



## CO-OP REDWOOD YIELD RESEARCH PROJECT

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### CRYPTOS STAND TABLE ENTRY PROGRAM

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#### Abstract

This research note describes an interactive computer program that can be used to prepare input data files for the CRYPTOS computer program.

## I. Introduction

This program provides an easy method of preparing a CRYPTOS input file for one inventory plot or a modified stand table (the average of several plots) prepared by the user. In addition, the program will attempt to estimate missing measurements (tree heights and crown ratios) through the use of options specified by the user. Users of this program are assumed to be familiar with the CRYPTOS user's manual, particularly the sections describing the stand and tree data requirements, species codes, and site index definitions.

## II. Getting Started

To get started, first invoke the program. There are three phases to the program: 1) entering stand information and estimation options, 2) entering tree records, and 3) correcting mistakes.

## III. Stand Information and Options

The program is basically self-explanatory with the exception of a few items. The program first asks you for a stand identifier followed by an input file set number. (This is the fileset where your data is stored and is the number you should give the CRYPTOS program when that program asks you for the input fileset number). Next, the program asks you for a height prediction mode. This option determines how missing tree heights will be estimated. There are three possible modes for height prediction:

Mode 1 - This is the recommended mode. It assumes that all tree heights are provided by the user. Hence, there are no missing measurements allowed with this mode. If you have a subsample of tree heights, it is suggested that you plot height over DBH, draw a free hand curve (use a regression equation if you want to be sophisticated), and assign the estimated values to tree records you for which don't have measurements. As the height/DBH relationship is quite different for different species, you should develop free hand curves that are species specific.

Mode 2 - In this mode, the program will develop a "local" height/DBH equation and internally assign a total height to tree records that you have not entered total heights for. (When you get to the point in the program where you are requested to enter total heights, missing heights are entered as 0.0 or blanks). To center the local equation, you have to provide an average total height and average DBH of dominant trees by species. Here, "dominant" means the largest trees by DBH in your data. Four species groups are recognized for the purpose of estimation: redwoods, Douglas fir (the "other whitewoods" are also considered part of this group), tanoak (the "other hardwoods are part of this group), and alder.

(Here, and in other parts of the program, when the computer wants you to enter information, it will give you a label and directly underneath it will type "xxx.x" or "xx.x" or ".xx". When you type in data, line the cursor up directly underneath the x's and enter your numbers. Type in the decimal point right underneath the decimal point.)

NOTE: If a species is not present in your data, average heights and average DBH of dominants need not be entered. (you can just type <return> for this species and it will go to the next one.) However, if the program encounters a species for which you have not entered this information, the program will abort, all data you have typed in will be lost, and you will have to start all over. So if you don't have this information for a particularly species group in your data, and you want to use this mode, make the best guess possible.

Mode 3 - In this mode, you can enter log heights (the number of 16.3 foot logs above a 1 foot stump). and the program will approximate the total height based on the number of logs you supplied. Half log heights are recommended rather than full log rounding. Note: For small trees, log heights can be entered as zero and the program will attempt to supply a "reasonable" total height. Note also that if log heights for large trees are entered as zero, the program will also supply a total height. However, sometimes these estimates are not so reasonable.

If you request this mode, the program will then ask you for a merchantable top diameter inside bark that should correspond to your own log height determination standards. The minimum that will be accepted is 5.0 inches.

The program will then ask you for 50 year base age site indices for redwood, Douglas fir, tanoak, and alder. Either a redwood or Douglas fir site index must be given and the others are optional.

Finally, before you begin entering tree record information, the program will ask you for the number of tree records you are going to enter.

NOTE: If you have made any mistakes up to this point, depress the <break> button and start all over after the % sign reappears.

#### IV Entering Tree Records

The program will now print some heading labels and underneath, some "xx's" to allow you to properly line up your data for each tree record. The labels are 1) "sp" which is the CRYPTOS species code, 2) "dbh" which is DBH, in inches and tenths, 3) "tpa" which is the number of trees per acre that this record represents, 4) "ht" which is total height if mode = 1, 0.0 or blank if mode = 2, or log height expressed as a decimal number if mode = 3 (i.e. if the tree is 2 logs, you enter 2.0; if its 4 and 1/2 logs, you enter 4.5) and 5) "cr" which is crown ratio expressed as a decimal fraction. .99 is the largest crown ratio the program will accept.

The program will then print the tree number and leave the cursor positioned on the line. You then enter your tree information, properly lined up on the line. It is of utmost importance to type in decimal points exactly under the labels. To move the cursor to the right for spacing, depress the space bar. To move to the left, depress the <ctrl> key and then "h" simulataneously. NOTE: If you make a mistake and want to back up, everything to the right of the cursor is erased so you will have to retype this information. If heights or crown ratios are not

entered, just space over these fields. After the information for a tree is entered, press <return> or <line feed>. The program will then echo back all the information you typed in and the estimates for anything that wasn't supplied and then go to the next tree. This process will continue until you have entered all your trees.

#### Things to Note

- 1) After you press <return> for a tree record, you cannot make any changes until all the tree records are entered. You can then enter the edit mode to make corrections.
- 2) If you enter anything but blank, numbers, or decimal points for tree information, the program will crash.
- 3) If you type in a species code that is not allowed by CRYPTOS (a blank, a "0", or a "9", the program will not accept the tree record and will give you another chance. The same thing will happen if dbh is typed in as a blank or 0.0. This feature can also be used to make the heading labels reappear if you've entered so many records that the label rolls off the top of the screen. (i.e. typing only <return> for a tree record will print an irrelevant error message and reprint the labels.)

#### V Quit, Display, Edit

After all trees have been entered, the program will ask you if you want to quit, display the tree file, or enter the edit mode. If you want to quit, the program will remind you of the fileset number where your data was stored so you can use it for CRYPTOS.

#### VI Display Mode

If you request a tree file display, the program will list all of your trees and then return to section V.

#### VII Edit Mode

- 1) The program will ask you for a tree record number. If you type <return>, "0", or a number greater than the total number of records, the program will go back to Sect V. Otherwise it will go to 2) below.
- 2) The program will display the information for the record and give you a prompt that is "ok:". If you type <return> after the prompt, the program will go to Sect. VII-1. Otherwise, you can type a field number (field numbers are 1 = sp, 2 = dbh, 3 = tpa, etc.) immediately followed by the new value you want put in. For example, if dbh was 6.0, and you wanted it to be 16.5, you would type "216.5"; if the species was "1" and you wanted it to be "2", type "12". (do not type the quotation marks.)

- 3) The program will then display the corrected information and go back to Sect VII-2.

#### Miscellaneous Notes

If you want to "delete" a tree record, just set the value of "tpa" to 0.0 in the edit mode. There is no way to enter more records after you give the program the number of records you want to enter.

If, at any time, you want to abnormally terminate the program and start all over, depress the <break> button and the program will abort. You can then reinvoke the program. Remember, this destroys all the data you've entered.

If you have made a CRYPTOS file with this program and are in the process of making another one, DO NOT USE THE SAME INPUT FILESET NUMBER AS THE OLD FILE WILL BE ERASED. The recommended procedure for saving files that you have created is to execute the following commands after you have made a file and have exited from the data file entry program. That is, the "%" sign reappears on the screen. Type the following sequence of commands each time the "%" signs appears.

```
% mv forxxx.dat yourname
```

Here, "xxx" is the input fileset number you gave to the data entry program. "yourname" is any unique name up to 8 characters long. If for example, you gave the data entry program an input fileset number of "1", and you wanted to save this file for later use into CRYPTOS, and say your name was Bob and this was the 7<sup>th</sup> file you created, you might type

```
% mv for001.dat bob7
```

and the data would be saved on a file called "bob7". If you later wanted to use this file with CRYPTOS, before you invoked the CRYPTOS program you would type (after the % sign appears)

```
% mv bob7 forxxx.dat
```

where "xxx" is any of the valid fileset numbers accepted by CRYPTOS. Be sure to type leading zeroes. If you wanted to move bob7 to file number 10 for use with CRYPTOS, you would type

```
% mv bob7 for010.dat
```