



*Wildland Fire
Decision Support System*



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Reprojecting Local Vector Data for use with WFDSS-Generated Landscape Files

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July 3, 2008

<i>Revision Date</i>	<i>Revision Number</i>	<i>Revised By</i>	<i>Comments</i>
06/30/2008	0.0	Chuck McHugh	First draft
07/03/2008	1.0	Kit Brown	Edited and put in white paper format
08/15/08	1.5	Chuck McHugh & Kit Brown	Incorporated comments

Introduction

Within the WFDSS application, a landscape file (LCP) is created for use with the fire spread probability (formerly FSPro) model. This LCP file is also compatible for use in short-term (FlamMap) or mid-term (FARSITE) geospatial fire behavior models. Often, a user creates the LCP file within WFDSS and downloads this file for use within either of these applications. However, the LCP file is frequently in a different projection and datum than the user's local GIS data. Because of this, a user's local vector data (e.g., roads, streams, fuel treatment units), usually in the form of ESRI shapefiles do not overlay properly on the WFDSS LCP when used in the geospatial fire behavior models.

This document explains one approach using Arc Toolbox commands within Arc Catalog to reproject local data in ESRI shapefile format. Reprojection enables the user to properly overlay local data on a WFDSS-generated LCP file within the fire behavior models.

What This Means for WFDSS Users

WFDSS-generated landscape files (LCP) and output data layers from the fire-spread probability model (formerly FSPro) are provided to the user in a custom Albers projection. All WFDSS-generated FSPro output data display properly within ArcMap because of ArcMap's ability to project on the fly. However, if the user wants to use the WFDSS-generated LCP in the other fire behavior models, the local data do not properly overlay within these programs. Because of this, the user is left with two options:

- Reprojecting the local data to the projection of the WFDSS-generated data

OR

- Reprojecting the WFDSS-provided data to the locally used projection.

The example given here shows the steps necessary to reproject a user's local vector data to that of a WFDSS-generated LCP file.

All geospatial products produced from the fire-spread probability model (formerly FSPro) in WFDSS are in USA_Contiguous_Albers_Equal_Area_Conic_USGS and the datum will be Albers NAD 83. However, every geospatial product will have different parameters than those associated with the standard Albers projection.

Reprojecting Local Vector Data (shapefiles) for Use with WFDSS Landscape Files

For this procedure, we use Arc Toolbox within ArcCatalog.

You need the following items to perform this procedure:

- ArcCatalog
- ArcToolbox
- Local Vector data that needs to be reprojected
- Project (PRJ) file that contains the data for the reprojection as provided by WFDSS.

Note: *Every geospatial product available for download from WFDSS contains a .PRJ file. This file contains the projection information for that specific WFDSS analysis. This information will stay the same, as long as the geographic extent of the landscape (LCP)*



file designated within the model does not change. However, if the LCP extent is changed significantly, this could cause a change in the projection parameters. If the LCP extent has changed, be sure to check the projection parameters for consistency.

In this example, we show how to use the .PRJ file associated with a WFDSS project to reproject local data to overlay with WFDSS-provided LCP for use in the geospatial fire behavior models (FLAMMAP and FARSite).

Download and extract the landscape file from WFDSS:

Note: *It is recommended that you make a backup or use a copy of all the local files you are using for this procedure.*

1. Download the ZIP file for the LCP file from WFDSS. The ZIP file should contain the LCP file and the PRJ file.
2. Extract the ZIP file into a folder on your computer.

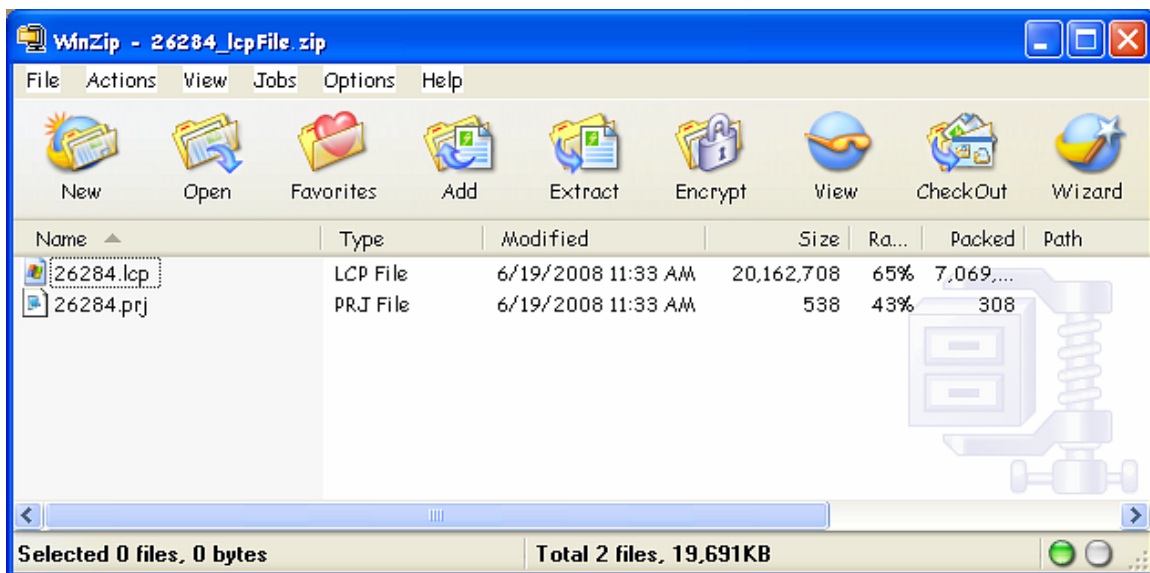


Figure 1. Landscape (LCP) ZIP file for an individual landscape downloaded from WFDSS. The .PRJ file contains all the projection information needed for use in GIS.

3. Open ArcCatalog and ArcToolbox.
4. In ArcCatalog, navigate to the location the WFDSS file was extracted to.

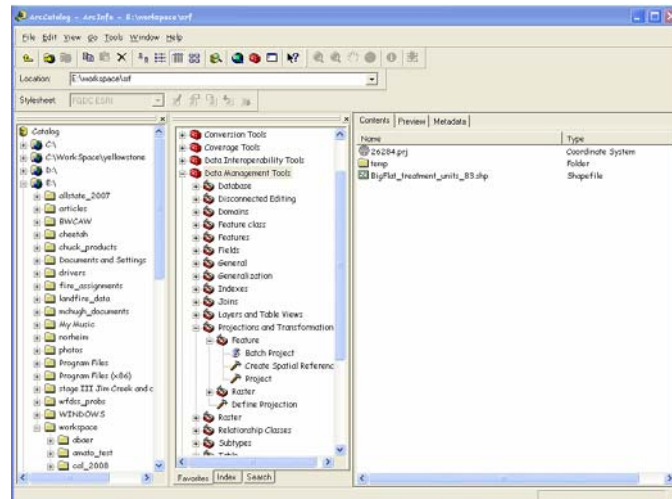


Figure 2. ArcCatalog showing ArcToolbox, and available files. For this example, the file 26284.prj contains the projection parameters needed, and the file BigFlat_treatment_units_83.shp is the file needing to be reprojected.

5. In ArcToolbox, choose **Data Management Tools > Feature > Project**. The Project window appears.

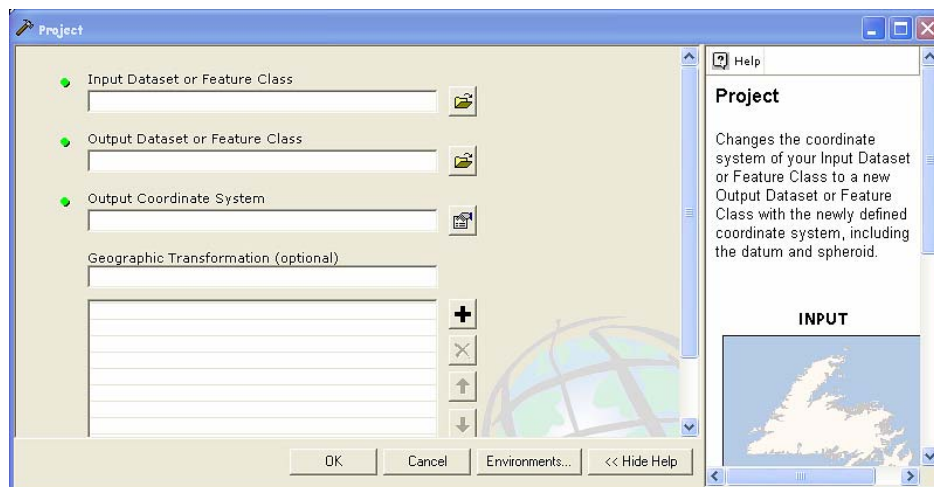


Figure 3. Project window

6. Enter the input dataset and output dataset path and file name.
 - The input dataset is the original data file.
 - The output dataset is the name of the reprojected dataset. (Name the file and location where you want to store the reprojection.)
 - The Output Coordinate System is the .PRJ file you downloaded.

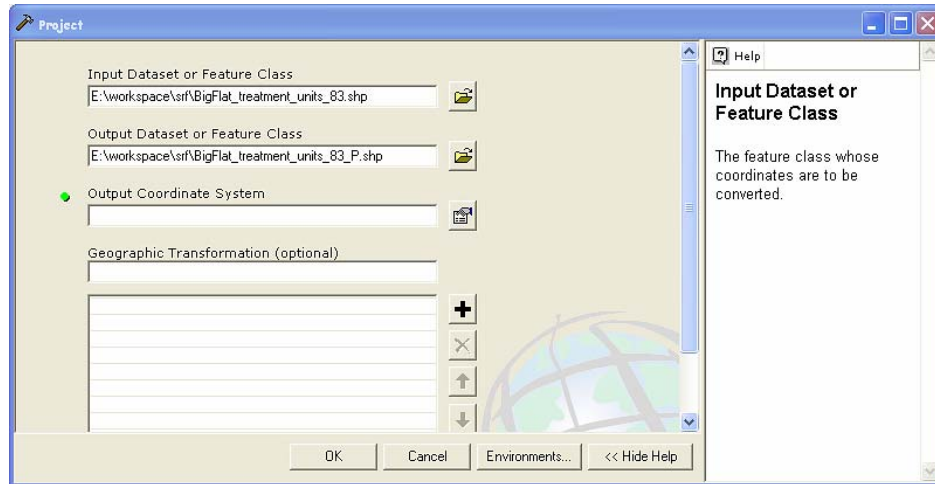



Figure 4. Project window with inputs and outputs selected.

7. Select the Output Coordinate System by clicking the  button. The Spatial Reference Properties window appears.

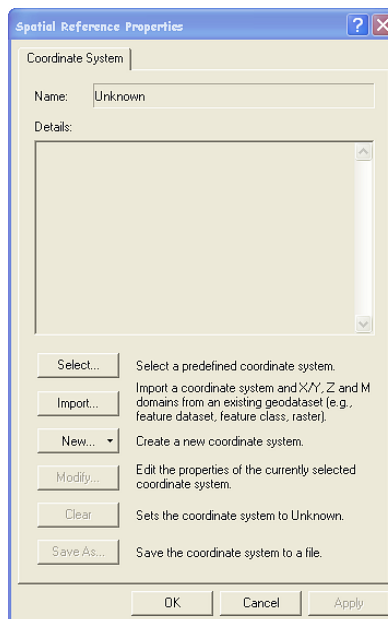


Figure 5. Spatial Reference Properties window

- a. Click **Select**. The Browse for Coordinate System window appears.
- b. Navigate to the location of the PRJ file from the ZIP file you extracted earlier.

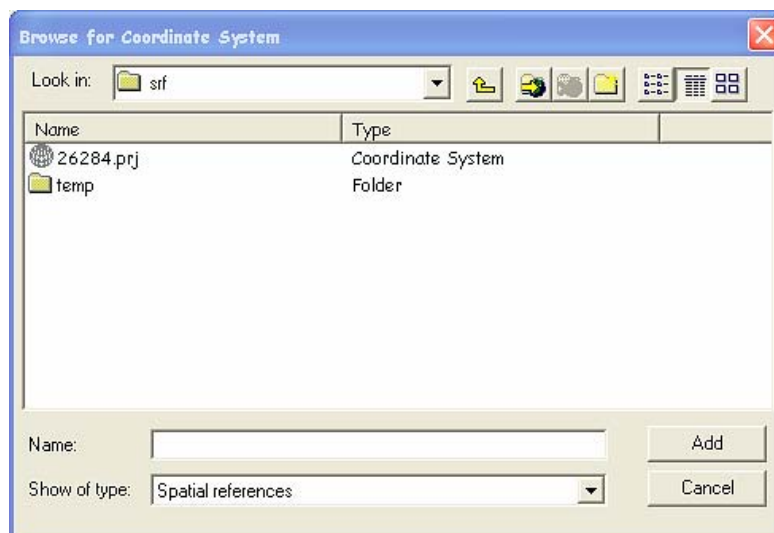


Figure 6. Browse for Coordinate System window

- c. Select the PRJ file you want to use, then click **Add**. The Spatial Reference Properties window re-appears and displays the file parameters.

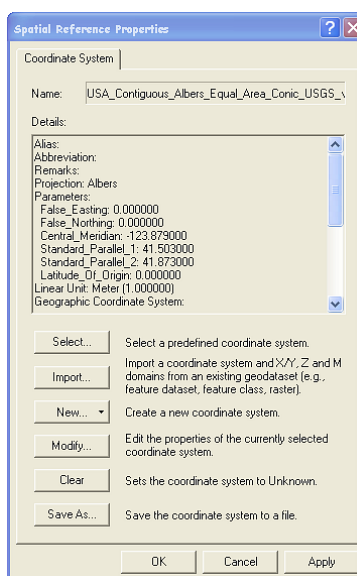


Figure 7. Spatial Reference Properties window after the user has added the appropriate .PRJ file.

- d. Click **Apply**, then click **OK**. The Project window reappears, with the information needed for the reprojection.

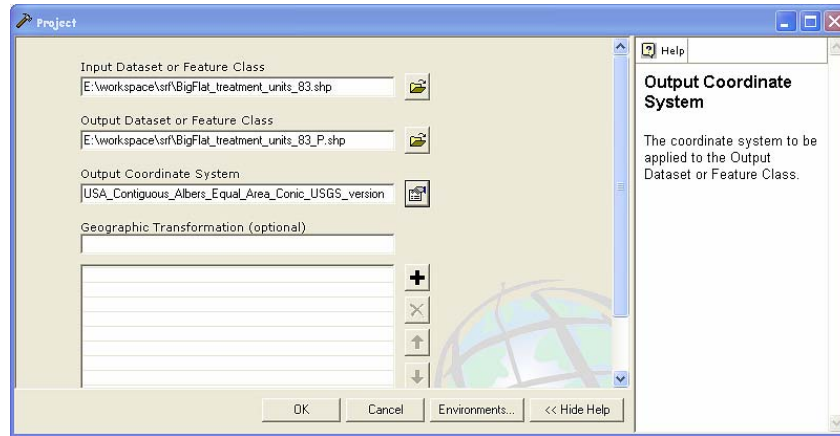


Figure 8. Project window with information for reprojection.

8. Click **OK** to start the reprojection process. The process may take a few seconds to complete. The ArcCatalog window reappears:

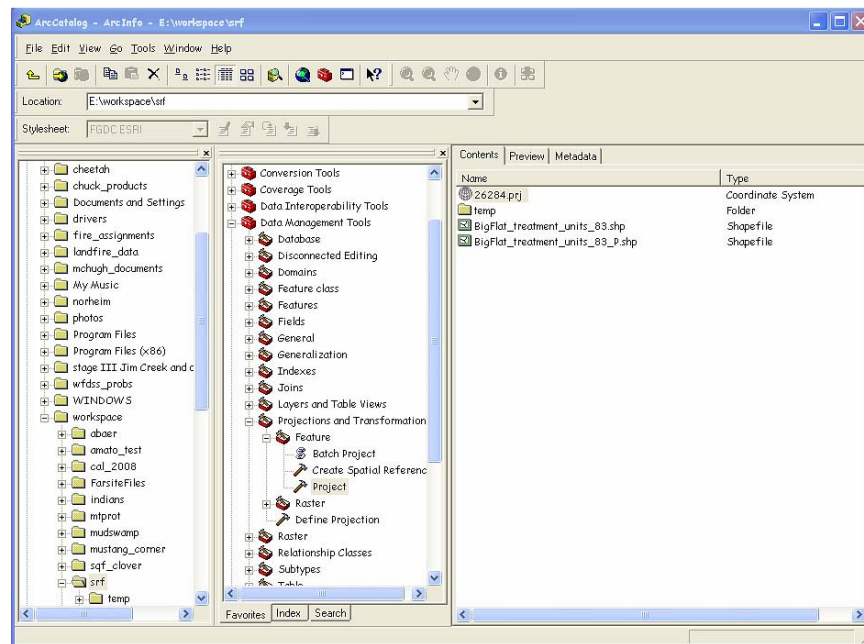


Figure 9. ArcCatalog after reprojecting the shapefile

9. Verify the reprojection by overlaying the reprojected file with your WFDSS outputs. Check that the reprojection is accurate.

Once the reprojection process is complete, the reprojected shapefiles should properly overlay within the geospatial fire behavior models (FlamMap or FARSITE).