

# Land Treatment Digital Library

## Installation Instructions

### and

## User's Manual

## For ArcGIS 10.0

U.S. Department of the Interior  
U.S. Geological Survey  
Forest and Rangeland Ecosystem Science Center

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# Table of Contents

Welcome to the LTDL.....	5
Contact Information.....	5
LTDL Documentation .....	5
Installation and Setup Instructions .....	6
Required Programs .....	6
LTDL Key.....	6
Data Included with the LTDL Download .....	7
Installing the LTDL.....	9
Linking LTDL_6 to LTDL_Tables.....	9
Setting Up the LTDL and Associated Programs.....	10
Checking Python Files .....	13
Populating Background Tables.....	14
Adobe Acrobat Pro and Adobe Distiller Settings.....	17
Changing Adobe PDF Printing Preferences.....	17
Changing Adobe Distiller Settings.....	17
Changing Post Script Files Open with Setting.....	18
Multiple Computers and Users .....	19
Converting LTDL_Tables.accdb to SQL Server .....	20
LTDL Welcome Form .....	21
Open LTDL and View or Edit Data .....	21
Set LTDL Storage Folders .....	21
Edit Background Table Data.....	21
Load Settings From Previous Version .....	21
Calculate Project Overlap .....	22
Run GIS Clip.....	23
GIS Layers Form Fields and Commands.....	24
Calculate File Path Lengths .....	26
Navigating through LTDL Data Entry.....	28

LTDL Files.....	28
LTDL Perimeters Geodatabase.....	28
Recalculating the Spatial Index .....	29
Multiple Select Lists .....	29
Required Fields.....	30
Main LTDL Toolbar .....	31
Project Name .....	31
Project Info (tab) .....	31
Project Data (sec; fig. 19).....	32
Project GIS Data (sec; fig. 20).....	33
Project Monitoring and Contacts (sec; fig. 21) .....	35
Documentation (tab) .....	36
Hyperlinks (sec; fig. 22).....	36
Photos (sec; fig. 23).....	38
Treatment Info (tab) .....	39
Treatment Data (sec; fig. 24) .....	39
Treatment Spatial Information (sec; fig. 25).....	41
Treatment Seed Mix (sec; fig. 26) .....	42
ArcGIS Specialized LTDL Tools.....	43
LTDL Tables in LTDLData.mxd .....	46
FAQs .....	46
1. Who should I contact when errors or other issues arise?.....	47
2. What is the best way to enter a project? .....	47
3. How do I handle general errors that arise?.....	47
4. What is the Write Conflict error window? .....	48
5. What is the System Resource Exceeded error window?.....	48
6. What can I do if the LTDL encounters an error uploading GIS? .....	49
7. What can I do if the LTDL encounters an error uploading hyperlinks?.....	50
8. What can I do if the LTDL encounters an error uploading photos? .....	51

9.	What can I do if the LTDL encounters an error during a Project Name change? .....	51
10.	What can I do if there is an error in the LTDLData10x.mxd program? .....	52
11.	How do I make a project perimeter when my treatments are composed of polygons, lines, and points that do not overlap?.....	53
12.	Do I have to save my data constantly, as in Word and Excel? .....	53
13.	Should I back up the LTDL?.....	53
14.	How can I make changes to the background and data storage tables outside the LTDL database forms?.....	54
15.	How do I fix a setting or control that is not functioning normally? .....	54
16.	How does an approximate point differ from a regular point?.....	54
17.	What is the difference between the implementation status of a treatment and the shapefile status in the attribute sections of the database? .....	55
18.	Is it necessary to complete all fields in the LTDL? .....	55
19.	Why is my color scheme not displaying appropriately (I see gray in some of the boxes)? .....	55
Acknowledgements.....		56

# Welcome to the LTDL

The Land Treatment Digital Library (LTDL) is a comprehensive database designed to incorporate tabular data, documentation, photographs, and geographic information system (GIS) spatial data on land treatments in a single system. The LTDL uses multiple computer programs. Therefore, working with an IT specialist or having knowledge of Access, ArcGIS, and computer settings will be essential in installing and operating the LTDL. A critical element for successful data entry is having an understanding of the difference between tables and forms, and how to edit data in both formats. Please read installation instructions carefully, as placing folders or files in the wrong location will result in a non-functional database.

## Contact Information

The LTDL is currently maintained by the US Geological Survey Forest and Rangeland Ecosystem Science Center. Any questions or comments should be directed to the LTDL Helpdesk: [LTDL\\_Project@usgs.gov](mailto:LTDL_Project@usgs.gov). After an email is submitted, we will respond to as quickly as possible.

## LTDL Documentation

The LTDL contains these four documents to assist the user with data entry:

1. **LTDL User's Manual and Installation Instructions (Current Document)**

- This document describes how to properly install the LTDL to avoid errors and how to set up the LTDL to prepare for data entry. It briefly describes each form and the kind of data to enter in each section. **WARNING! Users should read this guide before entering data.**

2. **LTDL Tool and Control Guide**

- The LTDL contains hundreds of tools, checkboxes, and controls. This guide defines each database tool and gives instructions on how to operate the tool if necessary. **WARNING! Users should read this guide before entering data.**

3. **LTDL Data Storage Tables**

- Data entered into the LTDL are stored in various tables. This document identifies each table where entered data is stored, the form with which the table is associated, and which fields are associated with the table. The field names, types, size, heading in the form, and definitions also are included. Use this document to identify which data a user would like to view in table format.

4. **LTDL Background Tables**

- The LTDL uses multiple tables to store information for drop-down lists, multiple select lists, temporary storage of data, and other functions. These tables, along with their definitions, fields are identified here. Use this document to identify which table should receive additional values for a list within the LTDL.

# Installation and Setup Instructions

## Required Programs

The LTDL requires specific programs to function correctly. It is designed to work with versions of specific [computer programs](#). Previous or future versions of software may be incompatible with the LTDL in its current state. To allow other versions of software to run effectively with the LTDL database, scripting or other changes would be required. The LTDL requires the following computer software to function. If the specific versions indicated below are not installed, the LTDL may fail to function properly although newer versions of Adobe Pro and Distiller will likely function. **WARNING! If Adobe Pro and Distiller are not installed, the database will not open.** There has been a report of Adobe Standard working with the database, but this has not been tested.

- Windows 7
- Microsoft Access 2010
- ArcGIS 10.0 (Service Pack 4)
- Python 2.6 or Greater
  - Python Site Packages
    - Arcpy, Numpy, PIL, Win32, Win32com, Win32comext
- Adobe Acrobat Pro 9 (Version 9.5.0)
  - Acrobat Distiller 9 (Version 9.5.0270)
- Easy Thumbnails (Version 3.0 or greater; Available for free from <http://www.fookes.com/ezthumbs/>)

## LTDL Key

This document includes references to tables, forms, tabs, sections, subforms/areas, fields, commands, other files, and links to locations within this document. [Table 1](#) identifies how these objects are identified throughout the User's Manual.

Table 1. Definitions on how various objects are represented throughout the User's Manual.

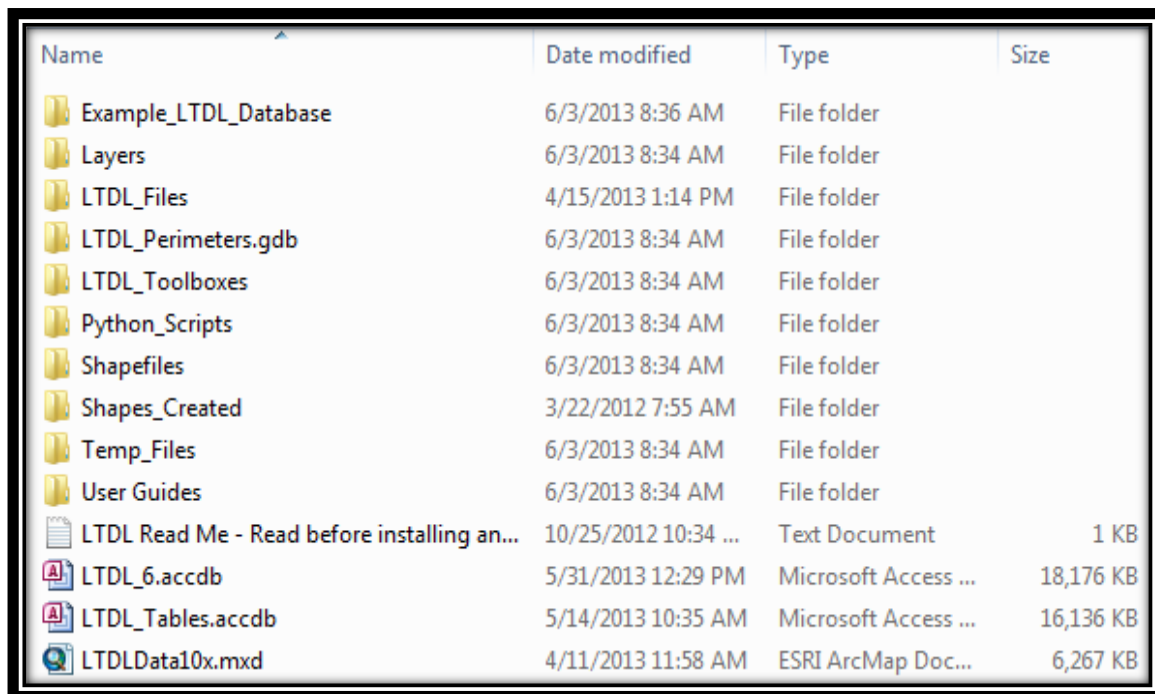
Object	Style	Definition
Table (tbl)	First letter capitalized, (tbl) added to end of the name	Tables store data relevant to the Land Treatment Digital Library (LTDL).
Form (frm)	First letter capitalized, (frm) added to end of the name	Forms allow users to view/enter/edit data stored within a table. In the LTDL, forms are organized within tabs, sections, and subforms/areas.
Tab (tab)	First letter capitalized, (tab) added to end of the name	Tabs allow users to view specific sections within the LTDL, which contain data pertaining to the project, treatments, or documentation.

Object	Style	Definition
Section (sec)	First letter capitalized, (sec) added to end of the name	Sections are specific groups of Forms that are currently visible within a tab.
Subform/Area (sub)	First letter capitalized, (sub) added to end of the name	Subforms refer to specific areas within a single section.
'Field'	First letter capitalized, enclosed in single quotes	A field is a single object (for example: text box, check box) in a Form where data are entered.
<b><i>Command</i></b>	First letter capitalized, italicized, and bolded	A command is a button or checkbox that performs an action within the LTDL.
Document (.ext)	First letter capitalized, file extension added to the end of the name ('.ext' for files or 'fld' for folders),	A document included with the LTDL package that can be referenced.
<a href="#">In Document Link</a>	First letter capitalized and underlined hyperlink	Refers the user to another location within this document where more information can be found on a topic.
<a href="#">File Paths</a>	First letter capitalized (for example: C:\) and underlined hyperlink	Clicking the hyperlink will open Windows Explorer in the specified location on the user's computer. If the location does not exist, an error will be generated.

## Data Included with the LTDL Download

The following data are included in the LTDL Download Package (.zip). Unzip the folder and ensure that the following folders and documents are present in the package ([fig. 1](#)).

Figure 1. Files and folders within the LTDL download.



Name	Date modified	Type	Size
Example_LTDL_Database	6/3/2013 8:36 AM	File folder	
Layers	6/3/2013 8:34 AM	File folder	
LTDL_Files	4/15/2013 1:14 PM	File folder	
LTDL_Perimeters.gdb	6/3/2013 8:34 AM	File folder	
LTDL_Toolboxes	6/3/2013 8:34 AM	File folder	
Python_Scripts	6/3/2013 8:34 AM	File folder	
Shapefiles	6/3/2013 8:34 AM	File folder	
Shapes_Created	3/22/2012 7:55 AM	File folder	
Temp_Files	6/3/2013 8:34 AM	File folder	
User Guides	6/3/2013 8:34 AM	File folder	
LTDL Read Me - Read before installing an...	10/25/2012 10:34 ...	Text Document	1 KB
LTDL_6.accdb	5/31/2013 12:29 PM	Microsoft Access ...	18,176 KB
LTDL_Tables.accdb	5/14/2013 10:35 AM	Microsoft Access ...	16,136 KB
LTDLData10x.mxd	4/11/2013 11:58 AM	ESRI ArcMap Doc...	6,267 KB

- **LTDL Download Package(fld)**
  - **LTDL\_Data(fld)**
    - **Example\_LTDL\_Database** (fld) – This folder contains a fully functional example LTDL database with five example projects, documents, photos, GIS data, and a functional ArcMap LTDL10x.mxd ArcMap document. See [Setting Up the LTDL and Associated Programs](#) for instructions on setting up the example LTDL.
    - **Layers** (fld) – This folder contains links to online or LTDL\_Perimeters.gdb layers.
    - **LTDL\_Files** (fld) – This folder stores the processed LTDL GIS, photos, and documents. Data are copied automatically to it.
    - **LTDL\_Perimeters** (.gdb) – This file geodatabase, represented by a folder in Windows Explorer, contains the combined LTDL project and treatment perimeters.
    - **LTDL\_Toolboxes** (fld) – This folder houses a specialized LTDL toolbox for use in ArcMap.
    - **Python\_Scripts** (fld) – This folder contains all the Python scripts the LTDL uses in both the LTDLData10x (.mxd) and within the LTDL\_6 (.accdb)
    - **Shapefiles** (fld) – Contains several GIS features that are useful when viewing or digitizing GIS maps.
    - **Shapes\_Created** (fld) – This is an optional folder where the user can store temporary GIS data digitized during data entry.
    - **Temp\_Files** (fld) – A temporary folder where all intermediate data are processed automatically.
    - **User Guides** (fld) – This folder contains the LTDL User's Manual and Installation Instructions, LTDL Tool and Control Guide, LTDL Data Storage Tables, and LTDL Background Tables.
    - **LTDL Read Me** (.txt) – Users must read this text document before installing the LTDL.
    - **LTDL\_6** (.accdb) An Access database containing the forms and settings through which data entry will take place. Users must place this database directly on their desktop.
    - **LTDL\_Tables** (.accdb) – An Access database containing LTDL data storage tables where user entered data are stored
    - **LTDLData10x** (.mxd) An LTDL specific ArcMap document containing the LTDL toolbox and other important preset connections so that LTDL GIS data displays appropriately in ArcMap



## Installing the LTDL

Follow these steps to correctly install the LTDL. Failure to follow these steps will result in malfunctions in the database.

1. Download the LTDL Download Package (.zip) from the LTDL website (<https://ltdl.wr.usgs.gov>).
2. Unzip and place the LTDL\_Data (fld) directly on the C:\ drive. Do not place in any subfolders or any other path locations. The file path should read C:\LTDL\_Data when finished.
3. Install the Easy Thumbnails (<http://www.fookes.com/ezthumbs/>) program in the default location within the C:\Program Files (32 bit Windows 7) or C:\Program Files (x86) (64 bit Windows 7) folder. If the program does not automatically install within the default folder, manually install it in the correct location.

## Linking LTDL\_6 to LTDL\_Tables

The following is the setup procedure for a typical user. The database tables are correctly linked if LTDL\_Tables (.accdb) is stored within C:\LTDL\_Data. If the LTDL\_Tables is stored in a different location, users must first link LTDL\_6 (.accdb) to the tables in the LTDL\_Tables (.accdb). The tables must be separate if multiple users are entering data as outlined below ([Multiple Computers and Users](#)). Access has a two gigabyte size limit. Keeping the tables separate from the data entry forms allows more room to be devoted to storage. Users should consider converting the tables in LTDL\_Tables (.accdb) to another database format such as SQLServer, which does not have the 2-gigabyte size limit if thousands of projects will be entered ([Converting LTDL Tables.accdb to SQL Server](#)). If the data within the LTDL will exceed the size limitation of Access, consult an IT specialist to help with switching the tables to a new format.

Follow these instructions for a single-use installation if the LTDL\_Tables (.accdb) is in a location other than C:\LTDL\_Data:

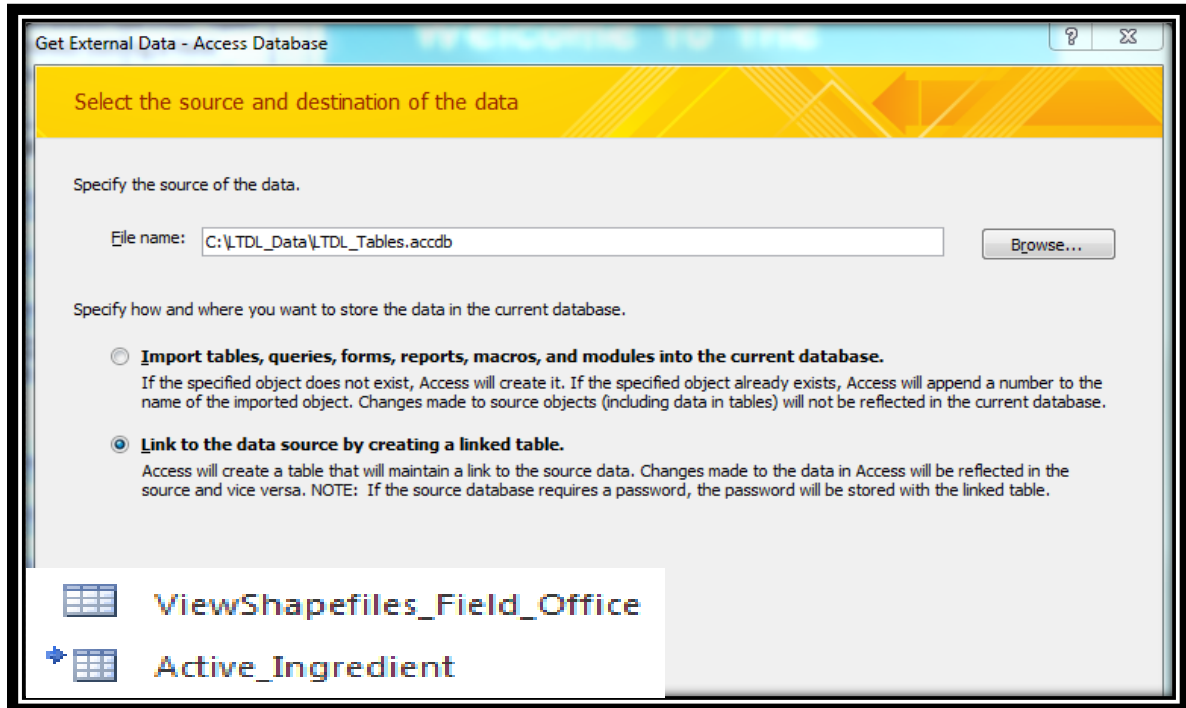
1. Open LTDL\_6 (.accdb) and select **Enable Content** when the security warning appears under the ribbon.
2. In the ribbon, select the **External Data** tab.
3. Within **Import & Link**, select **Access** ([fig. 2](#)). The Get External Data window will open ([fig. 3](#)).
4. Select **Browse** and select LTDL\_Tables (.accdb).

Figure 2. Importing and Linking using the ribbon.



5. Select the **Link to the data source by creating a linked table** radio button. Click **OK**. The Link Tables window will open.

Figure 3. Get External Data and linked tables.



6. Select the **Tables** tab, select **Select All** to select all the tables, and click **OK**. All table links should be successfully created.
  - a. In the Access Navigation Pane under **Tables**, linked tables have a small arrow to the left of the table name. Some tables are not linked and are directly associated with LTDL\_6 (.accdb) and will not have the arrow associated with them (fig. 3 inset displays a linked table, Active\_Ingredient, and a table associated directly with the database, ViewShapefiles\_Field\_Office).

## Setting Up the LTDL and Associated Programs

To operate properly, the LTDL must be correctly synced with ArcMap, a perimeters geodatabase, and several folders. Follow these directions to create a working connection between the LTDL (.accdb), LTDL\_Files (fld), LTDL\_Perimeters (.gdb), and LTDLData10x (.mxd):

**WARNING!** Users planning to work with the Example LTDL should follow these same steps for the Example LTDL database using the C:\LTDL\_Data\Example\_LTDL\_Database path. The only exception is the C:\LTDL\_Data folder, which should remain C:\LTDL\_Data ([option 2.c](#)).

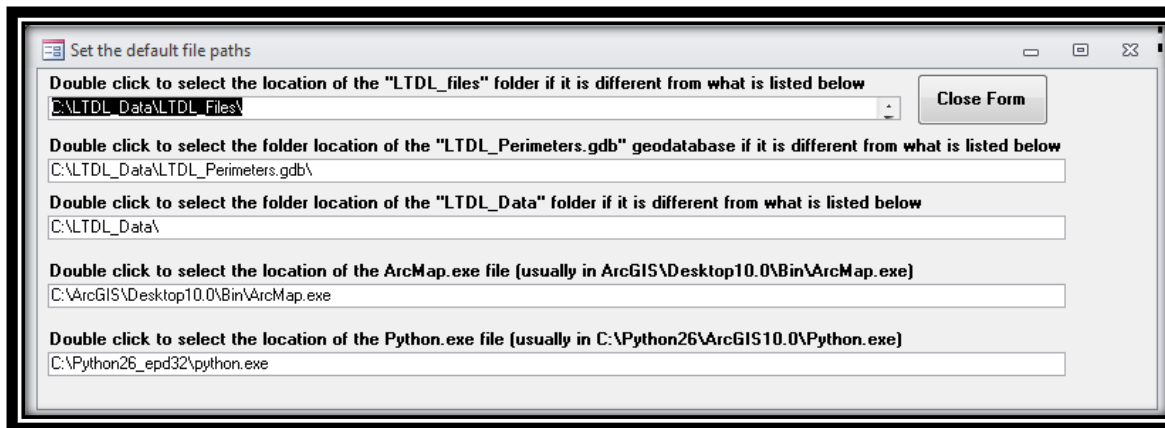
1. Open LTDL\_6, the Welcome form, automatically opens (fig. 4). Other tools are covered in the section, “LDTL Welcome Form”. For now, click the **Set LTDL Storage Folders** tool.
2. Set the path to the data storage folders. The database will default to the folders being stored in C:\LTDL\_Data. If users have changed the location of LTDL\_Files (fld) or LTDL\_Perimeters (.gdb), set a connection to the correct location.

Figure 4. Welcome LTDL form.



Within the default file paths form (fig. 5) double-click each text box to set the path to (a) LTDL\_Files (fld), (b) LTDL\_Perimeters (.gdb), (c) the LTDL\_Data (fld), (d) the ArcMap.exe executable file, and (e) the Python.exe executable file. After the links have been correctly established, close the form.

Figure 5. File path defaults form.



3. Successfully link the LTDLData10x (.mxd) to the database so the LTDL toolbox in ArcMap will function properly. Knowledge of ArcMap is assumed for this step.
  - a) Open ArcCatalog.
    - i. Within the ArcCatalog Catalog Tree double-click on **Add OLE DB Connection**.
  - b) Within the Provider tab, select Microsoft Office 12.0 Access Database Engine OLE DB Provider.
  - c) Switch to the Connection tab.

- d) In the Data Source field of the Connection tab, enter the full path to LTDL\_6 (for example:  
C:\LTDL\_Data\LTDL\_6.accdb or  
C:\LTDL\_Data\  
Example\_LTDL\_Database  
\LTDL\_6.accdb for the example LTDL). Do not forget to include the file extension ([fig. 6](#), lower right image group). Click **Test Connection**. If the test connection succeeds, click **OK** to create the connection; if it fails, identify the error in the path and attempt the process again.
- e) The newly created database connection will appear in Database Connections in the ArcCatalog window with the name OLE DB Connection.odc. Right-click this link and select **Rename**. Change the name to LTDL\_6.odc or  
LTDL\_6\_Example.od" for the example LTDL. After the name change, the link will refresh and a "+" sign will appear by it. Clicking the plus sign will display all tables and queries in LTDL\_6 ([fig. 7](#)).
- g) Close ArcCatalog.

Figure 6. View in ArcCatalog window in ArcMap if a successful link to the LTDL\_6 database was created.

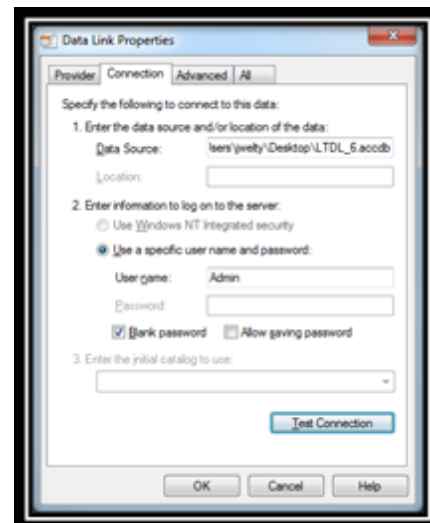
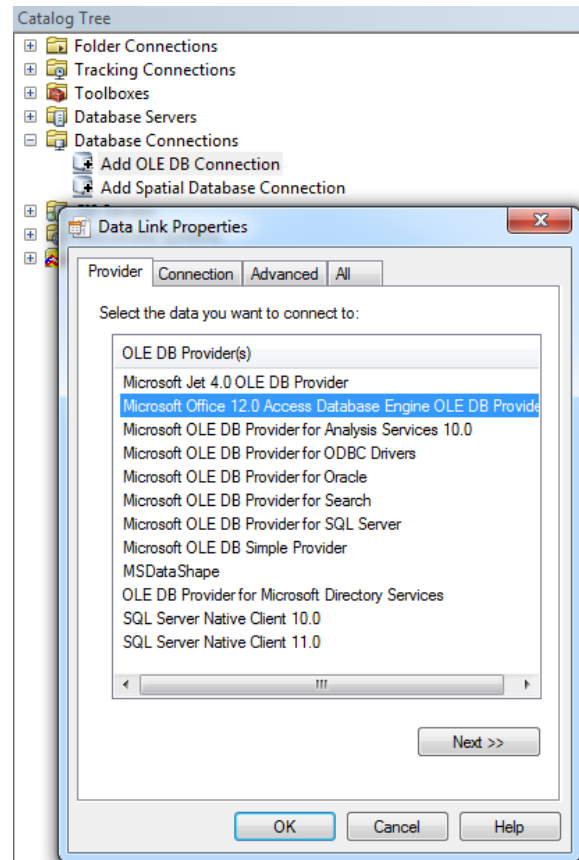
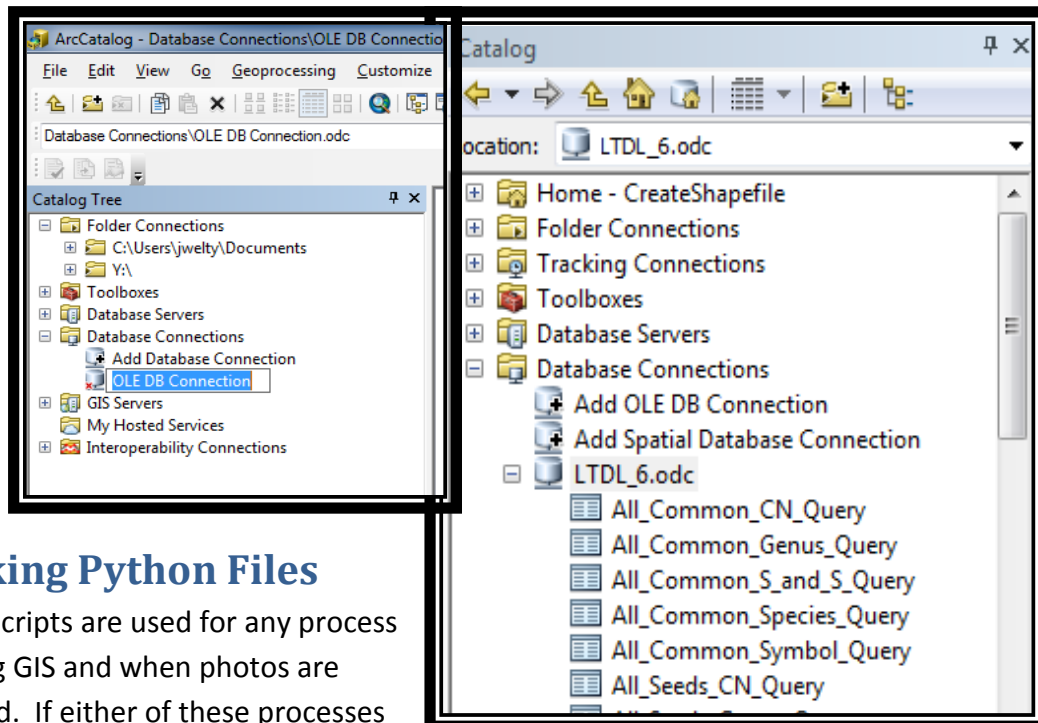


Figure 7. View in ArcCatalog window in ArcMap if a successful link to the LTDL\_6 database was created.



## Checking Python Files

Python scripts are used for any process involving GIS and when photos are uploaded. If either of these processes

it is likely that Python Site Packages are not installed correctly or are missing files. Undertake the following steps to ensure that Python has the necessary files to work correctly. File locations indicated are for ArcGIS 10.0 and Python 2.6; newer versions of Python will have slightly different file paths (for example: Python27). **WARNING** The user-identified location of the Python.exe (fig. 5) should be the main Python.exe usually located in C:\Python26.

1. Copy the Desktop10.pth file from C:\Python26\ArcGIS10.0\Lib\site-packages to C:\Python26\Lib\site-packages folder.
2. Ensure that the following Site Packages have been installed in the C:\Python26\Lib\site-packages folder.
  - a) Numpy
    - i. Copy Numpy directly from Python's C:\Python26\ArcGIS10.0\Lib\site-packages folder onto C:\Python26\Lib\site-packages rather than being installed directly as the ArcGIS Numpy folder has additional files.
  - b) PIL, Win32, Win32com, and Win32comext
    - i. Within C:\Python26\Lib\site-packages, use Windows file search feature to locate pythoncom26.dll and pywintypes26.dll (for example: new versions of Python will end with 27 instead of 26). If these two files are not located in C:\Python26\Lib\site-packages\win32, copy and paste them into the win32 folder.

## Populating Background Tables

The LTDL uses many background tables to populate drop-down lists and to ensure that data are entered correctly. **WARNING! Some of these tables are currently empty and need to be filled before data can be entered; others have data but should be checked to ensure data are accurate and meet the needs of the user. It is the user's responsibility to ensure all tables are populated correctly.** To populate the tables, click Edit Background Table Data in the LTDL Welcome form ([fig. 4](#)). Select the table of interest and enter or edit the data in it. [Table 2](#) contains information on all background tables, the table name within the Edit Background Table Data, their current status ('Has Data' or 'Empty'), and a brief definition. Some empty tables contain sample information to assist the user. Use the LTDL Data Storage Tables (.pdf) and LTDL Background Tables (.pdf) documents to identify specific field names and definitions. **WARNING! The empty tables ([table 2](#)) in bold do not have any lookup information as the data are specific to an agency or organization. These tables must have information entered before data entry can begin unless otherwise designated. Otherwise, empty drop-down menus and other errors will occur.** For example, while entering data, users will not be able to enter in anything under 'Funding Source', but if additions are made to the 'Funding Source' table (for example: BLM, USFS, and USGS), users will see a drop-down list with those three options. Non-bold tables can have additional information added as required by the user but contain some information to allow data entry to proceed.

Table 2. Background tables used to populate drop-down lists and other sources within the LTDL.

Table Name	Form Name	Status	Definition
<b>Critical Fields – Ensure that these data values are entered and correct</b>			
Agency	Edit Agencies	Has Data	List of government, state, and private agencies; indicates who initiated the project
File_Type	Edit Document Types	Has Data	A specific file naming structure for all documentation loaded into the LTDL. The File_Type table contains information related to the document names, the user may need to adjust this table to suit their needs but the data remain as documentation may be similar and as an example.
How_GIS_Created	Edit How GIS Was Created	Has Data	Lists how the GIS was created, used to populate GIS attribute tables. Some data remains as an example.
Major_Treatments	Edit Major Treatment Types	Has Data	List of the major ground treatments, used to summarize major treatments in the <a href="#">Project Data</a> tab, this is not the full list under the Treatment_Names table.
<b>Office_Contact_Info</b>	<b>Edit Contact Offices</b>	<b>Empty</b>	<b>List of office contacts; indicates which office the project originated in.</b>
Treatment_Names	Edit Treatment Types	Has Data	List of specific types of treatments that may be implemented. This is a BLM list, other treatment list may need to be modified to suit the user's needs.
<b>Important Fields – These tables can have values that should be edited or added by the user</b>			
Active_Ingredient	Edit Active Ingredients	Has Data	List of active ingredients found in herbicides
All_Seeds	Edit Seed Species	Has Data	List of plant species from the USDA plants database, used to populate seed lists
Chemical_Product	Edit Chemical Products	Has Data	List of herbicides used on plant species, relates to Active_Ingredient (tbl)
Common_Project_Words	Edit Common Project Words	Has Data	List of common project name words that should be ignored when comparing the project name to other projects already entered. To avoid duplication of projects, the LTDL compares a newly created Project Name with other projects of similar name
Control	Edit Seed Species Control Types	Has Data	List of whether control areas are present, used to populate "Control areas present" within the seed mix section.
Equip_Table	Edit Equipment Types	Has Data	List of equipment used to complete a specific treatment.
Fire_Cause	Edit Fire Cause	Has Data	Lists the cause of a wildfire.
<b>Funding</b>	<b>Edit Funding Sources</b>	<b>Empty</b>	<b>List of the various sources where funding for a treatment may be supplied.</b>
Grnd_Objectives	Edit Ground Objectives	Has Data	List of selectable objectives the user is trying to achieve on the project.
Herbicide_Trtr_Types	Herbicide Treatment Methods	Has Data	List of possible methods for applying herbicide to the ground.
Initiated_By_Table	Edit Initiated By Values	Has Data	Lists who actually initiated a specific treatment (for example: Within House, Contactor).
Landtypes_Affected_Table	Edit Land Types Affected	Has Data	List of special land types on which a project or treatment occur.
Photo_Key_Word_List	Edit Photo Key Words	Has Data	List of key words that can be associated with a photo.
Project_ID_Type	Edit Project ID Types	Has Data	List of ID or Numbers that may be associated with a project.
Grnd_Objectives	Edit Project Objectives	Has Data	List of potential objectives for which the project may strive.



Table Name	Form Name	Status	Definition
Reason_For_Trtr	Edit Reasons for Treating	Has Data	Lists the overall, single main reason for treating a project area.
States	Edit State Values	Has Data	List of all states in the US.
Success	Edit Success Types	Has Data	List of different categories of success for a single treatment.
Trt_Application_Issues	Edit Treatment Application Issues	Has Data	List of potential issues that occurred while performing the treatment
<b>Treatment_Code</b>	<b>Edit Treatment Codes</b>	<b>Empty</b>	<b>List of codes that may be assigned to a specific treatment type. For example, if the organization uses A1 for aerial seeding, this can be useful information to search for during a query. This is an optional table and is not required.</b>
Trt_Concerns	Edit Treatment Concerns	Has Data	List of concerns indicating why the treatment was implemented.
Trt_Conditions_At_Trtr	Edit Treatment Conditions	Has Data	List of the current weather and soil conditions while the treatment was implemented.
Units	Edit Unit Types	Has Data	List containing the units in which the treatment was planned/implemented
<b>Optional Fields – Values can be changed but it is not necessary</b>			
Day_Table	Edit Day Values	Has Data	List of days in the month; 0 is included in case day is unknown.
Month_Table	Edit Month Values	Has Data	List of months; 0 is included in case month is unknown.
Plan_or_Imp	Edit Planned or Implementation Status	Has Data	List of treatment implementation status.
Planned_or_Confirmed	Edit Planned or Confirmed Status	Has Data	List of Seed List confirmation status.
Project_Status_Name	Edit Project Status	Has Data	Indicates treatment status for the GIS attribute table.
<b>Project_Complex_Table</b>	<b>Edit Project Complex Names</b>	<b>Empty</b>	<b>Create or edit the list of Project Complexes within the LTDL.</b>
Treatment_Domains	Edit Treatment Domains	Has Data	Broad treatment classifications, for the GIS attribute table.
Year_Only	Edit Year Values	Has Data	List of years; 0 is included in case year is unknown.
Yes/No	Edit Yes and No Values	Has Data	List of values that indicate if something was implemented.



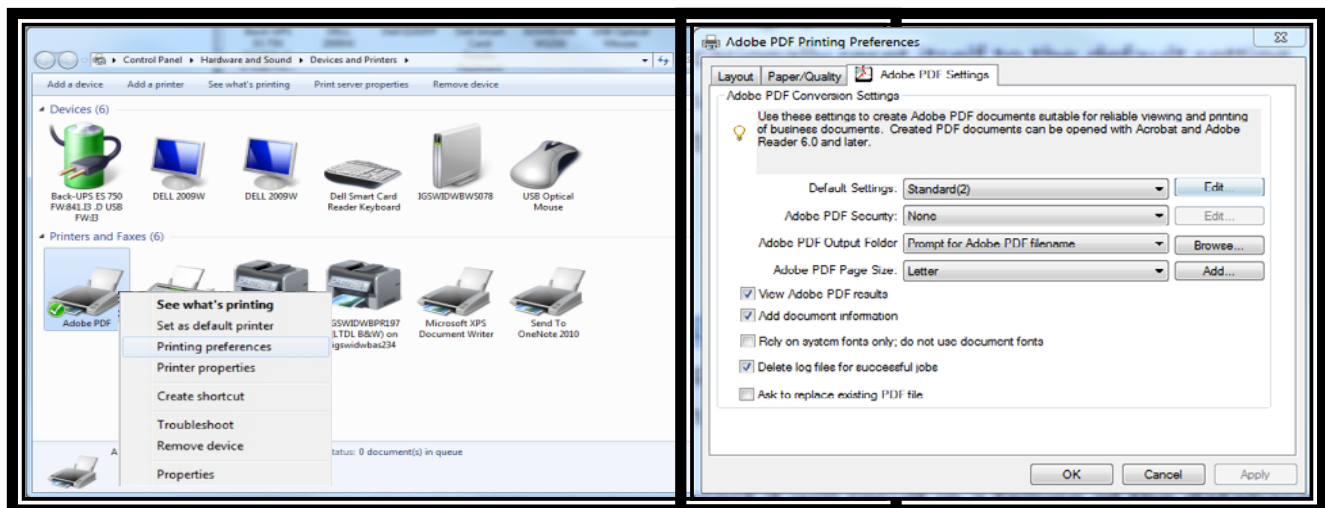
## Adobe Acrobat Pro and Adobe Distiller Settings

Adobe Acrobat Pro and Adobe Distiller have default settings that can result in documentation failing to link to the database or rotating incorrectly (for example: the document loads upside down). In both cases, the Adobe settings occasionally will reset to the incorrect default settings and documents will begin turning upside down. Because we cannot predict when settings will reset, all hyperlinks loaded in the LTDL will open so the user can check them and determine if they are correct. If not, follow the directions here to adjust Adobe settings. If users want to change other Adobe settings, they may do so, but these are the only critical settings to ensure database functionality.

### Changing Adobe PDF Printing Preferences

1. Open **Start>Devices and Printers** ([fig. 8](#)).
2. Right-click **Adobe PDF** and select **Printing Preferences**.
3. Uncheck the box **Rely on system fonts only, do not use document fonts** in the Adobe PDF Settings tab.
4. Click **OK** and exit.

Figure 8. Adobe Printing Preferences.

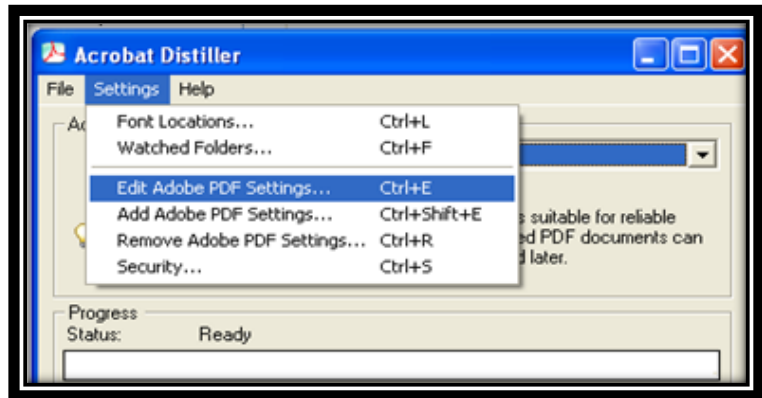


### Changing Adobe Distiller Settings

1. Open Adobe Distiller: **Start > All Programs > Acrobat Distiller** ([fig. 9](#)).
2. In Settings, select **Edit Adobe PDF Settings...**

3. Locate the **Auto-Rotate Pages** drop-down in the General form and change it to **Off**.
4. Click **OK** and click **Save** when prompted to save the new settings. It is not critical what name the new settings are saved as; they may be named to whatever suits the user's needs.

Figure 9. Adobe Distiller preferences.

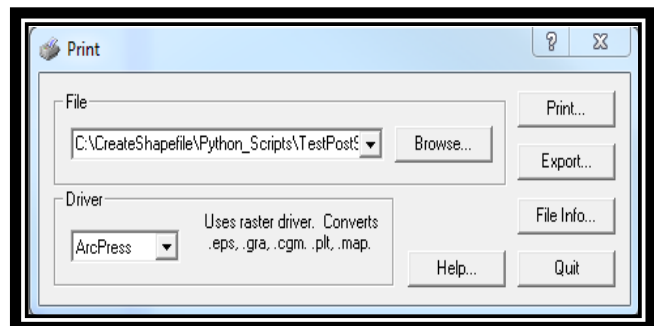


## Changing Post Script Files Open with Setting

On new computers, or occasionally during updates, computers will default to the incorrect **Open with** program (for example: ArcPress Extension) for Post Script (PS) files that are created when linking documentation to the LTDL instead of the correct LTDL program Acrobat Distiller. If this setting is not correct, it will result in a failure to load documents ([fig. 10](#)) and the program will get stuck in a loop. To test if PS files are opening correctly, complete the following steps:

1. Navigate to C:\LTDL\_Data\Python\_Scripts.
2. Locate the file entitled TestPostScript (.ps) and double click it to open it.
3. If the print window in [figure 10](#) appears, click **Quit** to exit the Print window. If Acrobat Distiller opens and the TestPostScript (.pdf) file is created in the Python\_Scripts folder, delete the PDF that was created and disregard the remaining steps for this

Figure 10. Adobe Distiller preferences.



section, as Adobe settings are correct.

4. Right-click the TestPostScript (.ps) file and select **Open With...** or **Open With...>Select Default Program....** The Open With window will open.
5. If the Recommended Programs section of the window has Acrobat Distiller, select it and ensure that the **Always use the selected program to open this kind of file** box is checked and then click **OK** to finish.
6. If Recommended Programs does not have Acrobat Distiller, click the down arrow associated with **Other Programs** to see if the program exists there. If it does, select it and ensure that the **Always use the selected program to open this kind of file** box is checked and then click **OK** to finish.
7. If Acrobat Distiller is not an option in the current window, click **Browse...** and navigate to C:\Program Files (or Program Files x86 for Windows 7 64 bit), and then navigate to Adobe\Acrobat 9.0\Acrobat\acrodist.exe. Select the file and click **Open**. Ensure that the **Always use the selected program to open this kind of file** box is checked, and then click **OK** to finish.
8. If the PDF creates successfully the settings have been updated. Delete the PDF that was created.

**Congratulations. The single-use installation instructions have been completed. Users also can set up the LTDL to handle multiple users and computers if desired (next section) or see how to convert the LTDL tables to another format (for example: SQL Server, [Converting LTDL Tables.accdb to SQL Server](#)). Otherwise, continue on to [LTDL Welcome Form](#) to begin entering data.**

## Multiple Computers and Users

The LTDL is designed to allow multiple users and computers to enter data into the same table structure on a server or other location. The LTDL\_Tables (.accdb) database is composed of tables in an Access database. However, these tables can be transferred to another table format such as MySQL, SQL Server, or other program if desired. Consult an IT specialist to assist in transferring the tables. Complete the following installation steps to set up the LTDL so that it can be used by multiple users on different computers:

1. Place the LTDL\_Tables Access database or its equivalent in a common location all users can access. Link the LTDL\_6 (.accdb) to the database tables as outlined in [Linking LTDL\\_6 to LTDL Tables](#). All LTDL\_6.accdb databases should link to the same LTDL\_Tables.accdb database (or its equivalent database in a related format). Consult an IT specialist to determine how to link tables in a different database format.
2. Place LTDL\_Files (fld) and LTDL\_Perimeters (.gdb) in a common location all users can access.

3. Place the remaining items in the LTDL\_Data folder directly on the C:\ drive and the LTDL\_6 (.accdb) database in a location of the user's choice on each computer that will be entering data as outlined in [Installing the LTDL](#).

## Converting LTDL\_Tables.accdb to SQL Server

The tables that exist within the LTDL\_Tables (.accdb) can be converted to a different format to accommodate increased file size limitations or other requirements. In this example, a conversion of the data to SQL Server is discussed briefly. Users should work with their IT Specialist or have a working knowledge of both Access and SQL Server, or other alternative database program, to successfully create the connection.

1. Import into or create the tables from the LTDL\_Tables (.accdb) in SQL Server.
2. To link to the new table format, in the Access ribbon, select the **External Data** tab. Within **Import & Link** select **ODBC Database** ([fig. 2](#)).
3. The Get External Data window will open ([fig. 3](#)). **Select Link to the data source by creating a linked table** radio button. Click **OK**. The Select Data Source window will open.
4. Within the File Data Source tab, navigate to and select DSN (.dsn) file where the SQL Server table structure is stored, then click **OK**.  
Within the Import Objects window, select the appropriate tables and click **OK**. Note: SQL Server generally creates additional tables that do not need to be linked, so choosing **Select All** in this case is not necessary.
  - a. Use the LTDL\_Tables (.accdb) to help ensure that the appropriate tables are transferred by comparing tables in both databases.

Note: All table links should be successfully created. In the Navigation Pane under **Tables**, linked tables have a small arrow to the left of the table name. Some tables are not linked and are directly associated with LTDL\_6 and will not have the arrow associated with them ([fig. 3](#) inset displays a linked table, Active\_Ingredient, and a table associated directly with the LTDL\_6, ViewShapefiles\_Field\_Office).

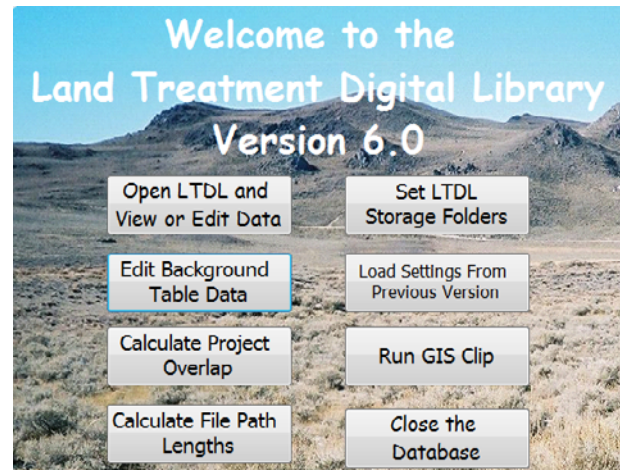
## LTDL Welcome Form

When opening the LTDL\_6 database, the Welcome form opens and allows the user to select from several main program tasks. In addition to closing and exiting the database, there are 8 options that users can select from ([fig. 11](#)).

### Open LTDL and View or Edit Data

Opens the LTDL form to allow the user to view, enter, and edit projects and treatments within the database. To return to the Welcome screen be sure to use the 'Save and Close' command in the [main tool bar](#). Detailed data entry instructions in '[Navigating through LTDL data entry](#)' below.

Figure 11. Initial LTDL Welcome Form.



### Set LTDL Storage Folders

The LTDL storage folders contain all GIS and documentation related to specific projects. Data generally are added automatically during data entry; thus, the need to specify the folder locations. However, users can access these folders manually to view the information within. We recommend that new users explore these folders after several projects have been entered to better understand how data are stored within the LTDL. For instructions on specifying the correct file paths, see [figure 5](#).

### Edit Background Table Data

The LTDL uses many drop-down lists and other standardized text to minimize user entry errors. Users have the ability to edit these lists and can do so using this form. Certain lists are empty and require users to enter list data before data entry can proceed. For definitions of specific tables, see [Populating Background Tables](#).

### Load Settings From Previous Version

The LTDL is occasionally updated to fix bugs and add new features. If a new version of the LTDL\_6.accdb becomes available, the user can import several settings from the previous version, such as color schemes and previously visited projects. All database updates will come

with installation instructions. This is an optional tool, the user does not need to load previous settings.

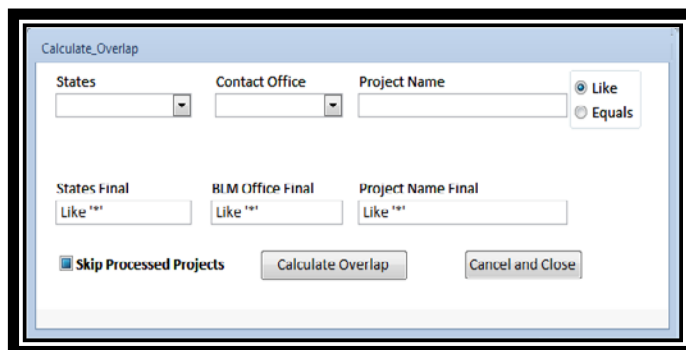
1. To import previous settings:
  - a. Close and rename the old LTDL\_6 (.accdb) (for example: add an 'A': LTDL\_6A.accdb).
  - b. Download the new version of the LTDL\_6 and place it in the same location as the previous version.
  - c. [Set the LTDL Storage Folders.](#)
  - d. [Link the LTDL 6 to the LTDL Tables.](#)
  - e. Click **Load Settings From Previous Version.**
  - f. Use the File Selection Dialog window to navigate to the location where the previous LTDL\_6 version is stored (for example: LTDL\_6A (.accdb)) and select it.
  - g. Click **Yes** or **Continue** to bypass any warnings that display.
  - h. If the process fails, attempt the steps again. If settings do not import, delete the new version and repeat the process.

## Calculate Project Overlap

The **Calculate Project Overlap** tool overlays the project perimeter of one project on all project perimeters and determines if any project perimeters overlap the current one. The LTDL automatically calculates overlapping projects when running a **Similar Project Check** (described in LTDL Tool and

Control Guide (.pdf)). However, this does not calculate overlap of projects that were entered after the current project was entered. We recommend running the **Calculate Project Overlap** tool after an entire office's treatment data are entered or once a year, depending on user needs and the scope of the data entry.

Figure 12. Calculate Project Overlap.

The screenshot shows a dialog box titled "Calculate\_Overlap". It contains several input fields and buttons. At the top, there are three dropdown menus labeled "States", "Contact Office", and "Project Name". To the right of these is a radio button group with "Like" selected and "Equals" unselected. Below these are three more dropdown menus labeled "States Final", "BLM Office Final", and "Project Name Final", each with "Like \*\*\*" selected. At the bottom left is a checkbox labeled "Skip Processed Projects". At the bottom right are two buttons: "Calculate Overlap" and "Cancel and Close".

1. The Calculate Project Overlap form ([fig. 12](#)) allows users to select a subset of projects based on various queryable data.
  - a. Select one of the following: specific states, offices, or individual projects (individual projects are run if an error occurs).
  - b. Select the 'Skip Processed Projects' box to skip records where overlap has already been calculated. This will save time but may miss overlapping records if new data have been added.

Note: The overlapping projects are stored in Related\_Project (tbl) and can be viewed when the user views projects in the LTDL. This process is relatively quick; several hundred projects can be run overnight. Duplicate records will not be created in Related\_Project (tbl) if the tool is run multiple times.

## Run GIS Clip

The LTDL has the ability to clip data from multiple background GIS layers (feature and raster) using the project or treatment features as the clipping boundary and import attributes from the clipped GIS data into LTDL GIS tables ([fig. 13](#)). Users can clip information related to political boundaries (for example: state, county), ecological boundaries (for example: Level 4 Ecoregions), climatological parameters (for example: temperature, precipitation), and any other layer the user has access to. **WARNING!** Only minimal GIS data is provided with the LTDL

download. Users must provide their own layers for this process. The GIS Layers table (screen capture of the table in [fig. 14](#)) contains example information only. If the users wish to run these layers in the clipping process, they will need to download them or select the correct path

Figure 13. Clip GIS Layer form.

The screenshot shows a software window titled 'BatchUpdate'. Inside, there's a section 'View and edit GIS layers'. It contains two 'Select Directory' buttons for choosing GIS data paths. Below these is a checkbox labeled 'Ignore checkboxes on the LTDL Form and process all records in the database. This will replace the data.' There are four dropdown menus: 'States', 'States Final' (with a 'Like' selection), 'Contact Office', and 'BLM Office Final' (also with a 'Like' selection). A 'Project Name' field is followed by three radio buttons: 'Like' (selected), 'Equals', and 'Greater Than'. A 'Project Name Final' field is also present. A 'Progress:' label is above a large empty box. At the bottom, there's a 'Process GIS' button and a 'View results of the GIS clipping process' button.

Feature type	GIS path (subfolders only)	GIS Field Name	Feature Class Name	DBF Name (8 characters max)	Table type	Layer name in LTDL	Point or Line	Calculate Stats	Attribute American or Metric	American or Metric Type	Close Form
Polygon	US_Allotments\US_Allotments.shp	allot_name	Allotments	Allot	Data	Allotment	Yes				Delete Record
Polygon	US_Average_Avg_Temp\US_Average_Temperature.shp	RANGE	AvgTemp	AvgTemp	Single	Average Temperature (Degrees F and C)		MEAN	American	Fahrenheit	Delete Record
Polygon	US_Average_Max_Temp\US_Max_Avg_Temp_Dissolve.shp	Cel_1	MaxTemp	MaxTemp	Single	Average Maximum Temperature (Degrees F)		MEAN	Metric	Celsius	Delete Record
Polygon	US_Average_Min_Temp\US_Min_Avg_Temp_Dissolve.shp	Min_Temp	MinTemp	MinTemp	Single	Average Minimum Temperature (Degrees F)		MEAN	Metric	Celsius	Delete Record
Polygon	US_Average_Precip\US_Avg_Precip_Dissolve.shp	Avg_Precip	Precip	Precip	Single	Average Precipitation (Inches and Centimeters)		MEAN	Metric	Centimeters	Delete Record
Polygon	US_BLM_Field_Offices\US_BLM_Offices.shp	BLM_FO	BLM	BLMFO	Data	BLM Field Office	Yes				Delete Record
Polygon	US_BLM_Field_Offices\US_BLM_Offices.shp	BLM_Dist	BLM	BLMDI	Data	BLM District Office	Yes				Delete Record
Polygon	US_Counties\US_Counties.shp	COUNTYNAME	County	County	Data	County	Yes				Delete Record
Raster	US_Elevation\US_90m_DEM.img	VALUE	demclip	DEMMin	Single	Minimum Elevation (Feet and Meters)		MIN	Metric	Meters	Delete Record
Raster	US_Elevation\US_90m_DEM.img	VALUE	demclip	DEMMax	Single	Maximum Elevation (Feet and Meters)		MAX	Metric	Meters	Delete Record
Raster	US_Fire_Regimes\US_Fire_Regimes.gdb\US_Fire_Regimes	Class_Desc	FRG	FRG	Data	Fire Regime Group					Delete Record



to the layers. When opening the Clip GIS Layers form ([fig. 13](#)), users must first set several fields and other variables before the process can run successfully.

## GIS Layers Form Fields and Commands

### 1. View and edit GIS layers.

Users specify which GIS layers will be used during the clipping process. It is important that all fields are completed correctly ([fig. 14](#)). Each field is defined as follows:

- a) **'Feature Type'** – This field indicates whether the GIS layer is a “Polygon” or a “Raster”.
- b) **'GIS path (subfolders only)'** – All GIS layers need to be stored in the same location for processing purposes (indicated in [fig. 13](#) – “Please select path to GIS data”). The ‘GIS Path’ field indicates the path of the subfolders and feature or raster along with extension if necessary (for example: US\_Average\_Min\_Temp\US\_Min\_Avg\_Temp\_Dissolve.shp). Shapefiles, rasters, and geodatabase features are all acceptable formats.
- c) **'GIS Field Name'** – This field is the name of the attribute field within the GIS layer. This name is used during calculation. Use the field name and not the alias.
- d) **'Feature Class Name'** – A geodatabase will be created for each project or treatment feature processed. Indicate the feature class to be created for this GIS layer (rasters will be converted to features automatically). Do not enter any spaces, numbers, or special characters.
- e) **'DBF Name (8 characters max)'** – The name of the dbf created for each GIS layer containing the final calculations that are imported into the LTDL. Do not enter any spaces, numbers, or special characters.
- f) **'Table Type'** – The user needs to indicate whether the data should be added as an Average, Minimum, or Maximum (Single; for example: Maximum temperature) or whether all data should be clipped and entered (Data; for example: Landfire Vegetation Cover). Enter “Single” if the user plans on calculating the statistics of a feature class. Enter “Data” if all GIS data from the feature class should be calculated.
- g) **'Layer name in LTDL'** – Each record of clipped data the LTDL calculates is added to and visible in the LTDL form. The user can specify the name associated with the data (for example: Average Minimum Temp, GAP Vegetation Model) that the user will see to help in identify the data being displayed. Users should pick names that are succinct but still accurately describe the data.
- h) **'Point or Line'** – Users may want to limit the number of GIS layers calculated when a project or treatment feature is a point or line as the data may not be accurate. If users feel a layer should be clipped to a point or line, they should



select “Yes” in the field; otherwise, they should leave it blank. More general fields (for example: State, County boundaries) are more likely to be accurate than specific fields (for example: Landfire Vegetation Type with 30-meter resolution).

- i) **‘Calculate Stats’** – This field indicates the output statistic to calculate for this layer (MEAN, MIN, or MAX). The field should be left blank if no statistics will be calculated. This field must be completed if “Single” is entered in the ‘Table Type’ field.
  - j) **‘Attribute American or Metric’** – This field indicates whether the attribute is calculated using “American” or “Metric” units; otherwise, it should be left blank. This field must be completed if “Single” is entered as the “Table Type”.
  - k) **‘American or Metric Type’** – This field indicates the type of unit in the attribute table (Celsius, Centimeters, Meters, Fahrenheit, Inches, Feet); otherwise, it should be left blank. This field must be completed if “Single” is entered as the “Table Type”.
2. **Please select the path to GIS Data.**
- a) Click **Select Directory** to browse to and select the main level directory where GIS layers are stored. This field combined with the ‘GIS Path’ (fld) value above in the **GIS Layers** table should provide a full path to each GIS layer.
3. **Please select directory where you want to store the geodatabase...**
- a) Use **Select Directory** to browse to and link to the folder where the temporary geodatabases containing clipped data will be stored. A geodatabase containing the GIS data clipped will be created for each project and treatment feature.
4. **Ignore checkboxes.**
- a) Features that are loaded within the LTDL during data entry are automatically marked to run through the GIS clipping process. After the GIS Clipping process is run and the project or treatment features successfully clip data, they are removed from the list. If the user chooses to ignore the checkbox all features will be run through the clipping process regardless of whether it has run through the process before. Any old data is deleted and new data is added. Users may wish to ignore the checkboxes and run all feature classes if new background feature classes are added to the clipping set.
5. **Select States, Contact Office, and Project Name.**
- a) Users can execute the clipping process on all projects and treatments within the database or specify a subset of the data to run. Users can select the ‘State’, ‘Contact Office’, and(or) ‘Project Name’. When selecting a ‘Project Name’, indicate if the ‘Project Name’ should be ‘Like’, ‘Equal to’, or ‘Greater than’ the project name entered (projects are run alphabetically). If a larger number of

records must be run, the process may take multiple days or the program may break down, owing to computer memory constraints, and the process may stop in the middle of a data run. Identifying the last successful project and selecting the “Greater than” function will start the process from the first unprocessed project.

#### **6. Process GIS.**

- a) Start the GIS clipping process after parameter fields are complete.

#### **7. View results of the GIS clipping process.**

- a) After the process is complete, the user can view the results. Users can see the ‘Date Processed’, the ‘Project Name’ or ‘Treatment ID’, and any ‘Notes’ associated with processing. Common notes include
  - i. “Processed successfully”
  - ii. “Minor Error – Table missing: The table xxx did not exist” – This error occurs when the project or treatment feature did not clip anything from a background layer. It is not a concern unless that specific GIS layer should have GIS data in the project or treatment area.
  - iii. “Major Error - ...” – This error occurs when the clipping process failed completely and likely indicates there is a critical error with the project or treatment feature that needs to be investigated) .

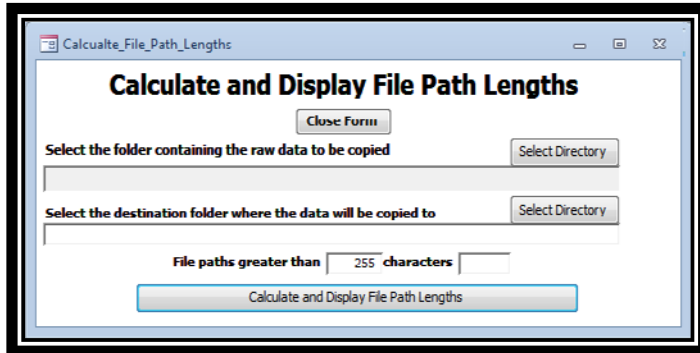
## **Calculate File Path Lengths**

Most of the time, file path lengths are not an issue; therefore, this tool is optional. Users should only run this tool if there are constant issues uploading folders (for example: The linked Source Data Folder only partially loads within the Project LTDL Files folder). Microsoft generally has a maximum of 255 characters in a file path. It may be possible to exceed this length when uploading a folder with multiple sub folders in the [Hyperlinks section](#), especially when data are stored on a server that has a long initial path length.

1. To check the file length, users specify the initial folder that will be copied, the location where the folder will be placed, and the total character length allowable ([fig. 15](#); default 255). The program will inform the user if any file lengths exceed the character limit. Any folders and file lengths should be fixed before loading the files or folders within the Hyperlinks section of the LTDL.
2. If users discover that the program is overcalculating or undercalculating file path lengths, they can change the 255 max character default setting.

This tool also is run when loading individual Source Data Folders within a project, but can be run as a batch tool using this feature.

Figure 15. Calculate and Display File Path Lengths.



The screenshot shows a software window titled "Calcualte\_File\_Path\_Lengths" (note the typo). The window contains the following elements:

- Title Bar:** "Calcualte\_File\_Path\_Lengths" with standard window controls (minimize, maximize, close).
- Header:** "Calculate and Display File Path Lengths" in bold black text.
- Buttons:** A "Close Form" button is located below the header.
- Input Fields:**
  - "Select the folder containing the raw data to be copied": A text box with a "Select Directory" button to its right.
  - "Select the destination folder where the data will be copied to": A text box with a "Select Directory" button to its right.
- Filter:** "File paths greater than" followed by a text box containing "255" and the word "characters".
- Action Button:** A large blue button at the bottom labeled "Calculate and Display File Path Lengths".

## Navigating through LTDL Data Entry

Throughout this section, we will cover various aspects of data entry. We will outline tabs and sections, but will not define each field. Definitions of each specific field can be found in the LTDL Data Storage Tables (.pdf) and LTDL Background Tables (.pdf). The LTDL Tool and Control Guide (.pdf) defines the tools and commands present in the LTDL. The LTDL is composed of three tabs: [Project Info](#), [Documentation](#), and [Treatment Info](#). These will not appear until a [Project Name](#) has been entered. The library is designed around a single project with one or more treatments. The project represents a general boundary that encompasses all treatments. Project-level information contains general information relevant to all treatments. Treatments are specific actions taken in order to accomplish project objectives. The structure of the LTDL allows one or multiple treatments to be entered within a single project. For example, a project boundary generally is the compilation of all treatment perimeters within the project. In the case of a wildfire, the wildfire boundary itself becomes the project perimeter with one or more treatments within. **WARNING! Users should read all data from this point through [Project Name](#) before opening the LTDL data entry form.**

### LTDL Files

Whenever a new project is created in the LTDL, a new folder, with the name of the project, is created in LTDL\_Files (fld) and a project file geodatabase is created within the newly created folder. The LTDL\_Files folder is a critical component of the LTDL and the folder is included in the download package. Instructions on how to link to this folder can be found in the '[Setting up the LTDL and Associated Programs](#)'. The project folder and the individual geodatabase are created automatically when the user creates a new project by entering a [Project Name](#). All non-tabular data (documents, folders, photos, GIS) in the LTDL are automatically copied to this project folder. Users should take some time to familiarize themselves on how data is stored within LTDL\_Files (fld). In the unlikely event an error occurs that the database cannot overcome (for example: deleting a locked document), the user can enter the LTDL\_Files folder and delete the data manually.

### LTDL Perimeters Geodatabase

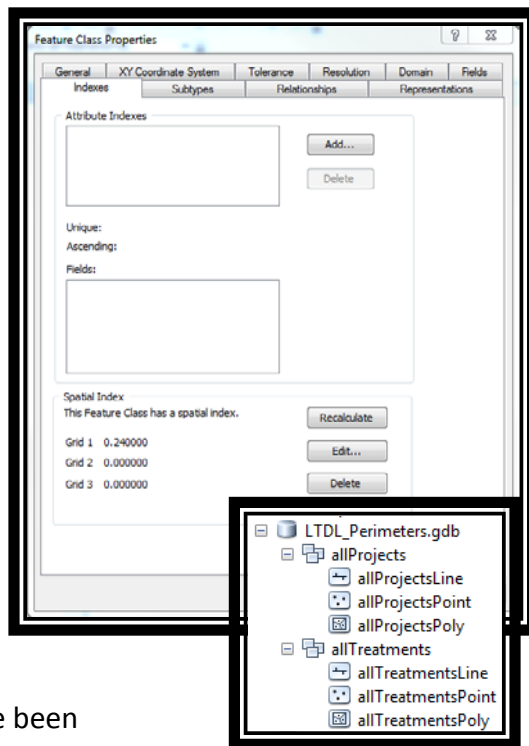
LTDL\_Perimeters (.gdb) stores records of all GIS information loaded in the LTDL. The geodatabase combines all GIS data into project or treatment features grouped into points, lines, or polygons. LTDL\_Perimeters (.gdb) is composed of two datasets and 6 feature classes ([fig. 16](#) inset image). The allProjects feature dataset and its feature classes contain the project level features while allTreatments feature dataset contains treatment level features. Each project also has an individual geodatabase located within the LTDL\_Files/Project Name folder.

## Recalculating the Spatial Index

As LTDL\_Perimeters (.gdb) continues to grow, a display error may occur if the Spatial Index is not calculated correctly. If the geodatabase displays appropriately at the full extent but features seem to disappear when zooming in, the user should recalculate the Spatial Index to resolve the issue ([fig. 16](#)).

1. Navigate to LTDL\_Perimeters (.gdb) in the ArcCatalog and (or) the ArcCatalog window within ArcMap. Open the allProjects and allTreatments feature datasets.
2. Right-click each feature class and select **Properties**. Click the **Indexes** tab.
3. In the Spatial Index box, click **Delete**, then **Apply**, then **Recalculate**, then **OK**.
4. Move on to the next feature class until all have been recalculated.

Figure 16. Recalculate the Spatial



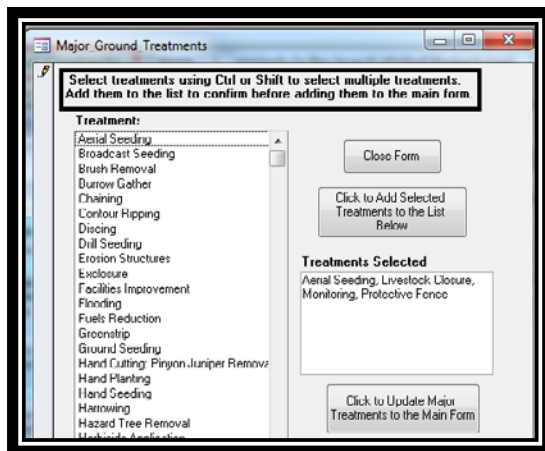
## Multiple Select Lists

**Definition:** All multiple select lists are constructed in a similar fashion ([fig. 17](#)). The user opens a form and can select multiple items from a list that then populates the specified field.

### Instructions:

- a. Select fields using the list on the left of the form.
- b. Add them to the list using the **Click to Add Selected...** button. Double-check and edit the list or double-click each item to add it to the list.
- c. Select **Click to Update...** to add the values to the field of interest in the LTDL.
  - o **Select/Edit Treatments (Project Level)** – Select and summarize all major on-the-ground treatments that occurred during the project.

Figure 17. Example of a Multiple Select List.



- **Select/Edit Objectives (Project Level)** – Select and summarize the major objectives of the project in general. Individual treatment objectives are listed elsewhere.
- **Select/Edit Concerns (Project Level)** – Select and summarize the reasoning or concerns behind the creation of the project. Users should indicate why the treatments are necessary (for example: sage grouse habitat).
- **Select/Edit Concerns (Treatment Level)** – Select and summarize the reasoning or concerns behind the planning of a particular treatment. Users should indicate why the treatments are necessary (for example: sage grouse habitat).
- **Select/Edit Problems (Treatment Level)** – Users can select any problems that were encountered while the treatment occurred.
- **Select/Edit Conditions (Treatment Level)** – Users can select the on-the-ground weather and soil conditions that occurred while the treatment occurred.



## Required Fields

Certain fields within the LTDL are required in order to pass the Error Check. These fields and their locations are identified in [table 3](#).

Table 3. List of required fields and their locations within the Land Treatment Digital Library.

Field Name	Location
<b>Project Name</b>	Main Form
<b>Data Entry Status</b>	Project Info/Project Data
<b>Major Agency</b>	Project Info/Project Data
<b>Office</b>	Project Info/Project Data
<b>Project Completion Status</b>	Project Info/Project Data
<b>Project Start Year</b>	Project Info/Project Data
<b>Project Title</b>	Project Info/Project Data
<b>Reason for Project</b>	Project Info/Project Data
<b>State</b>	Project Info/Project Data
<b>How was the shapefile created?</b>	Project Info/Project GIS Data and Treatment Info/Treatment Spatial Information

Field Name	Location
<b>Shapefile Status</b>	Project Info/Project GIS Data and Treatment Info/Treatment Spatial Information
<b>Created by</b>	Project Info/Project Monitoring and Contacts
<b>Was the project monitored?</b>	Project Info/Project Monitoring and Contacts
<b>Type of Treatment</b>	Treatment Info
<b>Overall Planned/ Implementation status</b>	Treatment Info/Treatment Data
<b>Treatment Start Date</b>	Treatment Info/Treatment Data

## Main LTDL Toolbar

The main toolbar tools ([fig. 18](#)) are the highest-level LTDL tools and include the ability to create a new project, manipulate large amounts of data, navigate to selected projects, and delete large amounts of data. Hover over each button within the LTDL to get a brief description of its function. Other toolbars are located throughout the LTDL and assist users with navigation and data entry. For a detailed description of each tool, consult the LTDL Tool and Control Guide.

Figure 18. Example of a Multiple Select List.



## Project Name

The 'Project Name' field is a unique identifier that represents a project in all tables and must be created before any other data can be entered into a project. It is located in the top left corner of the LTDL form and not within a specific tab. **WARNING! No other fields will be shown in the LTDL until the Project Name has been entered.** Specific rules for project name creation are that the project name: (1) must be less than 70 characters; (2) must start with a letter; (3) can only contain letters, numbers, and the underscore character; and (4) must not have any spaces or special characters.

## Project Info (tab)

The Project Info tab displays general information about the project and is composed of three main sections: [Project Data](#), [Project GIS Data](#), and [Project Monitoring and Contacts](#).

## Project Data (sec; [fig. 19](#))

Figure 19: Project Data.

The screenshot shows a complex web-based form for managing project data. At the top, there's a navigation bar with tabs like 'Project Info', 'Documentation', and 'Treatment Info'. Below this, the 'Project Data' tab is active. The form is divided into several functional areas:

- Project Status (Required):** Contains checkboxes for 'Project Completion Status' (Project Complete, Project Status Unknown (Plans Only), Project Placeholder (Limited Data)) and 'Data Entry Status' (Data Entry Complete).
- Project Data (Required):** Includes fields for 'Project Identifier Type', 'Identifier Value', 'Project Title', 'Major project agency', 'State', 'Contact office', 'Reason for Project', 'Major ground treatments', and 'Major treatment objectives'.
- Fire Information:** Includes fields for 'Wildfire name', 'Wildfire code', 'Wildfire Complex Name', 'Wildfire cause', and 'Wildfire containment date'.
- Project Log:** A section for 'Enter only major updates made after the project was created' with a 'Delete Record' button.
- General Project Information:** Includes a 'Project description' text area, a 'Project concerns' dropdown, and a 'Land types affected' table with columns for 'Land Type' and 'Acres'.
- Related/Overlapping Projects:** A table listing related and overlapping projects with columns for 'Related and/or Overlapping Project', 'Start Year', and 'Notes'. It includes buttons for 'Delete All Related', 'Delete All Overlapping', and 'Delete All Relationships'.

### 1. Project Status (sub)

- The first box within the database containing multiple checkboxes outlining summary information about a project. Select the documentation available, indicate the type of feature loaded for the project, the project completion status, and data entry status. Selecting a feature type from the 'Spatial Documentation Available' box will open a Browse Window to select a shapefile to load. The type of spatial documentation available will be entered automatically if the **Load Prj/Trt GIS** button (see LTDL Tool and Control Guide [.pdf]) is used to simultaneously load spatial data for projects and treatments. Users can use the tool if the project and one or more treatments have identical perimeters, thereby allowing all perimeters to be loaded sequentially and saving the user time and effort. All project and treatment data must be entered before the **Load Prj/Trt GIS** tool is run. Users always have the option of loading GIS perimeters individually and do not need to use the tool to load them sequentially. The 'Treatment Spatial Documentation' box also will be selected automatically after Treatment spatial data is loaded in the Treatment Info tab.



2. Project Data box (sub)
  - a. This box identifies general information about a project: project identifiers, title, location, dates, complex, and major treatments. The Project Identifiers (sub) includes all codes or numbers associated with the project or an individual treatment (for example: Project ID, Wildfire Code). The 'Project Complex' field is used if multiple projects should be linked together under a common name. Users can enter a new complex name if it does not exist; otherwise, the name can be selected from the drop-down list. If the project is a wildfire and the Reason for Project field is "Wildfire", the user has the option of entering the wildfire information.
3. Project Log (sub)
  - a. If a project undergoes a major update, users can indicate the changes in the 'Notes' field within this subform. This is especially useful if a new user is making changes to an existing project and wants to inform the previous user about the reasons for making the changes.
4. General Project Information (sub)
  - a. Users can enter soil, vegetation, concerns, reasons for treating, grazing closure information, land types, alerts, and notes. If available, allotment or herd management area GIS will be added automatically during the GIS clipping process. All other data should be added manually. 'Data Interpretation Alerts' should be entered if there is critical information missing or a discrepancy in final statistics (for example: acres treatment). Our general rule is that data interpretations should be entered when missing or unreliable data could influence how the overall project is interpreted.
5. Related/Overlapping Projects (sub)
  - a. Users can enter projects that are related to and (or) overlap with the current project. Overlapping projects are calculated automatically during the **Similar Project Check** and the **Calculate Project Overlap** tool (see LTDL Tool and Control Guide [.pdf]), but can be entered manually. Related projects can be identified during the **Similar Project Check** or manually. Manually selecting related or overlapping projects will populate the related project so that both projects do not need to be updated.
6. Counts (sub)
  - a. This subform automatically identifies the number of Projects and Treatments entered into the LTDL.

**Project GIS Data** (sec; [fig. 20](#))

Figure 20 Project GIS Data.

**Project GIS Attributes**

State: Nevada, Major agency: Bureau of Land Management, Start year: 2006, Finish year: 2009, Reason for project: Fire, Shapefile applies to: Fire Shapefile, How was the shapefile created?: Digitized by BLM field office, Acres: 3,256.2, BLM Acres: 2,875.2, Calculate BLM Acres: [Auto Calculate] [Manual]

Project Complex: , Major treatments: Aerial Seeding, Livestock Closure, Monitoring, Protective Fence, Map creation date: Month: 0, Day: 0, Year: 0, The shapefile status is: [Planned] [Unknown] [Confirmed] [Approx.] [Point Loc.], Fire name: 4 Wheeler, Fire code: C1XU, Fire number: 8, Fire containment date: Month: 1, Day: 1, Year: 2006, GIS notes:

**File Names and Acres**

Overwrite Shapefile, Run in a batch update

**Single Values**

GIS file name	Layer name	Metric value	American value
US_Average_Max_Temp\US_Max_Avg_1	Average Maximum Temperature (Degrees)	18.4	61.4
US_Average_Min_Temp\US_Min_Avg_1	Average Minimum Temperature (Degrees)	0.3	31.6
US_Average_Precip\US_Avg_Precip_dist	Average Precipitation (Inches and Centimeters)	25.2	9.5
US_Soil_Depth\US_Soil_Depth.shp	Average Soil Depth (Inches and Centimeters)	87.0	34.3
US_Average_Avg_Temp\US_Average_1	Average Temperature (Degrees F and C)	7.8	46.0
US_Elevation\US_90m_DEM.img	Maximum Elevation (Feet and Meters)	2,206.0	7,237.6

**Multiple Values**

GIS file name	Layer name	Category	Acres	Percentage
US_Allotments\US_Allotments.shp	Allotment	CLEVELAND RANCH	1,000.7	31.0
US_Allotments\US_Allotments.shp	Allotment	STEPHENS CREEK	1,314.4	40.4
US_Allotments\US_Allotments.shp	Allotment	TAPT CREEK	700.8	21.5
US_Allotments\US_Allotments.shp	Allotment	USFS	231.2	7.1
US_BLM_Field_Offices\US_BLM_Off	BLM District Office	ELY	3,256.1	100.0
US_BLM_Field_Offices\US_BLM_Off	BLM Field Office	SCHELL	3,256.1	100.0
US_Counties\US_Counties.shp	County	White Pine	3,566.1	100.0
US_FRCC\US_FRCC.gdb\US_FRCC	Fire Regime Condition Class	Fire Regime Condition Class 1: Low Vegetation Departure	405.6	12.5

**Metadata**

GIS file name	GIS file year	Metadata file path

**Warning!** Only shapefiles can be selected when loading a feature for the project. Feature classes must have a North American Datum of 1983 (NAD 1983) or North American Datum of 1927 (NAD 1927). Other datums must be manually converted before loading GIS. Users cannot access this section until spatial information has been loaded using the 'Spatial Documentation Available' checkbox or **Load Prj/Trt GIS**.

1. Project GIS Attributes (sub)
  - a. This area displays the attributes that will be associated with the GIS feature for the project or treatment. These fields are added automatically when the feature is loaded. If users edit any features in this table, the **Update Att** tool must be run so that the updated fields become associated with the feature's attribute table.
  - b. Users must be extremely careful with the text that is entered into the attribute table fields. No apostrophes, special characters, or hard returns are allowed. The GIS notes field must be under 200 characters in length. ArcGIS attribute tables are very particular about the type of data allowed in the fields.
2. File Names and Acres (sub)
  - a. This area stores the name and acreage of the feature. It allows users to overwrite the current feature if it is the same type (for example: polygon

overwriting polygon). To change the feature type (for example: polygon overwriting point), return to the [Project Data](#) section and select the new feature shape type.

### 3. Average and Min/Max Values

- a. These are statistical values that are automatically calculated during the [GIS Clipping](#) process. The user cannot edit these fields from this form.

### 4. Clipped Data

- a. These are detailed fields displaying all values that are automatically calculated during the [GIS Clipping](#) process. The user cannot edit these fields from this form.

### 5. Metadata

- a. Users can enter metadata information for each GIS layer used during the clipping process so that the specific metadata files for each GIS layer can be accessed.

## Project Monitoring and Contacts (sec; [fig. 21](#))

Figure 21. Project Monitoring and Contacts.

The screenshot shows a web application interface for project monitoring and contacts. At the top, there's a header bar with a project name 'Four\_Wheeler\_C1XU\_Wildfire\_2006' and a series of buttons for actions like 'Add a Project', 'Change Pjt Name', 'Upon Create Shape', 'Load Pjt/Tit GIS', 'Refresh Update GIS', 'Error Check', 'Check Pjt Folder', 'Refresh Project', 'Go To Last Project', 'Search Visted Projects', 'Search FO Projects', 'Search Project Name', 'Search Project Ids', 'Clear Temp Files', 'Clear Create Shape', 'Clean House', and 'Save Close Form'. Below the header, there are tabs for 'Project Info', 'Documentation', and 'Treatment Info'. The 'Project Monitoring and Contacts' tab is selected. The form is divided into three main sections: 'General Monitoring Information', 'Contact Information', and 'Contact/Modified Defaults'. The 'General Monitoring Information' section has fields for 'Was the project monitored?' (a dropdown menu), 'Monitoring status' (a dropdown menu), 'Monitoring start calendar year' (a date picker), 'Monitoring finish calendar year' (a date picker), 'Monitoring description' (a text area), and 'General monitoring notes' (a text area). The 'Contact Information' section has fields for 'Agency personnel involved in the project' (a table with columns for Plan author, Project manager, Team leader, and Lead monitor(s)), 'Contact person' (a text field), 'Contact office' (a dropdown menu), 'Office phone' (a text field), 'Office email' (a text field), and 'Office Website' (a text field). The 'Contact/Modified Defaults' section has fields for 'Contact Person' (a text field), 'Contact Information' (a dropdown menu), 'Office Name' (a text field), 'Office Phone' (a text field), 'Office Email' (a text field), 'Office WebSite' (a text field), 'Last Modified' (a date picker), 'Modified By' (a text field), and 'Created By' (a text field). There is a hint box on the right side of the 'Contact/Modified Defaults' section that says: 'Hint: You can set the default values below and then click the button on the right to update the values to the main form with a single click. You will not have to change or reenter the values between records unless they change. You can also enter the information above. A blank field below will not be copied to the main form.'

### 1. General Monitoring Information

- a. The LTDL is designed as a treatment database and does not store monitoring data in tabular form. Monitoring documents can be loaded in the [Hyperlinks](#) (sec) under the [Documentation \(tab\)](#). We recommend using a database designed specifically for monitoring data such as the Database for Inventory Monitoring and Assessment (DIMA, <http://jornada.nmsu.edu/monit-assess/dima>). Only general monitoring information is stored in the LTDL.

### 2. Contact Information

- a. This set of fields stores information about who to contact for further information on the project as well as the individual who entered the project data.

### 3. Contact/Modified Defaults

- a. Office contact information and the individual who entered the project often are identical from project to project if one individual is entering all projects. Users can store default contact information in this section and quickly add the default information to the Contact Information area with the click of a button without having to enter each field.

## Documentation (tab)

The Documentation tab allows users to upload documents, folders, and photos associated with the project.

### Hyperlinks (sec; [fig. 22](#))

#### 1. Hyperlinks (sub)

- a. Within this subform, users can enter all documentation and folders associated with the project. To create a link to files or folders, users must select the year the file was created ('File Year'), 'General Category', 'File Type', and 'Alias' (using data from the [File Type](#) table). The LTDL documentation works by using a three-tiered model. 'General Category' is the most generic document type (for example: Plan, Report). 'File Type' is the mid-level category that provides greater detail (for example: Interim Report, Final Report). The 'Alias' is a specific document name that indicates a particular type of file type (for example: Final Monitoring Report). Selecting an 'Alias' name first will backfill the 'File Type' and 'General Category' (for example: Report>Final Report>Final Monitoring report will be completed by selecting Final Monitoring Report in the 'Alias' field). Only Word, Excel, PDF, JPEG, BMP, and GIF documents are acceptable document formats. Tab into or click the 'File Name' field to display a File Dialog or Folder Dialog window, and select the file or folder of interest.
- b. Loading Folders into Documentation

Some projects may have so many files (for example: individual monitoring records) that loading them all individually would be unnecessary and time consuming. In this case, it is best to load the folder into the documentation section.

  - i. Select the 'Alias' – "Source Data Folder" and, when uploading the folder, select the folder containing all data to load for the project. The "Source Data Folder" selected is then copied to LTDL\_Files/Project Name folder and named for the Project.
  - ii. After the initial folder is created, additional folder links entered in Hyperlinks (sub) (for example: GIS, Photos, Monitoring Data) may be selected from within this Source Data Folder. To add subfolders, create a new record in the hyperlinks and select one of the subfolder aliases.

Within the 'File Name' navigate to and select the folder within the Source Data Folder. This subfolder will be renamed based on the alias.

Note: Any changes made to original files and folders not located within the LTDL\_Files/Project Name folder will need to be uploaded again or fixed manually within the folder. Any changes made to files within the LTDL\_Files/Project Name folder will be saved. Within the [File Types](#) table, any other folder or file type can be manipulated, but the Source Data Folder record should not be changed.

## 2. Web Links (sub)

- a. These links allow users to enter the closest weather station for multiple weather sites. Users then can quickly access the weather information using the weather station's website. Additionally, there also are links to useful websites that may assist in data entry or interpretation, including US Ecological Sites, NRCS STATSGO and SSURGO Soils, and USDA Plant Species.

Figure 22. Hyperlinks.

The screenshot displays a web application interface for managing project data. At the top, a navigation bar includes a project title 'Four\_Wheeler\_C1XU\_Wildfire\_2006' and a series of action buttons such as 'Add a Project', 'Change Pj Name', 'Open Create Shape', 'Load Pj/Tit GIS', 'Refresh Update GIS', 'Error Check', 'Check Pj Folder', 'Refresh Project', 'Go To Last Project', 'Search Visited Projects', 'Search FU Projects', 'Search Project Name', 'Search Project Ids', 'Clear Imp Files', 'Clear Create Shape', 'Clean House', 'Save Close Form', 'Delete', and 'Cancel'. Below the navigation bar, there are three tabs: 'Project Info', 'Documentation', and 'Treatment Info'. The 'Hyperlinks' tab is selected, showing a table of file links. The table has columns for 'File year', 'General Category', 'FI HK', 'File Type', 'AL HK', 'Alias', 'File description', 'File Name', and actions ('Open', 'Update Name', 'Del'). The table contains 18 rows of data, each representing a file link. Below the table, there are two sections: 'Web Links' and 'Soil/Seed Sites'. The 'Web Links' section includes a 'Weather Links' table with columns for 'Weather Links' and 'Use Weather Station', and a 'Soil/Seed Sites' section with links to 'US Ecological Site Types', 'US STATSGO and SSURGO Soils', and 'USDA Plant Species'.

File year	General Category	FI HK	File Type	AL HK	Alias	File description	File Name	Open	Update Name	Del
2006	Map		Burn Severity Map		Burn Severity Map	Burn Severity Map	Four_Wheeler_C1XU_Wildfire_2006_2006_Burn_Severity_Map.pdf	Open	Update Name	Del
2006	Plan		ES Plan		ES Plan	Plan	Four_Wheeler_C1XU_Wildfire_2006_2006_ES_Plan.pdf	Open	Update Name	Del
2006	Assessment		Habitat Assessment		Habitat Assessment/Description	Pre-Project Soil/Vegetation	Four_Wheeler_C1XU_Wildfire_2006_2006_Habitat_Assessment.pdf	Open	Update Name	Del
2006	Map		Habitat Map		Vegetation Map	Vegetation Map	Four_Wheeler_C1XU_Wildfire_2006_2006_Habitat_Map_Vegetation.p	Open	Update Name	Del
2006	Map		Previous Events Map		Previous Fires Map	Previous Fires Map	Four_Wheeler_C1XU_Wildfire_2006_2006_Previous_Events_Map.Fir	Open	Update Name	Del
2006	Folder		Source Data Folder		Source Data Folder	Source Data Folder	Four_Wheeler_C1XU_Wildfire_2006_2006_Source_Data_Folder	Open	Update Name	Del
2007	Report		Interim Report		EOT Report	2007 EOT Report	Four_Wheeler_C1XU_Wildfire_2006_2007_Interim_Report_EOT.pdf	Open	Update Name	Del
2007	Report		Interim Report		Interim Monitoring Report	Monitoring Report	Four_Wheeler_C1XU_Wildfire_2006_2007_Interim_Report_Monitoring	Open	Update Name	Del
2007	Report		Interim Report		Interim Summary Report	Summary Report	Four_Wheeler_C1XU_Wildfire_2006_2007_Interim_Report_Summary.p	Open	Update Name	Del
2007	Data		Monitoring Data		Monitoring Data	Monitoring Data	Four_Wheeler_C1XU_Wildfire_2006_2007_Monitoring_Data.pdf	Open	Update Name	Del
2007	Map		Monitoring Map		Monitoring Map	Monitoring Map	Four_Wheeler_C1XU_Wildfire_2006_2007_Monitoring_Map.pdf	Open	Update Name	Del
2007	Seed Information		Seeded Species Information		Seed Costs	Seed Costs	Four_Wheeler_C1XU_Wildfire_2006_2007_Seeded_Species_Informati	Open	Update Name	Del
2007	Seed Information		Seeded Species Information		Seed List	Seed Report	Four_Wheeler_C1XU_Wildfire_2006_2007_Seeded_Species_Informati	Open	Update Name	Del
2007	Map		Treatment Map		Seeded Species Map	Treatment Map	Four_Wheeler_C1XU_Wildfire_2006_2007_Treatment_Map_Seeded_S	Open	Update Name	Del

**Web Links**

Weather Links:  Use Weather Station

Soil/Seed Sites: [US Ecological Site Types](#), [US STATSGO and SSURGO Soils](#), [USDA Plant Species](#)

## Photos (sec; [fig. 23](#))

1. We recommend that users enter photos after the treatments have been entered, as photos can be associated with a specific treatment.
2. Users can load any number of photos individually or by folder using the Load Photo toolset (see LTDL Tool and Control Guide [[.pdf](#)] for instructions on how to use each tool). A photo and a thumbnail will be copied to the LTDL Files Project folder. Users can include attributes and keywords associated with the photo.
3. Users can select the **View / Go to Photos** tool to quickly edit multiple photos or go to a specific photo.
4. Slow load times prevent the LTDL from loading photos immediately; when entering a project, use the **View Photo** tool to see an image of the photo.
5. Only JPEG photos can be loaded into the LTDL; do not attempt to load any other file type.

Figure 23. Photos.

Project Info Documentation Treatment Info

Hyperlinks Photos

Photo Information

Photo ID: AboutTime\_BOGX\_1  
Total number of photos: photo 1 of 20

Add a New Photo Load Photos No Attrs Load Photos With Attrs Load Photos / Attrs from Table Next Photo View / Go to Photos Recalculate Photo Numbers Delete Photo Delete All Photos

Select Photo  
Photo file name: AboutTime\_BOGX\_Photo\_1.jpg

Caption  
Photo taken from: 'About Time Fire ESR tour photos July 27, 05\IMG\_0408.JPG' in the Source Data Folder.

Photo credit Photo applies to:  
Treatment ID Type of treatment

Point location of photo  
Coordinate system Longitude Latitude

Date photo taken  
Month Day Year 7 26 2005  
Elevation  
ft  
Direction Taken

Image found and displayed.  
View Photo

Select Photo Keywords  
Photo Keywords  
Delete Keyword

General Photo Notes for the Project

## Treatment Info (tab)

The Treatment Info tab contains information related to specific treatments within an individual project. The Treatment Info tab is split into three sections: [Treatment Data](#), [Treatment Spatial Information](#), and [Treatment Seed Mix](#).

1. 'Treatment ID' field
  - a. A unique Treatment ID is created for each treatment within the project (Project Name plus identifying number). The Treatment ID links all records in the various treatment tables together. Click **Add Trt ID** to add a new treatment.
2. 'Treatment Type' field
  - a. The 'Treatment Type' is the description of the treatment that occurred and is required before entering additional information.

## Treatment Data (sec; [fig. 24](#))

Figure 24. Main Treatment Information (sub)

The screenshot shows the 'Treatment Info' tab in a software application. The 'Treatment Data' section is highlighted. It includes fields for 'Treatment ID' (Four\_Wheeler\_C1XU\_Wildfire\_2006\_2), 'Treatment Type' (Aerial Seeding), and 'Treatment' (2 of 6). Below these are tabs for 'Main Treatment Information (Required)', 'Treatment Spatial Information', and 'Treatment Seed Mix'. The 'Main Treatment Information (Required)' section contains fields for 'Final planned/implementation status', 'Funding', 'Treatment code', 'Treatment completed by', 'Overall success', 'Spatial level', and 'Seeding treatment'. Below this is the 'Implemented Treatment Information' section, which includes a table for 'Confirm Trt', 'Trt Status', 'Units', 'Success this year', and 'Trt Objectives'. The bottom section is 'General Treatment Information', which includes 'Treatment Descriptions', 'Project Concerns', 'Both', 'Project Descriptions', 'Treatment Grazing Information', 'Land Types Affected', and 'Related Treatment IDs'.

- a. This area contains information on treatments including implementation information, spatial data, and seed mix information (if applicable). If the user



enters the treatment as “Implemented”, the option of entering final dates and units becomes available.

- b. Final Treatment Hyperlinks (sub)
  - i. Users select the documents used to complete the Main Treatment Information data. This allows other users to quickly locate the documents used to complete this area.
- 2. Implemented Treatment Information (sub) and Planned Treatment Information (sub)
  - a. The LTDL has the ability to store the planned and implemented information on a specific treatment. Additionally, multiple records of the planned and implemented information can be added if plans change or if updated implementation data are gathered and the user does not want to erase the original information. Complete the ‘Final Planned/Implementation Status’ field to view the correct Treatment Information subform.
  - b. Documentation (sub)
    - i. Users select the documents used to complete the Implemented Treatment Information (sub) and Planned Treatment Information (sub).
  - c. Equipment Used and Acres Treated (sub)
    - i. Users select the type of equipment used and the number of acres treated.
  - d. Cooperator/Contractor (sub)
    - i. Users provide information on cooperators or contractors who conducted the treatment.
  - e. Herbicide (sub)
    - i. This area will only appear if the treatment is an herbicide application. Users enter specific details of the herbicide application (for example: chemical, rate, acres).
- 3. General Treatment Information (sub)
  - a. Users enter concerns, problems, conditions, grazing closure information, land types, related treatments, and notes. If available, allotment or herd management area GIS will be added automatically during the GIS clipping process. All other data should be added manually.
    - i. When entering related treatments, keep in mind that all treatments within a project are related to each other. ‘Related Treatment IDs’ should be used to highlight specific relationships between treatments. For example, if the project has three seedings, and two of the seedings had chainings, link each chaining to the specific seeding.



**Treatment Spatial Information** (sec; [fig. 25](#))  
Figure 25. Treatment Spatial Information.

The screenshot shows the 'Treatment Spatial Information' section of a web application. The top toolbar contains buttons for 'Add a Project', 'Change Pjt Name', 'Open Create Shape', 'Load Pjt/Tit GIS', 'Refresh Update GIS', 'Error Check', 'Check Pjt Folder', 'Refresh Project', 'Go To Last Project', 'Search Visted Projects', 'Search FO Projects', 'Search Project Name', 'Search Project Ids', 'Clear Temp Files', 'Clear Create Shape', 'Clean House', 'Save Close Form', and 'Data'. The navigation pane on the left has tabs for 'Project Info', 'Documentation', and 'Treatment Info'. The main content area is titled 'Treatment ID Four Wheeler C1XU\_Wildfire\_2006\_2' and 'Treatment Type Aerial Seeding'. It includes a 'Treatment GIS Data' section with a 'View Spatial Files List' button and a 'Delete Spatial Record' button. The 'Treatment GIS Attributes' section contains a form for entering treatment details, including 'Treatment Status', 'Treatment Method Name', 'Treatment Sub Method Name', 'Treatment Start Date', 'Treatment End Date', 'Final Dates', 'Type of Treatment', 'Total Acres', and 'BLM Acres'. The 'File Names and Acres' section shows a table of file names and their corresponding acres. The 'Single Values' section shows a table of single values for various attributes. The 'Multiple Values' section shows a table of multiple values for various attributes. The 'Metadata' section shows a table of metadata for the GIS layers.

File name	Acres
US_Allotments\US_Allotments.shp	1,096.0
US_Allotments\US_Allotments.shp	506.2
US_Allotments\US_Allotments.shp	4.0
US_Allotments\US_Allotments.shp	735.1
US_BLM_Field_Offices\US_BLM_Field_Offices.shp	2,341.0
US_BLM_Field_Offices\US_BLM_Field_Offices.shp	2,341.0
US_Counties\US_Counties.shp	2,341.0

**Warning!** Only shapefiles can be selected when loading a feature class into the treatment and the datum must be NAD 1983 or NAD 1927.

1. This section is very similar to the [Project GIS Data](#) section, except that the GIS data are related to the treatment. Treatment GIS is a subform where users can enter data that are then appended to the feature. The original feature attribute data are not deleted and will remain with the feature in the individual project geodatabase. Only those attributes associated with the LTDL are added to the LTDL Perimeters geodatabase. If the feature needs to be updated with the same feature type (for example: polygon replaces polygon), use the **Overwrite Hyperlink** tool to update the GIS feature. To load a new feature type, select the new type from the 'Spatial Level' in [Treatment Data](#) section and overwrite the current version. Finally, users can view the data obtained during the [GIS clipping](#) process and add the metadata for the GIS layers used in the GIS clip (see LTDL Tool and Control Guide [.pdf] for more information on loading shapefiles).

## Treatment Seed Mix (sec; [fig. 26](#))

Create a seed mix record for every seeding treatment, even if information is limited, by Figure 26. Treatment Seed Mix Information.

The screenshot shows a web application interface for managing treatment seed mix information. The main section is titled "Treatment Seed Mix Information" and is divided into two main parts: "Seed Mix Information" and "Seed Species Information".

**Seed Mix Information:**

- Mix name:** 4 Wheeler Aerial Mix (AS2 Mix)
- Mix acres:** 2,343.0
- Are the species below planned or confirmed?** Confirmed on Paper
- Application rate:** Species Specific
- Bulk or PLS application rate:** Both
- Control areas present:** Within Treatment
- Were seeds or seedlings used?** Seeds
- Document used to complete this mix:** Four\_Wheeler\_C1XU\_Wildfire\_2006\_2

**Seed Species Information:**

Seed list	Symbol (and Synonym)	Species	Common Name	Variety	Bulk Lbs	Bulk/acre	PLS Rate	PLS Lbs	PLS/acre	Bulk seeds/foot	Bulk seed/ft	PLS seeds/foot	PLS seed/ft	View all Seeds
Common	PUTR2	Purshia tridentata (Pursh)	Antelope Bitterbrush		1,500.0	0.6	0.9	1,367.0	0.6					Delete Species
Common	LUPE2	Linum perenne L. - Appal	Blue Flax - Appal		1,250.0	0.5	0.9	1,151.0	0.5					Delete Species
Common	PSSPS	Pseudotsuga speciosa (L.)	Bluebunch Wheatgrass - P.		4,800.0	2.0	0.8	4,072.0	1.7					Delete Species
Common	ELLE5	Elymus elymoides (Raf.) S.	Buffelbush Squirreltail - Sh		1,800.0	0.8	0.9	1,564.0	0.7					Delete Species
Common	ATCA2	Artemisia canescens (Pursh)	Fountain Sagebrush		500.0	0.2	0.4	184.0	0.1					Delete Species
Common	ACHY	Achnatherum hymenodes	Indian Ricegrass - Rimrock		7,100.0	3.0	0.9	6,704.0	2.9					Delete Species
Common	POSE	Poa secunda J. Presl. - Cr	Sandberg Bluegrass - Can		2,950.0	1.3	0.9	2,595.0	1.1					Delete Species
Common	SAM3	Sanguisorba minor Scop.	Small Burnell - Delar		4,750.0	2.0	0.9	4,117.0	1.0					Delete Species
Common	ELLAL	Elymus lanceolatus ssp. L.	Thickspike Wheatgrass - Cr		5,950.0	2.5	1.0	5,708.0	2.4					Delete Species
Common	HECO26	Hesperotropa comata (Torr)	Needle & Thread Grass		500.0	0.2	0.9	430.0	0.2					Delete Species
Common	PEPAB	Penstemon palmeri Gray	Palmer Penstemon		150.0	0.1	0.8	125.0	0.1					Delete Species
Common	ONVI	Oenothera viciifolia Scop.	Sandbar - Eski		1,250.0	0.5	0.9	1,174.8	0.5	0.0	0.0	0.0	0.0	Delete Species
Common	ELTR7	Elymus trichocaulis (Link)	Slender Wheatgrass		200.0	0.1	0.8	165.6	0.1	0.0	0.0	0.0	0.0	Delete Species

**Calculate Totals:** 32,700.0 14.0 23,357.5 12.5 0.0 0.0

**Seed mix notes:** Seed mix sheet says 2343 acres were seeded while the summary sheet says 2353 acres received this mix. \*The Wyoming Sagebrush was added to the mix on-site and was

**Buttons:** Add a Project, Change Pjt Name, Open Create Shape, Load Pjt/Tit GIS, Refresh Update GIS, Error Check, Check Pjt Folder, Refresh Project, Go To Last Project, Search Voted Projects, Search FJ, Search Project Name, Search Project Ids, Clear Temp Files, Clear Create Shape, Clear House, Save Close Form, Delete Project.

checking the 'Seeding treatment' box in the [Treatment Data](#) section. After a seeding record is created, users can enter specific seeding information.

### 1. Seed Mix Information (sub)

- Enter general information about the mix.
  - 'Application rate' refers to whether the seed application rate is listed by species ("Species Specific") or a general rate is given for all species ("Overall").
  - 'Bulk or PLS application rate' refers to whether the application rates given are for bulk seeding or pure live seed (PLS) rates. In some cases, a seeding rate may be given with no indication of whether it is the bulk or PLS rate. The user should select "Unknown" from the 'Bulk or PLS application rate' drop-down menu, and enter the seeding data in the Bulk fields.
  - 'Were seeds or seedlings used?' switches the application rate view based on the user response to allow rates to be entered for seed or seedlings.
- Documents used to complete this mix (sub)
  - Indicate the document loaded in the hyperlinks section that was used to complete this seed mix. Unlike other sections within [Treatment Data](#)

where multiple documents can be listed, only one document should be listed to indicate the seed mix.

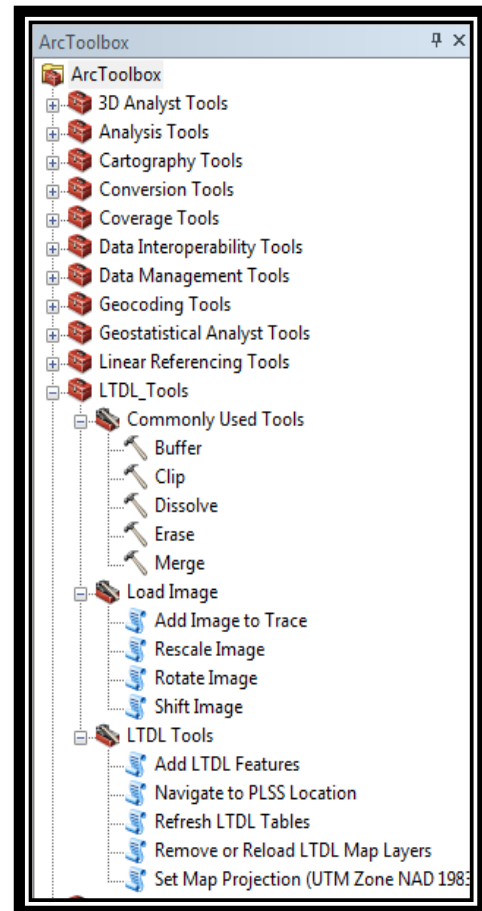
2. Seed Species Information (Seed Weights and Rates) (sub)
  - a. List all seed species applied for this specific treatment. Users can select from a common list (about 100 species) or the U.S. Department of Agriculture plants database list. Enter one of the following: “Symbol and Synonym”, “Species”, or “Common Name”, and the other seed name fields will autofill. If a specific seed variety is not listed in the table, enter the generic species and specific variety into the ‘Variety’ field.
    - i. Access has some display issues with certain seed species if both a ‘Common’ and ‘USDA’ plant species are selected. This has to do with difference between the ‘Common’ and ‘USDA’ lists and how the values for each record are selected. If it looks like the row is empty but there should be seed data, then click the row. If a species exists, it will appear (the record is there, it is just not displaying properly).
    - ii. When entering seeding rates (for example: Bulk Acres), certain values will calculate automatically (for example: Bulk Lbs per Acre) based on the acreage seeded that the user entered.
    - iii. If entering a ‘PLS Rate’, the value must be between 0 and 1 (0–100 percent). At most, only 100 percent of the seed will germinate. Forcing the value from 0 to 1 assists in auto-calculating an accurate PLS rate.
3. Seed Species Information (Seed Costs) (sub)
  - a. Switches the view from Seeding Rates (sub) to Seed Costs (sub). The species and common names will remain unchanged allowing the user to easily enter both rate and cost information without scrolling. Users can enter the cost of each seed species or seedling. Like the seeding rates, some values will calculate automatically based on data entered.

## ArcGIS Specialized LTDL Tools

A specialized LTDL Toolbox (LTDL\_Tools) has been created within the LTDLData10x.mxd ArcMap document to allow the LTDL to interact with ArcMap and to allow users with limited experience in ArcMap to work more efficiently. Each specialized LTDL tool comes with help documentation that can be accessed by clicking the ‘Show Help’ button. Therefore, only general tool functions are described here. This toolbox works exclusively with the LTDLData10x.mxd ArcMap document. Any attempt to run these tools in another map document or ArcCatalog likely will result in failure as the proper connections to the database do not exist.

- To access the toolbox, open the LTDLData10x.mxd, then open ArcToolbox>LTDL\_Tools ([fig. 27](#)).
- **Commonly Used Tools**
  - These are standard ArcGIS tools (Buffer, Clip, Dissolve, Erase, and Merge) commonly used by LTDL staff compiled in a single location for ease of use. See ArcGIS help for descriptions of these tools.

Figure 27: LTDL Toolbox.



- **Load Image**
  - The Load Image toolset is a set of four tools that allow users to import, manage, and trace a paper map within the ArcMap window. Users only should use this toolset if no GIS information is available and only a paper map exists. The map can be imported and georeferenced using these tools. Users who are more familiar with georeferencing within ArcGIS should use the Georeferencing tool, as it is more efficient. However, for novice users, this tool provides greater simplicity.
  - **Add Image to Trace**
    - Users can add an image to LTDLData10x and the image appears at the current location on the map.
      - The image will import in a stretched format instead of RGB color, resulting in a single color ramp. To fix this, right-click the image in the TOC and select **Properties**. In the **Symbology** tab and under 'Show:', select "RGB Composite". Click **OK** to close the Properties window and return the image to normal color.
      - **WARNING! The image cannot have been previously georeferenced or the tool will place the image in an incorrect location.** The image must be a simple image file with no spatial reference. If the image has a spatial reference, load it using the traditional **Add Data** tool, and use the **Shift Image** tool if necessary.
  - **Rescale Image**

- This tool rescales a previously loaded image (loaded with Add Image to Trace) using locations representing the same relative distance. Users should use the tool if the imported image is not scaled correctly (for example: 1 kilometer on the paper map represents 500 meters in ArcGIS). Users should select a set of two points on the imported image and measure the distance between them. Then, within the ArcGIS map, users should select the same two points and again measure the distance. The two individual distances will be used to calculate the difference and to rescale the imported image.
  - ***Rotate Image***
    - This tool rotates the imported image based on user specified degrees.
  - ***Shift Image***
    - Users can shift an image north, south, east, or west.
- **LTDL Tools**
  - ***Add LTDL Features***
    - Users can add the current project and treatment features to the map. If the project or treatment does not have a feature assigned, nothing will be added to the map. Additionally, other features (for example: selected project a treatment features from overlapping projects) can be added to the map).
  - ***Navigate to PLSS location***
    - This tool navigates to the township and range specified by the user. Bureau of Land Management Public Land Survey System (PLSS; a way to identify a location on the ground using a township and range) maps are required.
  - ***Refresh LTDL Tables***
    - This tool can help restore a broken link between the LTDL\_6 tables and LTDLData10x if users receive an error informing them that the LTDL has locked itself. Access can put a lock on the tables that ArcGIS cannot penetrate if changes are made to the design of the LTDL. If the connection is not reestablished, try closing and reopening the LTDL\_6 (.accdb) database and running the refresh again.
  - ***Remove or Reload LTDL Map Layers***
    - LTDLData10x comes with several standard layers; this tool allows the user to easily remove or reload these layers. This is important if online layers become temporarily unavailable, which can slow down the LTDLData10x map considerably.
  - ***Set Map Projection (Universal Transverse Mercator [UTM] Zone NAD 1983)***

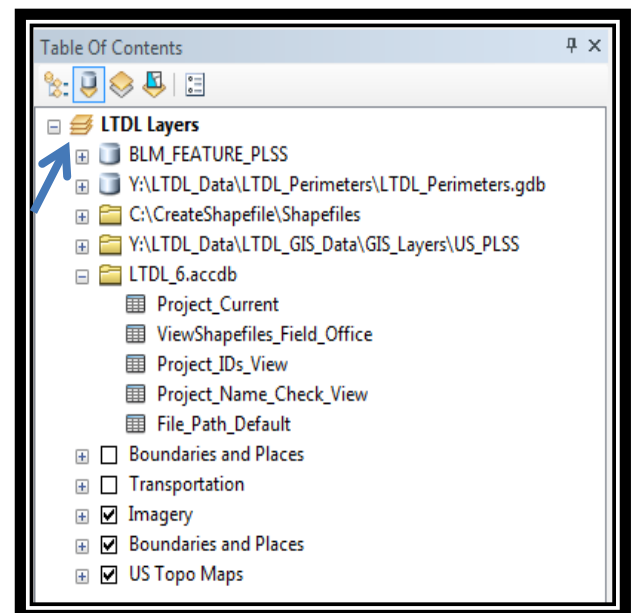
- Users can specify the UTM Zone they want for their map or users can select their UTM Zone based on the current location. The UTM\_Zone map included with the download package is required to identify and set the map projection.

## LTDL Tables in LTDLData.mxd

There are five LTDL tables that should be loaded in the table of contents: Project\_Current, ViewShapefiles\_Field\_Office, Project\_IDs\_View, Project\_Name\_Check\_View, and File\_Path\_Default ([fig. 28](#)). If they fail to load, try using the **Refresh LTDL Tables** tool (see LTDL Tools) to fix the problem. If they still do not load, try the following steps to load the tables manually:

1. Ensure that the LTDLData.mxd has a connection to the LTDL\_6 database (See Step 3 in [Setting up the LTDL and associated programs](#)).
2. In the Table of Contents, select **List by Source** to display all data.
3. See if the LTDL\_6.accdb folder and the tables exist ([fig. 28](#)).
4. If they do not appear, open the ArcCatalog window and select Database Connections>LTDL\_6.odc.
5. Manually drag the tables referenced in step 3 over to the Table of Contents. They will be placed automatically in the same folder.

Figure 28. LTDL tables in LTDL\_Data.



## FAQs

1. [Who should I contact when errors or other issues arise?](#)
2. [What is the best way to enter a Project?](#)
3. [How do I handle general errors that arise?](#)
4. [What is the Write Conflict error window?](#)
5. [What is the System Resource Exceeded error window?](#)
6. [What can I do if the LTDL encounters an error uploading GIS](#)
7. [What can I do if the LTDL encounters an error uploading hyperlinks?](#)
8. [What can I do if the LTDL encounters an error uploading photos?](#)
9. [What can I do if the LTDL encounters an error during a Project Name change?](#)
10. [What can I do if there is an error in the LTDLData10x.mxd program?](#)

11. [How do I make a project perimeter when my treatments are composed of polygons, lines, and points that do not overlap?](#)
12. [Do I have to save my data constantly, as in Word and Excel?](#)
13. [Should I back up the LTDL?](#)
14. [How can I make changes to the background and data storage tables outside the database?](#)
15. [How do I fix a setting or control that is not functioning normally?](#)
16. [How does an approximate point differ from a regular point?](#)
17. [What is the difference between the implementation status of a treatment and the shapefile status in the GIS attribute table?](#)
18. [Is it necessary to complete all fields in the LTDL?](#)
19. [Why is my color scheme not displaying appropriately \(I see gray in some of the boxes\)?](#)

**1. Who should I contact when errors or other issues arise?**

- a) Please send all inquiries to the [LTDL Helpdesk](#). We will attempt to respond to emails as soon as possible.

[Back to FAQs](#)

**2. What is the best way to enter a project?**


- a. We recommend organizing the documentation, photos, and GIS to be prepared before data entry begins. Create a unique project name and enter the [Project Info](#), then [Documentation](#), and finally [Treatment Info](#). Entering the documentation first will allow users to enter the document links as treatment data are entered instead of having to come back and enter them after entering the documentation. However, users should find a method that works for them with which and they are comfortable. Having a stable routine while entering data reduces the likelihood of errors and generally is more efficient.

[Back to FAQs](#)

**3. How do I handle general errors that arise?**

- a. The LTDL is a complex database that incorporates five different programs and thousands of lines of code, and that has the potential to allow multiple users to enter data into the same set of tables. As with any complex program, errors will occur.
  - i. In the event of a generic error that has not been programmed into the LTDL, the user will be given two options: **Debug** or **End** the process. Users should not attempt to debug the program unless they are familiar

with VBA scripting. Oftentimes ending the process and attempting it again will resolve the issue.

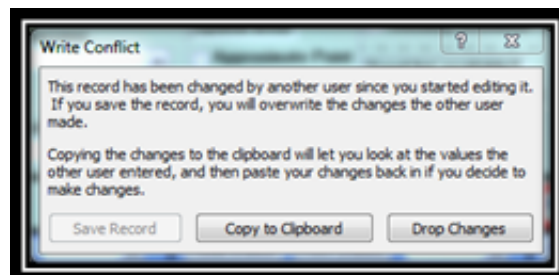
- ii. If attempting the process again fails to work, shut down the LTDL, open it, and try again. Try deleting the section or area being worked on and attempt to reenter the data. Depending on the error, if the users feels comfortable, access the table structure directly and change the data. If nothing else works, download a new version of the LTDL\_6 (.accdb) (not the entire zipped folder) and attempt the process again. If every attempt fails, email the [LTDL Helpdesk](#) and skip this section until the error can be identified and fixed.
- b. The LTDL may encounter an error for reasons we have been unable to identify. When the **Debug** or **End** window appears, one option is to select **Debug** and let the VBA window open automatically. Click the Continue button (the little green triangle ) in the tool menu at the top of the VBA window and see if the process continues. If the error is repeated, end the process and try again. Users may try to identify or fix the error if they are experienced with VBA. A word of caution: rewriting VBA code can have unintended results.
- c. Whenever an error occurs that cannot be fixed, run the **Check Prj Folder** and **Clear Temp Files** tools. Many problems can be fixed by running these tools.

#### [Back to FAQs](#)

#### 4. What is the Write Conflict error window?

- a. The Write Conflict error window (fig. 29) is a warning box that often appears when the user runs a Delete or Rename command. We do not currently know what is driving this error, but closing the Write Conflict window or clicking **Drop Changes** will exit the window and continue the command without influencing data in the database.

Figure 29. Write Conflict error.



#### [Back to FAQs](#)

#### 5. What is the System Resource Exceeded error window?

- a. The System Resource Exceeded window is a warning box that can appear when computer memory runs low. The LTDL makes every attempt to handle this error



but it can still appear. If possible, attempt Step B in Question 3 above; if this fails to solve the problem, close the database and reopen it.

## [Back to FAQs](#)

### 6. What can I do if the LTDL encounters an error uploading GIS?

- a. While rare, errors can occur when uploading GIS. Every attempt is made to describe an error that occurs while loading GIS. In addition to reading the error description, users can look for the following issues and solutions.
  - i. Ensure that the feature is not open in ArcGIS or another program. If ArcGIS has a lock on the feature or if the user is attempting to overwrite a feature that is open, the process will fail. Close down any programs that are using the feature.
  - ii. Use the **Clear Temp Files** tool to erase the data in the temp files folder that could be causing a problem.
  - iii. Run the **Check Prj Folder** tool to determine if the project folder and geodatabase were created correctly.
  - iv. When working with GIS, the LTDL uses Python scripting language. These python windows appear as black command windows that display. While GIS is processing, pressing the wrong key (Enter or Space Bar, among others) without taking the focus off of the Python window by clicking another document can abort the Python script and cause the process to fail. Reload the feature again using the **Overwrite Shapefile** tool.
  - v. Determine if the feature loaded part of the way. Check to see if the 'Original File Name' field in the GIS section of interest has the feature name and load the feature in ArcMap using the **Add LTDL Features** in the LTDL Tools ArcGIS toolbox to see if the feature loads correctly. If the feature has loaded part of the way (that is: the 'Original Shapefile' field has the feature name in it), use the **Update Att** or **Load to Geo** tools. Otherwise use the **Overwrite Shapefile** tool.
  - vi. Ensure that GIS is in a projected coordinate system. If the GIS is not in a projected coordinate system, re-project the feature and attempt to reload it again using the **Overwrite Shapefile** tool.
  - vii. GIS attributes failed to attach properly. Check the attribute table in the project or treatment section where the error occurred for any apostrophes, special characters, hard returns or anything other than alphanumeric characters. Ensure also that the GIS notes field is less than 200 characters. Even cutting and pasting data into one of these

fields can cause issues attaching treatments. Any of these issues may cause the failure of the attributes to attach. Fix the issue and attempt to reload it again using the **Overwrite Shapefile** tool.

- viii. GIS failed to append to the geodatabase. This error can occur if more than one user attempts to upload features to the geodatabase at the same time. First, check the attribute fields described in item '6.a.vii'. Next, use the **Load to Geo** tool to attempt appending again. If this fails, use the **Overwrite Shapefile** tool to reload the feature completely. Try also to delete the GIS record and attempt the upload of the GIS feature again.
- ix. The program makes it to the end but the GIS feature could not be found. Everything may appear to go correctly and an error can still occur. Follow the procedures in items 6.a.i and ii and then use the **Overwrite Shapefile** tool, or delete the record and try again.
- x. If nothing solves the problem, email the [LTDL Helpdesk](#) and skip this section until the error can be identified and fixed.

### [Back to FAQs](#)

## 7. What can I do if the LTDL encounters an error uploading hyperlinks?

- a. The LTDL crew has found that Adobe settings can reset themselves with no user input. See '[Adobe Acrobat Pro and Acrobat Distiller Settings](#)' and '[Change PS Files Open with Setting](#)' to ensure that Adobe settings are correct.
- b. Ensure that the document type is compatible. Only Adobe PDFs, Word documents, Excel documents, JPEGs, Bitmaps, and GIFs are acceptable documents.
- c. Run the **Clear Temp Files** tools and ensure that the document is not open in any location.
- d. Run the **Check Prj Folder** tool to determine if the project folder was created correctly.
- e. If attempting to load a folder other than the Source Data Folder, ensure that the Source Data Folder has loaded correctly.
- f. If attempting to load a Word or Excel document and it will not convert properly, try to convert it to a PDF manually and then load it.
- g. Delete the record and try again.
- h. Close the LTDL and try again.
- i. If nothing is able to fix the problem, email the [LTDL Helpdesk](#) and skip this section until the error can be identified and fixed.

## [Back to FAQs](#)

### **8. What can I do if the LTDL encounters an error uploading photos?**

- a. Ensure that the photo being loaded is in JPEG format.
- b. Run the 'Clear Temp Files' tool to erase the data in the temp files folder that could be causing the error.
- c. Run the 'Check Prj Folder' tool to determine if the project folder was created correctly. If it was not, the folder will be created automatically.
- d. Delete the photo record and attempt the process again.
- e. Attempt a different method to upload the photo; there are multiple photo uploading tools that can be used.
- f. Close the LTDL and try again.
- g. If the previous steps do not fix the problem, email the [LTDL Helpdesk](#) and skip this section until the error can be identified and fixed.

## [Back to FAQs](#)

### **9. What can I do if the LTDL encounters an error during a Project Name change?**

Changing the name of a project is by far the most complicated process in the LTDL. All appropriate tables, GIS, documents, and photos must be updated. Every attempt has been made to ensure that changes occur smoothly. However, it is best to avoid name changes altogether. Take time crafting a Project Name to avoid name changes in the future.

- a. The name change is completed, but not every form or section is transferred appropriately; in other words, data appear to be missing.
  - i. Change the new Project Name back to the old Project Name, ensuring that the old Project Name is spelled exactly as it was before. This name change may cause additional errors with GIS, but users can ignore them. Next, attempt the rename again. The second attempt usually is accomplished without errors.
- b. The GIS did not come through correctly or at all. When working with GIS, the LTDL uses Python scripting language. These python windows appear as black command windows that display during GIS processing. While a name change is taking place and GIS begins to be processed, pressing the wrong key (Enter or Space Bar, among others) without taking the focus off of the Python window by clicking another document can abort the Python script and cause the process to fail.
- c. Error refreshing GIS, adding attributes, or appending to the geodatabase after the name change occurred.

- i. If an error occurs when GIS is being updated, the name change occurred appropriately but the renamed GIS failed to upload appropriately.
- ii. Start by running the **Clear Temp Files** and **Check Prj Folder** tools.
- iii. Load the GIS for the project (both the individual project geodatabase and LTDL\_Perimeters[.gdb]) using LTDLData10x.mxd and determine which features loaded appropriately.
- iv. For those features that failed to load, use the **Overwrite Shapefile** tool to reload the features.
- v. Check the attribute table of the perimeters geodatabase to ensure that the old Project Name or Treatment ID was deleted correctly.
- vi. If the previous steps do not fix the problem, email the [LTDL Helpdesk](#) and skip the name change until the error can be identified and fixed.

### [Back to FAQs](#)

#### 10. What can I do if there is an error in the LTDLData10x.mxd program?

- a. When running an LTDL specific tool in LTDLData10x, errors can occur. There are several steps users can take to determine the cause and to fix the error:
  - i. Always read the dialog box ArcMap uses while running toolbox tools. Even those statements not highlighted in red may give clues as to the issue that is occurring.
  - ii. If a LTDL feature does not show in LTDLData10x (.mxd), it is likely the feature did not load properly in the LTDL. The dialog box will inform users whether it detects a feature for the project or treatments and will indicate if the program is experiencing another error. Reload the feature in the LTDL and attempt the process again.
  - iii. Ensure that the tool is being run in the LTDLData10x (.mxd). Some of the LTDL tools, especially the **Add LTDL Features**, require the correct tables to be loaded and the correct connection to the database. If a user is running the tool in another map document, it may not run correctly.
  - iv. Check the LTDLData10x (.mxd) settings described in '[Setting up the LTDL and associated programs](#)' and '[LTDL tables in LTDL Data](#)' to ensure that the database connection has been created and all tables are loaded in the LTDL.
  - v. If users have experience with ArcMap, they may attempt to run all LTDL tools in the LTDL\_Toolbox manually using other methods. The toolbox

was designed to assist those with less experience in ArcMap and to speed up certain processes.

- vi. Shut down and reopen both the LTDL and LTDLData10x. Locks can be placed on either program that can prevent the program from running properly. Closing down the program can remove the lock.
- vii. If these steps do not fix the problem, email the [LTDL Helpdesk](#) and skip this process until the error can be identified and fixed.

#### [Back to FAQs](#)

### **11. How do I make a project perimeter when my treatments are composed of polygons, lines, and points that do not overlap?**

- a. The project perimeter, according to the LTDL definition, is the boundary of all treatments within a single project. If the treatments are composed of different feature class types (for example: point, line, and polygon), convert the different feature types into a single common feature class. This generally is accomplished by buffering any points and lines an appropriate distance, merging them with any polygons, and dissolving the feature class into one feature.

#### [Back to FAQs](#)

### **12. Do I have to save my data constantly, as in Word and Excel?**

- a. No, Access does not require that users save entered information constantly. When users leave a tab or a subform, or close out of Access, the information is saved automatically to the tables. Some information may be lost if Access crashes and shuts down, but major data loss will not occur unless tables become corrupted. Avoid this problem by backing up data periodically.

#### [Back to FAQs](#)

### **13. Should I back up the LTDL?**

- a. It is always important to have a backup in the event of data loss. In the case of the LTDL, it is important to back up the LTDL Access database, the data storage tables (whatever format they are stored in), LTDL\_Perimeters (.gdb), and LTDL Files (fld). Losing any one of these components could result in weeks or months of recovery depending on the severity of the loss. Fortunately, most businesses back up their data automatically. If there is not an automatic backup, schedule a backup of the information.

#### [Back to FAQs](#)

#### 14. How can I make changes to the background and data storage tables outside the LTDL database forms?

- a. There are instances when users may need to edit information in a table that is not available on any form.
- b. Changes to tables generally occur for background tables that supply information to drop-down fields or other lists that need to be edited, so users have the information they need. Identify and open the table of interest using the information in [Populating background tables](#) or the LTDL Background Tables (.pdf). Within Access, add or edit data within the table and close the table. The data may be available immediately within the LTDL, or users may have to close and re-open the LTDL to view new items added to the list. Be careful editing data in a background table, as older data already entered in the database may contain the older, unedited version. Users should run a “Find and Replace” of the appropriate field in the data storage table to update the older information.
- c. Changes also may need to be made to tables if a critical error occurs and it is impossible to fix the data using the form. Identify the table of interest using the LTDL Data Storage Tables (.pdf). Navigate to the appropriate record and make the change to the correct field. **WARNING! Users can manipulate all records when entering a table format. Any mistakes that are made cannot be undone and could result in unintended changes. The user needs to have knowledge of table and form relationships before attempting to edit data in this manner.**

#### [Back to FAQs](#)

#### 15. How do I fix a setting or control that is not functioning normally?

- a. On rare occasions, buttons or tools simply fail to respond to any command. If the user encounters this lack of response, shut down the LTDL and try again. If the command still does not work, download a new version of the LTDL\_6.accdb and link it to the tables. If the button or tool still fails to respond, email the [LTDL Helpdesk](#) and skip this process until the error can be identified and fixed.

#### [Back to FAQs](#)

#### 16. How does an approximate point differ from a regular point?

- a. An approximate point only should be used when the exact location of a project or treatment is unknown. For example, if no location information exists except that the treatment occurred somewhere within a county, the approximate point should be placed in the center of the county. Points should be used when a point location is the best spatial description of the treatment and the exact

location is known. For example, use monitoring points to represent areas that were monitored using a point method.

[Back to FAQs](#)

**17. What is the difference between the implementation status of a treatment and the shapefile status in the attribute sections of the database?**

- a. The LTDL has many fields that allow data-entry users to indicate their confidence in the data. In Treatment GIS attributes (sub), users can indicate the completion status of the treatment (for example: “Implemented”), but also can indicate the status of the feature loaded for the treatment. For example, written documentation may indicate that the treatment occurred, but the only map available is that of the planned treatment area with no indication of whether the plan was followed exactly. In this example, the treatment itself would be “Implemented”, but the shapefile status would be “Planned”. The treatment and shapefile status are different because the user cannot be sure that the area in the GIS correctly represents the true area treated, even if it is close.

[Back to FAQs](#)

**18. Is it necessary to complete all fields in the LTDL?**

- a. We recommend filling out all fields as completely as possible. Although some fields may seem to be identical or redundant, those fields have been created to respond to specific user needs or requests. Redundant fields often have tools that allow users to copy over data from one section to another with a single mouse click. See the LTDL Tool and Control Guide (.pdf) document to identify which tools copy data from other sections of the database.

[Back to FAQs](#)

**19. Why is my color scheme not displaying appropriately (I see gray in some of the boxes)?**

- a. Refresh the Project using the **Refresh Project** tool.
- b. Close the database and reopen it.
- c. Reset the color.

[Back to FAQs](#)

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