

LANDFIRE: Data and Models for Conservation Planning and Analysis

INFO FOR GIS SPECIALISTS

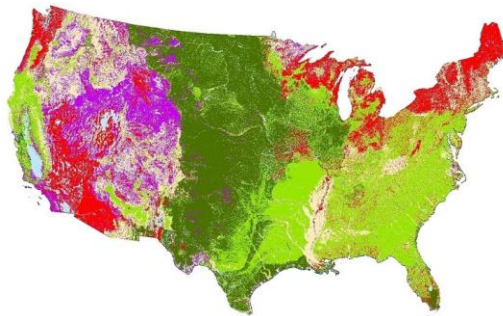
- => Do you need consistent, comprehensive, spatial data sets to support planning and analysis over large and very large landscapes?
- => Do you want to obtain these data sets easily?
- => Do you want extensive spatial data that are ready to use quickly with little pre-processing?
- => Do you need models that help predict potential future vegetation patterns?

IF THE ANSWER IS YES TO ANY OF THESE QUESTIONS, YOU COULD USE LANDFIRE!

GIS practitioners are often challenged by the lack of complete and comprehensive data sets with well-defined methods and attributes that are standardized across the entire United States. When those data exist, they are often difficult to find. Once found, they are often challenging to access. Finally, data often can't be customized and adapted in order to reflect local conditions.

WHY LANDFIRE?

[TNC's LANDFIRE Program team](#) can help address those challenges using a suite of data and tools, all available at one location, which include detailed metadata about how the data sets and



LANDFIRE provides consistent and comprehensive data for the nation.

models were created and the ways they relate to one another. The LANDFIRE suite of spatial products includes more than 20 nationally consistent raster layers related to current vegetation and historic conditions and more than 1000 unique dynamic vegetation models. Our team can walk you through the main source for data as they are presented on the LANDFIRE Program's [website](#).

TNC-LANDFIRE
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To read project reports that illustrate some of the results that LANDFIRE delivers, click on [Applications & Staff Picks](#) on the TNC-LANDFIRE Conservation Gateway site.

More application studies are posted on the [LANDFIRE site](#).

LANDFIRE

Program methodologies are science-based and include extensive field-referenced data.



Bodie Hills field work

Story from the Field: Nevada chapter uses new database to inform and measure conservation strategies

For years, Nevada Chapter scientists have been searching for a tool to help them both justify management actions and identify top tier public and private portfolio sites—places where immediate action should be taken.

The problem was that the scientists lacked consistent, statewide information on landscape-scale ecological health or integrity.

In 2007 LANDFIRE project ecologists began publishing a host of "seamless" spatial data online, including a metric that some consider a measure of ecosystem health: Fire Regime Condition Class (FRCC). Despite the name, FRCC is not necessarily determined by or even related to an area's fire history. Rather, it is an indicator of how closely an area matches its "reference condition" or pre-European settlement state. Because of a lack of nation-wide information on fire frequency and extent, the FRCC data do not explicitly take fire into account.

LANDFIRE FRCC is based primarily on a comparison

between current and historical vegetation. In 2005 and 2006, Louis Provencher, Nevada's Director of Conservation Ecology, played a leading role in developing a series of reference condition models that served as a foundation for FRCC calculations for the Great Basin, Mojave Desert, Utah High Plateau and Columbia Plateau ecoregions.

Provencher began using the LANDFIRE FRCC and related data as soon as they were available, along with related software tools, in a variety of projects. He considered scale when determining proper applications. In the case of FRCC, the value assigned to a given place is a scale-dependent metric.

For his portfolio assessment project, Provencher tapped the expertise of the Global Fire Team and the Nevada Chapter's GIS specialist to recalculate FRCC for each of the chapter's 21 priority landscapes. The remapped FRCC layer was then combined with ownership data in a GIS. Finally, the Nevada Chapter performed its ecological integrity assessment.

The results of this work are prompting the Chapter to use FRCC data to implement its 2015 strategic plan. The analysis will highlight places that contain conservation

targets that are in good ecological condition and, therefore, a high priority for protection. These places will be the focus of the Chapter's capital campaign. Eventually the Chapter plans to use FRCC routinely to assess trends in the ecological condition of its portfolio and determine where and if the Chapter's conservation strategies are effective.

Provencher also plans to use LANDFIRE data to inform management strategies. For example, a conservation problem in the Great Basin is the interaction of livestock, fire and invasive species. Cheatgrass is a prevalent non-native grass that displaces native species and alters fire regimes. Livestock also affect fire regimes and can encourage the spread of invasive species. FRCC information will help the Chapter identify departed but restorable high-elevation range and woodlands. However, because providing alternative pastures for the livestock that graze there is also important, Provencher will combine FRCC map data with ownership information so as to identify low-elevation areas with relatively low conservation value that could provide alternative summer pastures while high-elevation areas are being restored. Later, the Conservancy would reseed native species into the elevation grazing lands to improve their ecological condition.

In some parts of the U.S. local data are available and more useful than LANDFIRE data for many

conservation applications. The latter can fill the gaps where local data are not available, and are useful in cases where it's important to have consistent information across projects.

LANDFIRE models also provide a window to the future with, for instance, climate change, as they can inform users about the ways that different systems cope with climate variability and changing fire intensity and frequencies.

LANDFIRE data and models are now available online for the entire U.S. at www.landfire.gov



PROJECT DIRECTORS AND PARTNERS WILL APPRECIATE THAT THEY CAN MAP VEGETATION TYPES AND THEIR CURRENT CONDITIONS, DEFINE REFERENCE CONDITIONS, AND PRIORITIZE THE AREAS OF THEIR LANDSCAPES THAT MIGHT NEED RESTORATION.

Louis Provencher