For example, the diameter classes must have no gaps or overlaps. An error in the design will result in inaccurate outputs. The **End Use Sort** should be thoroughly tested before being put to use.

2.3 Creating a Matrix Using MS Excel

A template for an EUS matrix is included in the **CruiseComp** folder. It is named **EUSMatrix-Template.euscsv**. To open it with **MS Excel**, you must first change the file extension from .euscsv to eus.csv. When you have completed the matrix, save and close the file, then rename the file extension back to .euscsv. It can now be imported into the **CruiseComp EUS module**.

Follow the example below to complete your EUS matrix.

**Figure 3 – Excel Sort Matrix Example**

An EUS matrix can be easily created from scratch as long as it follows the template format, and it is saved as a csv file with an *.euscsv extension.

IMPORTANT! Please note the following when completing the spreadsheet:

- The matrix name must be located in cell A1. It must be unique in your matrix library, otherwise, it will overwrite a matrix with the same name when imported into **CruiseComp**.

- The first row starting at cell E1 is reserved for Sort Groups

- The second row starting at cell E2 is reserved for Sorts

- The third row starting at cell A3 is reserved for column titles

- Column titles, **Species**, **Grade**, **Min Top**, and **Max Top** must have a # in front of them in order for **CruiseComp** identify them prior to importing the matrix.

- Each species can use a different diameter class profile. However, the diameter classes **must be identical** for all grades within a species. Otherwise the matrix import will fail.

- There must be no gaps or overlaps in the diameter classes.

- Use the correct species codes.

- Coastal Grades must be a single alpha character. User grades can be alpha or numeric characters.

- Do not use alpha characters in any cells requiring numeric characters.

- Make sure any extraneous characters are deleted from the spreadsheet.

When you go to save your Excel file:

1. Go to File Save As
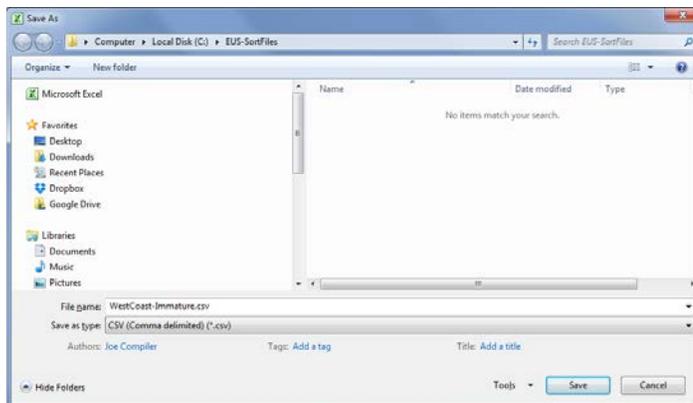
2. Select file type: CSV (Comma delimited) (*.csv). This will already be selected if using the template. Click Save.
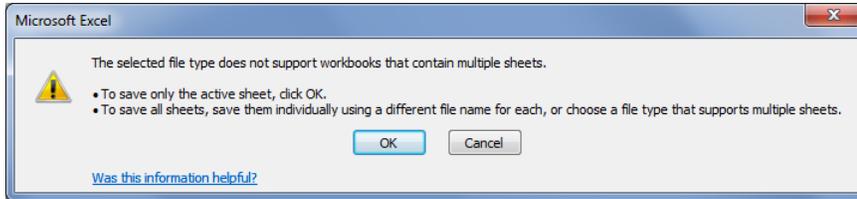
3. If creating a matrix from scratch you will warned that the file type only supports one worksheet. Click OK. The other two sheets will be lost the next time you open the file.

4. Click Yes to save in csv format.

2.4 Starting the End Use Sort Module

The **End Use Sort Module** can be started by clicking on the icon located on the **CruiseComp Toolbar**, or by going to the menu bar and clicking on **Edit** and then on **End Use Sort**.

The program starts up on the **Create and Setup Sorts** tab. Here the user can import, export, or delete a matrix with the click of a button.
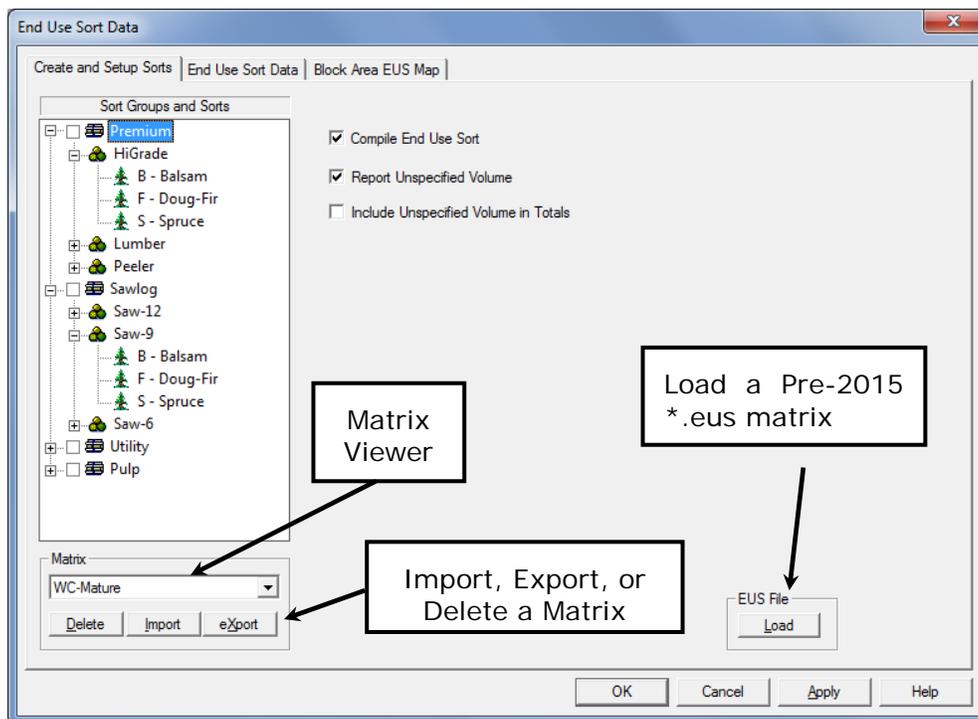

Figure 4 - Create and Setup Sorts Tab

2.5 Importing a Matrix

To import a matrix, click the **Import** button then navigate to the folder containing the *.euscsv file. Click Open to bring the file into **CruiseComp**. Multiple Matrices can be imported into the module, one at a time.
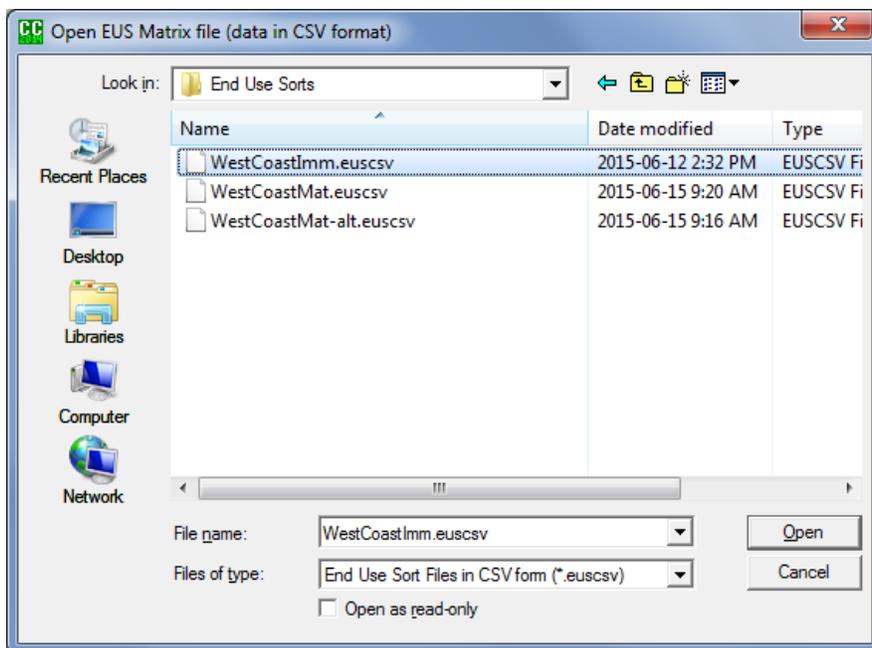
Figure 5 - Import an EUS matrix

Remember, if a matrix already in the CruiseComp file has the same name as the one being imported, it will be overwritten.

2.5.1 Loading an Old Format EUS File

To load an older format *.eus file, locate and click the **Load (EUS File)** button in the lower right corner of the **Create and Set-Up Sorts** tab.

Navigate to the folder where the *.eus file is located and select it.

After clicking the **Open button**, the program imports the EUS file into the **CruiseComp** file. The following message box appears.
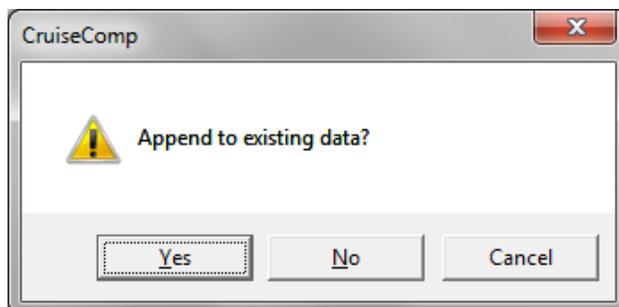
Figure 6 - Import Dialogue Box

If there is no existing end use sort data, or you would like to add to it, click **Yes**.

If there is existing end use sort data, and you only want to use the new **End Use Sort Matrix**, click **No**. Any data in the matrix will be deleted. Normally, it's safer to click the **No** button.

Before making any changes to a file, **always make a back up copy**. This will make the recovery much easier should an error occur or the file becomes corrupted.

2.6 Exporting a Matrix

To export a matrix, select the matrix in the **Matrix Viewer**, click the **Export** button, then navigate to the folder where the .euscsv file will be stored. Then click on **Save** to complete the operation.

2.7 Deleting a Matrix

To delete a matrix from the module, select the matrix in the **Matrix Viewer**, click the **Delete** button & click on **Yes** to confirm the delete. All matrices must be deleted to clear out all sort groups and sorts.

2.8 Editing a Matrix Inside the EUS Module

Once a matrix has been loaded into **CruiseComp**, it can be tested and adjustments made to the percentages going to each sort. Go to the **End Use Sort Data** tab. If there is more than one matrix loaded, select the desired one using the Matrix Selector. Locate the log class, by clicking on the grade under the desired species in the **Log Classification** section and finding the diameter class to the right. Enter the percentages into the appropriate sorts. Make sure to hit **Enter** or **Tab** after each entry. And click **OK** or **Apply** when complete.
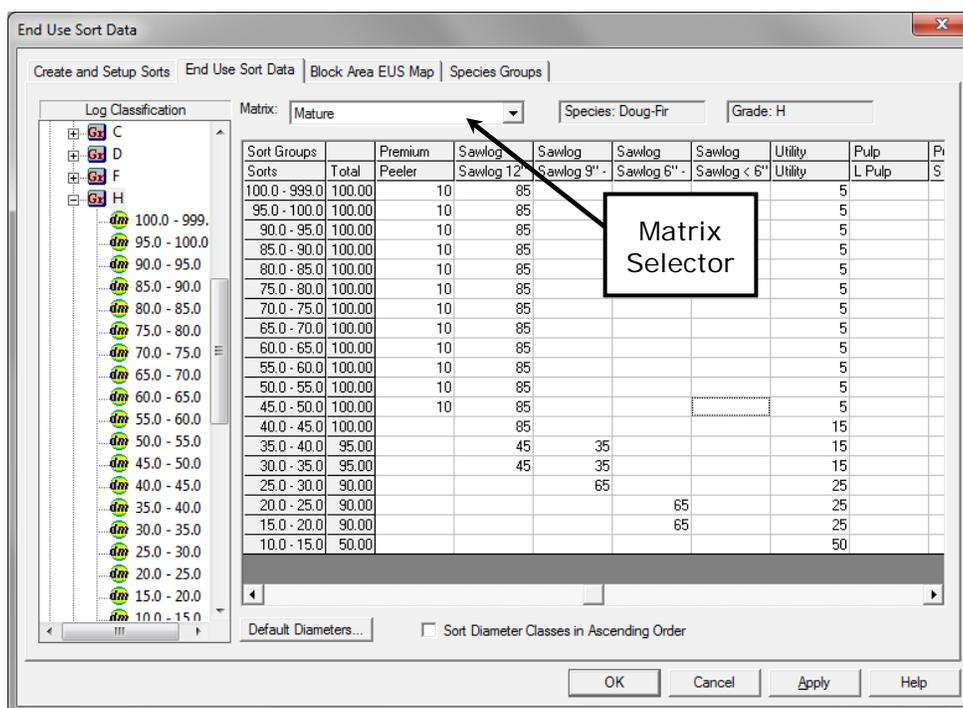

Figure 7 - Douglas Fir – H grade log setup

3   BLOCK AREA EUS MAP

3.1 Using the Block Area EUS Map

A common scenario for compiling cruise data is to stratify timber into homogeneous units within a block or area. The **Block Area EUS Map** tab allows the user to assign a single **End Use Sort** to the entire compilation or, assign the best fit from a selection of sorts to each strata.

Suppose you want to know the differences in volume between old growth and second growth areas within a block. In the **Block Area EUS Map** tab there is a table with headings of **Block**, **Type**, **Maturity** and **Matrix**. Under the block heading the user would enter the block number that is to be compiled. In this case, we will say that we want reports for the second growth and old growth for the entire block regardless of type. Nothing is entered under the type heading. Under the maturity heading, separate the mature and immature trees by entering an I on one line for Immature and an M on the next line for Mature. Under the Matrix heading, select the Old Growth matrix for the mature area and the second growth matrix for the immature area.

After the **Block Area EUS Map** is created, ensure the **Compile End Use** sort box is checked. Then generate the reports to see the volumes that are associated with each sort. For this example we want to see the differences in volumes for **Mature** and **Immature** trees by grade for the entire block. This means that when the user chooses the report it should be the **End Use Sort By Block** report.

NOTE: To ensure the sorts are reported separately, the user must make sure that each sort name is unique. Otherwise, if you have two sorts in separate matrices that have the same name, the volumes will be combined in the report. To avoid this we suggest naming sorts in different matrices with a numeric value (eg 100 series numbers for Second growth and 200 series numbers for Old growth).

The following pages show how the **Block Area EUS Map** is completed for a number of different scenarios.

Figure 8 - Assigning a Matrix to the Entire Area

Figure 9 - Assigning Matrices to Mature & Immature Areas

Figure 10 - Assigning Matrices to Blocks

Figure 11 - Assigning Matrices to Types

4 RUNNING AN END USE SORT COMPILATION

➢ Start **CruiseComp**.

➢ Load up the cruise data.

➢ Set the compilation pre-set to **CGNF**. If settings other than MoF standard settings are desired, set the pre-set to **CGNF,** set it to **None**, then make the required setting changes.

➢ Load the **EUS file(s)** if it hasn't already been loaded.

➢ Select the **Compile EUS** checkbox in the EUS module. Also select **Report Unspecified Volume** if desired.

➢ Go to the **EUS data tab** & note if all species are accounted for in the compilation.

➢ Go to the **Block Area EUS Map** & make sure all blocks and types have a matrix assigned.

➢ Exit out of the **EUS** module, then click **Generate Reports**

It is recommended that you store all your end use sort files (*.euscsv) in one folder, and keep back-ups in another secure location. This will help make it easier to keep track of your files.

5 REPORTING

There are four categories of general EUS reports:

1. End Use Sort (CP, Block, Type) – Summarizes net volume and % for each sort by grade for each species.

2. End Use Sort General (CP, Block, Type) – Summarizes net volume and % for each sort by species.

3. End Use Sort Filtered (CP, Block, Type) – Summarizes the EUS (excludes unspecified volume) volume in the same format as the Standard Summary Reports.

4. End Use Sort Unspecified Logs – Summarizes every log that has all or part of its volume designated as unspecified (Extension of the Log Report). It is useful for testing the matrix.

There are also four categories of EUS Log Analysis Reports

1. End Use Sort Log Profile (CP, Block, Type) – Summarizes the log profiles by species and sort.

2. End Use Sort Detailed Log Profile (CP, Block, Type) – Summarizes the log profiles by species, sort and top diameter class.

3. EUS Filtered Log Analysis (CP, Block, Type) – Summarizes the log profiles (excluding unspecified) by species and top diameter class.

4. EUS Filtered Log Analysis with Grade (CP, Block, Type) – Summarizes the log profiles (excluding unspecified) by species, grade and top diameter class.

APPENDIX I - SPECIES CODES

Alder	D
Aspen	AT
Balsam	B
Birch	E
Broadleaf Maple	MB
Cedar	C
Cottonwood	AC
Cypress (Yellow Cedar)	Y
Fir	F
Hemlock	H
Larch	L
Pine, Lodgepole	PL
Pine, Western White	PW
Pine, Whitebark	PA
Pine, Yellow	PY
Spruce	S