Section 5 - Fuel Constant Set Exercises

FFI uses fuel constants for down woody material, duff, litter, herb, shrub, moss and lichen biomass/fuel loading calculations. FFI includes default fuel constants so <u>entering custom Fuel Constants Sets is not required</u>. You only need to add fuel constants if the FFI defaults are substantially different than the constants you prefer to use.

The goal of these exercises is to show you how to enter custom fuel constants for calculating biomass for some of the standard protocols in FFI. You will apply the fuel constants in *Data Entry and Edit* and create Fuel Constant Set reports in *Reports and Analysis*.

Even though Fuel Constants are entered in Data Entry and Edit, and thus appear to be available for only one sample event, they are available for all sample events in the database.

<u>All Fuel Constant Set values are entered in English units, even when used in metric protocols.</u>

In these exercises you will:

1) Enter Fuel Constant Set data for fine woody debris (FWD)
2) Enter Fuel Constant Set data for coarse woody debris (CWD)
3) Enter Fuel Constant Set data for duff and litter
4) Enter Fuel Constant Set data for vegetation

**Exercise 1: Enter Fuel Constant Data for fine woody debris (FWD) in the Surface Fuels protocol.**

1.1 Open the *FFI_Class* database you created in the Database Setup exercises, select the *Class_AU* Administrative Unit and click **Continue**.

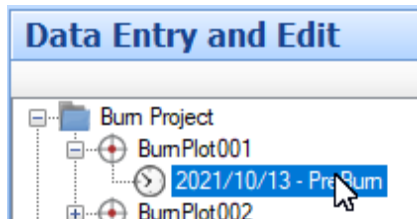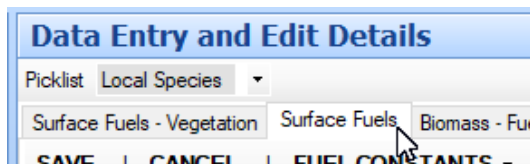**1.2** Click on **Data Entry and Edit** in the lower left of the screen.
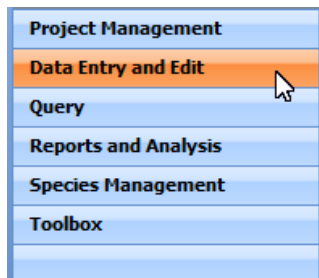
1.3 In the left pane tree view select macro plot *BurnPlot001* by clicking on it once. (You might have to click the *+* sign next to the project unit icon to see the macro plots.)
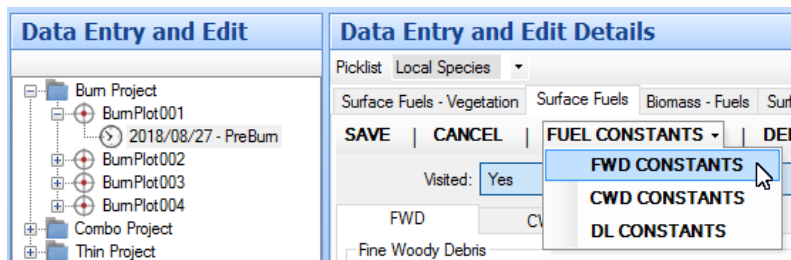
Data Entry and Edit

Burn Project
⊞ ⊕ BurnPlot001
⊞ ⊕ BurnPlot002
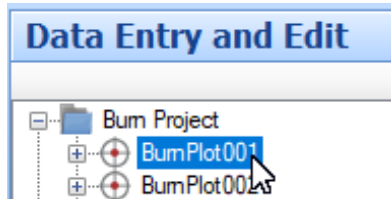
1.4 Select the first sample event. (You might have to click the *+* sign next to the macro plot icon to see the sample events.)

Data Entry and Edit

Burn Project
⊟ ⊕ BurnPlot001
⊘ 2021/10/13 - PreBurn
⊞ ⊕ BurnPlot002

1.5 In the right pane, select the **Surface Fuels** protocol tab.

Data Entry and Edit Details

Picklist Local Species ▾

Surface Fuels - Vegetation | Surface Fuels | Biomass - Fue

SAVE | CANCEL | FUEL CONSTANTS ▾
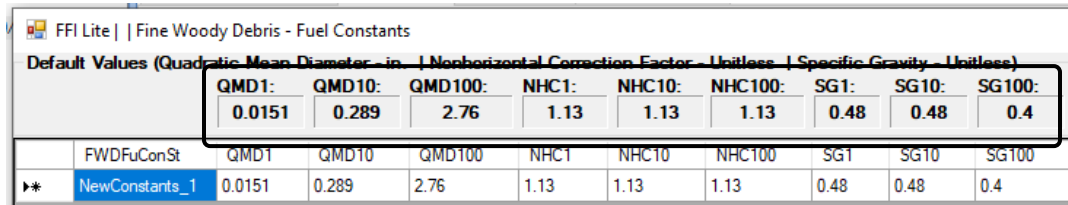
1.6 Click the **Fuel Constants** dropdown and select **FWD constants**.

Data Entry and Edit	**Data Entry and Edit Details**

Picklist Local Species ▾

Burn Project
⊟ ⊕ BurnPlot001
⊘ 2018/08/27 - PreBurn
⊞ ⊕ BurnPlot002
⊞ ⊕ BurnPlot003
⊞ ⊕ BurnPlot004
⊞ 📁 Combo Project
⊞ 📁 Thin Project

Surface Fuels - Vegetation | Surface Fuels | Biomass - Fuels | Surfa

SAVE | CANCEL | FUEL CONSTANTS ▾ | DEL

FWD CONSTANTS
CWD CONSTANTS
DL CONSTANTS

Visited: Yes

FWD   CV
Fine Woody Debris

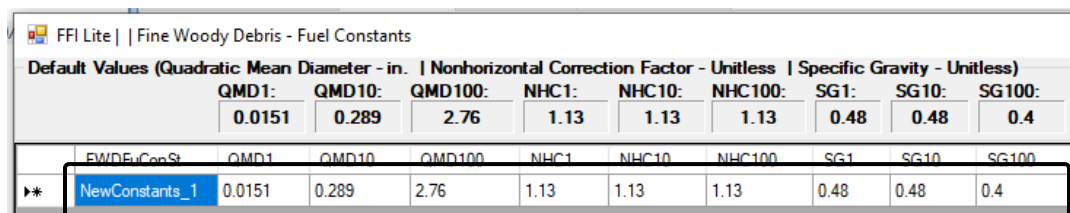# Fuel Constant Set Exercises

1.7 The values at the top of the window are the default fuel constant values and cannot be changed.

1.8 The first row of fuel constants is automatically given the name *NewConstants_1*.
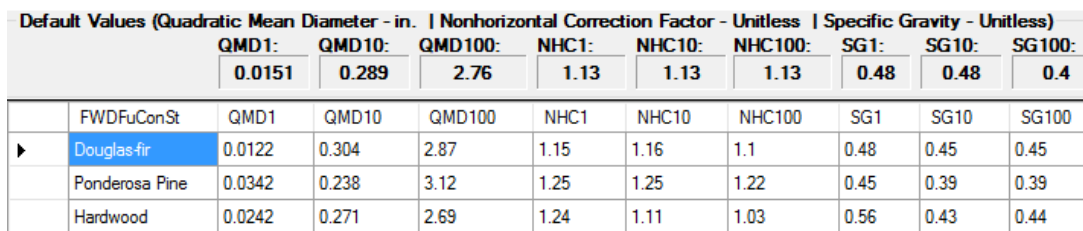
1.9 Type the data in the table below into the appropriate fields of the **Fine Woody Debris – Fuel Constants** data grid. You can type over the values in the *NewConstants_1* record to replace them. Click the Enter key to add a new row.

FWDFuConSt	QMD1	QMD10	QMD100	NHC1	NHC10	NHC100	SG1	SG10	SG100
Douglas-fir	0.0122	0.304	2.87	1.15	1.13	1.10	0.48	0.45	0.45
Ponderosa Pine	0.0342	0.238	3.12	1.25	1.25	1.22	0.45	0.39	0.39
Hardwood	0.0242	0.271	2.69	1.24	1.11	1.03	0.56	0.43	0.44

1.10 Click **Save & Close**.

1.11 When finished the **Fine Woody Debris - Fuel Constants** table should look like this.

Fuel Constant Set Exercises

Exercise 2: Enter Fuel Constant Set data for coarse woody debris (CWD) in the Surface Fuels protocol.

2.1   Click the **Fuel Constants** dropdown and select **CWD constants**.

2.2   Enter these data in the CWD FCS data grid.

CWD Constants

CWDFuConSt	SGth1	SGth2	SGth3	SGth4	SGth5
Douglas-fir	0.450	0.341	0.277	0.137	0.148
Ponderosa pine	0.387	0.349	0.340	0.222	0.220
Hardwood	0.426	0.345	0.328	0.157	0.158

2.3   Click **Save & Close**.

Exercise 3: Enter Fuel Constant Set data for duff and litter in the Surface Fuels protocol.

3.1   Click the **Fuel Constants** dropdown and select **DL constants**.

3.2   Enter these data in the Duff Litter FCS data grid.
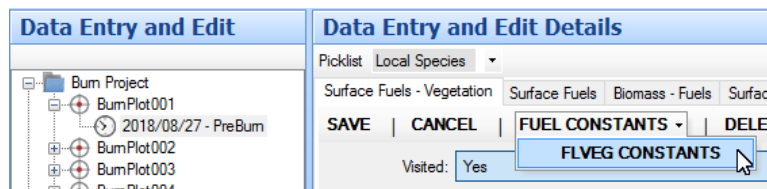
Duff-Litter Constants

DLFuConSt	LittBD	DuffBD
Douglas-fir	1.73	9.52
Ponderosa pine	1.48	9.67
Hardwood	0.9	6.00

3.3   Click **Save & Close**.

Exercise 4: Enter Fuel Constant Set data for vegetation

4.1   Select the **Surface Fuels –Vegetation** protocol tab.

4.2   Click the **Fuel Constants** dropdown and select **FLVeg constants**.

4.3   Enter these data in the Vegetation FCS table.

Vegetation Constants

VegFuCon	VegBD
Low Shrub	0.15
High Shrub	0.10
Herb	0.05

4.4   Click **Save & Close**

NOTE: The Fuel Constants you have entered will be available in **Data Entry and Edit** *when you complete the Data Entry exercises.*