Fuel and Fire Tools (FFT)
Installation and Basic Usage Instructions

1) Download the latest version at: https://depts.washington.edu/fft/

   The November 2018 release includes three major changes:
   - FCCS (v 4.0) that includes revised canopy biomass equations
   - Consume (v 5.0) that includes revised natural fuel consumption equations
   - User files, including custom fuelbeds, burn units and environmental variable input files are now stored in the UserFiles folder. FFT now requires users to make copies of existing FCCS fuelbeds in order to edit them.

2) Double-click the self-extracting file (**FuelFireTools.exe**) to install. The default installation is C:\FuelFireTools. You can change the location or name of the folder, **but it is not advisable to do so** because there may be potential write privilege issues.

   Installation notes:
   - FFT runs on Microsoft Windows operating systems (version 7 or higher), and requires Microsoft .NET libraries (version 4 or higher) and Java (version 1.6 / 6 or higher).
   - The most common installation errors are that a Java update is needed, or that Java is installed in an unusual file location. You can check your java version and download a free update at: https://java.com.
   - If you already have FFT installed, we recommend that you either save FFT to a new folder location or delete your existing FuelFireTools folder before installing the new version. Before deleting your old FuelFireTools folder, consider saving copies of any custom fuelbeds, burn units and environmental inputs. Existing custom fuelbeds (.xml), burn units (.bu) and environmental inputs (.ev) can be copied into the FuelFireTools\UserFiles folder.

3) As part of the installation, Fuel and Fire Tools creates an icon on your desktop. Double click the **FuelFireTools** icon to launch the application.

4) Click **Continue** on the splash screen to reach the Fuelbed Selection screen. FFT is slow to load on the first run.

5) Fuelbeds are the main currency in the FFT. To begin work, you can select fuelbeds by:
   - Using search variables to narrow the list of available fuelbeds (top left).
   - Selecting fuelbeds directly from the left panel.
     Note: holding the **shift key** allows you to select a block of fuelbeds;
     the **CTRL key** allows you to pick multiple fuelbeds in any order.
     Use the **double-right arrow** to move fuelbeds to the Selected Fuelbeds box (right panel).
   - Using the **Browse to file(s)** button at the top. After selecting fuelbed(s) choose **Open** and the fuelbeds will appear in the Selected Fuelbeds box (right panel).

6) To view or edit fuelbeds, click the **Edit Fuelbeds** button on the Fuelbed Selection screen (right panel). This will launch the Fuelbed Editor.

7) To run FCCS:
   - Click the **Next: Specify Environmental Inputs** button (bottom right)
   - On the Environmental Inputs screen, review and edit the FCCS environmental inputs and click **Run FCCS**.

8) To run Consume or FEPS, a burn unit must be specified.
   - Select fuelbeds and then click the **Save/edit this unit** link (top right). This launches the Burn Unit editor.
     At minimum, enter a Name, Size and review the fuelbed % areas and treatment type, which specifies the consumption equation to be used for each fuelbed.
   - If your fuelbed represents recent logging slash (within the past 5-10 years), we recommend that you specify an "Activity" consumption equation. You have the option of specifying consumption equation for all fuelbeds within a burn unit or selecting one individually by fuelbed.
   - Click the **Save unit** button.
   - On the Environmental Inputs screen, enter environmental inputs in the FCCS and Consume panel, then click the **Run Consume** button or enter environmental inputs on all three panels and click the **Run FEPS** button.

9) The Reports screen displays reports, graphs and tables (simple tabular outputs).

10) Detailed, screen-by-screen information is available from FFT help. Please also feel free to contact us with your questions.

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ADVANCED USERS

This section provides details on how to manage custom fuelbeds and share fuelbed files, burn units and environmental scenarios with colleagues.

Customizing fuelbeds:

- The FFT fuelbed selection screen (main screen) displays the entire list of FCCS reference fuelbeds within the left panel. This list can be refined by selecting Ecoregion, Vegetation Form and other search variables.
- To customize a fuelbed, we recommend that you find a close match within the FFT reference fuelbed. To read the fuelbed description, hover your mouse over the fuelbed.
- Once you have selected a fuelbed for modification, right click on the fuelbed listed in the left panel and choose either 1, 2, 3 or 5 copies. FFT will prompt you for a custom file name and fuelbed name. Once you have named you custom fuelbed, it will be placed in the Selected Fuelbed box.
- A nice feature of making multiple fuelbed copies is that you can systematically customize each fuelbed within the same table. It is sometimes helpful to list the base fuelbed on top with custom fuelbeds below to be able to reference original values.

Sharing custom fuelbeds, burn units and environmental scenarios with colleagues:

- When you save a burn unit or environmental scenario, FFT stores custom files in the UserFiles folder at: c:\FuelFireTools\UserFiles. Burn units have a .bu file extension, environmental scenarios have an .ev file extension, and fuelbeds have an .xml extension.
- To successfully share burn unit files with colleagues, you must have installed FFT to the same exact path. We recommend the default location (C:\FuelFireTools).

For Washington Smoke Management, regional fuelbeds are available for eastern Washington and Oregon that represent different vegetation types, stand ages and fuel treatments. We can send you a zip file of all of the fuelbeds and associated handbooks with fuelbed descriptions and pathway diagrams. To use regional fuelbeds, simply unzip the file and copy the fuelbeds into: C:\FuelFireTools\UserFiles.