Section 2 - FFI-Lite Database Setup Exercises

The goal of these exercises is to provide examples for setting up Project Units, Macro plots, Sample Events and Monitoring Statuses. The exercises will show how to use the FFI Data Tools to set up a practice database for data entry. You will need to know the location of the FFI protocol file: *FFI_Protocols_10514.PMD.* This file is included with the FFI-Lite installation files you downloaded from the FFI-FRAMES website or the Forest Service Software Center.

FFI uses the following hierarchy to organize data:

Database

    Administration Unit - Can have multiple Administration Units per database. Species lists and sampling protocols are carried with the Administration Unit. Reports and analysis are available for all Macro plots in an Administration Unit.

      Project Unit - FFI allows an unlimited number of Projects per Administration Unit

        Macro plot – Unlimited number. Can assign Macro plots to more than one Project Unit

          Sample Event – Date identifying re-measurements of a Macro plot. Macro plots may have an unlimited number of Sample Events

          Monitoring Status – Used to "name", order and group sample events for reports, analysis and query.
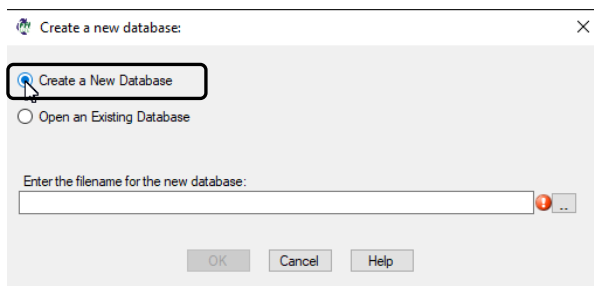
In these exercises you will:

1) Create a new database and Administration Unit, and import protocols

2) Create a new project with one macro plots and sample events

3) Create another project with one macro plot and two sample events

4) Create monitoring statuses to Project1

5) Create monitoring statuses to Project2

6) Assign monitoring statuses to the sample events in Project1 and Project2

7) Combine macro plots from two different projects into a new project

8) Changing sample event date and monitoring status view settings

9) Maintaining metadata

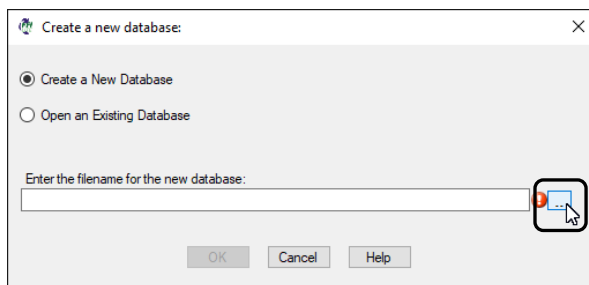10) Creating backup copies of FFI-Lite database(s)

Database Setup

Exercise 1: Create a new database and Administration Unit, and import protocols

1.1 Double click on the *FFI-Lite* icon on your desktop to start the FFI software.

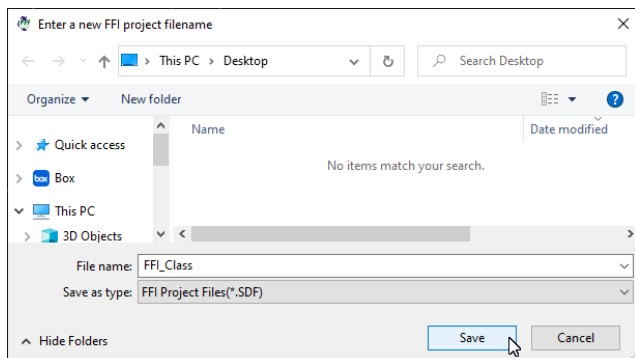**1.2** Click the radio button to *Create a New Database*.

1.3 Click the button to the right of the database name field.
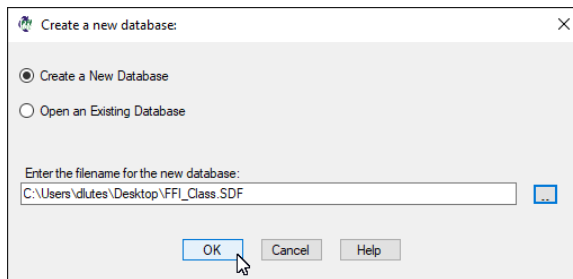

1.4 Name the database *FFI_Class* and **Save** it on the desktop.

> *NOTE: This database will be also used in the Species Management, Fuel Constant Set and Data Entry exercises. If you have taken this class before the database may already exist so select another name.*
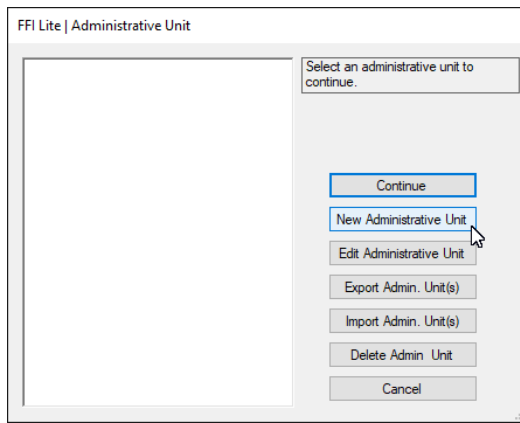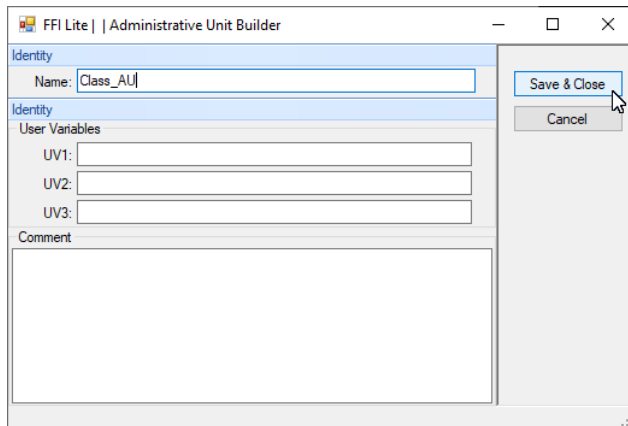
Database Setup

1.5   Click **OK** to create the database.

1.6   Click the **New Administrative Unit** button.

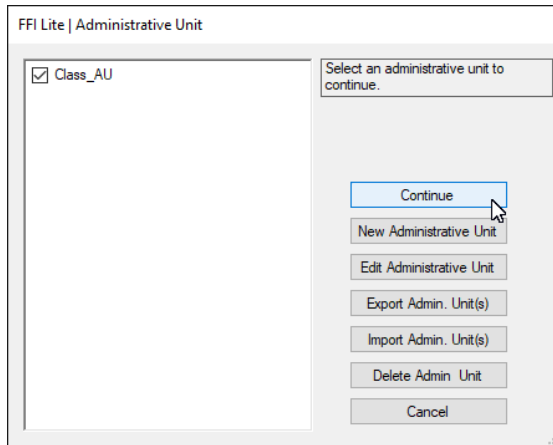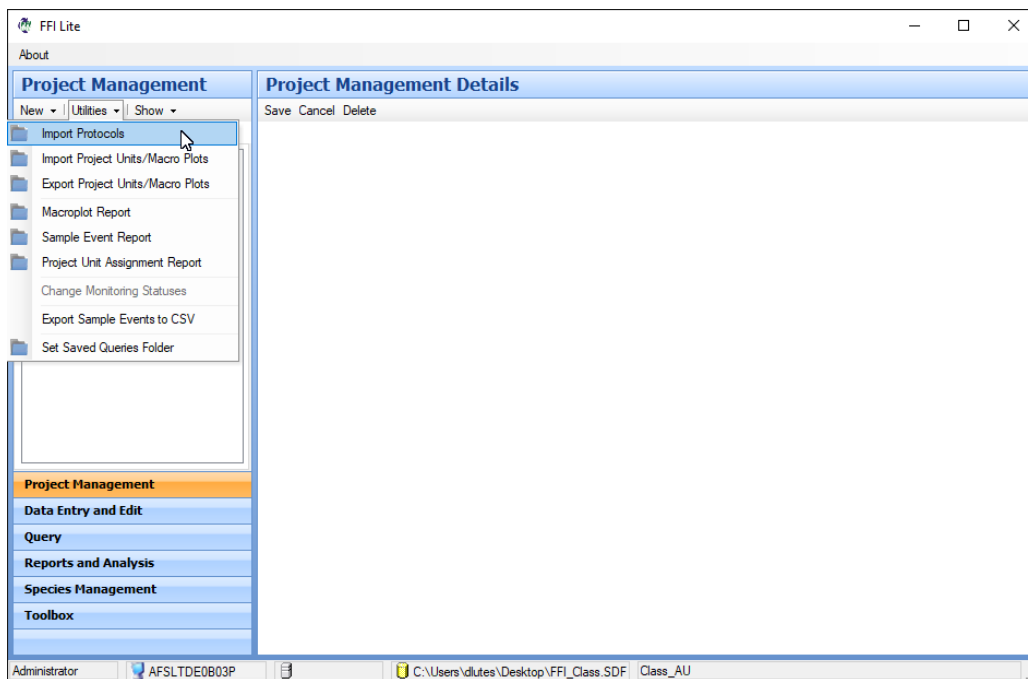**1.7**   Name the Administration Unit *Class_AU* and click **Save & Close**

1.8 Click **Continue** to connect to the FFI-Lite database and the new, empty database will open.
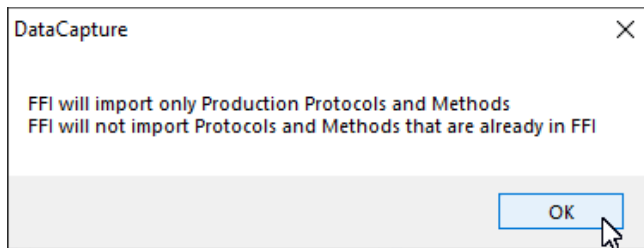

1.9 Protocols define how your data will be stored in FFI – they create the data entry screens you will enter your data into. When you import protocols they are available for all projects in the Administration Unit. Select **Utilities > Import Protocols** on the left side of the screen.
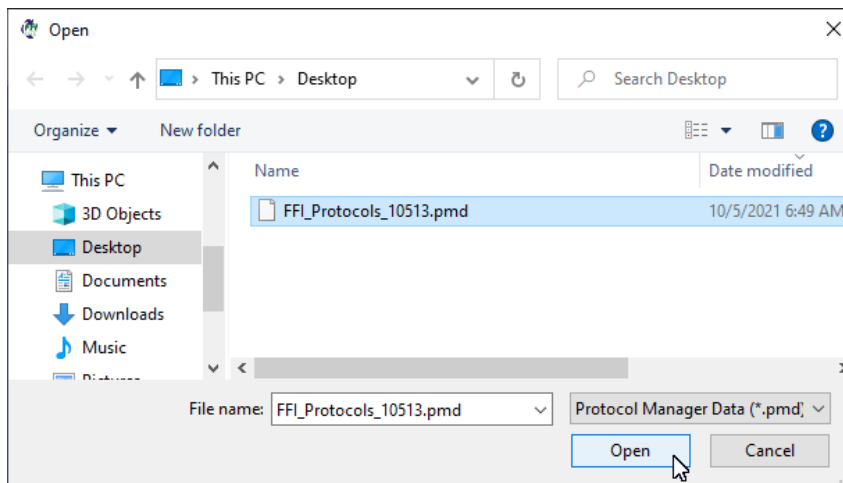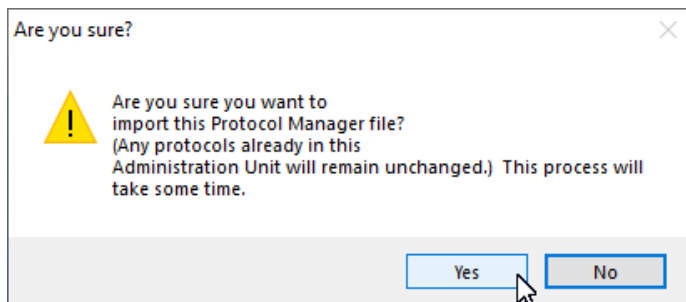
Database Setup

1.10 Click **OK** in the dialogue box.

DataCapture ✕

FFI will import only Production Protocols and Methods
FFI will not import Protocols and Methods that are already in FFI

OK

1.11 Select the *FFI_Protocols_10514.pmd* file and click **Open**.

Open ✕

> This PC > Desktop   Search Desktop

Organize ▾   New folder

This PC
3D Objects
Desktop
Documents
Downloads
Music

Name	Date modified
FFI_Protocols_10513.pmd	10/5/2021 6:49 AM

File name: FFI_Protocols_10513.pmd   Protocol Manager Data (*.pmd)
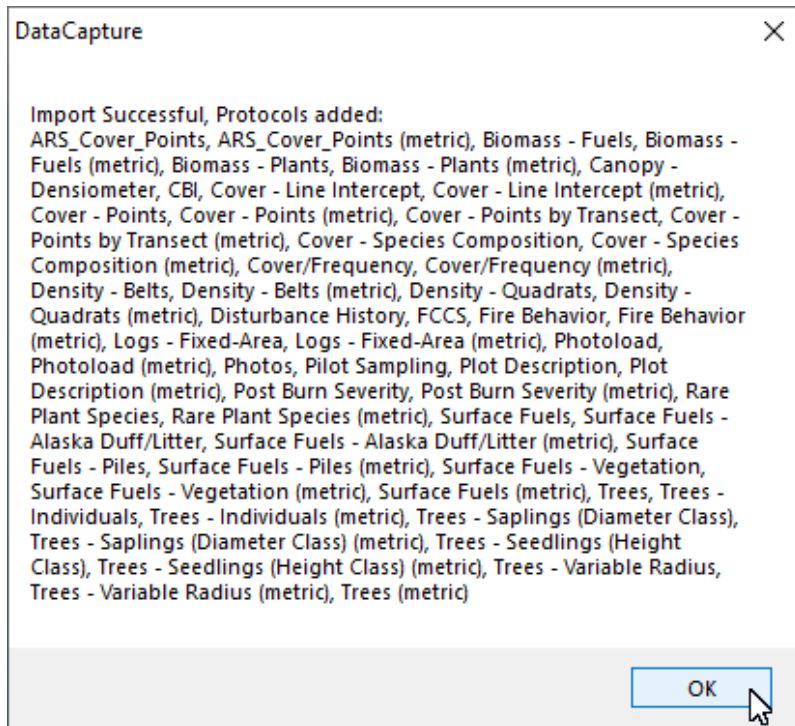
Open   Cancel

1.12 Click **Yes** in the next dialogue box. It may take a minute for the protocols to load. During that time it will look like nothing is happening.

Are you sure? ✕

⚠ Are you sure you want to import this Protocol Manager file? (Any protocols already in this Administration Unit will remain unchanged.) This process will take some time.

Yes   No

Database Setup

1.13   The dialogue box will display when the protocol import is finished. If some or all the protocols were already in the database, the existing protocols will be listed. Click **OK**.
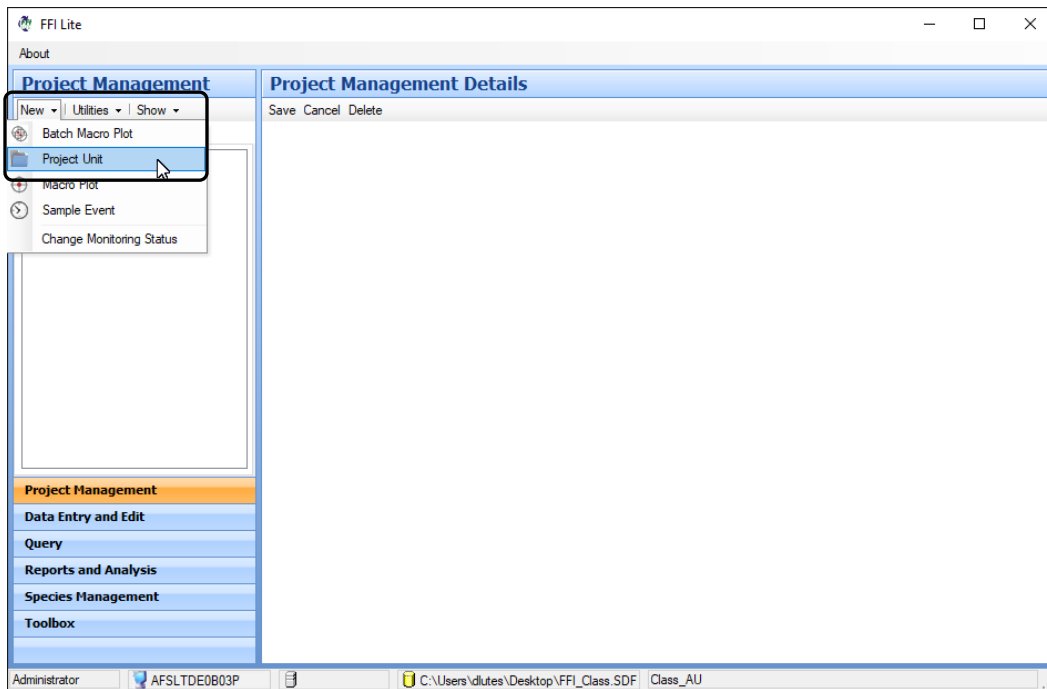
> *NOTE: In these exercises you have imported the complete package of standard FFI protocols. Some agencies/programs provide their FFI users with a protocol file that includes only a subset of standard protocols and/or custom protocols (e.g., Forest Service, Region 8).*
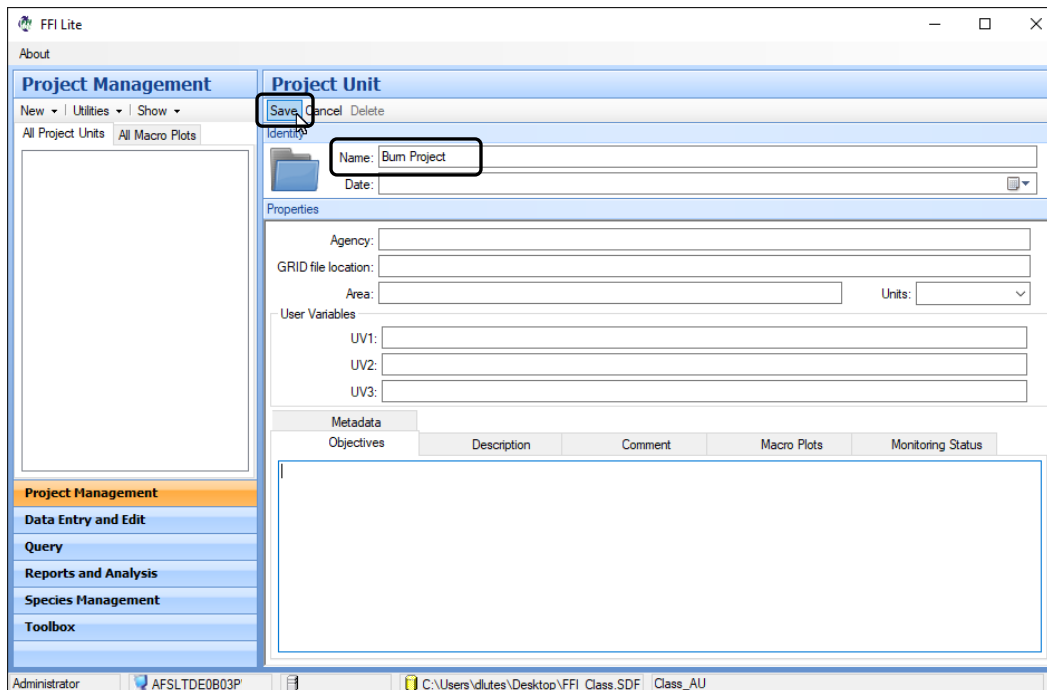
DataCapture   ✕

Import Successful, Protocols added:
ARS_Cover_Points, ARS_Cover_Points (metric), Biomass - Fuels, Biomass - Fuels (metric), Biomass - Plants, Biomass - Plants (metric), Canopy - Densiometer, CBI, Cover - Line Intercept, Cover - Line Intercept (metric), Cover - Points, Cover - Points (metric), Cover - Points by Transect, Cover - Points by Transect (metric), Cover - Species Composition, Cover - Species Composition (metric), Cover/Frequency, Cover/Frequency (metric), Density - Belts, Density - Belts (metric), Density - Quadrats, Density - Quadrats (metric), Disturbance History, FCCS, Fire Behavior, Fire Behavior (metric), Logs - Fixed-Area, Logs - Fixed-Area (metric), Photoload, Photoload (metric), Photos, Pilot Sampling, Plot Description, Plot Description (metric), Post Burn Severity, Post Burn Severity (metric), Rare Plant Species, Rare Plant Species (metric), Surface Fuels, Surface Fuels - Alaska Duff/Litter, Surface Fuels - Alaska Duff/Litter (metric), Surface Fuels - Piles, Surface Fuels - Piles (metric), Surface Fuels - Vegetation, Surface Fuels - Vegetation (metric), Surface Fuels (metric), Trees, Trees - Individuals, Trees - Individuals (metric), Trees - Saplings (Diameter Class), Trees - Saplings (Diameter Class) (metric), Trees - Seedlings (Height Class), Trees - Seedlings (Height Class) (metric), Trees - Variable Radius, Trees - Variable Radius (metric), Trees (metric)

OK

Database Setup

Exercise 2: Create a new project with four macro plots and sample events

2.1 Select **New** > **Project Unit** in the left pane.
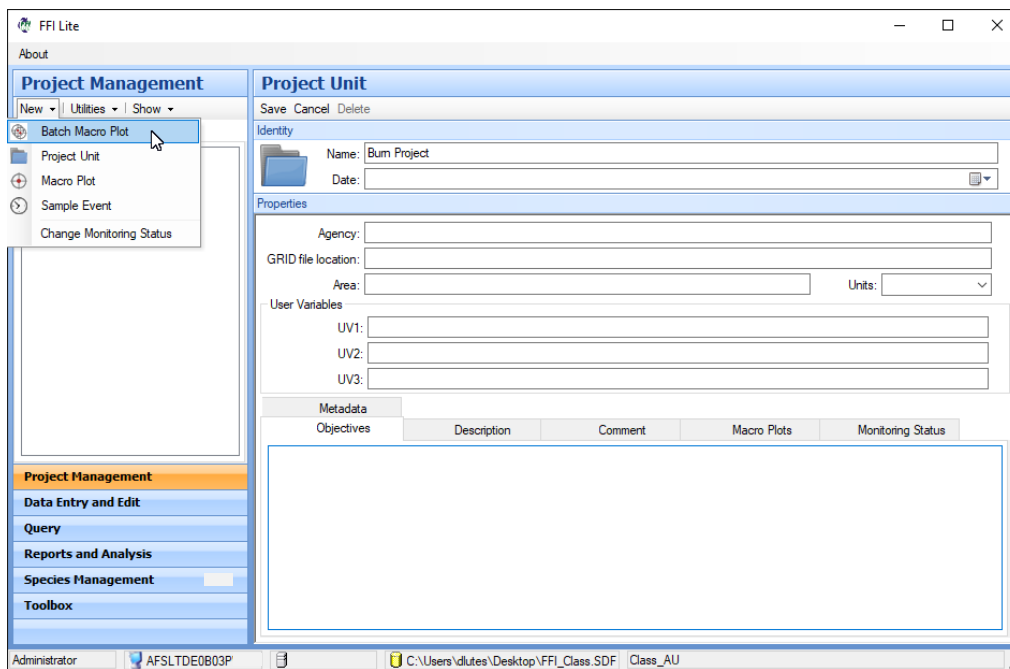

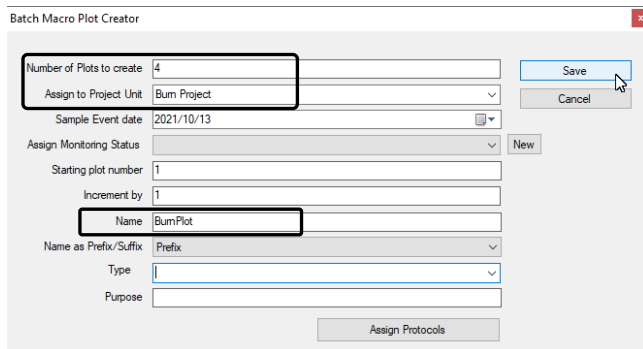**2.2** Name the new project *Burn Project* in the right pane. Click **Save** at the top of the right pane.

Database Setup

2.3   Create four new macro plots by first selecting **New > Batch Macro Plot** in the left pane.
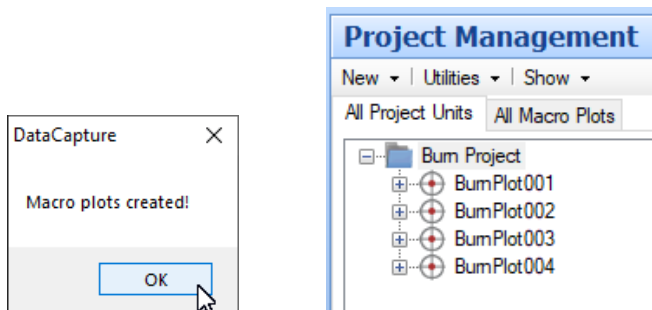

2.4   In the *Number of Plots to create* field enter *4*. In the *Assign to Project Unit* field select *Burn Project* from the drop down list and in the *Name* field type *BurnPlot*. Click **Save**.

2.5   Click **OK** in the dialogue box. It will take a few moments for the plots to appear in the FFI tree view. Click the + sign next to the project folder to expand the tree and view the new plots.

NOTE: The training exercises uses basic macro plot names but you can make them as descriptive as needed. Macro plot names longer than 20 characters can be hard to see in the Query tool and will wrap in the reports.

2.6   Sample Events are used to record the date (and other associated information) each time data are collected at the macro plot. When a new Sample Event is created it is automatically given today's date, which you can edit in the right pane. When entering real data you should enter the date the data were collected. For this exercise leave the date as its default setting.

2.7   In the left pane click the + sign next to macro plot *BurnPlot001*. Notice that a sample event date was added when the macro plot was created. In the tree view, click the sample event date once to highlight it

Database Setup

2.8 If not already selected, click on the **Protocols** tab toward the bottom of the right pane.

2.9 Click **Add/Remove Protocols** and the *Protocol Selector* window will open. You add protocols to sample events by selecting them in the *Available Protocols* pane on the left and clicking the double arrows in the middle of the screen to move them to the *Assigned Protocols* pane on the right. Add these protocols to the sample event for plot *BurnPlot001*: Biomass – Fuels, Surface Fuels, Surface Fuels – Piles and Surface Fuels – Vegetation. Click **OK** to save and close.

2.10 The protocols assigned to the sample event are shown on the Protocols tab. Click **Save** at the top of the right pane.

2.11 Highlight the sample event for macro plot *BurnPlot002* in the tree view and add these protocols:

Macro plot *BurnPlot002*:
- Cover – Line Intercept
- Cover – Species Composition
- Cover / Frequency
- Density - Belts
- Density – Quadrats
- Rare Plant Species

2.12 Add these protocols to the other macro plots/sample events:

Macro plot *BurnPlot003*:
- Biomass – Plants
- Cover – Points
- Cover – Points by Transect
- Trees

Macro plot *BurnPlot004*:
- Plot Description
- CBI
- Disturbance History
- FCCS
- Fire Behavior
- Pilot Sampling
- Post Burn Severity (metric)

NOTE: In these exercises you've added different protocols to each sample event so you can practice entering data in the Data Entry exercises, but in your projects you will usually be assigning the same protocols to most sample events.
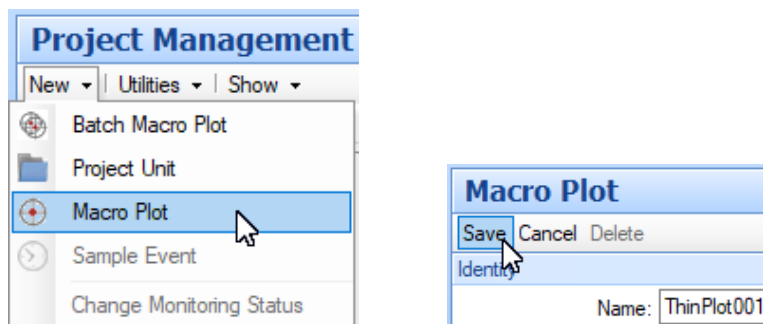
Exercise 3: Create another project with one macro plot and two sample events

3.1 Select **New** > **Project Unit,** create another project named *Thin Project* and click **Save**.
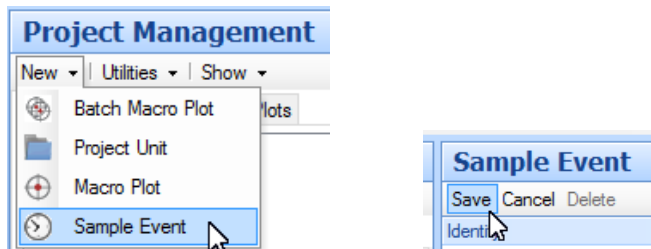

3.2 If not already selected, click once on *Thin Project* in the tree view to highlight it. Select **New > Macro Plot** and name it *ThinPlot001*. Click **Save**.
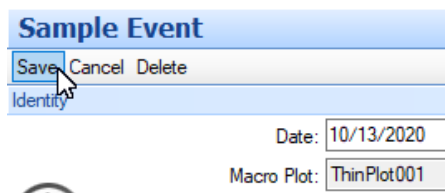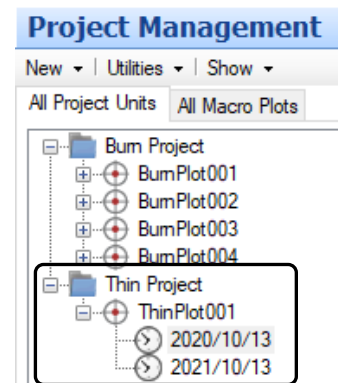
3.3 Unlike the Batch Macro Plot tool, which automatically adds a sample event to each new macro plot, when you add a macro plot using the **New > Macro Plot** command you must then manually add a sample event to it. To create the sample event, highlight macro plot *ThinPlot001* and select **New > Sample Event**. Click **Save**.

3.4 When a new sample event is added to a macro plot the sample event date is set to the current date by default. When you enter data for the sample event you should change the sample event date to the date that the data were collected. For this exercise change the date to *10/13/2020*. In the tree view, click the plus sign next to *ThinPlot001* and click the sample event date once to highlight it. In the right pane, click on the month portion of the date in the **Date** field and you will see only that part of the date is highlighted. Change the month to *10* and then click the day portion of the date and change to *13* and the year portion of the date and change to *2020*. You can also set the date by clicking the calendar icon at the right of the **Date** field. Click **Save**.
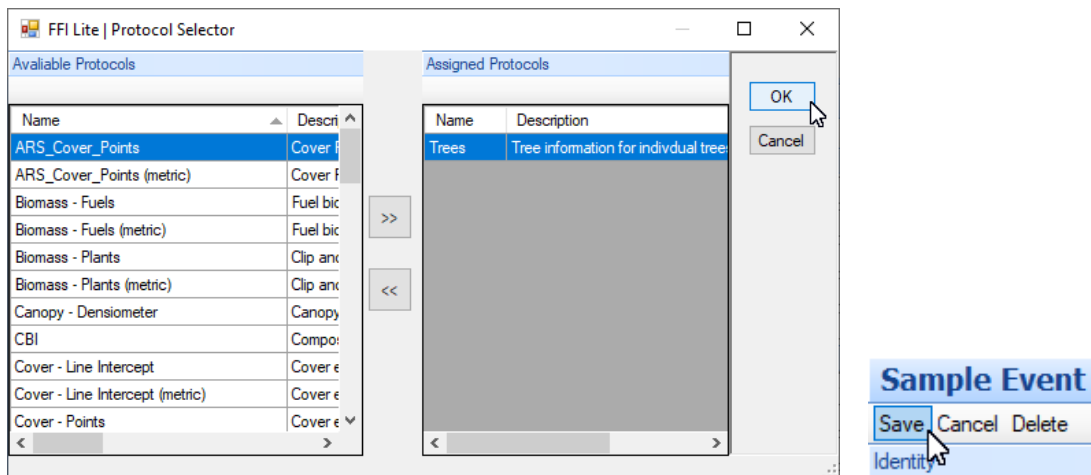

3.5 Add a second sample event to macro plot *ThinPlot001* by highlighting the *ThinPlot001* macro plot name, selecting **New > Sample Event** and then clicking **Save**. Leave the sample event date for the second sample event unchanged
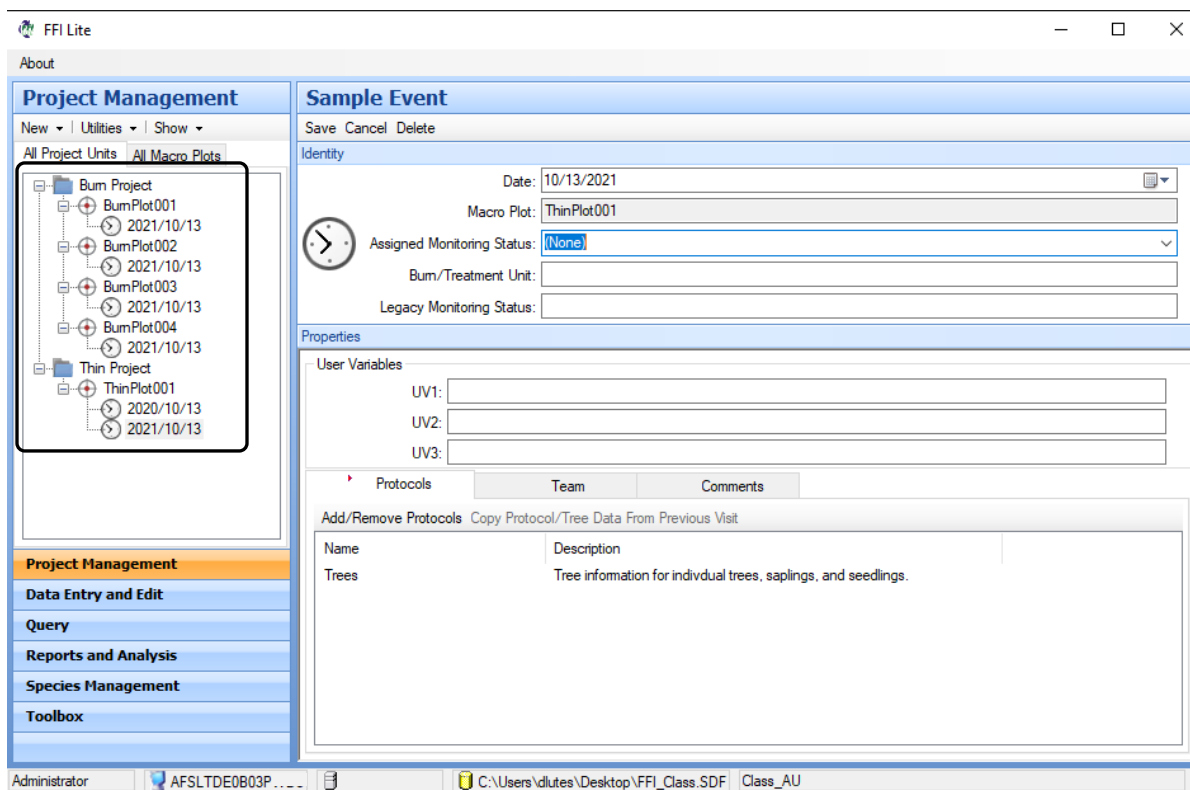
3.6   Add the *Trees* protocol to each sample event by highlighting the sample event, clicking **Add/Remove Protocols** and selecting the *Trees* protocol. Click **OK** after adding the protocol to each sample event. When finished, click **Save** to save the sample event changes
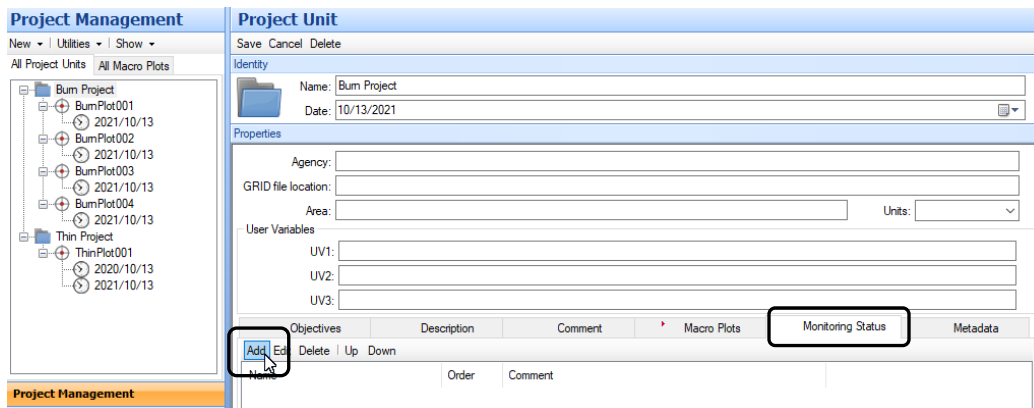

3.7   After adding the two projects, macro plots and sample events, the **Project Management** tree view should look similar to the image below.
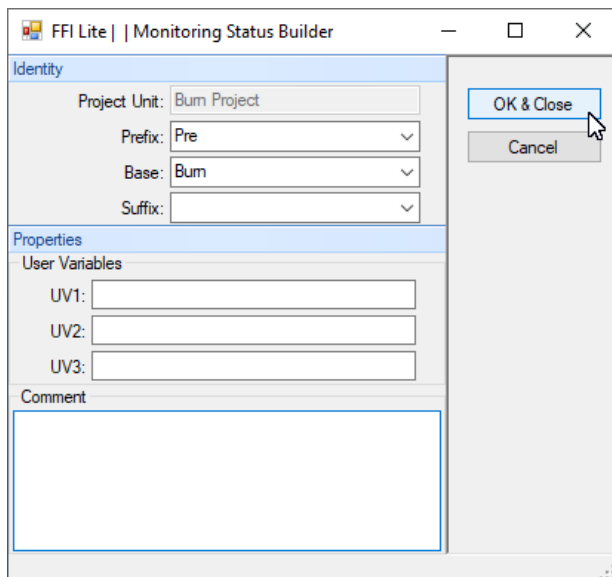
Exercise 4: Create monitoring statuses for the Burn Project

4.1   Monitoring Statuses are used to name the sample event…sort of answering the question, 'Why did I sample this macro plot on this sample event date'? Monitoring statuses are not static so they can be changed as needed. They are created and assigned at the project unit level - each project unit will have its own set of monitoring statuses. Highlight *Burn Project* from the tree view in the left pane, click on the **Monitoring Status** tab toward the bottom of the right pane, and click the **Add** button.
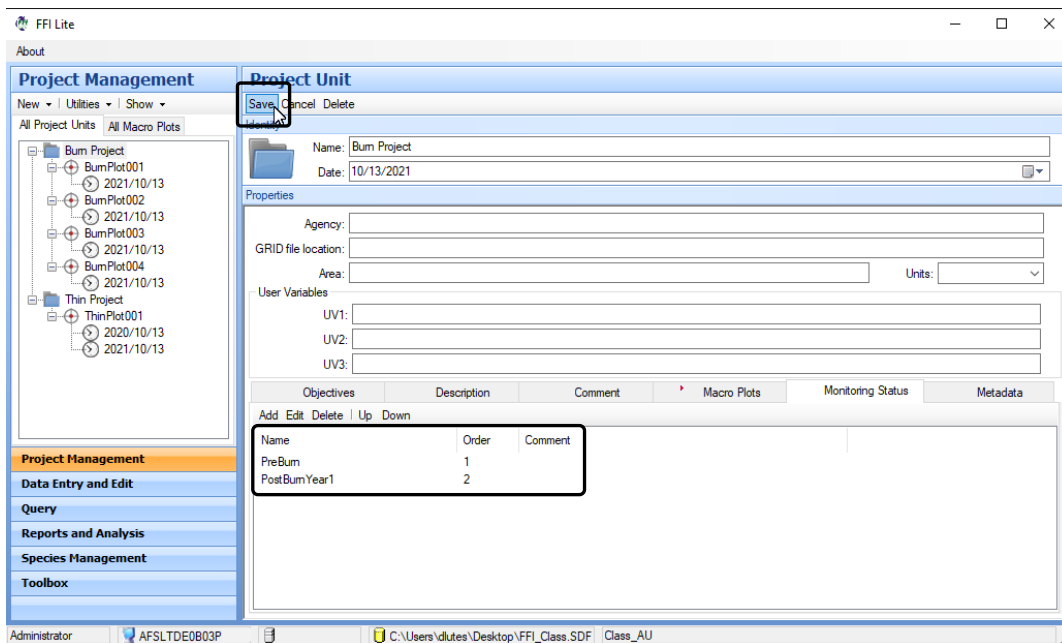

4.2   Three fields are provided for monitoring status names: *Prefix*, *Base* and *Suffix*. A list of suggested names for each field is provided in the dropdowns; however, you do not need to use the suggested names or use all three fields in the monitoring status name you choose. For example, you could have a monitoring status where the prefix is *P1* with the base and suffix left blank and that would be a valid monitoring status. For this exercise add a first monitoring status named *PreBurn* and click **OK & Close**.
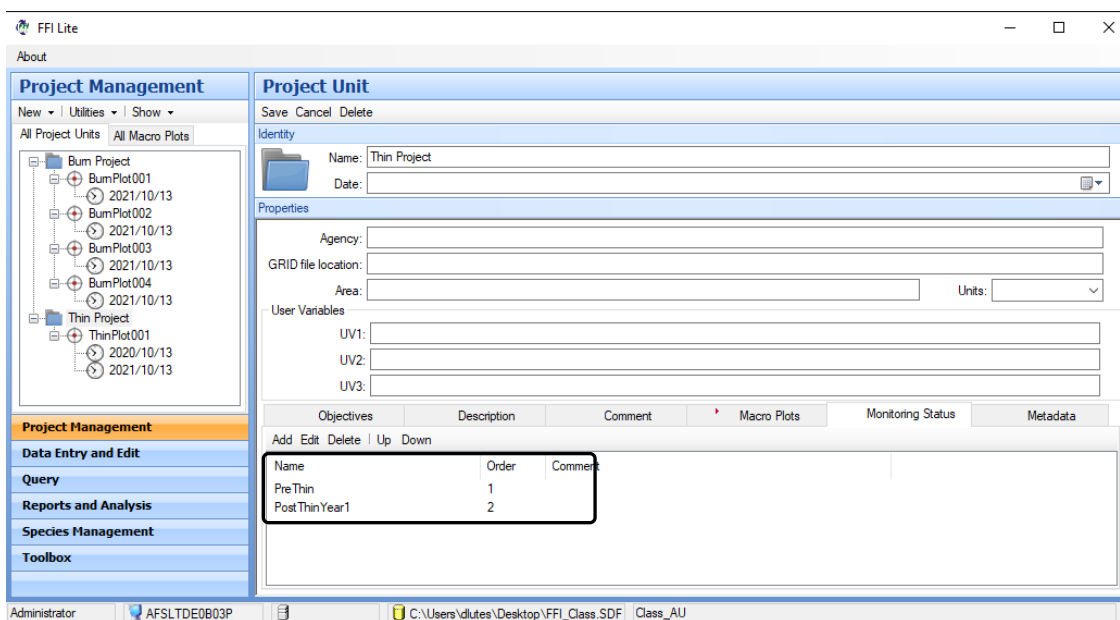
Database Setup

4.3 Click **Add ,** create a second monitoring status named *PostBurnYear1* and click **OK & Close**. The two monitoring statuses will be displayed at the lower part of the right pane. Click **Save** near the top of the right pane.

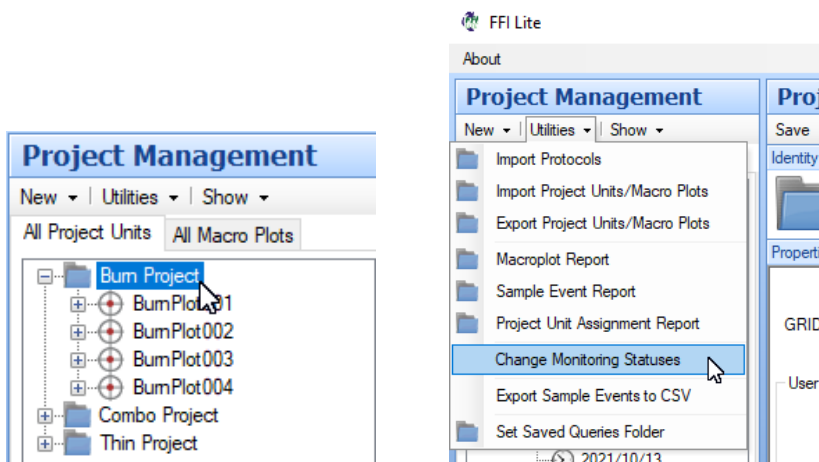**Exercise 5: Create monitoring statuses for the Thin Project.**

5.1 As stated above, monitoring statuses are created within project units so they need to be created for the Thin Project also. Highlight *Thin Project* in the tree view, click on the **Monitoring Status** tab, and add two monitoring statuses: *PreThin* and *PostThinYear1* (type "*Thin*" in the **Base** field for each monitoring status). Click **OK & Close**. Click **Save**.
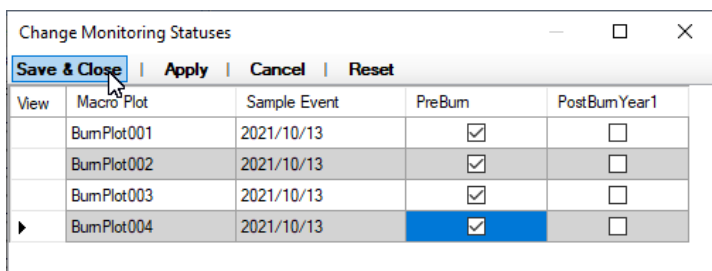
Exercise 6: Assign monitoring statuses to the sample events in the Burn Project and Thin Project
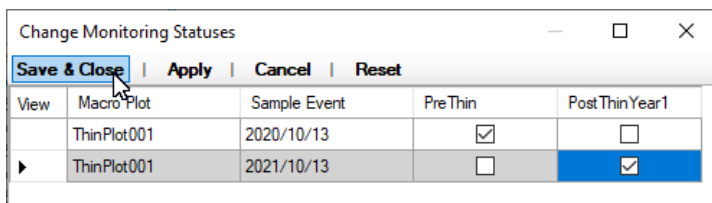
6.1   Two monitoring statuses were created for the Burn Project in Exercise 4. Now you will assign those monitoring statuses to the appropriate sample events. Highlight *Burn Project* in the tree view. Select **Utilities > Change Monitoring Statuses**.

6.2   Assign monitoring statuses in the Burn Project: for *BurnPlot001*, *BurnPlot002*, *BurnPlot003* and *BurnPlot004* put a check in the box in the *PreBurn* column and click **Save & Close.**

6.3   Highlight *Thin Project*, select **Utilities > Change Monitoring Statuses** and assign the monitoring statuses you created in Exercise 5. Assign *PreThin* to the first sample event and *PostThinYear1* to the second sample event. Click **Save & Close**.
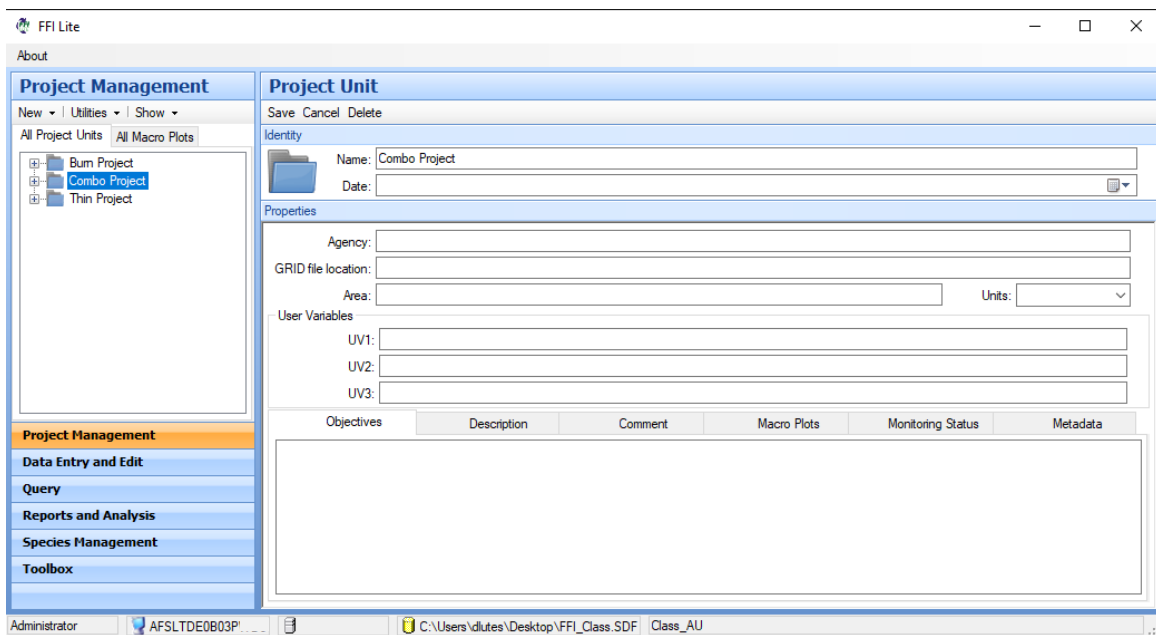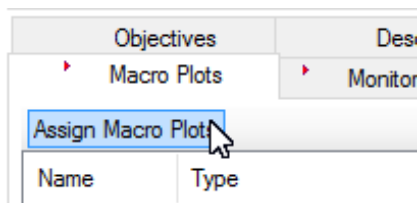
Exercise 7: Combine macro plots from two different projects into a new project

7.1 In FFI, a macro plot can be associated with zero, one, two or more projects. There are several benefits to this functionality such as allowing plots from several different projects to be grouped into one project for conducting Reports and Analysis. To demonstrate, you will create a new project unit, assign all plots created for the first two project units to the new project unit, then create and assign monitoring statuses to the plots in the new project. In **Project Management** select **New > Project Unit** and create a new project named *Combo Project*. Click **Save**.

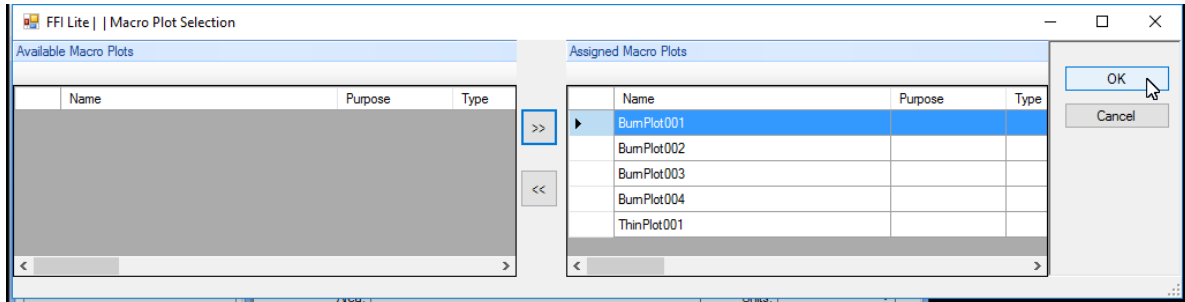> *NOTE: The project units are sorted in alphabetical order.*

7.2 With the *Combo Project* highlighted in the left pane, click on the **Macro Plots** tab at the bottom of the right pane and click on **Assign Macro Plots**.
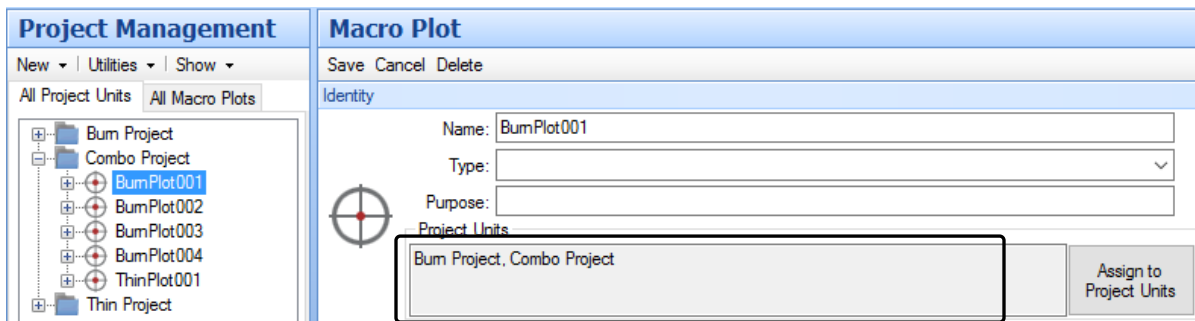
7.3   Highlight a macro plot in the *Available Macro Plots* pane on the left and click the double arrows in the middle of the screen to move it to the *Assigned Macro Plots* pane on the right. Repeat the steps so all macro plots are in the right pane. When you are done the Macro Plot Selection window should look like this. Click **OK** to close. Click **Save**.
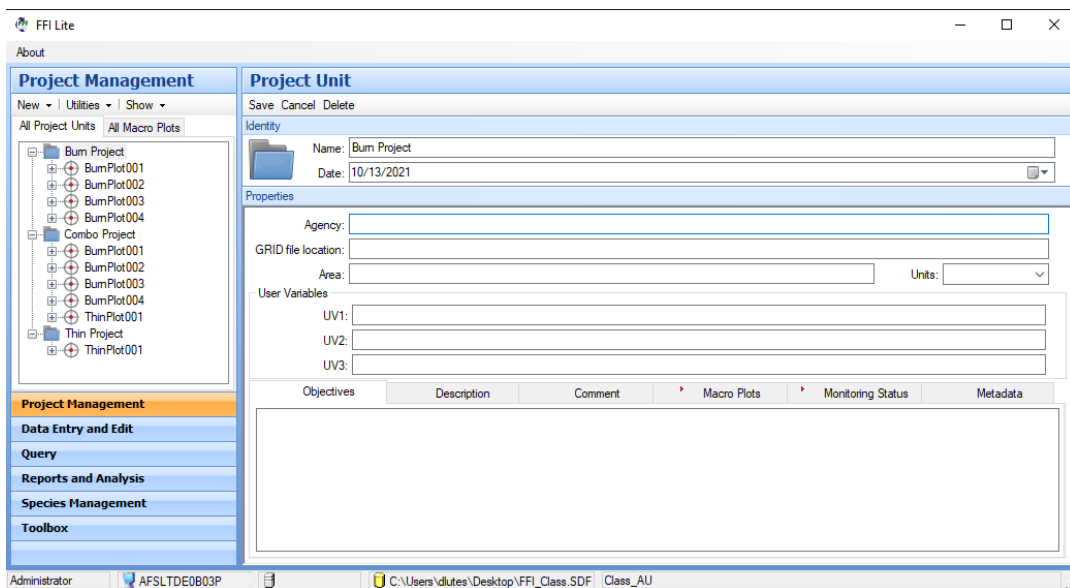

7.4   In the left pane, click the + sign next to *Combo Project* and click on a macro plot name. You will see the in the gray box near the top of the right pane the macro plot is now assigned to two project units – in this case *Burn Project* and *Combo Project*. When macro plots/sample events are assigned to a new project unit, the monitoring statuses assignments are also included in the project unit.

> NOTE: You can add or remove a macro plot from a project unit by using the Macro Plot Selection *tool used to add the macro plots.*
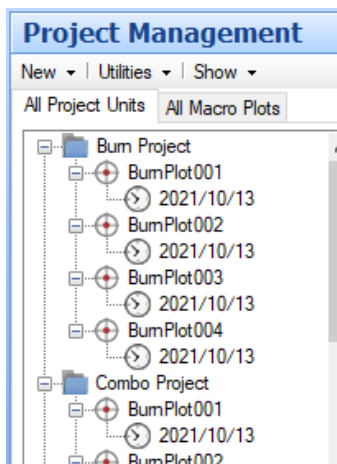
7.5   When you are finished the tree view should look like this.

Exercise 8: Changing sample event date and monitoring status view settings
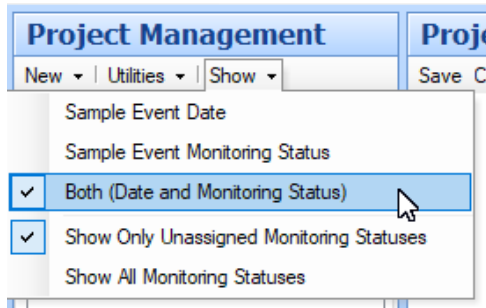
You can modify the tree view to show the sample event date or the monitoring status assigned to the sample event or both. This is especially useful for making sure monitoring statuses are assigned to sample events.

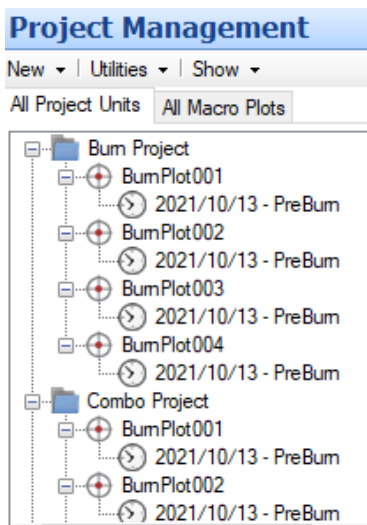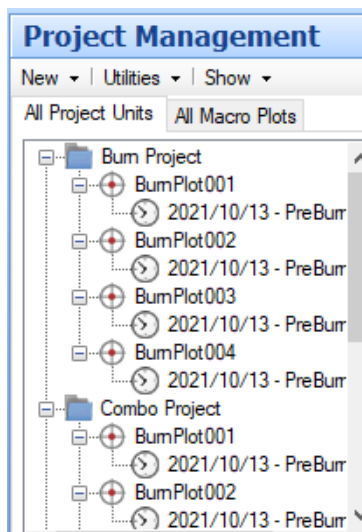**8.1**   Click the + sign next to each macro plot to expand show the sample events.

Database Setup

8.2   Click the **Show** dropdown above the left pane. The **Sample Event Date** option is selected. Click on **Both (Date and Monitoring Status).**

8.3   The monitoring statuses will be displayed. Click and drag the divider bar on the right side of the tree view so you can see the entire monitoring status name. One reason you have the option to show or hide the monitoring status information is because you will usually need to make the tree view larger to view monitoring statuses, which reduces the size of the data entry portion of the screen.
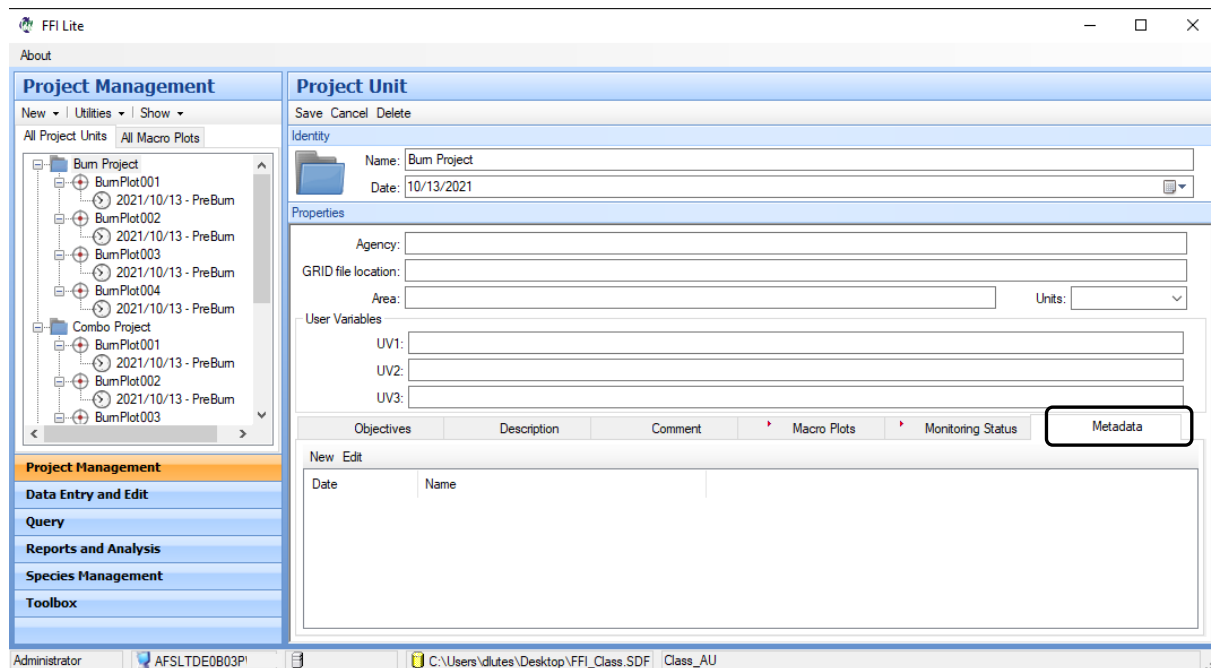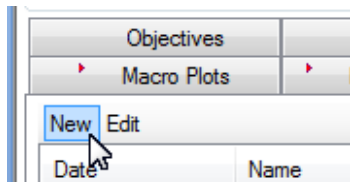
Exercise 9: Maintaining metadata

Metadata is 'data about data'. In FFI a lot of metadata is stored with the protocols - plot size and the number of transects sampled on a plot are examples. However, there is some information critical to understanding the data that isn't stored with the protocols, such as plot design (plot shape or how the transects were laid out) and the specifics of how some attributes were sampled. For example, different field crews may sample canopy base height differently. For your FFI data to useful for someone else good descriptions of plot design and sample procedures are needed because, without this information, it will be hard to replicate sampling procedures and, thus, be able to accurately assess attribute changes over time.

FFI stores metadata at the project unit level because most sampling procedures are the same for all macro plots and sample events in a project.

9.1   Click the **Project Management** navigation bar, highlight the *Burn Project*, and click the **Metadata** tab toward the bottom of the right pane.

9.2   Click **New** and the **Metadata Builder** window will open.

9.3   There are nine tabs with text fields for recording applicable information (no image files can be saved on any of the metadata tabs). There is no requirement to add information on any of the tabs - they are just places for you to enter (or copy and paste) applicable text, if desired. A red triangle is displayed on the tab when information is added.

9.4   Because images cannot be saved on any of tabs there is a hyperlinked *Document* field for attaching documents with graphics. Some users combine all their field methods, graphics and other metadata into a Word or PDF document and then link to the document on the Metadata Builder window. The training materials you downloaded include a PDF file to demonstrate hyperlinking a document in metadata.

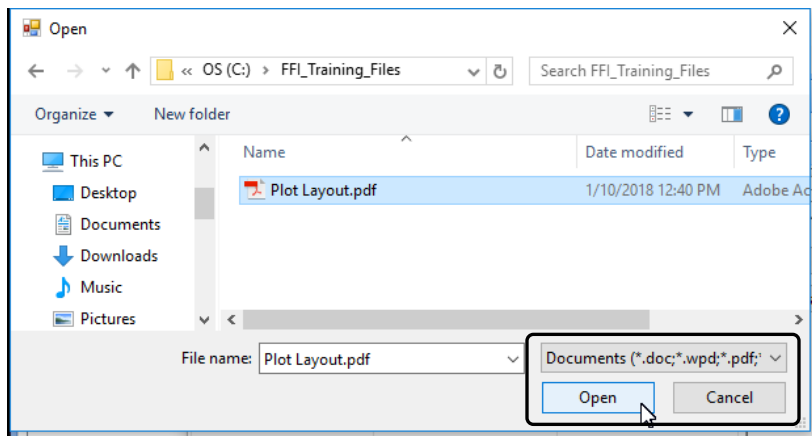>   *NOTE: This example uses a PDF document but many file types are supported.*

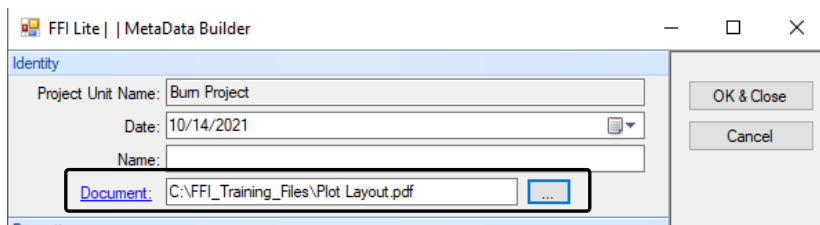**9.5**   Select a document to link by clicking the gray box to the right of the *Document* field.

9.6   Navigate to the Training Files folder you downloaded for the class and select *Plot Layout.pdf*. Click **Open**.
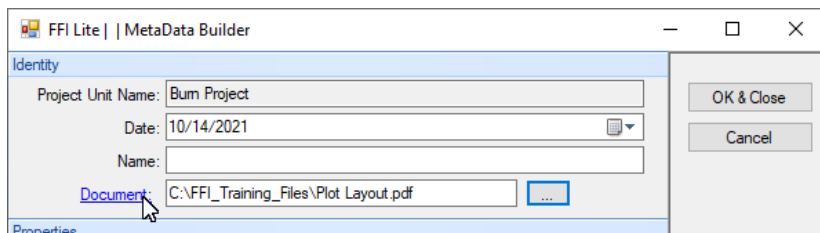
NOTE: Only the link to the document is saved in the database. The document is not saved in the database.

9.7   The link will be displayed in the *Document* field.

9.8   To open the hyperlinked document click on **Document** on the left side on the field.

9.9   Close the Metadata Builder window and the PDF document before moving on to the next exercise.

Exercise 10: Creating backup copies of FFI-Lite database(s)

Maintaining backup copies of your database(s) is a critical part of data management. There is no point spending hours collecting and entering data only to have it lost when your hard drive crashes, your office computer is damaged (e.g., by fire or flood) or when you upgrade to a new operating system on your computer. Don't think it won't happen to you. FFI and FFI-Lite databases have been lost because people were not prepared for the worst. Maintaining backup databases is even more critical if using FFI-Lite for electronic field data collection because there are no hardcopy field data to fall back on. If hardcopies are available there is an option to re-enter the data, which is not true if data is collected electronically.
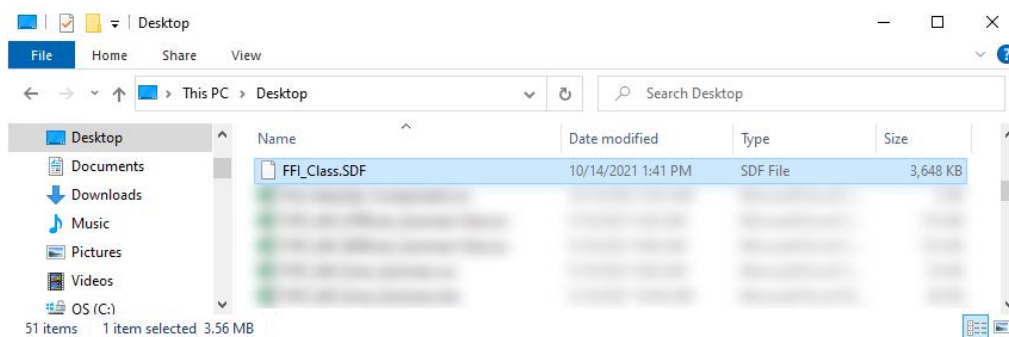
You should maintain two copies of your master database: 1) a version stored locally that you use for all data entry, reports, etc. and 2) a copy stored on a network drive that you can access if the local copy is lost or becomes corrupt. Every time you change/edit the local database you should post a dated backup copy on the network drive.

You should take the time to discuss and formalize (write down) procedures for creating, naming and saving backup databases so everyone who is modifying data knows the procedure. This will ensure backups will always be at hand, if needed.

Before doing any data entry and/or import operation you should make a pre-modified, temporary copy of your database so you know you have an up-to-date copy of the database on the local drive before you make any database changes. If your data entry and/or import is successful you can delete the temporary copy and then create another, post-modified, master database copy to be saved on a network drive. If possible, your master database backups/copies should be stored on a network drive that is physically separate from your office.
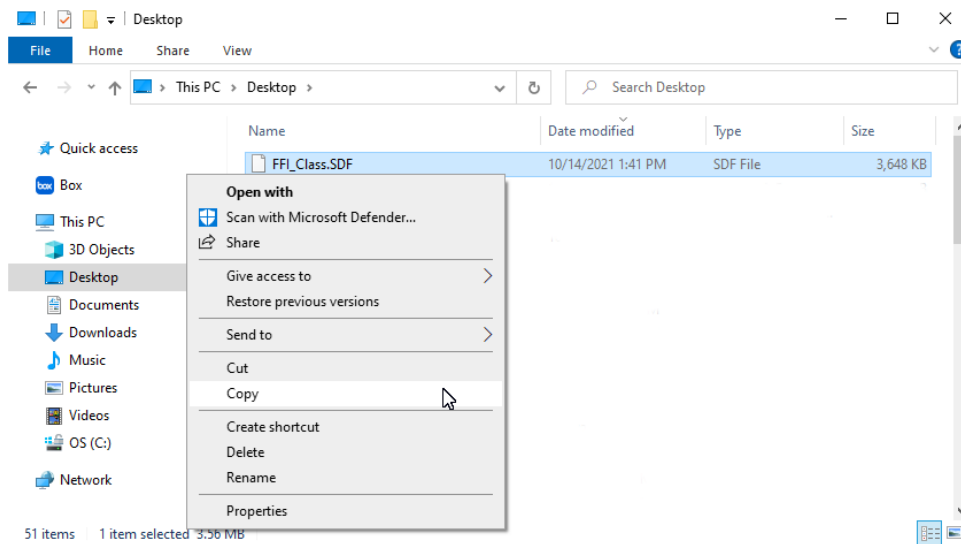
Unlike FFI, which has a database backup feature in the Database Administration module, FFI-Lite does not have a way to automatically create backups. However, it is relatively easy to make backup copies of your FFI-Lite database(s).

10.1 Using *File Explorer* navigate to the folder where you save your FFI-Lite database(s) (for these exercises the **FFI_Class.SDF** file is probably on your computer desktop (FFI-Lite databases will have an SDF extension). Click once on the database filename you want to copy to highlight it. **FFI_Class.SDF** is selected in the screen shot below.
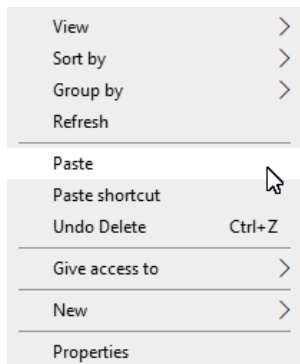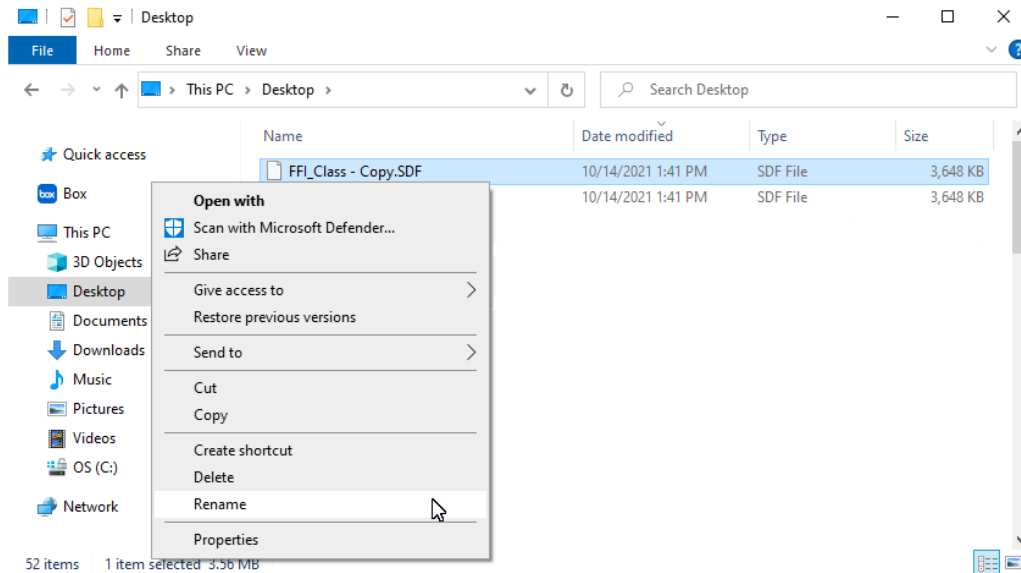
10.2 Right-click and select **Copy**.

10.3 In the same or different folder, right-click and select **Paste** (for this exercise paste the database to your computer desktop). This will create a copy of the database in the folder. If a database with the same name already exists in the folder then "– *Copy*" will be added to the database filename.
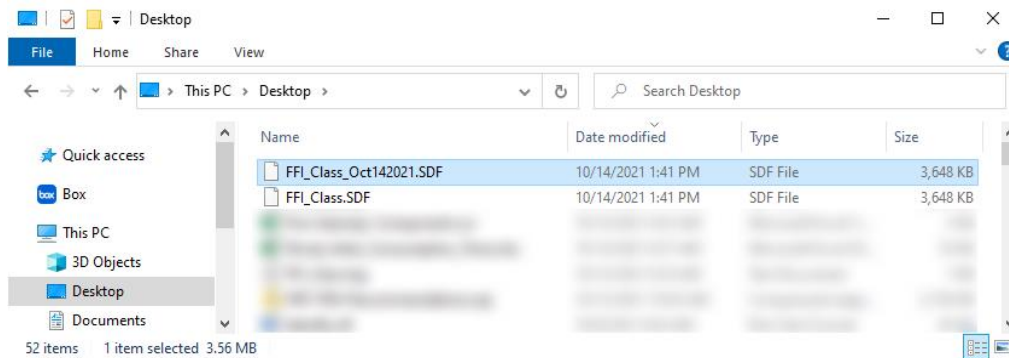
10.4 Even though the filename is given a date by the Windows operating system, the date will change when the database is opened in FFI-Lite. You should add the date the backup file was created into the filename so it can be identified chronologically. Right-click the copy file and select **Rename.**

10.5 Add the date the copy was created in the database filename. Hit **Enter**.

NOTE: Make sure you are adding the date to the <u>backup</u> copy of your database not your master database.
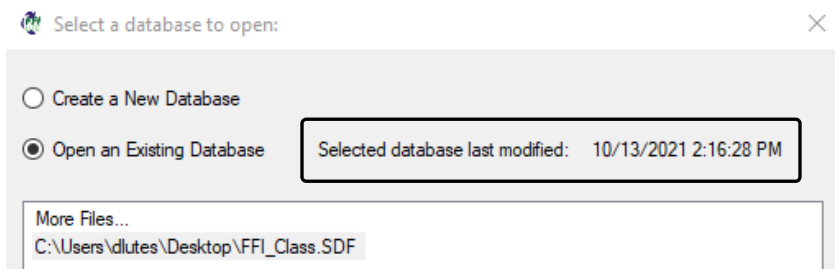
10.6 *For these exercises this step is optional*. Move the database backup to the network drive. Right-click your new backup filename, select **Cut**, navigate to the network folder you are storing your backup databases in, right-click and select **Paste**. For Forest Service users, Pinyon/Box can be used for network storage of backups.

If you save a dated backup of your database every time you make changes to it, you will minimize the chances of losing some or all your monitoring data.

10.7   You can check the date and time the last database <u>change</u> was made in two places. The time and date are set when <u>any</u> change is made to a database, including view settings, so they are not restricted to just data changes.

 1) When you open FFI-Lite and select a database, the date of the last modification is displayed above the list of databases.

2) If you click **About > About FFI** at the top left of the FFI screen, the time and date will be displayed on the splash screen.