Appendix A—Field Data Recorder Operation Instructions

Project FOREST Field Data Recorder Manual (6/94)

Do not use these programs unless you have a PC with database software that can use .DBF (i.e., dBase, Foxpro) files *and* a Corvallis Microtechnology MC–V in good condition with MBASE and a MC–COMKIT (includes the cable to connect the PC and MC–V and Corvallis Microtechnology Kermit software). This package contains a disk with a data entry program that will be uploaded to the field data recorder (MC–V).

INITIAL LOADING OF PROGRAM AND FILES TO MC–V

On the PC:

Put Kermit disk in drive A (if drive B then substitute B for A in following commands).

Type the following commands (you type the **BOLD**), <enter> after each.

```
C:\> MKDIR CMTCOM
C:\> CD CMTCOM
C:\CMTCOM> COPY A:*.* /V
C:\CMTCOM> CD\
```

Put the disk containing the field data recorder data entry program in drive A (if drive B then substitute B for A in following commands).

Type the following commands, <enter> after each.

```
C:\> MKDIR FDRPROG
C:\> CD FDRPROG
C:\FDRPROG> COPY A:*.* /V
C:\FDRPROG> CD\
C:\> MKDIR FDRDATA
```

(This is the directory where you will store the data)

UPLOAD Program files to the MC–V

On the MC–V, CD to the drive marked FILES. Connect the cable to the COM1: port on the MC–V and the serial port, COM1:, on the PC.

On the PC type:

```
C:\CMTCOMM> mode com1:96,n,8,1<enter>
C:\CMTCOMM> KERMIT SEND C:\FDRPROG\*.* <enter>
```

On the MC–V:

```
KERMIT R <enter>
```

STARTING THE INPUT PROGRAM

To enter data “current year” whorl first:

```
MBASE CURRENT
```

to enter data “oldest” whorl first:

```
MBASE OLDEST
```

GENERAL INPUT INSTRUCTIONS AND CAUTIONS

Make sure KEYBEEP is on (KEYBEEP ON) before the program is started.

To enter data, type the data into the highlighted field and press ENTER.

Data can only be edited while it is on the screen. You cannot go back a screen but you will be given a chance to re–do the data. Once you go to the next screen the data can only be edited on the MC–V by exiting the program and using the commands available in MBASE (EDIT, BROWSE).

If you find another whorl when entering oldest first, enter them in the right sequence but change the whorl number so you will have two whorl 3's for example; include an edit note in the comment field for later correction.

If a mistake is made on one whorl and you want to re–enter the data, you do not need to re–enter all the whorls on that branch. Enter the correct whorl number and re–enter that whorl (leave a note in the comment field to delete the other incorrect data).

You can use arrow keys to move around the current screen and edit data before final "ENTER Y TO CONT."

Avoid using backspace to edit data in a field; type–over works fine.

Some fields have default values; to accept data already entered in a field just hit ENTER.

Be careful to type–over all the existing incorrect data in a character field, but for a numeric field just type the number and ENTER (if decimal is 0 it does not need to be entered).

Typing zero over some other number in a "1" wide numeric field causes the field to go blank; but the field is NOT blank—the zero was entered, it is simply not shown.

When the screen says "ENTER Y TO CONT" the highlighted box should contain an F. If the data is okay and you want to continue to the next input screen press Y. When the screen asks for a Y or N, there should already be a T or F in the box.

Y is the same as T; N is the same as F.

To answer yes, Y and ENTER. To answer no, N and ENTER. No other input will be accepted. Just ENTER to accept T or F already displayed.

Some numeric fields will only accept data in a preset range. If you enter a value outside the range (i.e., a 9 if the range is 0–5), the cursor will not move until it has been corrected.

DAILY DOWNLOAD OF COLLECTED DATA:

Connect the cable to the COM1: port on the MC–V and the serial port, COM1:, on the PC.

on the PC

```
C:\> CD CMTCOMM
C:\CMTCOMM> mode com1:96,n,8,1<enter>
```

on MC–V

```
KERMIT SEND *.DBF<enter>
```

on PC

`C:\CMTCOMM\> KERMIT R <enter>`

PREVIOUSLY DOWNLOADED FILES WILL BE OVERWRITTEN BY THIS. BE CAREFUL TO RENAME THE FILES ON THE PC AFTER THEY ARE DOWNLOADED!

on the PC:

`C:\CMTCOMM> COPY WHORL.DBF C:\FDRDATA\SLW0821.DBF`

(Site is Shaver Lake, Whorl data collected on August 21)

PRINT AND PROOFREAD

Keep a copy of all the files on floppy.

To print the .DBF files on the PC you can use any software that can use dBase III+ DBF files (dBase, Foxpro and many other database programs can handle dbf files).

Print and proofread the new data after *every* field day. Each downloaded file will also contain the previous day's data but you only need to print the new data. When you are finished at a Site (or Plot) you may want to delete each day's files and keep only the last file with all the data.

On the MC–V, the files will eventually get too big for the storage area. When starting data collection at a new Site (or Plot) clear the WHORL file of data. DON'T DO THIS UNTIL YOU ARE SURE ALL THE DATA IS SAVED ON THE PC AND BACKED UP ON A FLOPPY.

On the MC–V type these commands (<enter> after each):

```
MBASE
.USE WHORL
.ZAP
Y
.QUIT
```

SENDING IN THE DATA

If possible, make any necessay corrections to the dbf files before you send then. But if you are not familiar with dBase, just send the files on a floppy and the printouts with the corrections written on them.

Send the floppy and printouts to:

Dr. Paul Miller
Pacific Southwest Research Station
USDA Forest Service
4955 Canyon Crest Drive
Riverside, CA 92507\

Appendix B—Instructions for Data Entry from Field Sheet to PC

Project FOREST Data Entry from Field Data Sheets

This package contains three data entry programs for the transfer of FOREST data from completed field data sheets to computer files. The data entry programs display on–screen prompts for the data, create an ASCII/TEXT file, and append the data to it. The programs will work on any IBM PC, XT, AT, laptop, or compatible computer with a mouse. A color monitor is not required but a printer is necessary to print the output data files for proofreading.

Installing:

Copy the files on the floppy to the hard drive of a PC.

`C:\>COPY A:*.*` to copy from a floppy in drive A to current directory

Data entry notes:

Data is entered on three separate screens.

A data entry screen is started by typing PLOT, TREE, or WHORL depending on which type of data is to be entered. Plot data, the data at the top of the data sheet, is entered on the Plot screen. Tree data, the data on the left side of the data sheet, is entered on the Tree screen. Whorl data is entered on the Whorl screen.

Enter the TREE data from all the field data sheets first, then go back and enter all the WHORL data.

On a screen, after each prompt, type the data and press `<ENTER>`.

A help message for each field will appear in the lower left corner.

Use ARROW keys to move around the screen or just click on a field with the mouse.

To edit a field use BACKSPACE or type over with correct data.

ENTER to accept data already displayed.

Missing Data: Character fields — leave blank; Numeric fields — enter –9 if possible, otherwise enter 0.

To continue with the next tree/whorl, move to "Continue?" press Y and ENTER. The data will be saved and the cursor will return to the first prompt. The data fields will still contain the old data, either replace or ENTER to accept unchanged.

To QUIT move to "Continue?" press N and ENTER.

Data entered will be saved in TREE.DAT, WHORL.DAT, or PLOT.DAT. These are TEXT files that can be edited with any ASCII/TEXT editor.

To print a .DAT file:

```
C:\>PRINT TREE.DAT <ENTER>
```

To view a .DAT file on screen:

```
C:\>TYPE TREE.DAT |MORE
```

Data Entry Screens:

To enter PLOT data type:

```
C:\>PLOT<ENTER>
```

(only new plots)

To enter TREE data (tree bole data and foliated lengths) type:

```
C:\>TREE<ENTER>
```

To enter WHORL data type:

```
C:\>WHORL<ENTER>
```

Sending the data in:

Please print and proofread the data. The files are ASCII/TEXT format and can be edited with any TEXT editor, like EDLIN. Many word processing packages can import TEXT files (Word Perfect), just remember to save the edited files in TEXT format. If you have no way of editing the files, send the printouts with the corrections marked on it with the floppy.

Copy all the .DAT files to a floppy:

```
C:\>COPY *.DAT A:*.*
```

(copy all files with a .DAT from current directory to a floppy in drive A)

Mail the floppy and copies of the original data sheets to:

Paul Miller
Pacific Southwest Research Station
USDA Forest Service
4955 Canyon Crest Drive
Riverside CA 92507

Appendix C— Site Class

SITE CLASS

— Reflects ability of site to grow trees, a measure of quality or productivity.

— Is determined by tree *age* and *height*.

— Requirements of a site tree:

- Must be predominant or dominant and grown freely all its life.
- Must be at least 50 years old.
- Must be ponderosa, Jeffrey, or sugar pine, Douglas–fir, white or red fir.
- Must be suitable form class, not a cull or deformed tree.
- Must have its original top.

540 – **DETERMINING AGE OF LARGE TREES**

Use an increment borer at least 16 inches long. When determining the age of a tree that has a radius greater than the length of an increment borer, use the following procedure: Bore into tree as far as possible, extract core, and count the rings. Measure the diameter of the tree and divide by two, then subtract the bark thickness. This gives the radius of the wood part of the tree. Measure the length of the core and subtract from the radius of wood to determine how much longer the core would have to be to reach the pith. Count the number of rings in the last (innermost) inch and extrapolate to the center. Add this to the ring count on the extracted core and then add 10 years to account for the time required to grow 4–1/2 feet tall. Dunning recommends 10 years in all cases.

Calculation for determining age of large trees;

DBH / 2	=	_____	(inches)
Bark Thickness	=	_____	
Difference	=	_____	
Core length	=	_____	
Difference	=	_____	
No. of rings innermost inch	=	_____	
Sum = Age	=	_____	

Example

Determine the age of a Douglas–fir 60.0 inches DBH with bark thickness of 2.0 inches when a core 16.0 inches long has 100 rings and the innermost inch has 5 rings.

60.0 / 2 = 30.0 inches (radius of wood and bark)

30.0 – 2.0 = 28.0 inches (radius of wood)

28.0 – 16.0 = 12.0 inches (short of hitting center)

5 × 12.0 = 60 rings

100 + 60 + 10 = 170 years old

REGION FIVE SITE CLASSES

(Height by Age and Site Class Code)[1]

Site Class (Field 9)

Age	0	1	2	3	4	5
40	95	81	66	49	43	35
50	106	90	75	56	49	39
60	115	98	82	63	53	43
70	122	105	88	68	58	45
80	129	111	93	73	61	48
90	135	116	98	77	64	50
100	140	121	102	81	67	54
110	145	125	106	84	70	54
120	149	129	109	87	72	55
130	153	133	112	90	74	57
140	157	136	115	93	76	58
150	160	139	118	95	78	60
160	163	142	120	98	80	61
170	166	144	123	100	81	62
180	169	147	125	102	83	63
190	172	149	127	104	84	64
200	175	152	129	106	86	65
220	179	176	133	109	88	67
240	184	160	136	112	90	68
260	188	163	139	115	93	70
280	191	166	142	117	95	71
300	195	169	145	120	96	73
320	198	172	147	122	98	74
340	201	175	150	124	100	75
360	204	177	152	126	101	76
380	206	180	154	128	103	77
400	209	182	156	130	104	78

[1] Based on pondersoa pine, Jeffrey pine, sugar pine, Douglas-fir, red fir, and white fir. Age is in years. Total height is in feet of average dominant and predominant trees with tree age of at least 50 years. Adapted from Dunning's site index curves for height at 300 years (Dunning 1942). (Predominant and dominant defined in Field 21, Crown Position.)

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- Cooperation with State and local governments, forest industries, and private landowners to help protect and manage non-Federal forest and associated range and watershed lands
- Participation with other agencies in human resource and community assistance programs to improve living conditions in rural areas
- Research on all aspects of forestry, rangeland management, and forest resources utilization.

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General Technical
Report PSW-GTR-155

Evaluating Ozone Air Pollution Effects on Pines in the Western United States