



LANDFIRE for the NRCS

Randy Swaty, Ecologist
The Nature Conservancy LANDFIRE Team

April 6, 2016

LANDFIRE's mission is to provide agency leaders and managers with a common "all-lands" data set of vegetation and wildland fire/fuels information for strategic fire and resource management planning and analysis.



Today's Agenda



Randy Swaty
rsваты@tnc.org

- LANDFIRE Primer
- Model and description bundles
- The spatial data
- Summary



Jim Smith
Jim_Smith@tnc.org
Project Lead

Kori Blankenship
kblankenship@tnc.org
Fire Ecologist

Randy Swaty
rsваты@tnc.org
Ecologist

Sarah Hagen
shagen@tnc.org
Spatial Ecologist

Kim Hall
Kimberley.Hall@tnc.org
Climate Ecologist

Jeannie Patton
jpatton@tnc.org
Communications

Introduction to LANDFIRE

LANDFIRE

Landscape Fire and Resource Management Planning Tools

An innovative program designed to **create** and periodically **update** comprehensive vegetation, fire and fuel characteristics **data** using a **consistent process** for the entire United States.



KEYWORDS: nationwide, consistent, ecological models, GIS data, tools, fire/non-fire, spatial data



Intro to LANDFIRE

- Aspatial models and descriptions
- Tons of spatial datasets
- Software and GIS extensions
- A way of thinking
- A vibrant community of users, hackers and contributors



MORE THAN FIRE

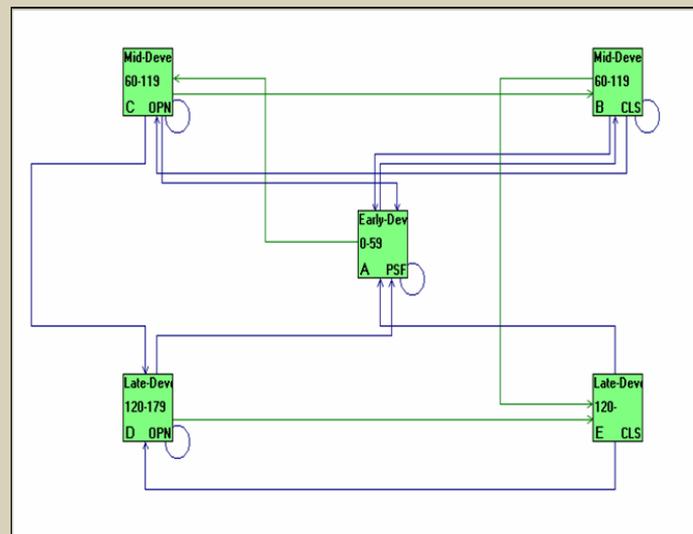
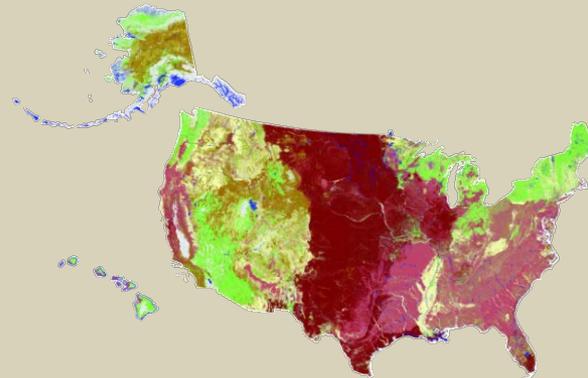


More than fire, more than GIS, more than a “toolbox”

Model Development



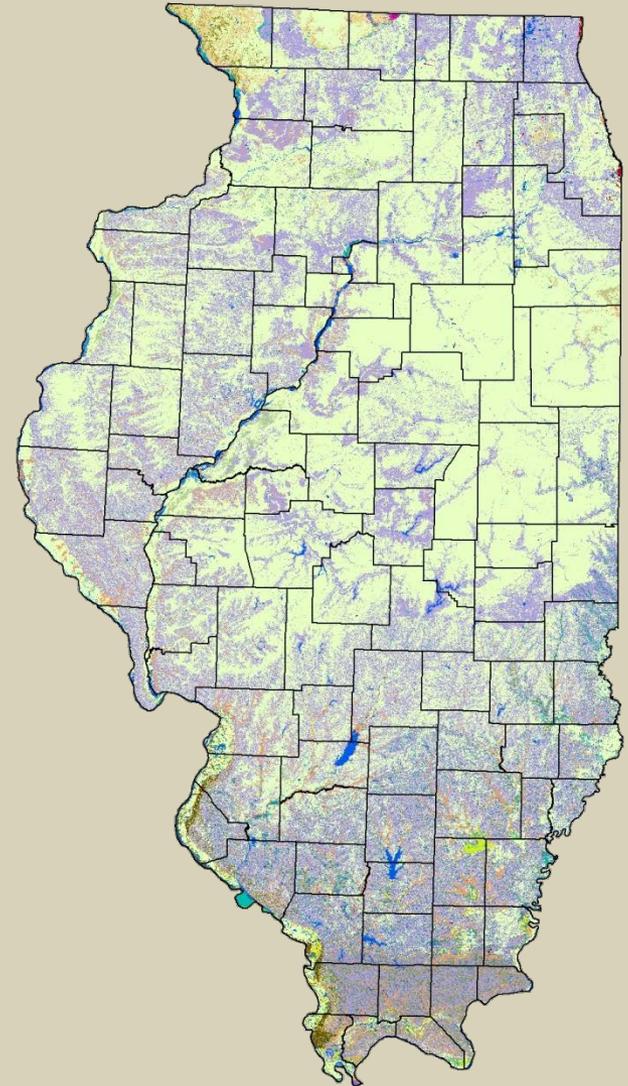
TNC had a cooperative agreement to describe and model “Reference Conditions” for the ecosystems of the US.



<http://landfire.gov/NationalProductDescriptions24.php>

Reference Conditions/BpS

- Described how 1300+ ecosystems looked and worked prior to pre-European settlement
- Broke each ecosystem into 5 or fewer succession classes defined by species, % cover and height
- Used Vegetation Dynamics Models to model % of each



Model Description

LANDFIRE Biophysical Setting Model

Biophysical Setting: 0710080

North Pacific Oak Woodland

This BPS is lumped with:

This BPS is split into multiple models:

General Information

Contributors (also see the Comments field)

Date 7/28/2005

Modeler 1 Robin Wills	robin_wills@nps.gov	Reviewer Diane White, Charley Martin, Ed Reilly	dewwhite01@fs.fed.us
Modeler 2 Kyle Merriam	kmerriam@fs.fed.us	Reviewer Frank Price	Frank_Price@or.blm.gov
Modeler 3 Dana Sandifer	Dana_Sandifer@nps.gov	Reviewer Bruce Hostetler	bhostetler@fs.fed.us

Vegetation Type

Forest and Woodland

Map Zone

7

Model Zone

<input type="checkbox"/> Alaska	<input type="checkbox"/> N-Cent. Rockies
<input checked="" type="checkbox"/> California	<input checked="" type="checkbox"/> Pacific Northwest
<input type="checkbox"/> Great Basin	<input type="checkbox"/> South Central
<input type="checkbox"/> Great Lakes	<input type="checkbox"/> Southeast
<input type="checkbox"/> Northeast	<input type="checkbox"/> S. Appalachians
<input type="checkbox"/> Northern Plains	<input type="checkbox"/> Southwest

Dominant Species*

QUGA4

PSME

General Model Sources

Literature
 Local Data
 Expert Estimate

Geographic Range

This BpS is limited to the southern portions of the North Pacific region. It occurs primarily in the Puget Trough and Willamette Valley, but trickles down into the Klamath ecoregion and northern California.

The PDF-same information

Model Description

LANDFIRE Vegetation Models - MTDB

File Home Create External Data Database Tools

View Paste Format Painter Filter Ascending Descending Remove Sort Toggle Filter Selection Advanced Refresh All Delete More Find Go To Select Size to Fit Form Switch Windows

VDDT Model Results
Date/time of currently imported results:
 Allow model results to be edited **LANDFIRE Model Tracker Database v4.1.03** *Fields in green should match VDDT model.*

0110080 - North Pacific Oak Woodland

General **Classes** Height/Cover Summary Disturbances Relevant Literature

Biophysical Setting ID	Biophysical Setting Name	Land Cover Class	Name	Email
0110080	North Pacific Oak Woodland	Forest and Woodland	Modeler 1 Robin Wills	robin_wills@nps.gov
			Modeler 2 Kyle Merriam	kmerriam@fs.fed.us
			Modeler 3 Dana Sandifer	Dana_Sandifer@nps.gov
			Date	7/28/2005

Geographic Range
This BpS is limited to the southern portions of the North Pacific region. It occurs primarily in the Puget Trough and Willamette Valley, but trickles down into the Klamath ecoregion and northern California.

Biophysical Site Description
BpS occurs in diverse climates, ranging from the cool, humid conditions near the coast to the hot, dry environment of inland valleys and foothill woodlands. This BpS can be found on steep slopes but generally occurs on gentle topography (less than 30 percent). Soils

Disturbance Description
Fire Regime I, primarily short-interval (e.g., <10 yr) surface fires. Surface fires every 3-10 years maintained an open savannah-like structure. Fires can be mixed severity especially when closed canopy conditions or additional species such as conifers and shrubs are present. Native

Vegetation Description
Oregon white oak dominates a variable stand typically composed of widely spaced large individual trees with less than 35% canopy closure. Some stands in more protected settings could attain larger size and higher canopy closures. The understory is typically annual and

Adjacency/Identification Concerns
In the western portion of map zone 3 these stands would likely be surrounded by Redwood. In the eastern and southern portions of the zone, and in zones 2 and

Uncharacteristic Native Conditions
It would be uncharacteristic for post-replacement stands in this type to have canopy closure greater than about 80% (a reviewer indicated that canopy over

Model Dominant Species

QUGA4	Quercus garryana
PSME	Pseudotsuga menziesii

Model Zone

- Alaska
- California
- Great Basin
- Great Lakes
- Hawaii

Mapzones

1st MZ	<input type="text" value="1"/>
2nd MZ	<input type="text"/>
3rd MZ	<input type="text"/>
4th MZ	<input type="text"/>

This BpS is lumped with:

This BpS is split into multiple models (explain differences)

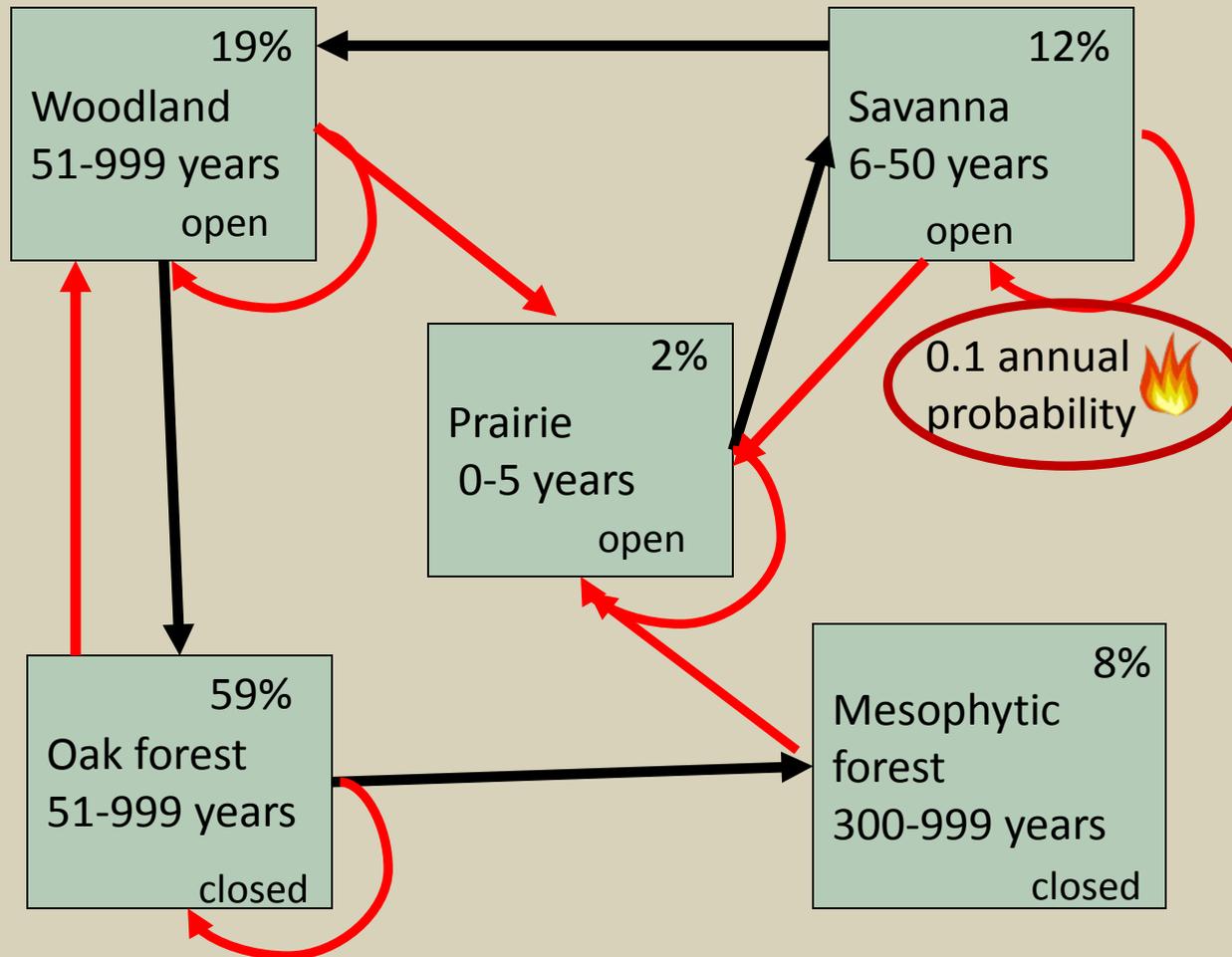
Navigation Pane

The Access Database

Vegetation Dynamics Models

Building the North-Central Interior Dry Mesic Oak Forest and Woodland

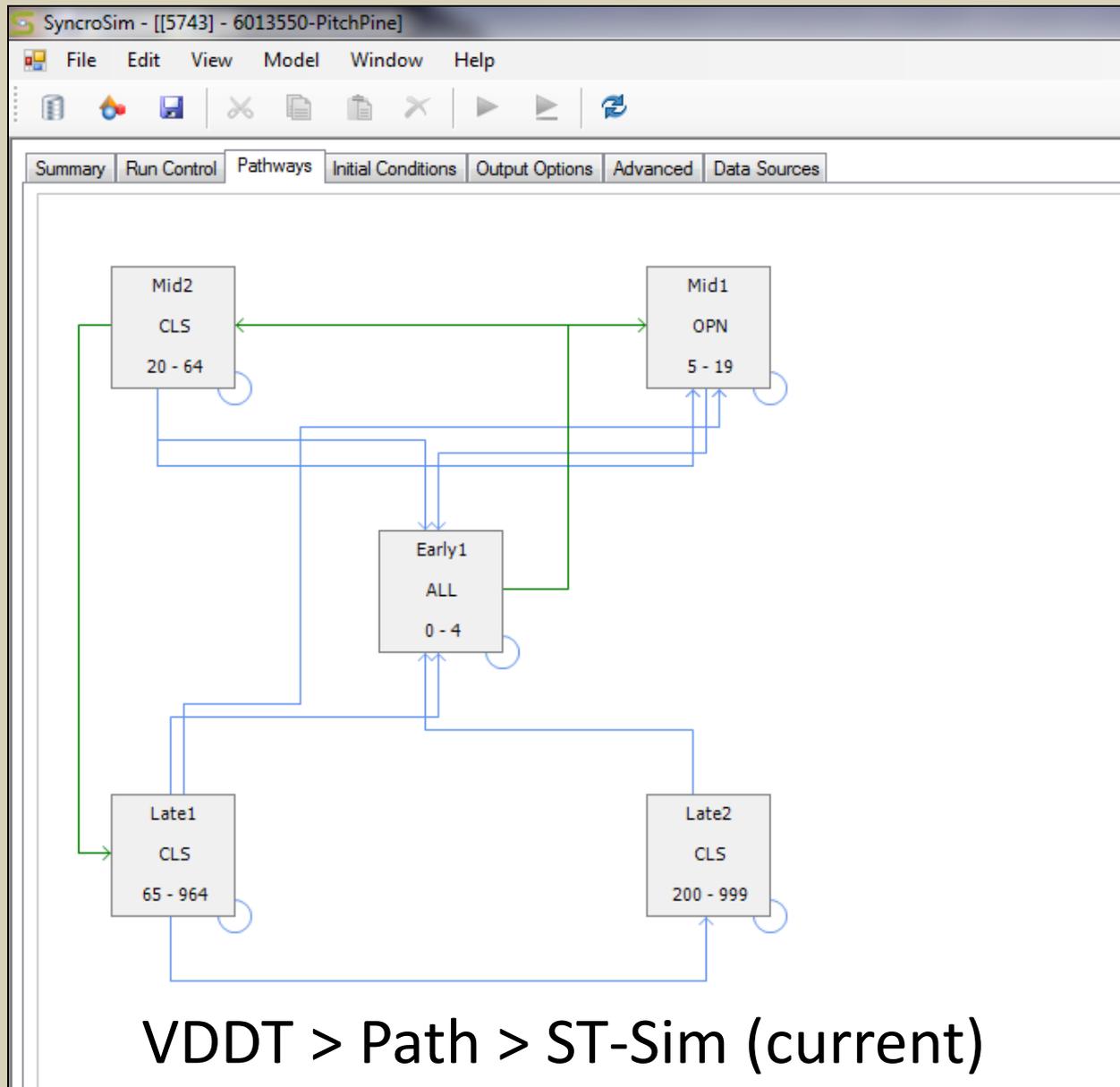
- Dr. Greg Nowacki



Each box is a vegetation class representing composition and structure

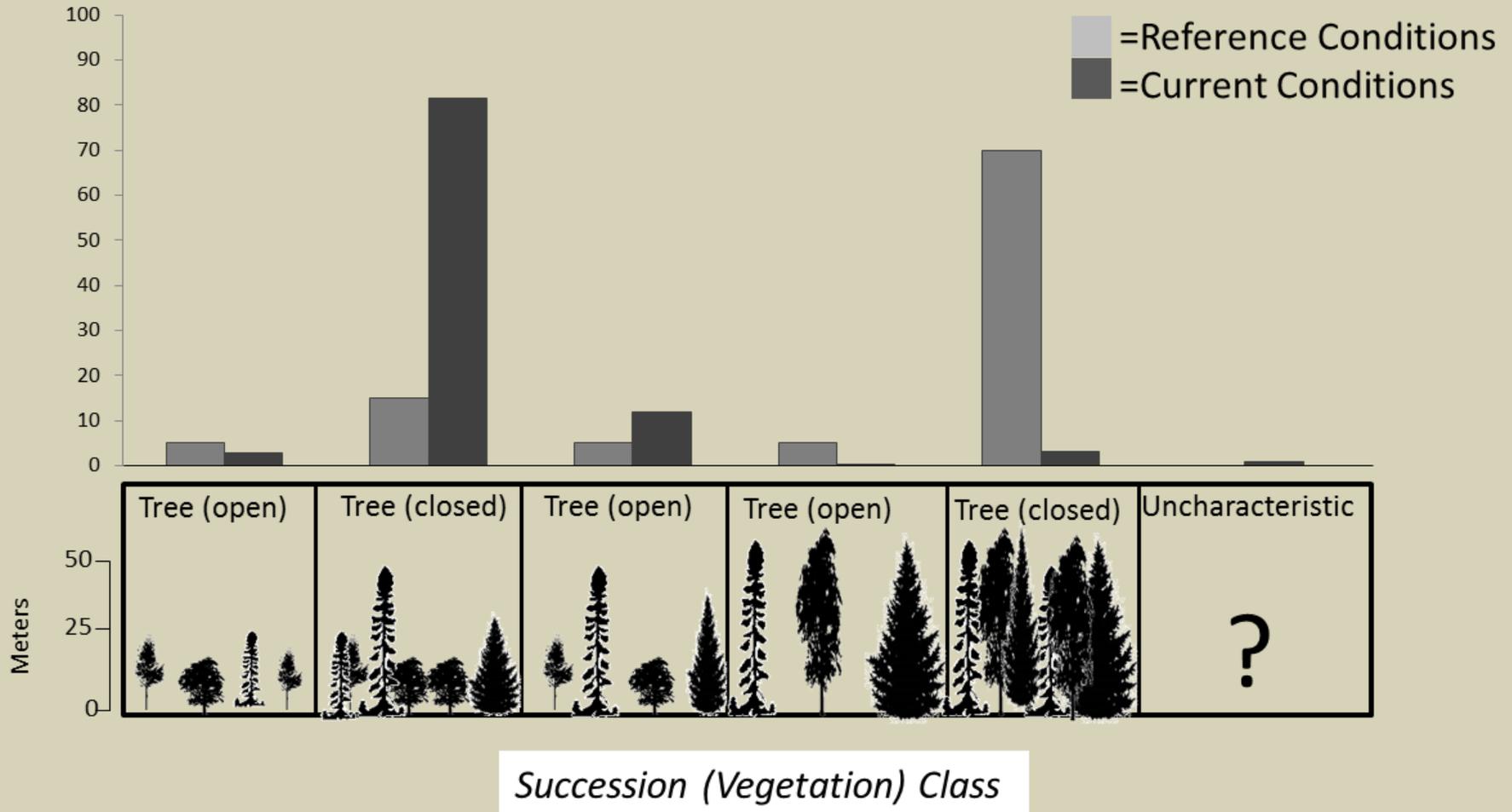
Each arrow is a transition representing **succession** or **disturbance**

Vegetation Dynamics Models



Model Development

Western Hemlock



Getting the Models



Choose among options at http://www.landfire.gov/national_veg_models_op2.php

1. Click on Map Zones to get zip files with a PDF of the model descriptions, VDDT files and metadata
2. Download all descriptions in an Access database
3. Download ST-Sim Master Model Database

Getting the Models

Download BpS Models and Descriptions

LANDFIRE Biophysical Settings (BpS) products and format delivery include three options:

1. **Compiled databases** in the Lower 48 States and Hawaii OR Alaska extents using links in the table

Compiled BpS Databases	
Description Databases (Access)	Model Database (ST-Sim)
Lower 48 States and Hawaii Descriptions 📄	Master ST-Sim Model Database 📄
Alaska Descriptions 📄	

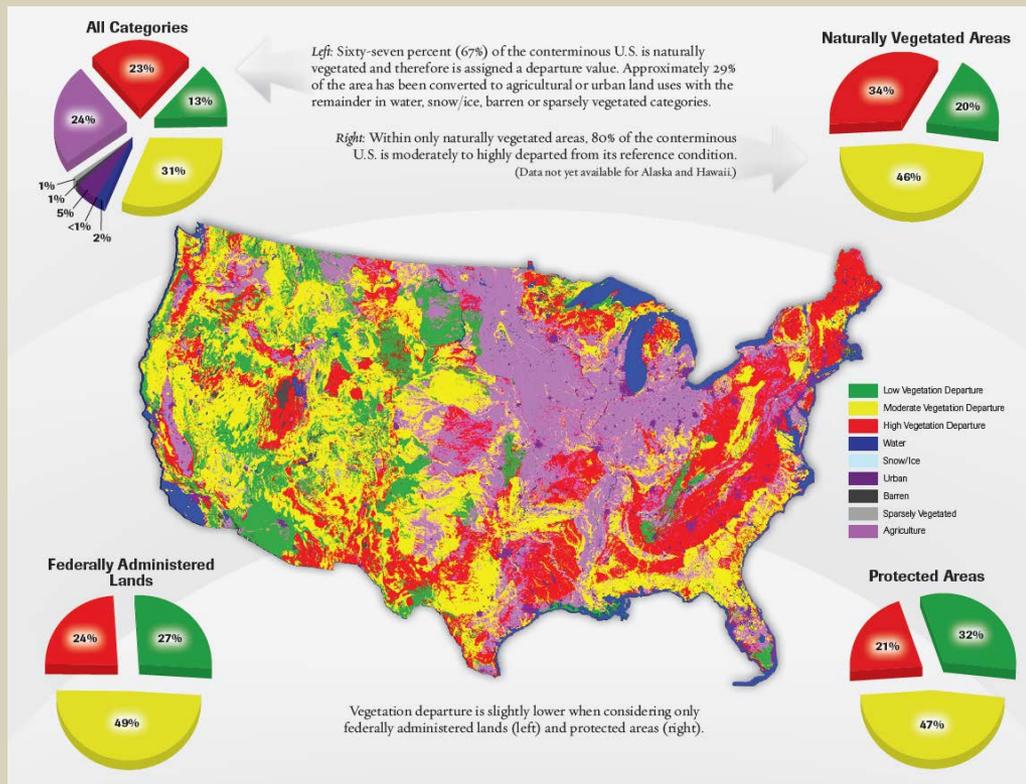
2. **BpS model information** within individual map zones (click on the map below), including:

- BpS description as a PDF
- Reference condition summary table as a .csv file
- Metadata
- [Vegetation Dynamics Development Tool \(VDDT\)](#) model database

3. **Spatial data** - [learn more](#)



Models Summarized



- Represent how the ecosystems of the US worked prior to major European settlement
- Two parts: the model and the description
- Not a prescription for how things should be today or tomorrow
- Models can be hacked or modified
- Not rocket science to modify

LANDFIRE Spatial Products

Vegetation

Environmental Site Potential
Biophysical Settings
Existing Vegetation Type
Existing Vegetation Height
Existing Vegetation Cover
Vegetation Dynamics Models

Fire Regime

Fire Regime Groups
Mean Fire Return Interval
% Low-severity Fire
% Mixed-severity Fire
% Replacement Severity Fire
Vegetation Condition Class
Vegetation Departure Index
Succession Classes

Reference

LANDFIRE Reference Database
Public Events Geodatabase

Fuel

13 Anderson Fire Behavior Fuel Models
40 Scott and Burgan Fire Behavior Fuel Models
Canadian Forest Fire Danger Rating System
Fuel Characteristic Classification System
Fuel Loading Models
Forest Canopy Cover
Forest Canopy Height
Forest Canopy Bulk Density
Forest Canopy Base Height

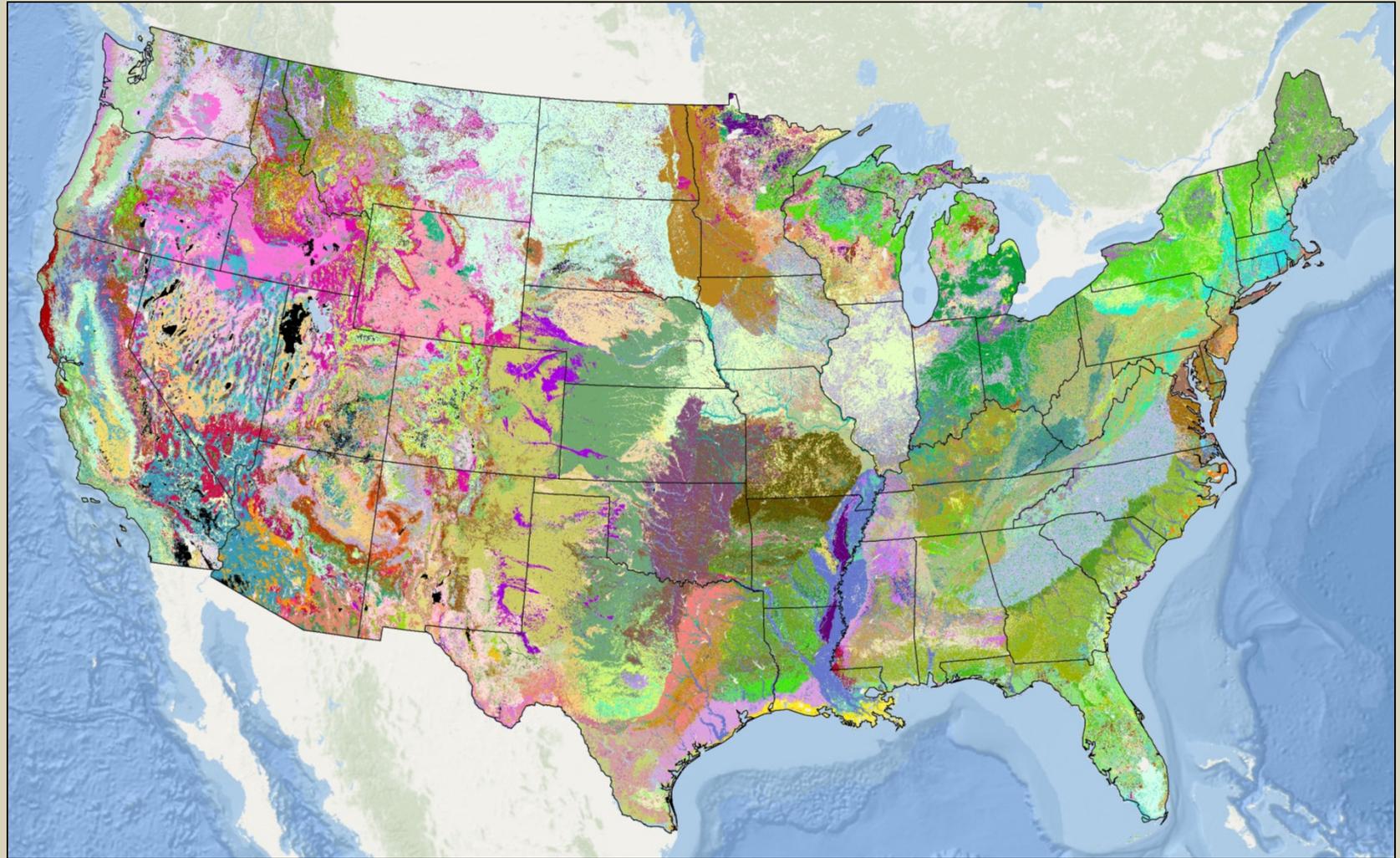
Disturbance

Fuel Disturbance
Vegetation Disturbance
Vegetation Transition Magnitude
Vegetation Transition Databases
Annual Disturbance Layers

Topographic

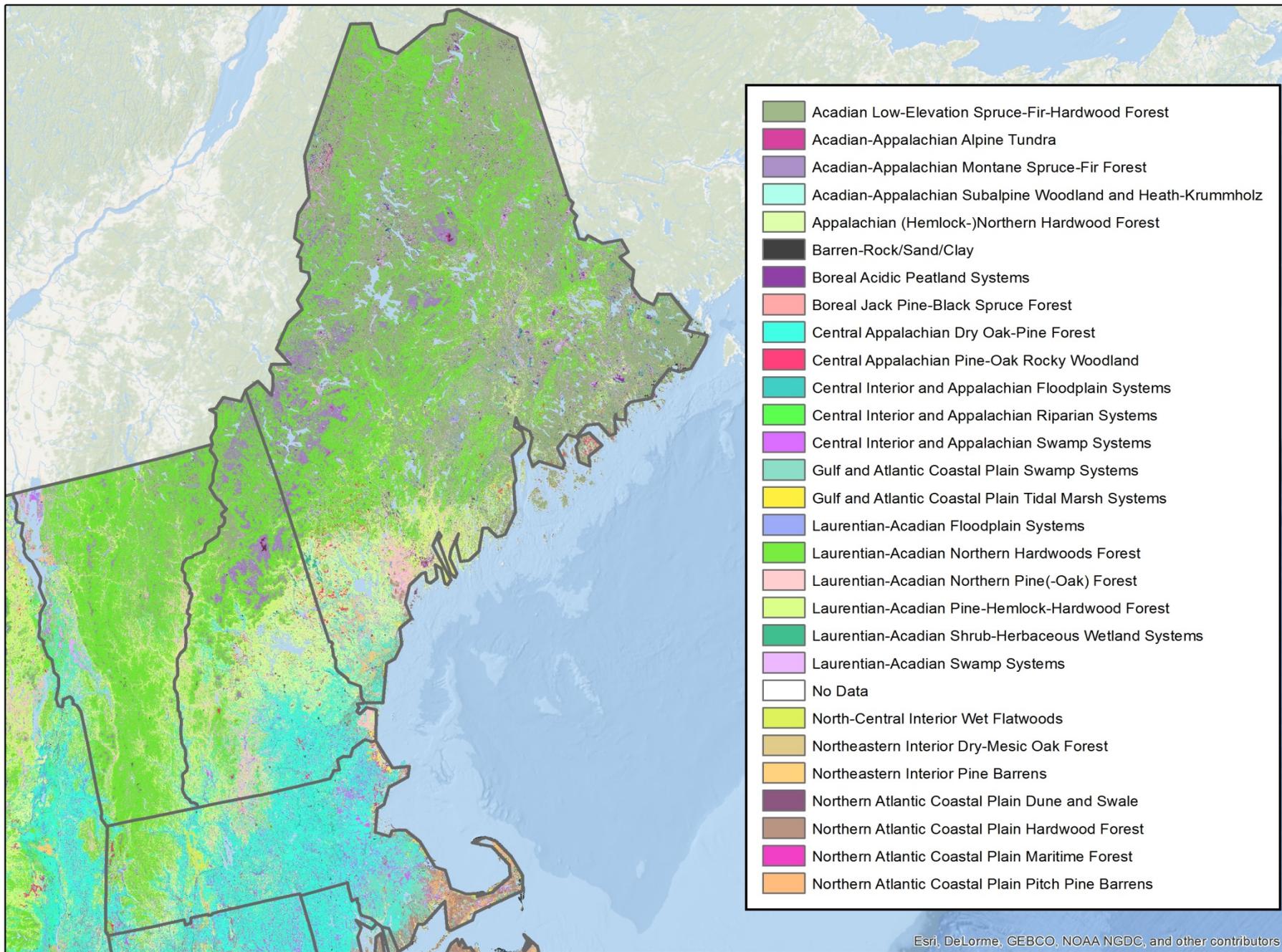
Aspect
Elevation
Slope

Biophysical Settings



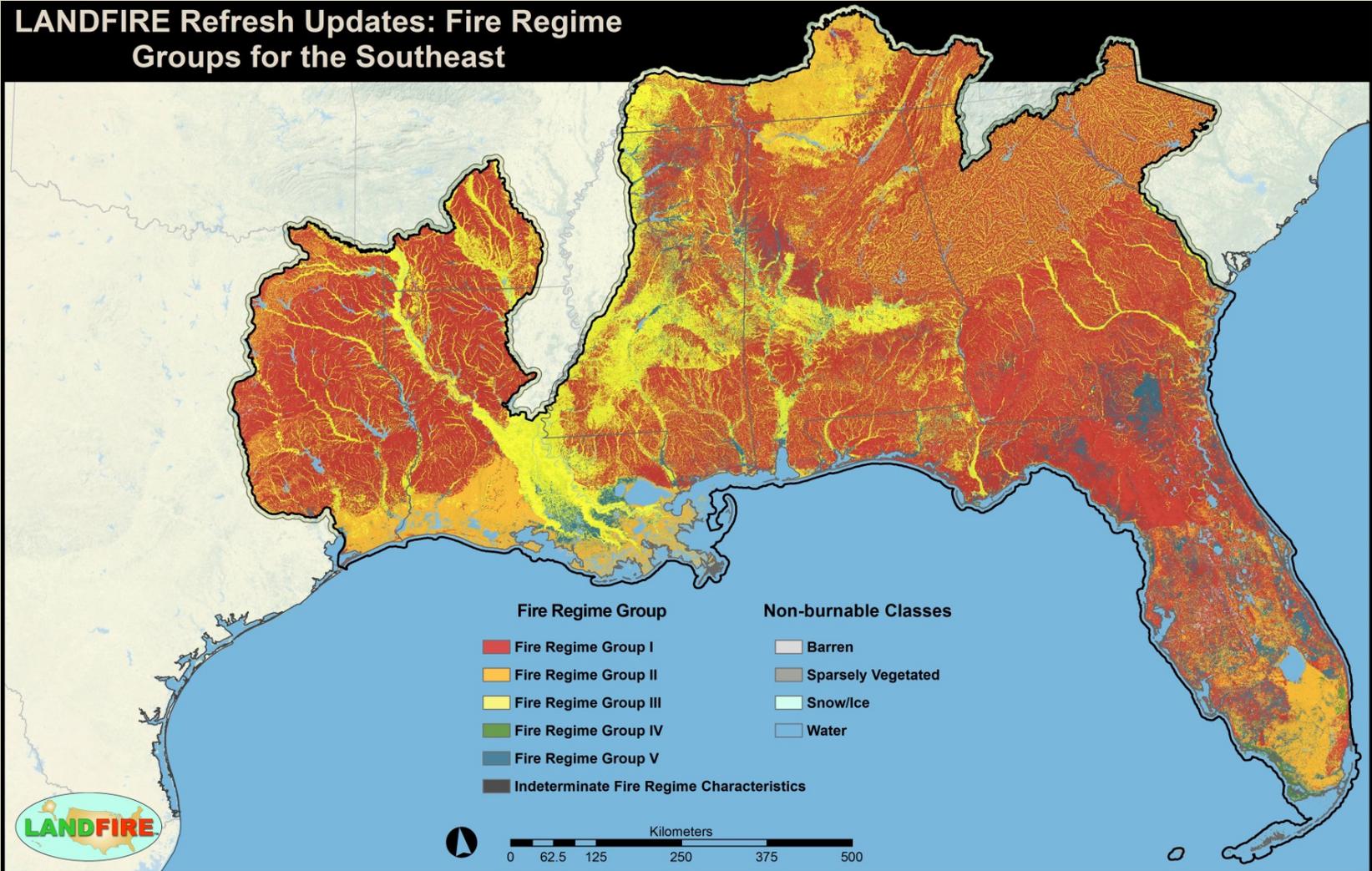
Biophysical Settings





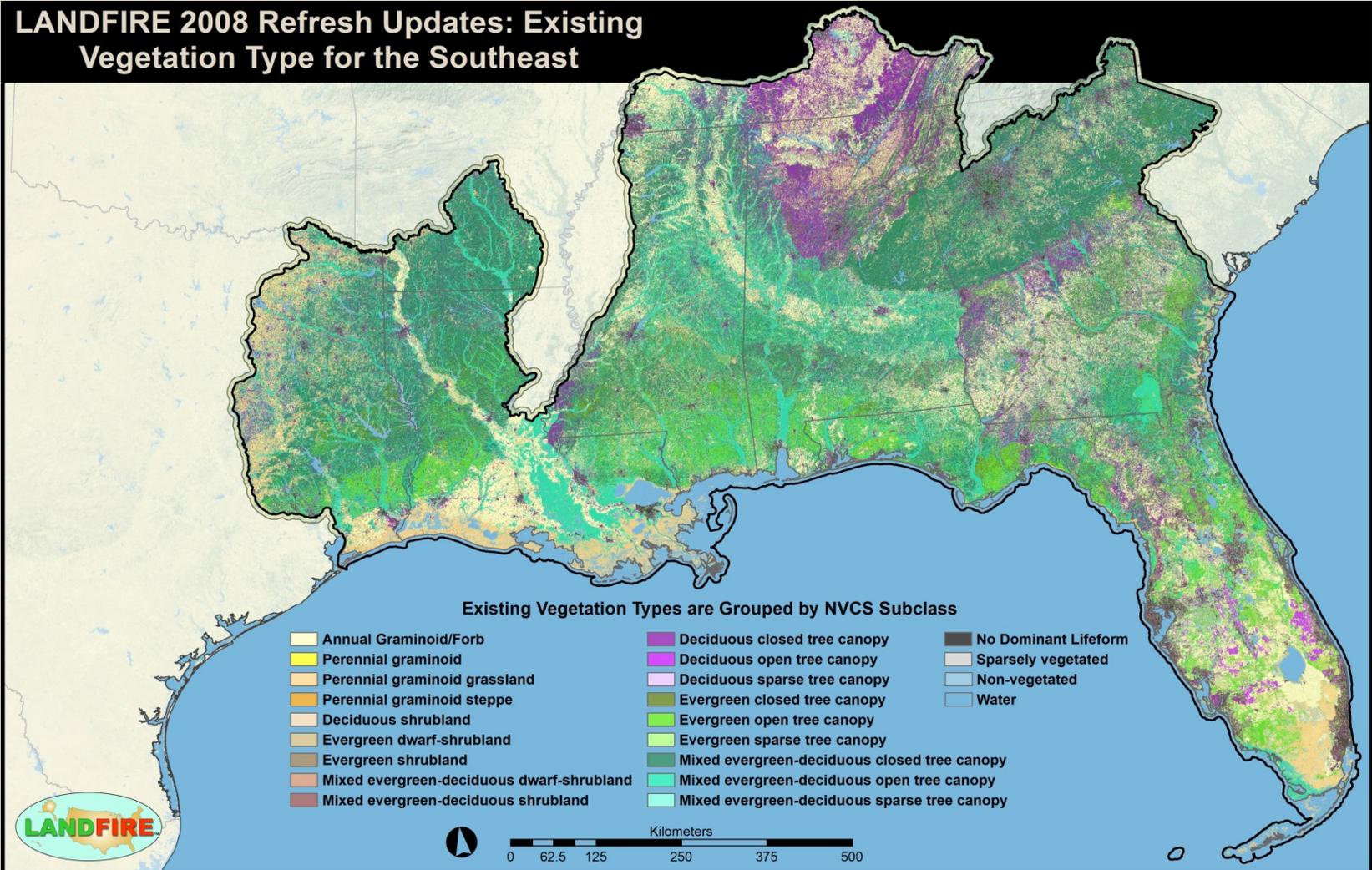
Fire Regime Groups

LANDFIRE Refresh Updates: Fire Regime Groups for the Southeast



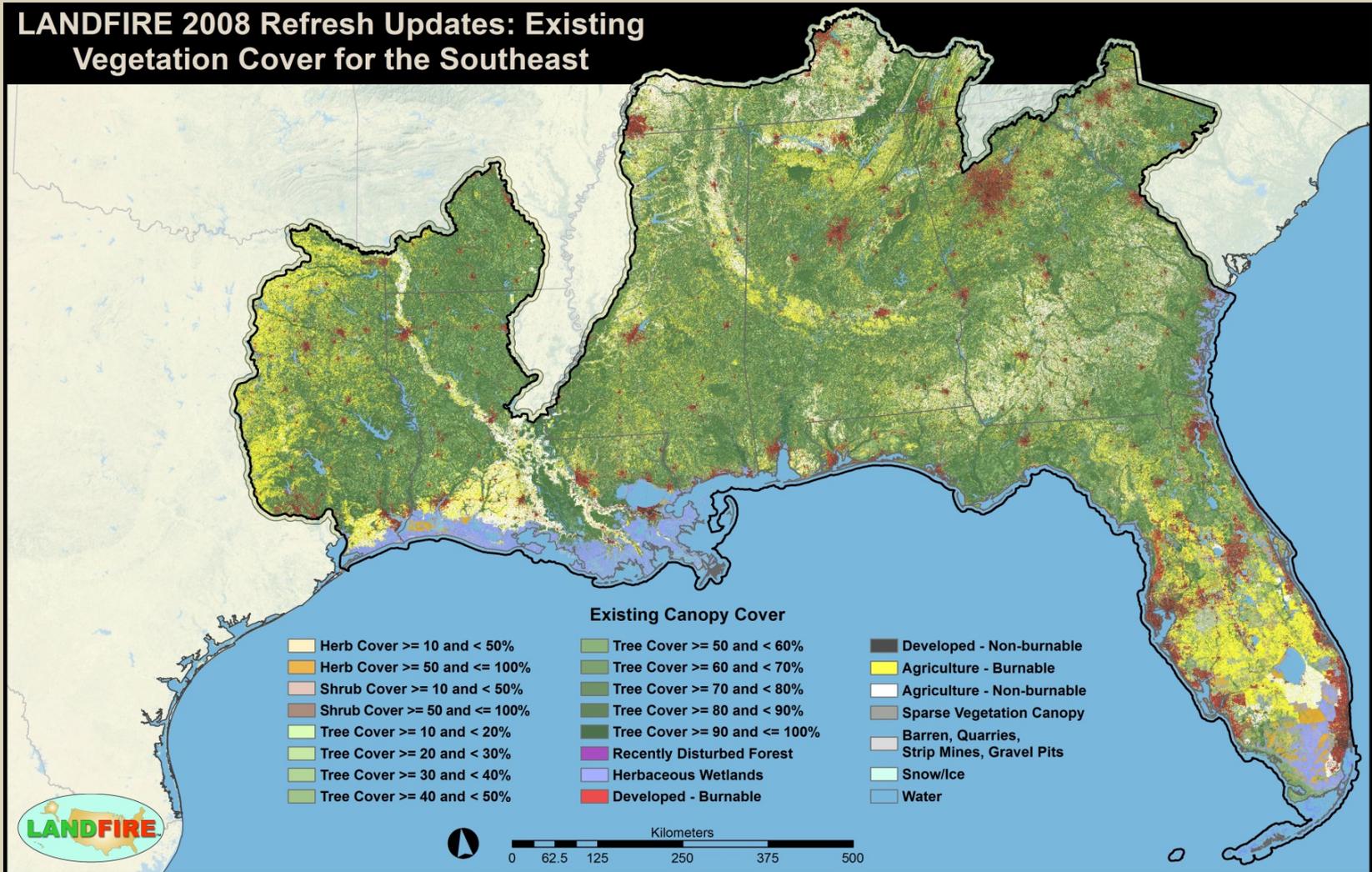
Existing Vegetation Type (EVT)

LANDFIRE 2008 Refresh Updates: Existing Vegetation Type for the Southeast



Existing Vegetation Cover (EVC)

LANDFIRE 2008 Refresh Updates: Existing Vegetation Cover for the Southeast



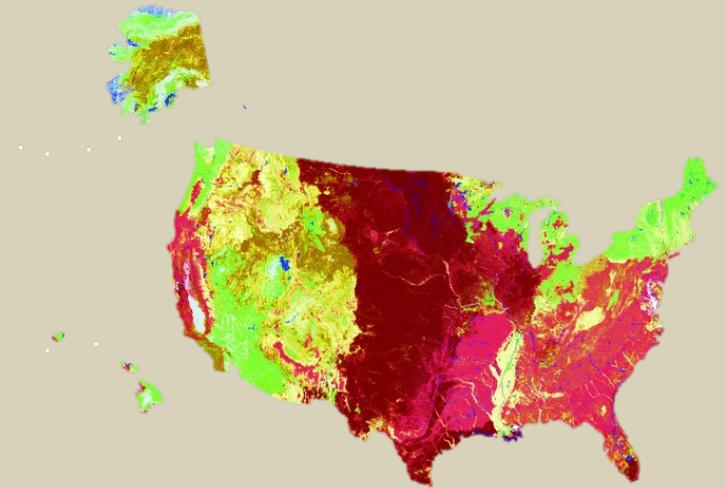
Spatial Datasets

LANDFIRE

- Uses peer-reviewed, consistent, repeatable scientific methods
- Delivers an “all-lands” spatial dataset of vegetation

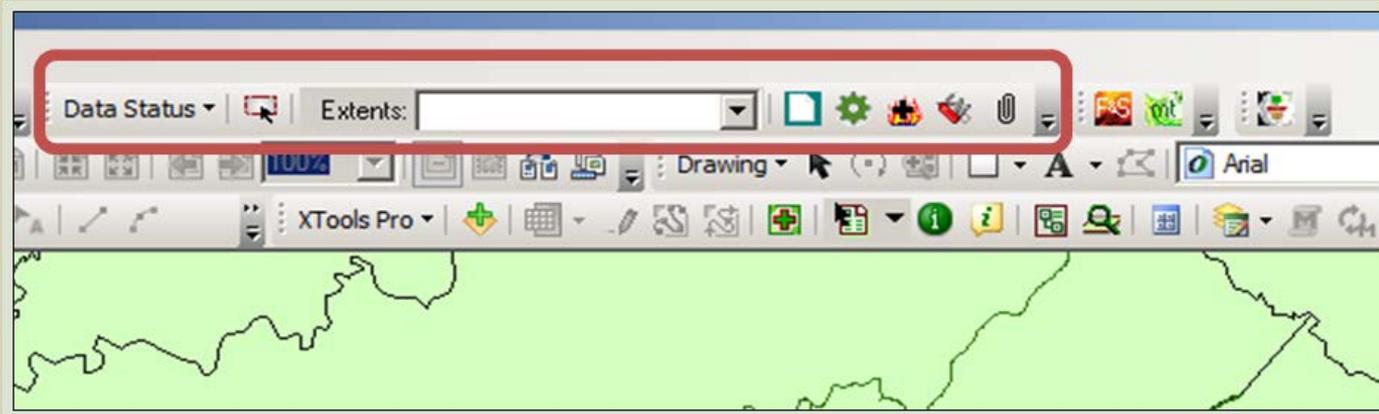
LANDFIRE Products

- Vegetation
- Fire Regimes
- References and Baselines
- Fuels (Models and Measurements)
- Disturbance Characteristics
- Topographic and GIS Spatial Analysis



Getting the Spatial Data

LANDFIRE Data Access Tool



OR

LANDFIRE Data Distribution site

Both are at www.landfire.gov

The LANDFIRE [YouTube Channel](#) has tutorials on both methods

Spatial Data Summary

- Dozens of 30m pixel raster datasets
- Data designed for large landscape analysis
- LANDFIRE delivers numerous vegetation (current and historic), fire and other datasets
- One of the most used is the Topographic dataset

Data Are Updated!



LANDFIRE Product Versions

Name of Version	2001 “Refresh” LF_1.0.5	2008 “Refresh” LF_1.1.0	LANDFIRE 2010 LF_1.2.0	LANDFIRE 2012 LF_1.3.0
Description	Enhanced an earlier version to allow comparison between the circa 2001 Landsat-based image data products and LF_1.1.0.	Updated LF_1.0.5 products to reflect vegetation changes and disturbances 1999-2008.	Reflects vegetation change and disturbance 1999-2010.	Will reflect vegetation change and disturbance 1999-2012.
Imagery date	n/a	1984-2008*	2007-2011	2010-2013
Completion date	2011	2011	2013	2015

*The algorithm required a time series of imagery to identify disturbance; imagery from 1984-2008 was used. Some areas used imagery through 2009 or 2010 if available.

Schedule / Versions

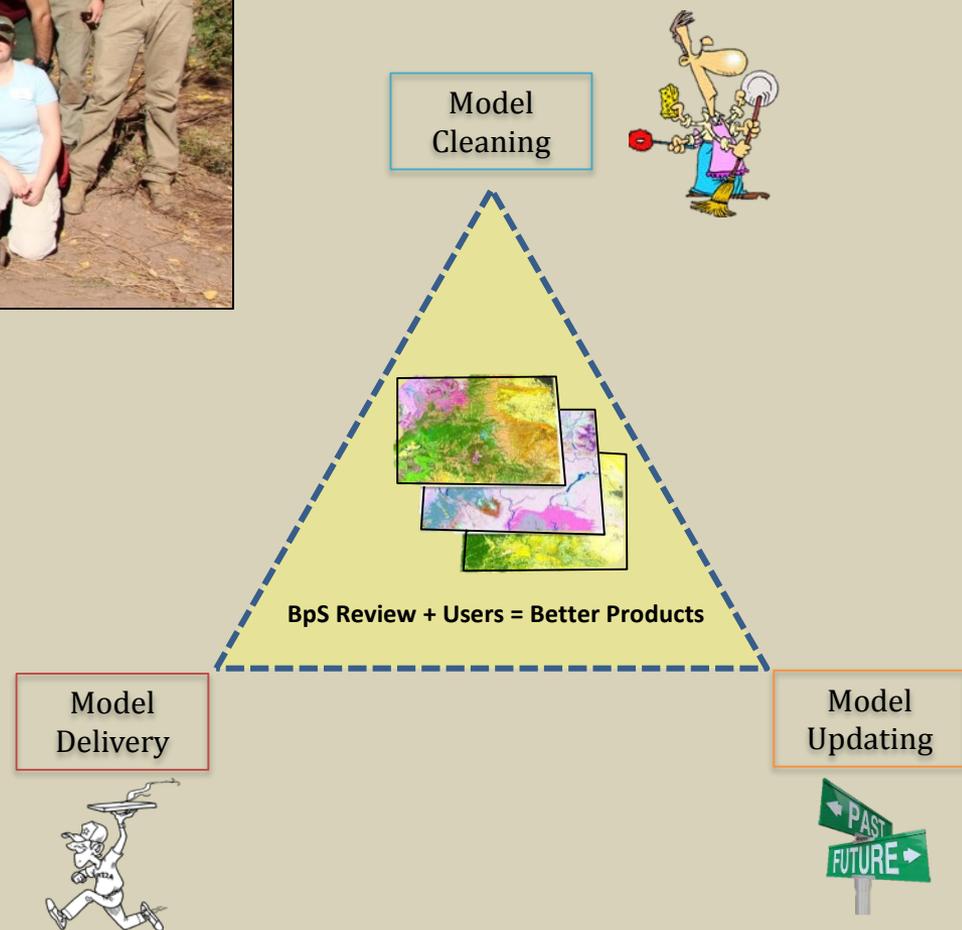
Version	LF c2001 National	LF 2001	LF 2008	LF 2010	LF 2012	LF 2014	LF 2015 Remap
Type	base map	revision	update			base map	
Status	Archived	Complete and available on the DDS			Planning stages		

BpS Review + Users = Better Products



- Submit plot data
- Review BpS models
- Remap

www.landfire.gov



Program Websites

LANDFIRE

Home About Data Products Contribute Data Methods & Applications Find Help Search

Alerts
Notifications
Get Data

**D
A
T
A**

Reference Disturbance Vegetation Fuel Fire Regime Topographic

Disturbance Restoration Needs
% of Forested Land at Risk in Watersheds with > 10,000 Acres of Forested Land

Low 1% - 25%
Moderate 26% - 45%
High

WA Northeast
Columbia Basin

New approaches to evaluate forest structure restoration
LF Data Applications - Learn about forested restoration, wildfire exposure, rangeland degradation, and more...

LAND
land cover change
endangered species monitoring
climate-carbon-ecological modeling/research
wildlife/habitat activities

FIRE
fuel treatments
fire suppression
fire management planning
active fire management

regional/national use
budget allocation
natural resource management
strategic decision support
updated regularly

LANDFIRE ... more than fire

TOOLS & SERVICES

- Data Distribution Site
- LFDAT Tool
- Web Service Calls
- WFMRD&A-FFE Tools and Courses
- TNC User Guides and Tutorials
- Frequently Asked Questions

LANDFIRE NEWS

- LF 2012 Releases - HI released
- AK LF 2012 canopy layers - updated
- LANDFIRE Program Business Plan
- LANDFIRE Bulletins [Subscribe](#)
- Updated Product Schedule

Stay Connected: [Facebook](#) [Twitter](#) [Help](#)

DATA DISTRIBUTION

Get Data

[Access](#) a dynamic map to view and download interagency datasets.

<http://www.landfire.gov>

<http://nature.ly/landfire>

Conservation GATEWAY
The Nature Conservancy
Protecting nature. Preserving life.

Shared methods. Smarter conservation. Home Library Science Chronicles Subscribe

Advanced Search

Conservation Planning Conservation Practices Conservation By Geography

Conservation Gateway » Conservation Practices » Fire & Landscapes » LANDFIRE

LANDFIRE

Need national or regional map graphics for a publication, proposal or presentation? Want to learn more about spatial data provided by the LANDFIRE Program? If so, check out existing maps from that you can download and use immediately!

[LEARN MORE](#)

Models & Data Support Applications Maps

Fire Learning Network

LANDFIRE

Models & Spatial Data
Support
Applications
Maps/GIS
Library
News and Updates
Contacts
Habitat Protection and Restoration
Fire and Climate Change
Fire Adapted Communities

LANDFIRE -- Landscape Fire and Resource Management Planning Tools -- is an innovative program designed to **create and periodically update comprehensive vegetation, fire and fuel characteristics data** using a consistent process for the United States, including Alaska and Hawai'i.

LANDFIRE developed **quantitative vegetation models and comprehensive ecological descriptions** for all major vegetation systems in the US, and a **suite of GIS tools** that help landscape and resource managers make the most of these powerful products.

This short video (1.5 minutes) provides a concise introduction to the LANDFIRE Program -- **10 years old in 2014**.

Of Note ...

Webinar on YouTube
"Got Veggies?" Randy talks about Bp5's descriptive models, announces upcoming Bp5 review.

June 2015 Post Card
Quick note about Bp5 review, new video series, AK/HI data update

LANDFIRE Short: Intro to LF
The first in a series of videos of 5 minutes or less that introduce LF products, people.

Ecosystem Services

Take-Home Messages



LANDFIRE's mission is to provide agency leaders and managers with a common "all-lands" data set of vegetation and wildland fire/fuels information for strategic fire and resource management planning and analysis.

- LANDFIRE fire regime products are useful for framing issues and addressing questions at a broad scale.
- Land managers can review and modify fire regime products for local use.

Online Connections



LANDFIRE Program Home <http://www.landfire.gov>



Conservation Gateway: <http://nature.ly.landfire>



Twitter: [@nature LANDFIRE](https://twitter.com/nature_landfire)



YouTube: [LANDFIREvideo](https://www.youtube.com/landfirevideo)



Bulletins/Post cards via e-mail

– Opt in: http://eepurl.com/baJ_BH



Email: LANDFIRE@tnc.org

BpS review website: <http://www.landfirereview.org/>



LANDFIRE and ESDs

HOW LANDFIRE CAN BE USED TO DEFINE REFERENCE COMMUNITIES
AND DEVELOP STATE-AND-TRANSITION MODELS (STMS)

LANDFIRE is being used across the country to assist with ESDs:

Biophysical Settings (Historic Vegetation) can help us establish our “reference community”

Existing Vegetation, Height, and Cover can inform alternative states and State & Transition Model development

VDDT model can inform disturbance regimes and community phases of reference state

Line up with NatureServe’s “Ecological Systems”: can provide species lists and cover for reference conditions, especially where heritage data is limited or not digitized.

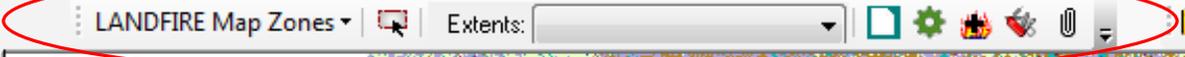
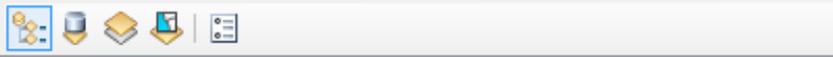
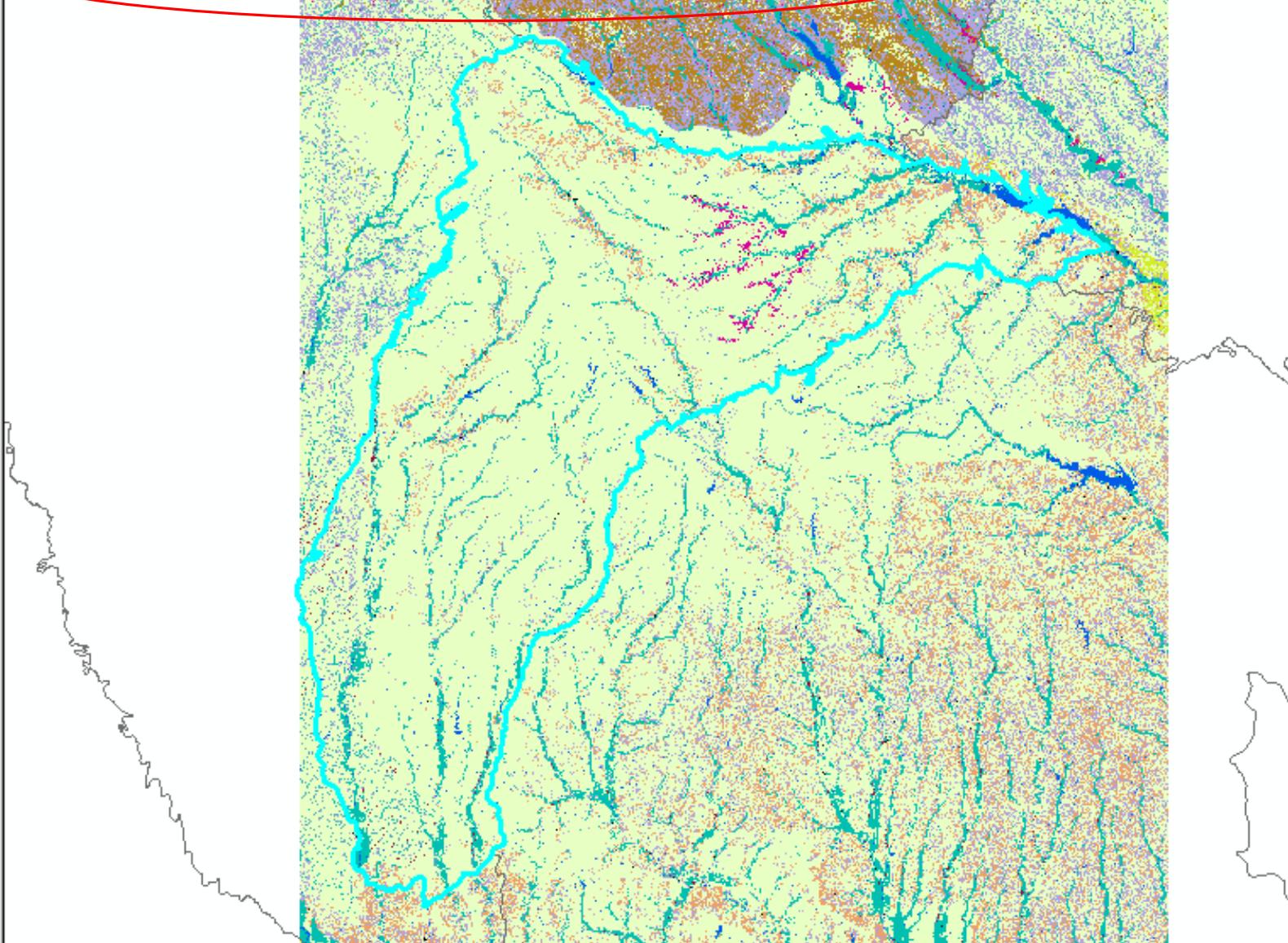


Table Of Contents



Layers

- mlra_a_us
-
- us_110bps
 - BPS_NAME
 - Barren-Rock/Sand/Clay
 - Central Interior and Appalachian Floodplain Systems
 - Central Interior and Appalachian Swamp Systems
 - Central Interior Highlands Calcareous Glade and Barrens
 - Central Tallgrass Prairie
 - Eastern Great Plains Floodplain Systems
 - Eastern Great Plains Wet Meadow-Prairie-Marsh
 - North-Central Interior Dry Oak Forest and Woodland
 - North-Central Interior Dry-Mesic Oak Forest and Woodland
 - North-Central Interior Maple-Basswood Forest
 - North-Central Interior Oak Savanna
 - North-Central Interior Sand and Gravel Tallgrass Prairie
 - North-Central Interior Wet Flatwoods
 - North-Central Oak Barrens
 - Northern Tallgrass Prairie
 - Open Water
 - Ozark-Ouachita Dry-Mesic Oak Forest
 - Southeastern Great Plains Tallgrass Prairie
 - Western Great Plains Wooded Draw and Ravine
- I48_eslf_v3_0_Clip



BPS Soil Sort Pivot.xlsx - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Acrobat

Normal Page Layout Page Break Preview Custom Views Full Screen

Workbook Views

Ruler Formula Bar Gridlines Headings Message Bar

Show/Hide

Zoom 100% Zoom to Selection

New Window Arrange All Freeze Panes

Split Hide Unhide

View Side by Side Synchronous Scrolling Reset Window Position

Window

Save Switch Workspace Windows

Macros

	A	B	C	D	E	F	G	H	I	J
37	Sum of ACRES	Column Labels								
38	Row Labels	Barren-Rock/Sand/Clay	Central Interior and Appalachian Floodplain Systems	Central Interior and Appalachian Shrub-Herbaceous Wetland Systems	Central Interior and Appalachian Swamp Systems	Central Tallgrass Prairie	Great Lakes Coastal Marsh Systems	North-Central Interior Beech-Maple Forest	North-Central Interior Dry Oak Forest and Woodland	North-Central Interior Dry-Mesic Forest and Woodland
39	Group 1	0.38%	11.15%	17.98%	14.82%	0.67%	25.46%	1.79%	1.45%	2.00%
40	Group 2	0.00%	7.19%	12.37%	3.35%	1.40%	5.57%	2.56%	0.18%	0.00%
41	Group 3	0.00%	4.31%	3.99%	0.06%	0.08%	0.00%	0.03%	0.12%	0.00%
42	Group 4	0.00%	3.00%	7.89%	0.00%	0.11%	0.00%	0.32%	0.19%	0.00%
43	Group 5	7.93%	18.75%	13.71%	17.34%	12.21%	11.15%	0.02%	5.18%	2.00%
44	Group 6	0.36%	0.15%	0.00%	0.00%	1.24%	0.00%	0.00%	0.02%	0.00%
45	Group 7	0.26%	0.01%	0.00%	0.00%	0.72%	0.00%	0.00%	0.03%	0.00%
46	Group 8	1.68%	6.77%	1.34%	4.25%	0.97%	1.66%	0.01%	2.64%	0.00%
47	Group 9	3.72%	6.56%	0.28%	2.10%	1.54%	2.05%	0.00%	1.86%	0.00%
48	Group 10	3.92%	6.68%	6.96%	15.89%	1.17%	1.78%	0.12%	68.88%	5.90%
49	Group 11	10.93%	10.44%	3.95%	13.30%	29.42%	9.37%	82.19%	0.93%	14.00%
50	Group 12	1.00%	0.31%	0.00%	0.00%	2.22%	0.00%	0.00%	0.06%	17.00%
51	Group 13	3.67%	0.54%	1.34%	10.76%	0.30%	5.36%	3.38%	1.45%	10.00%
52	Group 14	6.95%	1.31%	0.00%	0.73%	13.05%	0.00%	0.02%	0.02%	0.00%
53	Group 15	0.14%	0.05%	0.00%	0.00%	1.40%	0.00%	0.00%	0.04%	0.00%
54	Group 16	0.01%	4.34%	8.13%	0.47%	0.16%	0.15%	1.74%	7.30%	4.30%
55	Group 17	2.55%	2.03%	0.29%	0.63%	0.86%	0.99%	0.01%	1.75%	5.80%
56	Group 18	0.00%	0.09%	0.11%	0.24%	0.02%	0.00%	0.01%	0.14%	0.00%
57	Group 19	0.00%	0.03%	0.00%	0.00%	1.50%	0.00%	0.00%	0.02%	0.00%
58	Group 20	0.00%	2.45%	3.19%	4.61%	0.32%	0.12%	0.01%	0.16%	0.80%
59	Group 21	0.32%	0.05%	0.00%	0.00%	0.34%	0.00%	0.00%	0.02%	2.40%

Search by Name ?

? Search Tips

Enter the name of any ecological unit
(No plurals. Separate multiple names with a comma.)

Central Tallgrass Prairie Search Now

Systems Associations Alliances All scientific informal either

ignore punctuation in the database

And/Or Search by Grouping ?

Select a grouping to search within for the system name entered above, or search for an entire grouping (e.g. Forest and Woodland). The search for Ecological Communities has been removed. [\(Why?\)](#) Instead, go to usnvc.org. There are links from that website back to the association reports in NatureServe Explorer.

Find Group Below Next

➔ All Ecological Units [Entire group selected] Search Now

⬇ Ecological Systems

Refine Results ?

Limit Ecological Communities Results: ?

No Limit
 By Wetlands

Limit Ecological Systems Results:

By Wetlands: ?

No Limit
 Only Wetlands



Classification

Scientific Name: Central Tallgrass Prairie
Unique Identifier: CES205.683
Classification Confidence: 1 - Strong

Summary: This northwestern In deep, rich Mollis *Andropogon ge* this system. Ot *scoparium*, are with drier habit many as 300 he not prevent inv areas that are v natural dynam the prime distu row crops, and

Similar Ecological Systems

Unique Identifier
CES205.684
CES205.685
CES205.686

At-Risk Species Reported for th

Scientific Name (Common Name)
<i>Papaipema beeriana</i> (Blazing Star Stem Borer)
<i>Papaipema eryngii</i> (Rattlesnake-master Borer Moth)
<i>Speyeria idalia</i> (Regal Fritillary)

Component Associations

Association Unique ID	Asso
CEGL002024	Andr
CEGL002025	Andr
CEGL002035	Schiz Vege
CEGL002203	Andr Gras:
CEGL002214	Schiz
CEGL002249	Schiz
CEGL003628	Junip
CEGL005179	Schiz
CEGL005183	Schiz
CEGL005219	Corn
CEGL005231	Andr

Vegetation Composition (incomplete)

Species Name	Rounded Global Status	Growth Form	Stra
<i>Amorpha canescens</i>	G5	Broad-leaved deciduous shrub	Shor shru
<i>Helianthus grosseserratus</i>	G5	Flowering forb	Herb
<i>Liatris aspera</i>	G4	Flowering forb	Herb
<i>Ratibida pinnata</i>	G5	Flowering forb	Herb
<i>Andropogon gerardii</i>	G5	Graminoid	Herb
<i>Bouteloua curtipendula</i>	G5	Graminoid	Herb
<i>Hesperostipa spartea</i>	G5	Graminoid	Herb
<i>Panicum virgatum</i>	G5	Graminoid	Herb
<i>Schizachyrium scoparium</i>	G5	Graminoid	Herb
<i>Sorghastrum nutans</i>	G5	Graminoid	Herb

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- Damoureyeh, S. A., and D. C. Hartnett. 1997. Effects of bison and cattle on growth, reproduction, and abundances of five tallgrass prairie forbs. American Journal of Botany 84(12):1719-1728.
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(Plains Pocket Gopher)				
<i>Lampropeltis triangulum</i> (Milksnake)	G5			✓
<i>Microtus ochrogaster</i> (Prairie Vole)	G5			✓
<i>Ophisaurus attenuatus</i> (Slender Glass Lizard)	G5			✓
<i>Papaipema beeriana</i> (Blazing Star Stem Borer)	G2G3			✓
<i>Papaipema eryngii</i> (Rattlesnake-master Borer Moth)	G1G2	C: Candidate		✓
<i>Pituophis catenifer</i> (Gophersnake)	G5			✓
<i>Speyeria idalia</i> (Regal Fritillary)	G3			✓
<i>Terrapene ornata</i> (Ornate Box Turtle)	G5			✓
<i>Thamnophis radix</i> (Plains Gartersnake)	G5			✓

4314210 - Central Tallgrass Prairie

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General **Classes** Disturbances Relevant Literature

Class A

Landscape % **41**

Cover Type **Early Development 1**

Struct. Stage **Open**

Indicator Species and Canopy Position

ANGE **Upper**

SONU2 **Upper**

SPPE **Upper**

SPHE **Upper**

Fire Fuel
Behavior Model
3

Description Post Fire Regrowth Stage - Duration: two year. From blackened state, rapid regrowth of fire positive and fire neutral perennial vegetation to maximum height by end of growing season. Warm season grasses and fire positive forbs display increased height, flowering and fruiting and appear to be more abundant depending on season of the burn. Annual, biennial and short-lived perennial species occupy space opened by litter removal. Fire neutral perennial forbs maintain pre-fire composition, but may appear to be reduced. Fire negative species are reduced. No litter accumulation in this class. Probability of a replacement fire is 1.00 as all surface fires are replacement in this system.

The cover in this class is defined as 0-70% for mapping purposes. However, it could really go up to 100% cover.

Structural Data (for upper layer lifeform):

Min Canopy Closure **0**%
Max Canopy Closure **70**%
Min Height **Herb 0m**
Max Height **Herb >1.1m**
Max tree size class

Upper Layer Lifeform (select one)

Tree Shrub Herb

Upper Layer Lifeform is not Dominant

If checked, please specify the dominant lifeform, and its minimum and maximum canopy cover and height:

Open refers to absence of tree or shrub canopy cover.

Class B

Landscape % **57**

Cover Type **Mid Development 1**

Indicator Species and Canopy Position

ANGE **Upper**

SONU2 **Upper**

Fire Fuel
Behavior Model

Structural Data (for upper layer lifeform):

Min Canopy Closure **71**%
Max Canopy Closure **100**%
Min Height **Herb 0m**
Max Height **Herb >1.1m**

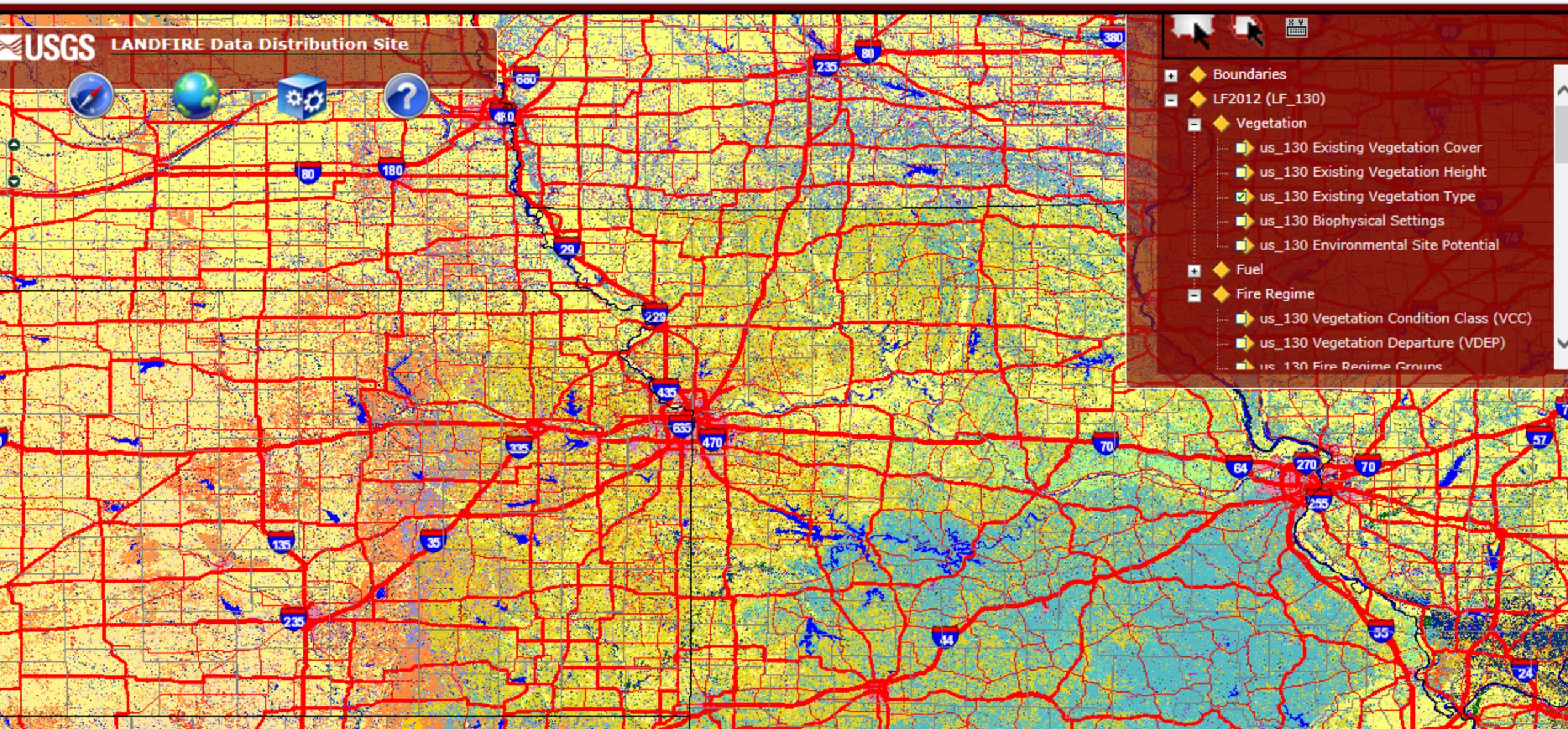


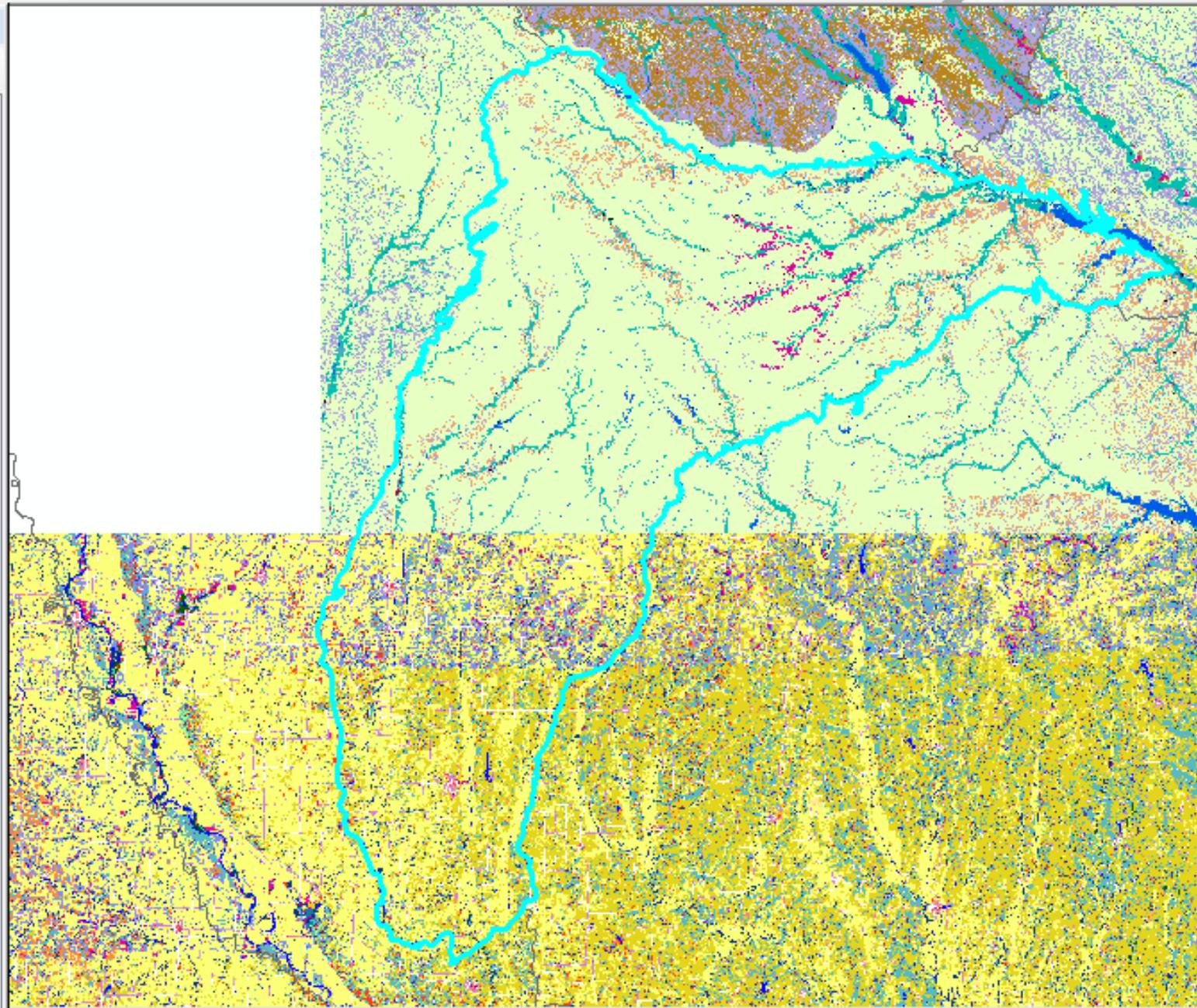
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ClassName

- Western Great Plains Wooded Draw and Ravine
- Western Great Plains Tallgrass Prairie
- Western Great Plains Sand Prairie Shrubland
- Western Great Plains Sand Prairie Grassland
- Western Great Plains Floodplain Shrubland
- Western Great Plains Floodplain Herbaceous
- Western Great Plains Floodplain Forest and Woodland
- Western Great Plains Dry Bur Oak Forest and Woodland
- Western Great Plains Depressional Wetland Systems
- Western Cool Temperate Wheat
- Western Cool Temperate Urban Shrubland
- Western Cool Temperate Urban Mixed Forest
- Western Cool Temperate Urban Herbaceous
- Western Cool Temperate Urban Evergreen Forest
- Western Cool Temperate Urban Deciduous Forest
- Western Cool Temperate Undeveloped Ruderal Shrubland
- Western Cool Temperate Undeveloped Ruderal Grassland
- Western Cool Temperate Undeveloped Ruderal Deciduous
- Western Cool Temperate Row Crop - Close Grown Crop
- Western Cool Temperate Row Crop
- Western Cool Temperate Pasture and Hayland
- Western Cool Temperate Orchard
- Western Cool Temperate Fallow/Idle Cropland
- Western Cool Temperate Developed Ruderal Shrubland
- Western Cool Temperate Developed Ruderal Mixed Forest
- Western Cool Temperate Developed Ruderal Grassland
- Western Cool Temperate Developed Ruderal Evergreen For



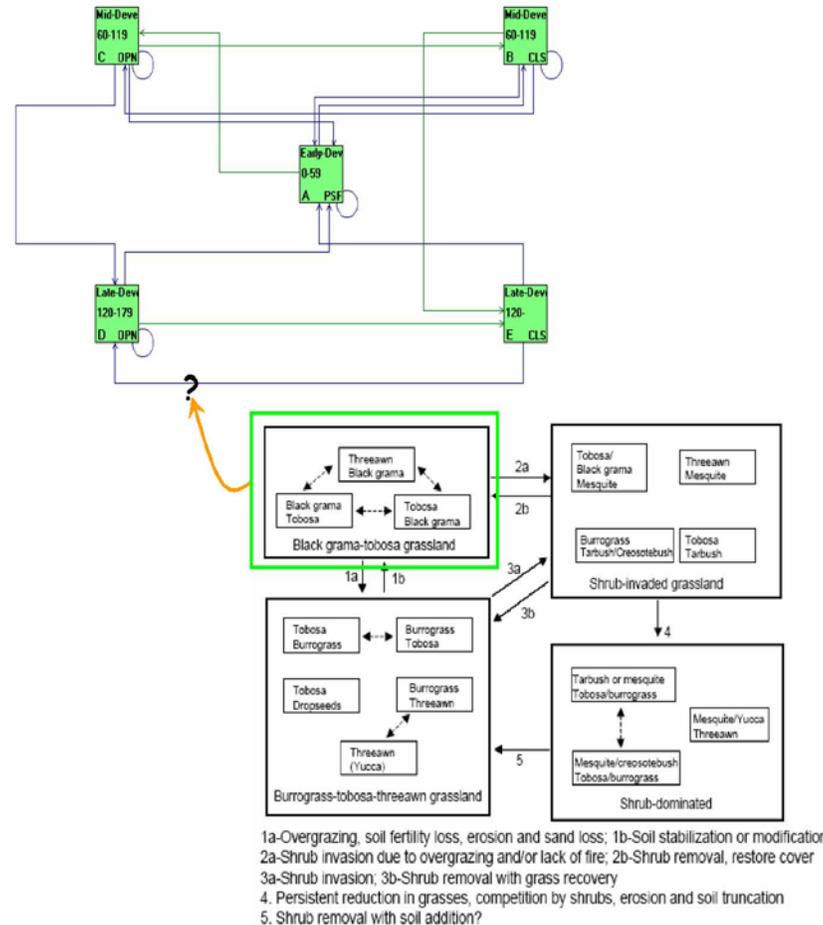
A Review and Comparison of LANDFIRE Biophysical Settings and NRCS Ecological Site Descriptions and their Potential for Shared Application

A Review and Comparison of LANDFIRE Biophysical Settings and NRCS Ecological Site Descriptions and their Potential for Shared Application

Final Report

Steven Yanoff¹, M. Reese Lolley², Joanna Bate³, Patrick McCarthy¹, Anne Bradley¹
The Nature Conservancy

June 30, 2007



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1. Summary
2. Terminology
3. Scope of Work and Tasks Performed
4. Crosswalk Approach
5. Key Findings
6. Recommendations
7. Acknowledgements
8. Further Information

Figure 1. Generalized ecological site description-biophysical setting group crosswalk structure

Appendices

1. Schematic of Crosswalk Approach
2. Selected Crosswalks
3. Source Information for Crosswalks

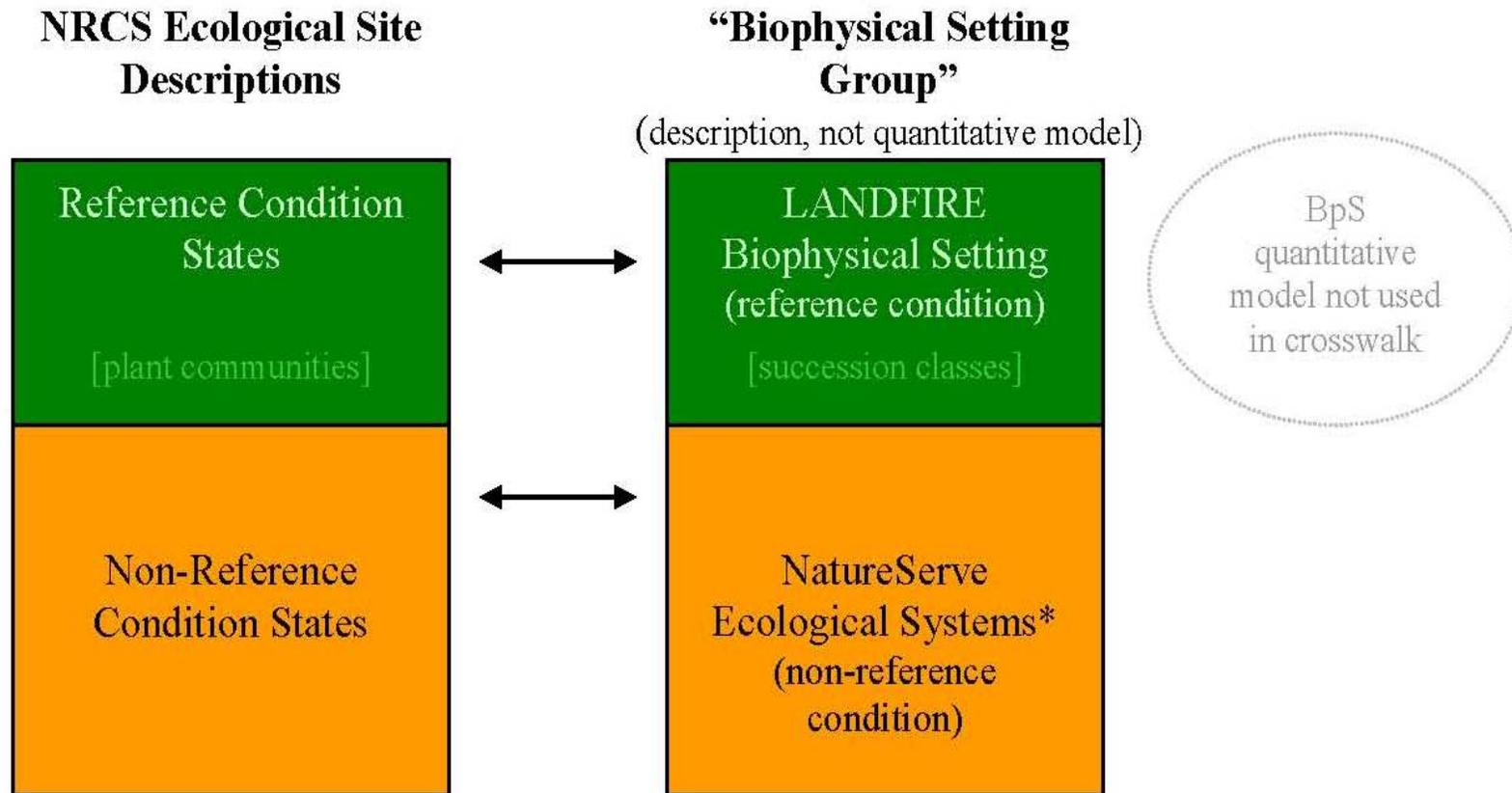
A PowerPoint presentation accompanies this report.

Top – LANDFIRE Biophysical Setting quantitative model of expected succession classes under reference conditions (simulated)
Bottom – NRCS Ecological Site Description (ESD) descriptive model of expected “states” under reference conditions & departure
Green box & Arrow – possible crosswalk between reference condition elements, see text

Content & interpretations are those of the authors and not necessarily other project participants, agencies, organizations, LANDFIRE or The Nature Conservancy. LANDFIRE biophysical settings used in crosswalks were drafts as of this report’s publication & are subject to change.

Figure 1. Generalized Ecological Site Description-Biophysical Setting Group Crosswalk Structure

Multiple ecological site descriptions (ESDs) and their states typically crosswalked to one biophysical setting group. Reference condition ESD states crosswalked to one biophysical setting, and non-reference condition states to one non-reference condition ecological system, within a biophysical setting group. The plant communities within reference condition states do not necessarily correspond directly to the succession classes within a BpS. See Key Finding 2 & appendices for details.



*NatureServe ecological systems reflect reference or non-reference conditions, or both, depending on the particular system, where it occurs and our interpretation.



Billie

Questions?

Stacey L. Clark
Regional Ecologist
USDA NRCS
Soil Survey Regions 10 & 11
375 Jackson St., Suite 600
St. Paul, MN 55101
phone: 651.602.7892
fax: 651.602.7914
Stacey.clark@mn.usda.gov

