

Land Treatment Digital Library

*A dynamic system to enter, store, retrieve, and analyze Federal land-treatment data
 More information and access to data available at: <http://greatbasin.wr.usgs.gov/ltdl>*

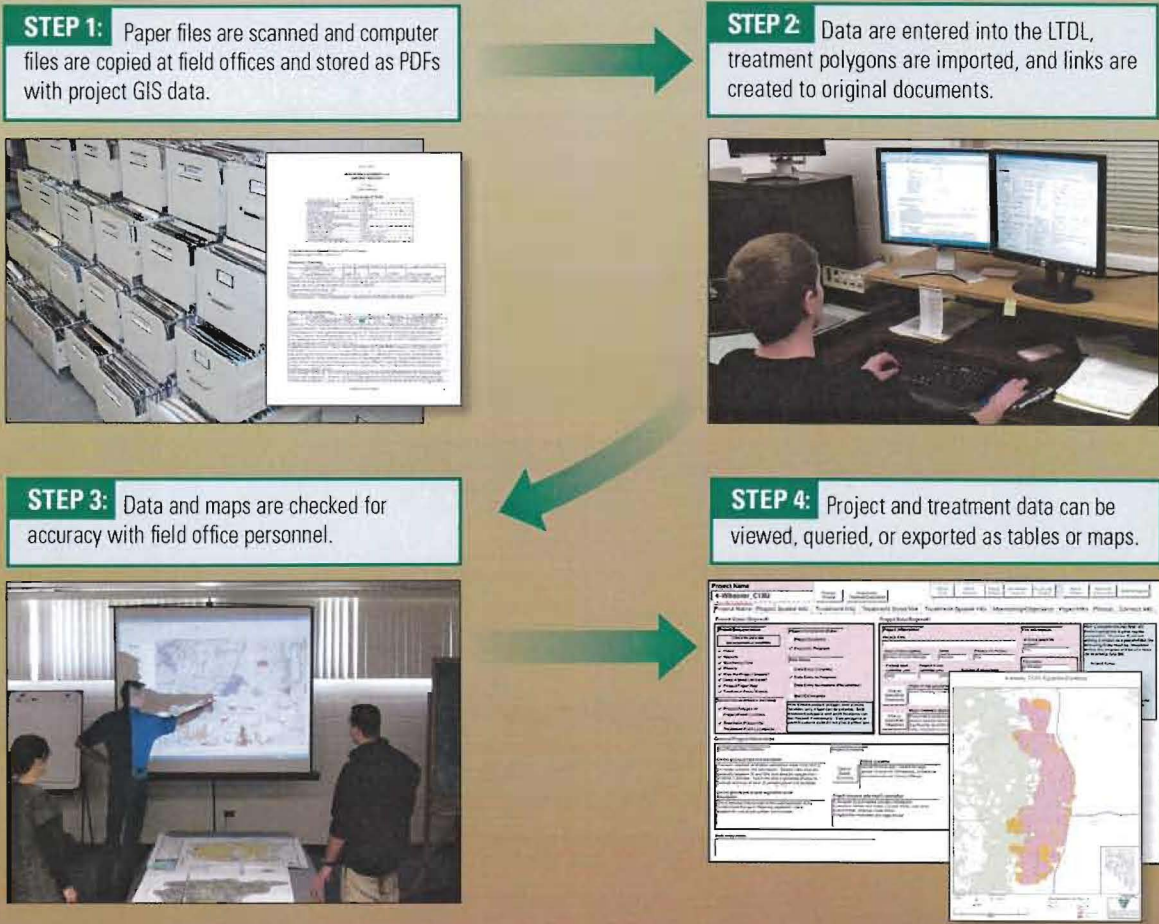
Overview of the Land Treatment Digital Library

Across the country, public land managers make hundreds of decisions each year that influence landscapes and ecosystems within the lands they manage. Many of these decisions involve vegetation manipulations known as land treatments. Land treatments include activities such as removal or alteration of plant biomass, seeding burned areas, and herbicide applications. Data on these land treatments are usually stored at local offices, and gathering information across large spatial areas can be difficult. There is a need to centralize and store treatment data for Federal agencies involved in land treatments because these data are useful to land managers for policy and management and to scientists for developing sampling designs and studies.

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 for all interested parties. The flexible framework of the library allows for the storage of a wide variety of data in different formats. The LTDL currently stores previously established land treatments or what often are called legacy data. 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.

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 digital images of land treatments. The data are entered by USGS employees and are accessible through a searchable web site. 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.



Features of the Land Treatment Digital Library

Data Entry Features:

Adding data: USGS technicians add data to the library using a database program. The database program is linked to another database that is especially well suited for information access through public web pages. The LTDL is flexible enough to handle a wide variety of information in different formats and to organize that information in a hierarchical fashion, such as multiple treatments tied to a larger project.

Autofill of GIS data: The database is designed to provide information automatically on a treatment with little user effort. For example, geographic information (elevation, average temperature, land cover) for treatments are calculated and values with their percentages are added to the database automatically by the program (for example, sagebrush 75 percent land cover; juniper 25 percent land cover). A description of the GIS layers and attributes generated in the clipping procedure can be viewed or downloaded from <http://greatbasin.wr.usgs.gov/ldl>.

Creating GIS shapefiles: In instances where a GIS shapefile does not exist (for example, older data), the library includes a mapping tool that allows data entry personnel to create the geographic coordinates for a treatment using any available map for reference (for example, hand drawn paper map). Background layers are available to assist personnel in drawing the map. These maps can be used in the database for spatial reference and GIS autofill (see "Autofill of GIS data") and viewed on the web site.

End-User Features:

Library web site: General information about the library is available on the web: <http://greatbasin.wr.usgs.gov/ldl>. Authorized personnel log in to the secure site to query and download data on individual and multiple treatments using maps and data fields. Users also can query specific information using the detailed query function and create maps of treatment boundaries with various background layers.

Web links to reports and maps: The library includes web links to plans, reports, monitoring data, and maps that were created during the treatment, allowing users access to digital copies of original documents. Those copies are stored at a central location with the database to protect their accessibility in case original files become unavailable.

Photograph library: The library stores digital images (photographs) with descriptions, such as location, direction, dates, and key words (to aid in image searches). Photograph reports display all images from individual treatments or a collection of treatments tied to a larger project. Key words can create a photograph report of similar treatments across a large area.

Additional Features and Future Goals

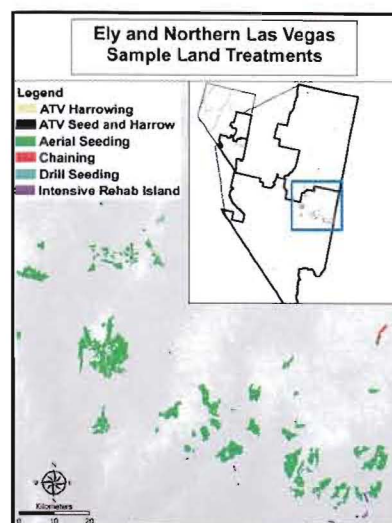
The library includes data entry and retrieval user manuals with step-by-step instructions. To maintain data integrity and protection of sensitive data, the complete database will be available only to DOI employees and authorized scientists with a summarized version available to the public. Future goals of the library include:

- Developing new tables to allow for data entry of a wider variety of land-treatment types;
- Creating relationships with new partners and renewing relationships with current partners for data management; and
- Allowing individual field offices and other data centers certified in LTDL data entry to remotely enter and update past land treatments and enter new land treatments as they occur.

Quality assurance and quality control are particularly important for a library, and features continually are added to ensure data are as accurate as possible.

Example output from the Bureau of Land Management Field Office, Ely, Nevada, data entries including tabular (left) and spatial (right) summaries.

| | Number of Treatments | | | Total |
|----------------------------------|----------------------|-----------|-----------|-------|
| | 1995–1999 | 2000–2004 | 2005–2008 | |
| Confirmed Treatments | | | | |
| Aerial Seeding | 5 | 46 | 62 | 113 |
| Ground Seeding | 1 | 2 | 6 | 9 |
| Seedling Planting | 1 | 1 | 1 | 3 |
| Livestock Closures (confirmed) | 2 | 14 | 52 | 68 |
| Livestock Closures (unconfirmed) | 4 | 25 | 4 | 33 |
| Fence Construction/Repair | 1 | 14 | 16 | 31 |
| Monitoring Only | 0 | 0 | 4 | 4 |



For more information concerning the research in this report, contact the:

Director, Forest and Rangeland Ecosystem Science Center
U.S. Geological Survey
777 NW 9th Street
Corvallis, Oregon 97330