

Land Treatment Exploration Tool

Learning from the past to improve future restoration and rehabilitation actions

An adaptive management and decision support tool for land treatment exploration and planning.
The tool is available at <https://www.usgs.gov/centers/fresc/science/land-treatment-exploration-tool>.

Overview

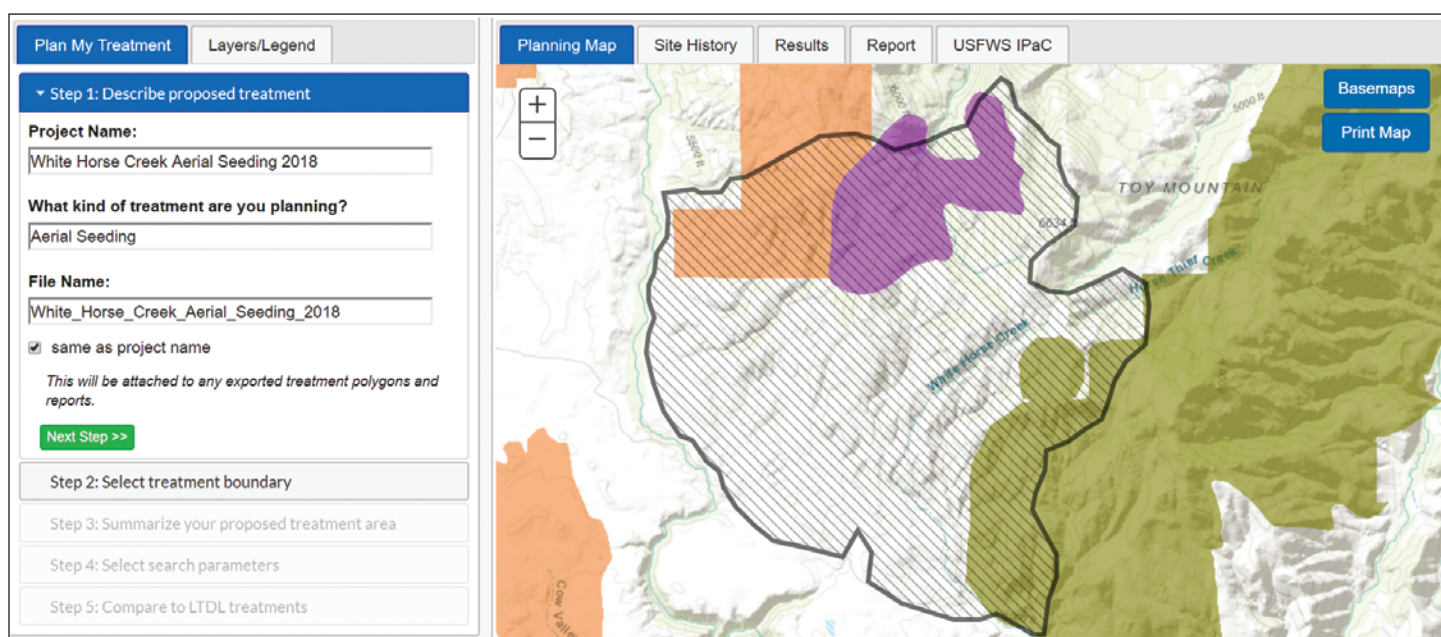
Land managers make decisions regarding restoration and rehabilitation actions that influence landscapes and ecosystems. Many of these decisions involve soil and vegetation manipulations, often known as land treatments. Historically, treatments were planned on a case by case basis with decisions derived from personal experience of past successes or failures. Current adaptive management strategies require a more structured and robust approach to the planning and implementation of land treatments.

The U.S. Geological Survey partnered with the Bureau of Land Management to create the Land Treatment Exploration Tool to **facilitate adaptive management of land treatments**. The Exploration Tool taps into a wealth of information about past treatments in the Land Treatment Digital Library (LTDL, <https://ltdl.wr.usgs.gov/>).

The Exploration Tool is designed for use by resource managers during the land treatment planning stage. This tool summarizes environmental characteristics of planned treatment areas and facilitates adaptive management practices by comparing those characteristics to similar legacy treatments.

Here are the basics of how it works:

1. Upload or draw a planned treatment area via an interactive web map.
2. Explore historical land treatments and wildfires that overlap with the planned treatment area.
3. Calculate environmental characteristics, such as elevation, heat load, ruggedness, land form, soils, average precipitation, and average temperature of the planned treatment area.
4. Identify and explore details of past treatments that have statistically similar climate, heat load, and landform characteristics relative to the planned treatment area.
5. Refine the results of the similarity analyses by filtering on a variety of treatment characteristics.
6. Create custom reports for use in plans or other documents.



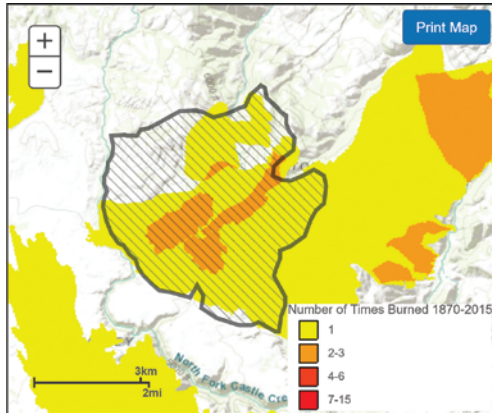
The screenshot shows the 'Plan My Treatment' tab of the Land Treatment Exploration Tool. On the left, a sidebar contains a 'Layers/Legend' section and a 'Step 1: Describe proposed treatment' section. The 'Step 1' section includes fields for 'Project Name' (White Horse Creek Aerial Seeding 2018), 'What kind of treatment are you planning?' (Aerial Seeding), and 'File Name' (White_Horse_Creek_Aerial_Seeding_2018). There is a checkbox for 'same as project name' and a green 'Next Step >>' button. Below this are buttons for 'Step 2: Select treatment boundary', 'Step 3: Summarize your proposed treatment area', 'Step 4: Select search parameters', and 'Step 5: Compare to LTDL treatments'. The main area on the right is titled 'Planning Map' and shows a topographic map of a mountainous region. A large, irregularly shaped area is outlined in black and filled with a diagonal hatching pattern. This area is overlaid on various colored regions: orange, purple, and green. The map includes labels for 'TOY MOUNTAIN', 'White Horse Creek', and 'Third Creek'. In the top right corner of the map area, there are two buttons: 'Basemaps' and 'Print Map'. Above the map, there are tabs for 'Planning Map', 'Site History', 'Results', 'Report', and 'USFWS IPaC'.

The Land Treatment Exploration Tool provides a practical resource for managers who are planning restoration and rehabilitation actions on public lands. The Exploration Tool is a user friendly, web-based interface to Geographic Information System (GIS) maps and tools, and requires little to no GIS experience to generate a variety of spatial products. Above is an example of the interactive map where the process begins.

Land Treatment Exploration Tool Features

Planned Treatment Area History and Summary Statistics

The site history of the planned treatment area may inform treatment planning. Users can quickly identify the location and frequency of past disturbances, such as wildfires and land treatments, that have occurred within the planned treatment boundary, and export maps displaying these disturbances for use in plans and reports.



Users can summarize environmental data from multiple spatial layers that overlap their planned treatment area, such as elevation, climate, soil moisture and temperature regimes, and resistance and resilience classes.

Category	Mean	Range	St Dev
Elevation (ft)	5711.29	1253.28	347.93
Max Temp (°F)	55.78	5.11	1.46
Mean Temp (°F)	44.56	2.84	0.58
Min Temp (°F)	33.33	4.32	1.22
Precipitation (in)	24.86	6.14	2.05

Explore Previous Land Treatment Information

The Land Treatment Exploration Tool brings legacy land treatment information to your desktop by incorporating information from the Land Treatment Digital Library (<https://ltdl.wr.usgs.gov/>) directly into the tool.

Environmental similarities matter when comparing treatments. The Exploration Tool allows the user to run statistical similarity indices (climate, land form, and heat load) to help users identify past treatments that are the most similar to their planned treatment area.

The Exploration Tool provides an array of filters to allow users to narrow their search results to select and research only the most appropriate past treatments.

Climate Rank (Value)	Heat Load Rank (Value)	Landform Rank (Value)	Project	Treatment Category	Treatment Type	Year	Imp	Poly	SL	Res
1 (0.014)	24 (0.303)	16 (0.376)	Rough Diamond Wildfire 2001	Seeding	Aerial Seeding	2002	I	FS	C	Y

Project ID: 9814
Treatment ID: 26621
BLM Field Office: Owyhee Field Office
State: Idaho
Major Treatment: Seeding
Sub Treatment: Aerial Seeding
Treatment Type: Aerial Seeding
BLM Reported Success: Partially Successful
Purpose: Wildfire
Objectives: To prevent accelerated soil erosion, restore canopy cover and ground cover.

Dates: (Confirmed)
Start: 2/11/2002
End: 2/12/2002
Reported Area: 7564 Acres
GIS Area: 7133 Acres
GIS Feature Type: Polygon
Feature Status: Confirmed
Actual Implementation: This is the Low Elevation Shrub Mix Treatment. The aerial seeding was done by...more
Treatment Results: The area is showing good native plant recovery in most areas. The native species pre-fire grasses an...more

Species List Status: Confirmed on Paper
Seeds or Seedlings Planted:

Symbol	Species	Common Name	Bulk Seed Pounds	Bulk Pounds/Acre	PLS Rate	PLS Seed Pounds	PLS Pounds/Acre
ARTRW8	Artemisia tridentata Nutt. ssp. wyomingensis Beetle & Young	Wyoming Big Sagebrush	7280	0.9625	0.0979	712.712	0.0942
SAMI3	Sanguisorba minor Scop. - Delar	Small Burnet - Delar	3600	0.4759			

☒ Plans
☒ Reports
☐ Monitoring data
☐ Photos
☒ Does a seed list exist?
☒ Treatment Paper Map

For more information:

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