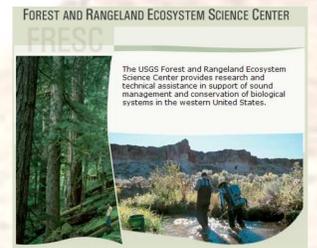




Availability of Land Treatment Data for Time-series Investigations of Vegetation Responses to Climate

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Background

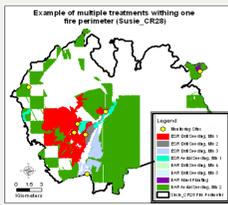
The Land Treatment Digital Library (LTDL) was created by the U.S. Geological Survey (USGS) to catalog information about land treatments on Federal lands in the western United States. The LTDL currently stores previously established land treatments or what are often called legacy data. The goal over the next 5 years is to archive all land treatment legacy data from 127 western BLM field offices. There is a need to centralize and store treatment data because these data are useful to land managers for policy and management decisions and to scientists for developing sampling designs and studies. The LTDL can be used to respond to information requests, conduct analyses and other forms of information syntheses, produce maps, and generate reports for DOI managers and scientists and other authorized users.

The flexible framework of the library allows for the storage of a wide variety of data in different formats. The library contains data in text, tabular, spatial, and image formats. Specific examples include project plans and implementation reports, monitoring data, spatial data files from geographic information systems, digitized paper maps, and photographs of land treatments. Data are entered by USGS employees and are accessible through a searchable web site. Field office personnel are assisting with data verification through the QA/QC process.

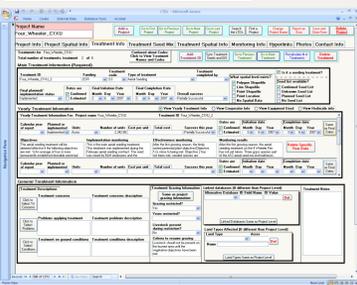
The project was developed and has been refined based on feedback from partner agencies and stakeholders, with opportunity for the library holdings to expand as new information becomes available.

Project Info

A project is a group of land management actions (treatments) that manipulate vegetation or on-ground conditions and are designed to meet particular objectives in a given area. A project can incorporate single or multiple "treatments". A unique project name identifies each project within the database.



Treatment Info



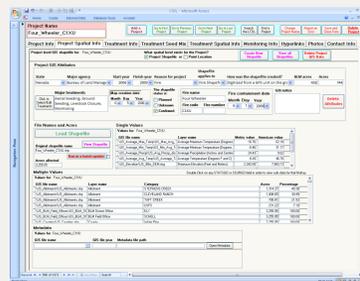
A treatment is any land management action that manipulates vegetation or on-ground conditions in a given area within a given project.

Specific data on one or multiple treatments can be entered for each project.

Multiple years of data can be cataloged under the same treatment which allow for long-term studies of a specific treatment.

Project and Treatment Spatial Info

LTDL project and treatment data are linked to a geographic information system (GIS). Users can upload one polygon per project and one point, line, or polygon per treatment. Attribute data, including BLM data standards, are automatically appended. Polygon data are run through our batch clipping process to extract associated attributes and their percentages from multiple GIS layers.



If no GIS maps exist, LTDL personnel have the ability to digitize paper maps using a specialized interface designed for the GIS program ArcMap.

If spatial reference is limited, a point location can be entered to indicate the general location.

The LTDL consists of multiple tabs allowing individuals to enter and view detailed information on a project and treatments within the project.

Treatment Seed Mix

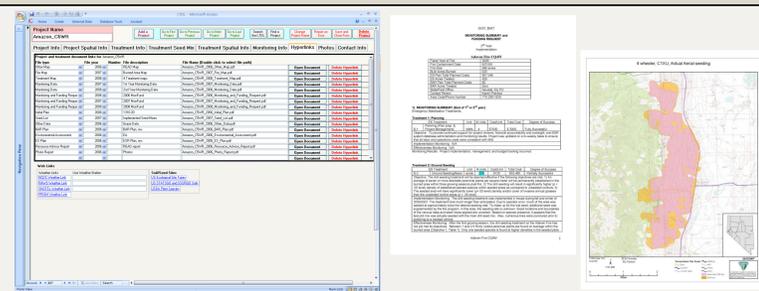
One seed list per treatment can be entered along with other ancillary data. There is no limit to the number of seeds within a single seed list.

Data entry allows seed species to be added from a short list of commonly planted species (~100) or the USDA plants database (~35,000 species).

Seed rates (both bulk and PLS) and seed costs are also recorded.

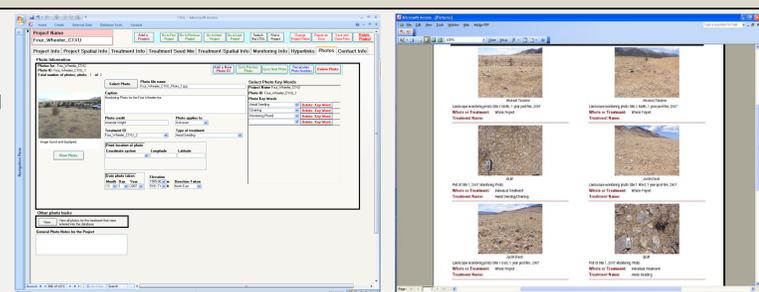
Hyperlinks

The library links to all original documentation using a standardized name procedure. This allows users to open, read, and print documentation effortlessly without having to search for it. The LTDL permanently archives records and data.



Photos

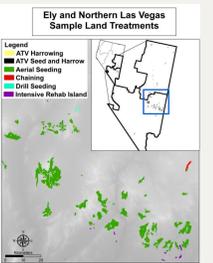
Users can upload multiple photos. Fields for caption, date, elevation, direction, and location allow for detailed photo documentation. Key words can be used to group similar photos from across large areas. Photos can be merged into a single photo report.



Current Records in the LTDL

State	BLM Office	Project Start Year			
		1941-1999		2000-2009	
		Projects	Treatments	Projects	Treatments
California	Surprise	15	28	3	19
	Bruneau	58	191	6	40
	Burley	33	160	33	186
	Four Rivers	33	130	24	166
	Jarbridge	68	328	30	258
	Owyhee	10	33	9	68
Idaho	Pocatello	2	5	0	0
	Salmon	0	0	1	14
	Shoshone	41	184	28	71
	Upper Snake	9	28	11	84
	Battle Mountain	15	91	36	227
	Carson City	15	56	29	133
Nevada	Elko	72	328	120	895
	Ely	184	315	126	611
	Winnemucca	57	172	72	363
	Lakeview	97	261	11	62
Oregon	Prineville	14	58	0	0
	Vale	18	90	73	520
	Cedar City	30	156	43	224
Utah	Fillmore	89	419	44	257
	Salt Lake	51	253	113	820
	Total	911	3286	812	5018

LTDL employees continue to add new data every day which can be displayed in tabular or spatial form



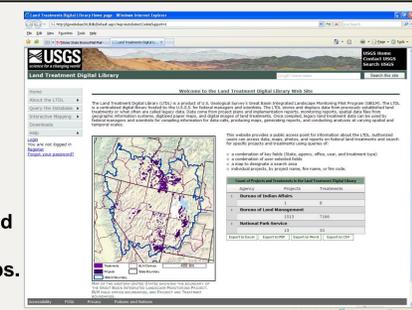
LTDL Website

The LTDL's website is <http://greatbasin.wr.usgs.gov/ltld/>.

The general website is available to the public, but full access to data will be restricted to registered USGS and BLM personnel and other authorized users. Field offices will have access to their data including original documents and GIS maps.

Registered users will be able to:

- Query of datasets across large spatial areas and over time
- Query of data using a map or specific tabular fields
- Export of queried datasets for use in local field offices or by researchers
- Generate maps using selected treatment perimeters and various background layers



Vegetation Response to Climate

Data on land treatments, such as post-fire seedings, can be used to investigate how individual plant processes (germination, growth), community processes (competition, succession), and vegetation structure and composition are influenced by climate.

Applications of the LTDL for climate change research include:

- Site selection
 - Stratification of sampling areas across landscapes to account for variation in elevation, soils, precipitation, and other factors
- Experimental Design
 - Ecological chronosequence analyses (space-for-time substitutions)
 - Natural experiments
 - Long-term ecological studies

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