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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. 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/](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>
<thead>
<tr>
<th>Object</th>
<th>Style</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table (tbl)</td>
<td>First letter capitalized, (tbl) added to end of the name</td>
<td>Tables store data relevant to the Land Treatment Digital Library (LTDL).</td>
</tr>
<tr>
<td>Form (frm)</td>
<td>First letter capitalized, (frm) added to end of the name</td>
<td>Forms allow users to view/enter/edit data stored within a table. In the LTDL, forms are organized within tabs, sections, and subforms/areas.</td>
</tr>
<tr>
<td>Tab (tab)</td>
<td>First letter capitalized, (tab) added to end of the name</td>
<td>Tabs allow users to view specific sections within the LTDL, which contain data pertaining to the project, treatments, or documentation.</td>
</tr>
<tr>
<td>Object</td>
<td>Style</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Section (sec)</td>
<td>First letter capitalized, (sec) added to</td>
<td>Sections are specific groups of Forms that are currently visible within a tab.</td>
</tr>
<tr>
<td></td>
<td>end of the name</td>
<td></td>
</tr>
<tr>
<td>Subform/Area (sub)</td>
<td>First letter capitalized, (sub) added to</td>
<td>Subforms refer to specific areas within a single section.</td>
</tr>
<tr>
<td></td>
<td>end of the name</td>
<td></td>
</tr>
<tr>
<td>'Field'</td>
<td>First letter capitalized, enclosed in</td>
<td>A field is a single object (for example: text box, check box) in a Form where data are entered.</td>
</tr>
<tr>
<td></td>
<td>single quotes</td>
<td></td>
</tr>
<tr>
<td>Command</td>
<td>First letter capitalized, italicized, and</td>
<td>A command is a button or checkbox that performs an action within the LTDL.</td>
</tr>
<tr>
<td></td>
<td>bolded</td>
<td></td>
</tr>
<tr>
<td>Document (.ext)</td>
<td>First letter capitalized, file extension</td>
<td>A document included with the LTDL package that can be referenced.</td>
</tr>
<tr>
<td></td>
<td>added to the end of the name ('.ext' for</td>
<td></td>
</tr>
<tr>
<td></td>
<td>files or 'fold' for folders),</td>
<td></td>
</tr>
<tr>
<td>In Document Link</td>
<td>First letter capitalized and underlined</td>
<td>Refers the user to another location within this document where more information can be found on a topic.</td>
</tr>
<tr>
<td></td>
<td>hyperlink</td>
<td></td>
</tr>
<tr>
<td>File Paths</td>
<td>First letter capitalized (for example: C:</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>) and underlined hyperlink</td>
<td></td>
</tr>
</tbody>
</table>

**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.
• LTDL Download Package (fld)
  o 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).
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, “LTDL 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. 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.

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.
   b) Add the OLE DB Connection toolbar (fig. 6 top image).
      i. Right-click within the gray space on the main menu and click Customize. The Customize dialog box will open.
      ii. Click the Commands tab and select ArcCatalog from the Categories list.
      iii. Drag Add OLE DB Connection from the Commands list onto a toolbar in ArcCatalog. This will add the Add OLE DB Connection onto a toolbar (fig. 6 middle image).
iv. Click Close on the Customize dialog box. The OLE DB Connection will appear as a silver cylinder.

v. Click the silver cylinder to open the Data Link Properties window.

c) Within the Provider tab, select Microsoft Office 12.0 Access Database Engine OLE DB Provider.

d) Switch to the Connection tab.

e) 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. 7, middle image). 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.

f) 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.odc” 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.
Checking Python Files

Python scripts are used for any process involving GIS and when photos are uploaded. If either of these processes fail, 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>
<thead>
<tr>
<th>Table Name</th>
<th>Form Name</th>
<th>Status</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical Fields</strong></td>
<td></td>
<td></td>
<td><strong>Ensure that these data values are entered and correct</strong></td>
</tr>
<tr>
<td>Agency</td>
<td>Edit Agencies</td>
<td>Has Data</td>
<td>List of government, state, and private agencies; indicates who initiated the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>project</td>
</tr>
<tr>
<td>File_Type</td>
<td>Edit Document Types</td>
<td>Has Data</td>
<td>A specific file naming structure for all documentation loaded into the LTDL.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The File_Type table contains information related to the document names, the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>user may need to adjust this table to suit their needs but the data remain as</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>documentation may be similar and as an example.</td>
</tr>
<tr>
<td>How_GIS_Created</td>
<td>Edit How GIS Was Created</td>
<td>Has Data</td>
<td>Lists how the GIS was created, used to populate GIS attribute tables. Some</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>data remains as an example.</td>
</tr>
<tr>
<td>Major_Treatments</td>
<td>Edit Major Treatment Types</td>
<td>Has Data</td>
<td>List of the major ground treatments, used to summarize major treatments in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the Project Data tab, this is not the full list under the Treatment_Names table.</td>
</tr>
<tr>
<td>Office_Contact_Info</td>
<td><strong>Edit Contact Offices</strong></td>
<td>Empty</td>
<td>List of office contacts; indicates which office the project originated in.</td>
</tr>
<tr>
<td>Treatment_Names</td>
<td>Edit Treatment Types</td>
<td>Has Data</td>
<td>List of specific types of treatments that may be implemented. This is a BLM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>list, other treatment list may need to be modified to suit the user’s needs.</td>
</tr>
<tr>
<td><strong>Important Fields</strong></td>
<td></td>
<td></td>
<td>These tables can have values that should be edited or added by the user</td>
</tr>
<tr>
<td>Active_Ingredient</td>
<td>Edit Active Ingredients</td>
<td>Has Data</td>
<td>List of active ingredients found in herbicides</td>
</tr>
<tr>
<td>All_Seeds</td>
<td>Edit Seed Species</td>
<td>Has Data</td>
<td>List of plant species from the USDA plants database, used to populate seed lists</td>
</tr>
<tr>
<td>Chemical_Product</td>
<td>Edit Chemical Products</td>
<td>Has Data</td>
<td>List of herbicides used on plant species, relates to Active_Ingredient (tbl)</td>
</tr>
<tr>
<td>Common_Project_Words</td>
<td>Edit Common Project Words</td>
<td>Has Data</td>
<td>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</td>
</tr>
<tr>
<td>Control</td>
<td>Edit Seed Species Control Types</td>
<td>Has Data</td>
<td>List of whether control areas are present, used to populate “Control areas present” within the seed mix section.</td>
</tr>
<tr>
<td>Equip_Table</td>
<td>Edit Equipment Types</td>
<td>Has Data</td>
<td>List of equipment used to complete a specific treatment.</td>
</tr>
<tr>
<td>Fire_Cause</td>
<td>Edit Fire Cause</td>
<td>Has Data</td>
<td>Lists the cause of a wildfire.</td>
</tr>
<tr>
<td>Funding</td>
<td><strong>Edit Funding Sources</strong></td>
<td>Empty</td>
<td>List of the various sources where funding for a treatment may be supplied.</td>
</tr>
<tr>
<td>Grnd_Objectives</td>
<td>Edit Ground Objectives</td>
<td>Has Data</td>
<td>List of selectable objectives the user is trying to achieve on the project.</td>
</tr>
<tr>
<td>Herbicide_Trt_Types</td>
<td>Herbicide Treatment Methods</td>
<td>Has Data</td>
<td>List of possible methods for applying herbicide to the ground.</td>
</tr>
<tr>
<td>Initiated_By_Table</td>
<td>Edit Initiated By Values</td>
<td>Has Data</td>
<td>Lists who actually initiated a specific treatment (for example: Within House, Contactor).</td>
</tr>
<tr>
<td>Landtypes_Affected_Table</td>
<td>Edit Land Types Affected</td>
<td>Has Data</td>
<td>List of special land types on which a project or treatment occur.</td>
</tr>
<tr>
<td>Photo_Key_Word_List</td>
<td>Edit Photo Key Words</td>
<td>Has Data</td>
<td>List of key words that can be associated with a photo.</td>
</tr>
<tr>
<td>Project_ID_Type</td>
<td>Edit Project ID Types</td>
<td>Has Data</td>
<td>List of ID or Numbers that may be associated with a project.</td>
</tr>
<tr>
<td>Grnd_Objectives</td>
<td>Edit Project Objectives</td>
<td>Has Data</td>
<td>List of potential objectives for which the project may strive.</td>
</tr>
<tr>
<td>Table Name</td>
<td>Form Name</td>
<td>Status</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------</td>
<td>--------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Reason_For_Trt</td>
<td>Edit Reasons for Treating</td>
<td>Has</td>
<td>Lists the overall, single main reason for treating a project area.</td>
</tr>
<tr>
<td>States</td>
<td>Edit State Values</td>
<td>Has</td>
<td>List of all states in the US.</td>
</tr>
<tr>
<td>Success</td>
<td>Edit Success Types</td>
<td>Has</td>
<td>List of different categories of success for a single treatment.</td>
</tr>
<tr>
<td>Trt_Application_Issues</td>
<td>Edit Treatment Application Issues</td>
<td>Has</td>
<td>List of potential issues that occurred while performing the treatment.</td>
</tr>
<tr>
<td>Treatment_Code</td>
<td>Edit Treatment Codes</td>
<td>Empty</td>
<td>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.</td>
</tr>
<tr>
<td>Trt_Concerns</td>
<td>Edit Treatment Concerns</td>
<td>Has</td>
<td>List of concerns indicating why the treatment was implemented.</td>
</tr>
<tr>
<td>Trt_Conditions_At_Trt</td>
<td>Edit Treatment Conditions</td>
<td>Has</td>
<td>List of the current weather and soil conditions while the treatment was implemented.</td>
</tr>
<tr>
<td>Units</td>
<td>Edit Unit Types</td>
<td>Has</td>
<td>List containing the units in which the treatment was planned/implemented.</td>
</tr>
<tr>
<td>Optional Fields – Values can be changed but it is not necessary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day_Table</td>
<td>Edit Day Values</td>
<td>Has</td>
<td>List of days in the month; 0 is included in case day is unknown.</td>
</tr>
<tr>
<td>Month_Table</td>
<td>Edit Month Values</td>
<td>Has</td>
<td>List of months; 0 is included in case month is unknown.</td>
</tr>
<tr>
<td>Plan_or_Imp</td>
<td>Edit Planned or Implementation Status</td>
<td>Has</td>
<td>List of treatment implementation status.</td>
</tr>
<tr>
<td>Planned_or_Confirmed</td>
<td>Edit Planned or Confirmed Status</td>
<td>Has</td>
<td>List of Seed List confirmation status.</td>
</tr>
<tr>
<td>Project_Status_Name</td>
<td>Edit Project Status</td>
<td>Has</td>
<td>Indicates treatment status for the GIS attribute table.</td>
</tr>
<tr>
<td>Project_Complex_Table</td>
<td>Edit Project Complex Names</td>
<td>Empty</td>
<td>Create or edit the list of Project Complexes within the LTDL.</td>
</tr>
<tr>
<td>Treatment_Domains</td>
<td>Edit Treatment Domains</td>
<td>Has</td>
<td>Broad treatment classifications, for the GIS attribute table.</td>
</tr>
<tr>
<td>Year_Only</td>
<td>Edit Year Values</td>
<td>Has</td>
<td>List of years; 0 is included in case year is unknown.</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Edit Yes and No Values</td>
<td>Has</td>
<td>List of values that indicate if something was implemented.</td>
</tr>
</tbody>
</table>
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.

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.

**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
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.

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.

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.

![Clip GIS Layer form.](image)
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

![](image.png)
a project, but can be run as a batch tool using this feature.
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.

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 16. Recalculate the Spatial Index

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.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Name</td>
<td>Main Form</td>
</tr>
<tr>
<td>Data Entry Status</td>
<td>Project Info/Project Data</td>
</tr>
<tr>
<td>Major Agency</td>
<td>Project Info/Project Data</td>
</tr>
<tr>
<td>Office</td>
<td>Project Info/Project Data</td>
</tr>
<tr>
<td>Project Completion Status</td>
<td>Project Info/Project Data</td>
</tr>
<tr>
<td>Project Start Year</td>
<td>Project Info/Project Data</td>
</tr>
<tr>
<td>Project Title</td>
<td>Project Info/Project Data</td>
</tr>
<tr>
<td>Reason for Project</td>
<td>Project Info/Project Data</td>
</tr>
<tr>
<td>State</td>
<td>Project Info/Project Data</td>
</tr>
<tr>
<td>How was the shapefile created?</td>
<td>Project Info/Project GIS Data and Treatment Info/Treatment Spatial Information</td>
</tr>
</tbody>
</table>
### 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.

![Main LTDL Toolbar](image)

#### 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**.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shapefile Status</td>
<td>Project Info/Project GIS Data and Treatment Info/Treatment Spatial Information</td>
</tr>
<tr>
<td>Created by</td>
<td>Project Info/Project Monitoring and Contacts</td>
</tr>
<tr>
<td>Was the project monitored?</td>
<td>Project Info/Project Monitoring and Contacts</td>
</tr>
<tr>
<td>Type of Treatment</td>
<td>Treatment Info</td>
</tr>
<tr>
<td>Overall Planned/ Implementation status</td>
<td>Treatment Info/Treatment Data</td>
</tr>
<tr>
<td>Treatment Start Date</td>
<td>Treatment Info/Treatment Data</td>
</tr>
</tbody>
</table>
Project Data (sec; fig. 19)

Figure 19: Project Data.

1. Project Status (sub)

   a. 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.

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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)
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.

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/monitor-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 LTLD_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.
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.
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)  
1. Main Treatment Information (sub)  
   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.
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).
Create a seed mix record for every seeding treatment, even if information is limited, by 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)
   a. Enter general information about the mix.
      i. ‘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”).
      ii. ‘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.
      iii. ‘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.
   b. Documents used to complete this mix (sub)
      i. 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.

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.

  o Rotate Image  
    • This tool rotates the imported image based on user specified degrees.

  o Shift Image  
    • Users can shift an image north, south, east, or west.

• LTDL Tools
  o 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).

  o 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.

  o 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.

  o 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.

  o 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.

**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.

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.

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.

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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.

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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.

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.

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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.
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.

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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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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.

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