

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 planning.

The tool is available at <https://www.usgs.gov/ltet>

Overview

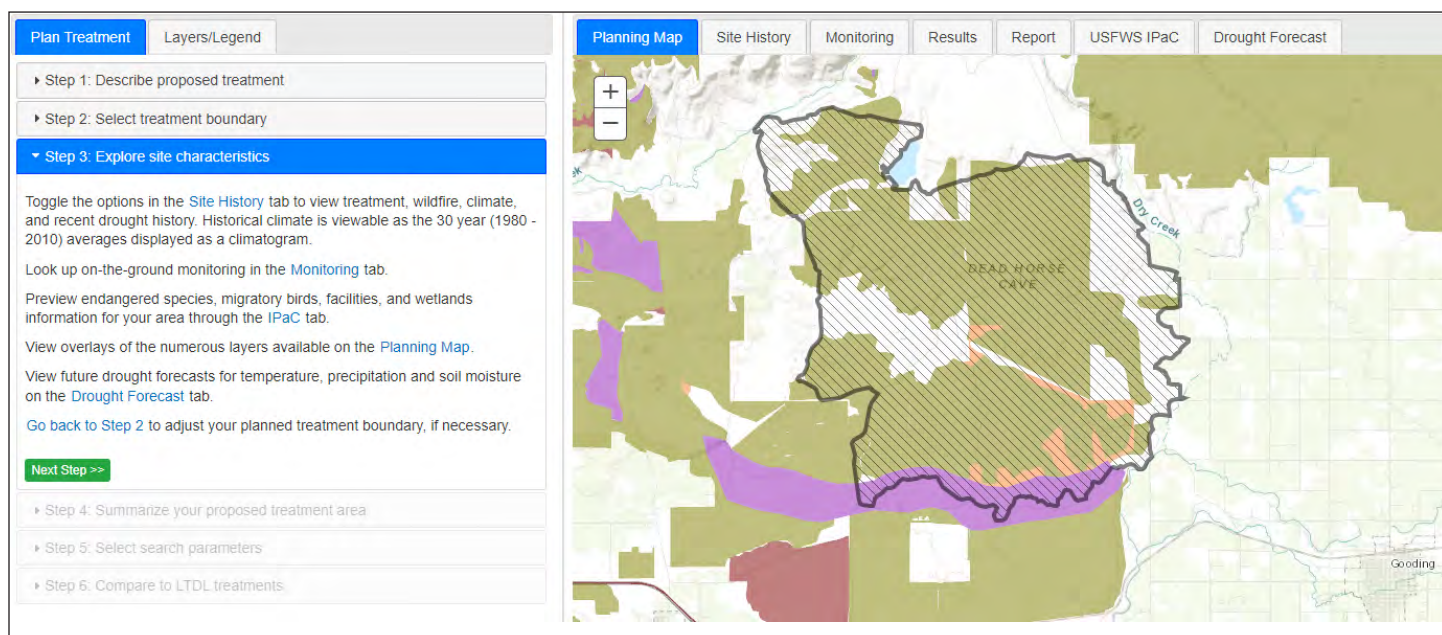
Land managers make decisions regarding restoration and rehabilitation actions that influence landscapes and ecosystems. Many of these decisions involve soil and vegetation manipulations, often known as land treatments. Historically, treatments were planned on a case by case basis with decisions derived 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 land treatments, wildfires, and monitoring data that overlap with the planned treatment area.
3. Calculate environmental characteristics, such as vegetation composition, heat load, ruggedness, soils, average climate, and drought conditions 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.

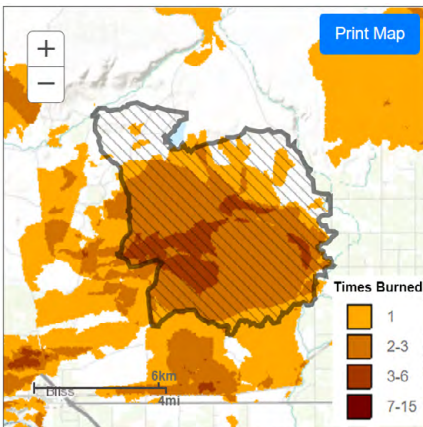


The Land Treatment Exploration Tool provides a practical resource for managers who are planning restoration and rehabilitation actions on public lands. The Exploration Tool is a user friendly, web-based interface to Geographic Information System (GIS) maps and tools, and requires little to no GIS experience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

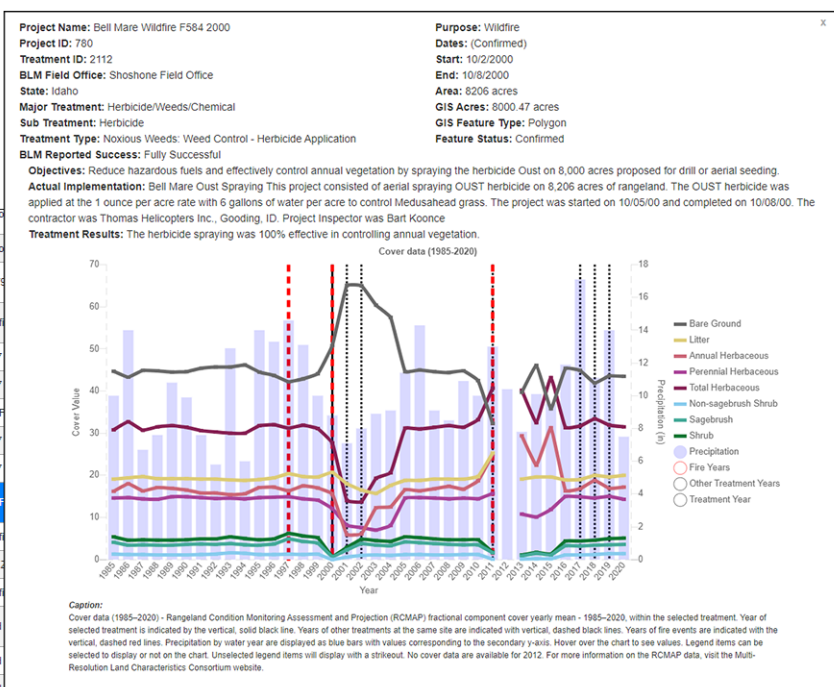
The Exploration Tool provides an array of filters to allow users to narrow their search results to select and research only the most appropriate past treatments.

Land Treatment Digital Library Matches

175 matching treatments (of 720 total treatments)

Note: Check the box on left side of row to include the data in the report.

	Similarity to LTDL Treatment	Climate Rank (Value)	Heat Load Rank (Value)	Landform Rank (Value)	Project
<input type="checkbox"/>	<input checked="" type="checkbox"/>	687.5 (0.122)	19.5 (0.980)	260.5 (0.985)	Telephone Reserv
<input type="checkbox"/>	<input checked="" type="checkbox"/>	687.5 (0.122)	19.5 (0.980)	260.5 (0.985)	Telephone Reserv
<input type="checkbox"/>	<input checked="" type="checkbox"/>	526 (0.093)	101 (0.980)	257 (0.985)	Windmill Wildfire F
<input type="checkbox"/>	<input checked="" type="checkbox"/>	406 (0.083)	91 (0.980)	256 (0.985)	Bell Rapids 2 Wildf
<input type="checkbox"/>	<input checked="" type="checkbox"/>	420 (0.084)	73 (0.980)	254 (0.985)	Blair Wildfire GAL7
<input type="checkbox"/>	<input checked="" type="checkbox"/>	396 (0.082)	65 (0.980)	251 (0.985)	Blair Wildfire GAL7
<input type="checkbox"/>	<input checked="" type="checkbox"/>	308 (0.076)	71 (0.980)	245 (0.985)	Bell Mare Wildfire F
<input type="checkbox"/>	<input checked="" type="checkbox"/>	166 (0.062)	64 (0.980)	244 (0.985)	Blair Wildfire GAL7
<input type="checkbox"/>	<input checked="" type="checkbox"/>	154 (0.062)	72 (0.980)	234 (0.985)	Blair Wildfire GAL7
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	317 (0.077)	78 (0.980)	233 (0.985)	Bell Mare Wildfire F
<input type="checkbox"/>	<input checked="" type="checkbox"/>	401 (0.083)	307 (0.980)	231 (0.985)	Bell Rapids 2 Wildf
<input type="checkbox"/>	<input checked="" type="checkbox"/>	426 (0.085)	224 (0.980)	229 (0.985)	East Slick Wildfire 2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	364 (0.081)	89 (0.980)	227 (0.985)	Bell Rapids 2 Wildf
<input type="checkbox"/>	<input checked="" type="checkbox"/>	599 (0.099)	365 (0.980)	201 (0.982)	Thickesa Plow and
<input type="checkbox"/>	<input checked="" type="checkbox"/>	599 (0.099)	365 (0.980)	201 (0.982)	Thickesa Plow and
<input type="checkbox"/>	<input checked="" type="checkbox"/>	500 (0.090)	365 (0.980)	201 (0.982)	Thickesa Plow and



For more information:

Director, Forest and Rangeland Ecosystem Science Center
U.S. Geological Survey

777 NW 9th Street, Corvallis, Oregon 97330

ISSN 2327-6932 (online)
<https://doi.org/10.3133/ts20183042>

Publishing support provided by the U.S. Geological Survey
Science Publishing Network, Tacoma Publishing Service Center

Banner photo credit: Justin Welty
Authors: D.S. Pilliod, J.L. Welty, M.I. Jeffries,
L.S. Schueck, and T.J. Zarriello