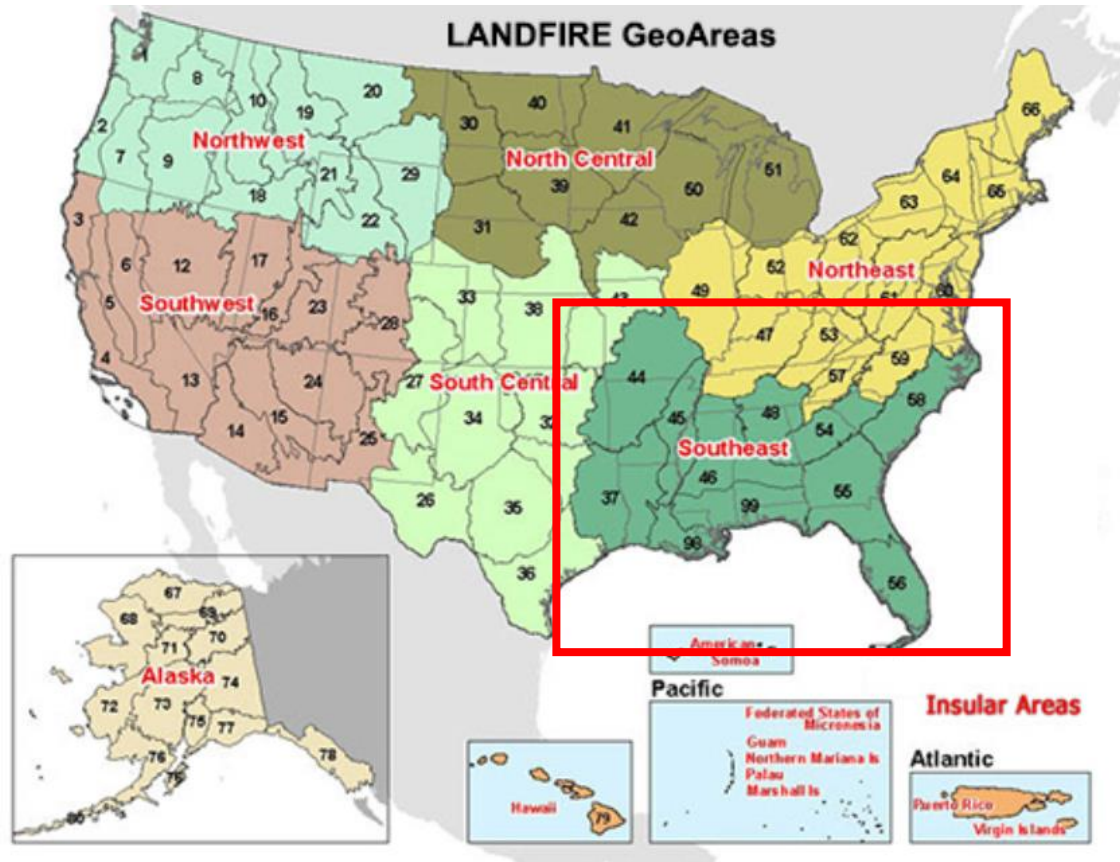


LANDFIRE Webinar

LANDFIRE Remap for the Southeastern United States



Southern Fire Exchange

Jim Smith – The Nature Conservancy's LANDFIRE Team

June 17, 2020

AGENDA

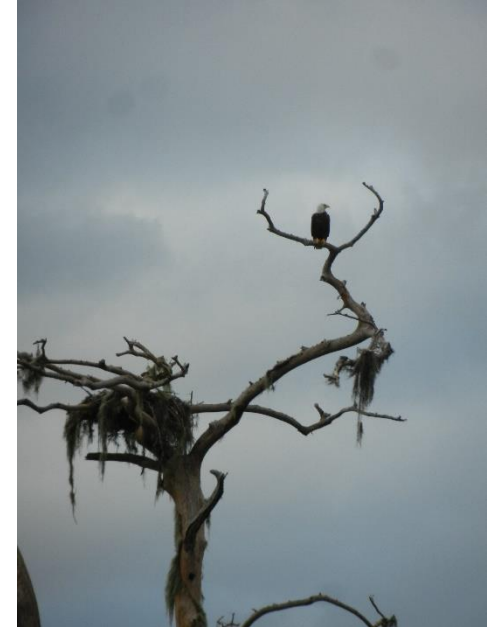
The Foundation

The Present

The Future

Southeastern
Examples

Learning More



What is LANDFIRE?

An interagency/multi-partner program designed to create and periodically update comprehensive vegetation and fuel characteristics data using a consistent process for the entire U.S.

The primary partners in the LANDFIRE Program are:

US Forest Service Fire and Aviation Management
US Department of the Interior Office of Wildland Fire
The Nature Conservancy North America Region
USGS EROS Data Center



Past: The LANDFIRE Foundation

LANDFIRE Charter establishes 4-C's:

- **Comprehensive-** ALL lands
- **Compatible-** Products match
- **Current-** As close to today as possible
- **Consistent-** Comparable over time and space

.... which are our design criteria/design constraints for

- 30m, spatial data layers
- 800+ quantitative state-and-transition BpS models and descriptions.
- Versions circa 2000/1, updates in 2008, 2010, 2012 and 2014, and now
- ***LF Remap***



Past: The LANDFIRE Foundation

[LF Version Descriptions](#)

Under each column, links are provided to download full extent mosaics or databases. Please note that mosaics are not available until the full extent is complete. Data availability is shown on LF's [Data Distribution Site \(DDS\)](#), which offers data downloads at selected extents.

Product Name	Abbrev	Theme	DDS	LF 2001 LF 1.0.5	LF 2008 LF 1.1.0	LF 2010 LF 1.2.0	LF 2012 LF 1.3.0	LF 2014 LF 1.4.0	LF Remap LF 2.0.0
LF Reference Database	LFRDB	Reference	--	US AK HI	n/c	n/c	n/c	n/c	o
Public Events Geodatabase_1999_YEAR	Events	Reference	x	--	US AK HI	US AK HI	US AK HI	US AK HI	o
Forest Vegetation Simulator Ready Database	FVSRDB	Reference	--	--	--	--	US AK HI	--	--
Disturbance	DistYear	Disturbance	x	--	US AK	US AK	US AK HI	US AK HI	o
Vegetation Disturbance	VDistYear	Disturbance	x	--	US AK HI	US AK HI	US AK HI	US AK HI	--
Historical Disturbance	HDist	Disturbance	--	--	--	--	--	--	o
Vegetation Transition Magnitude	VTMYear	Disturbance	x	--	--	US AK	US AK HI	US AK HI	--
Forest Vegetation Transitions Database	FVTDB	Disturbance	--	--	--	--	US AK HI	n/c	--
Non-forest Vegetation Transitions Database	NFVTDB	Disturbance	--	--	--	--	US AK HI	n/c	--
Fuel Disturbance	FDistYear	Disturbance	x	--	US AK HI	US AK HI	US AK HI	US AK HI	o
Forest Vegetation Simulator Disturbance Database	FVSDDB	Disturbance	--	--	--	--	US AK HI	n/c	--
Biophysical Settings	BPS	Vegetation	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
Environmental Site Potential	ESP	Vegetation	x	US AK HI *	n/c	US AK HI	n/c	n/c	--
Existing Vegetation Cover	EVC	Vegetation	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
Existing Vegetation Height	EVH	Vegetation	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
Existing Vegetation Type	EVT	Vegetation	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
National Vegetation Classification	NVC	Vegetation	--	--	--	--	--	--	o
Biophysical Settings Models and Descriptions	BpS	Vegetation	--	BPS Models	n/c	n/c	n/c	n/c	--
13 Anderson Fire Behavior Fuel Models	FBFM13	Fuel	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
40 Scott and Burgan Fire Behavior Fuel Models	FBFM40	Fuel	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
Canadian Forest Fire Danger Rating System	CFFDRS	Fuel	x	--	--	AK	AK	AK	o
Forest Canopy Bulk Density	CBD	Fuel	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
Forest Canopy Base Height	CBH	Fuel	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
Forest Canopy Cover	CC	Fuel	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
Forest Canopy Height	CH	Fuel	x	US AK HI	US AK HI	US AK HI IA	US AK HI	US AK HI	o
Fuel Characteristic Classification System Fuelbeds	FCCS	Fuel	x	US AK HI	US AK HI	--	--	US AK HI	o
Fuel Loading Models	FLM	Fuel	x	US AK	US AK	--	--	--	--
Fuel Vegetation Cover	FVC	Fuel	--	--	--	--	--	--	o
Fuel Vegetation Height	FVH	Fuel	--	--	--	--	--	--	o
Fuel Vegetation Type	FVT	Fuel	--	--	--	--	--	--	o
Fuel Rulesets Database	--	Fuel	--	--	--	US AK HI	US AK HI	US AK HI	o
Fire Regime Groups	FRG	Fire Regime	x	US AK HI	n/c	US AK HI	n/c	n/c	o
Mean Fire Return Interval	MFRI	Fire Regime	x	US AK HI	n/c	US AK HI	n/c	n/c	--
Percent Low-severity Fire	PLS	Fire Regime	x	US AK HI	n/c	US AK HI	n/c	n/c	--
Percent Mixed-severity Fire	PMS	Fire Regime	x	US AK HI	n/c	US AK HI	n/c	n/c	--
Percent Replacement-severity Fire	PRS	Fire Regime	x	US AK HI	n/c	US AK HI	n/c	n/c	--
Succession Classes	SClass	Fire Regime	x	US AK HI	US AK HI	US AK HI	n/c	n/c	o
Vegetation Condition Class**	VCC	Fire Regime	x	US AK HI	US AK HI	--	US AK HI	US AK HI	o
Vegetation Departure Index**	VDEP	Fire Regime	x	US AK HI	US AK HI	--	US AK HI	US AK HI	o
Aspect ***	ASP	Topographic	x	n/c	n/c	US AK HI IA	n/c	n/c	US AK HI IA
Elevation ***	DEM	Topographic	x	n/c	n/c	US AK HI IA	n/c	n/c	US AK HI IA
Slope ***	SLP	Topographic	x	n/c	n/c	US AK HI IA	n/c	n/c	US AK HI IA



Present: LF Remap



Get Data

Area of Interest

Download your specific area of interest by layer:



[Data Distribution Site \(DDS\)](#): a dynamic map to view and download LF layers.

Full Extent Mosaics

Download entire CONUS, HI, or AK by LF layer:



[Download mosaics](#): a table of LF layers by version and extent. View layer availability and download in .zip file format.

Stream Data

Stream data by a webservice:

- » [REST or WCS Services](#)
- » [Non-ESRI Scripting Services](#)
- » [ArcGIS Online](#)



LF Remap – What Remains the Same?

Same **design criteria/constraints**: comprehensive, compatible, consistent and current.

Same **basic product suite with changes to improve usability**

Same **application scale**: large landscape, regional, national data set as delivered out-of-the-box.

LF Remap – What's New?

- Omernik Level III ecological mapping framework
- New imagery preparation methods
- More/more diverse imagery, such as L8 and Lidar
- More field-plots and improved plot “Auto-Keys”
- External review of spatial products b/f delivery
- Review of Biophysical Settings models and descriptions
- New products: NVC Groups, Historic disturbance, Year-Capable Fuels Products, New Fire Regime Group schema

New Fire Regime Group Schema

Original Fire Regime Group	New Group Designation	All Fire Fire Return Interval	% Replacement Fire
I	I-A	0 - 5 years	Less than 66.7%
	I-B	6 - 15 years	
	I-C	16 - 35 years	
II	II-A	0 - 5 years	66.7% or greater
	II-B	6 - 15 years	
	II-C	16 - 35 years	
III	III-A	36 - 100 years	Less than 80%
	III-B	101- 200 years	Less than 66.7%
IV	IV-A	36 - 100 years	80% or greater
	IV-B	101- 200 years	66.7% or greater
V	V-A	201 to 500 years	Any severity
	V-B	501+ years	

6

- Example of how to collapse categories in the contingency table now included

LF Remap Quality

- Category Agreement Table

EVT Value	EVT Name	Data Source	Row Total (pixels)	% of Row Pixels	Row Agreement	Primary Within Row Mismatch	Secondary Within Row Mismatch	Tertiary Within Row Mismatch
9137	Mississippi Delta Salt and Brackish Tidal Marsh	LANDFIRE LFRDB	274	2.70%	73%	9136 Mississippi Delta Fresh and Oligohaline Tidal Marsh; 63 Incorrect Pixels	9228 Southeastern Coastal Plain Interdunal Wetland; 9 Incorrect Pixels	9324 Southeastern Ruderal Wet Meadow & Marsh; 2 Incorrect Pixels
7367, 7582, 7583	Ozark-Ouachita Shortleaf Pine Forest and Woodland	LANDFIRE LFRDB + National Land Cover Data	283	2.79%	72%	7364 Ozark-Ouachita Dry Oak Woodland; 25 Incorrect Pixels	7304 Ozark-Ouachita Dry-Mesic Oak Forest; 20 Incorrect Pixels	7401 Central Interior Highlands Calcareous Glade and Barrens Woodland; 11 Incorrect Pixels
7349	East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland	LANDFIRE LFRDB	138	1.36%	70%	7515 Southern Coastal Plain Herbaceous Seep and Bog; 15 Incorrect Pixels	7461 Southern Coastal Plain Seepage Swamp and Baygall Woodland; 7 Incorrect Pixels	9322 Southeastern North American Temperate Forest Plantation; 6 Incorrect Pixels
7317	Allegheny-Cumberland Dry Oak Forest and Woodland	LANDFIRE LFRDB	103	1.01%	69%	7321 South-Central Interior Mesophytic Forest; 13 Incorrect Pixels	7376 Southern Ridge and Valley / Cumberland Dry Calcareous Forest; 9 Incorrect Pixels	7353 Southern Appalachian Low-Elevation Pine Forest; 7 Incorrect Pixels
7368, 7406, 7448	Southern Piedmont Dry Pine Forest	LANDFIRE LFRDB + National Land Cover Data	74	0.73%	69%	7316 Southern Piedmont Mesic Forest; 10 Incorrect Pixels	9315 Northern & Central Native Ruderal Forest; 4 Incorrect Pixels	9259 Southern Piedmont Small Floodplain and Riparian Forest; 2 Incorrect Pixels

- We are hoping to perform an assessment of Vegetation Cover (EVC) and Vegetation Height (EVH), and perhaps FBFM.

LANDFIRE Future

- Complete CONUS during the summer of 2020
- Complete Alaska, Hawai'i, and the island territories over the following months.
- Develop a new update process that reduces product latency—watch for announcements

Put Questions in the Q&A Zoom Box

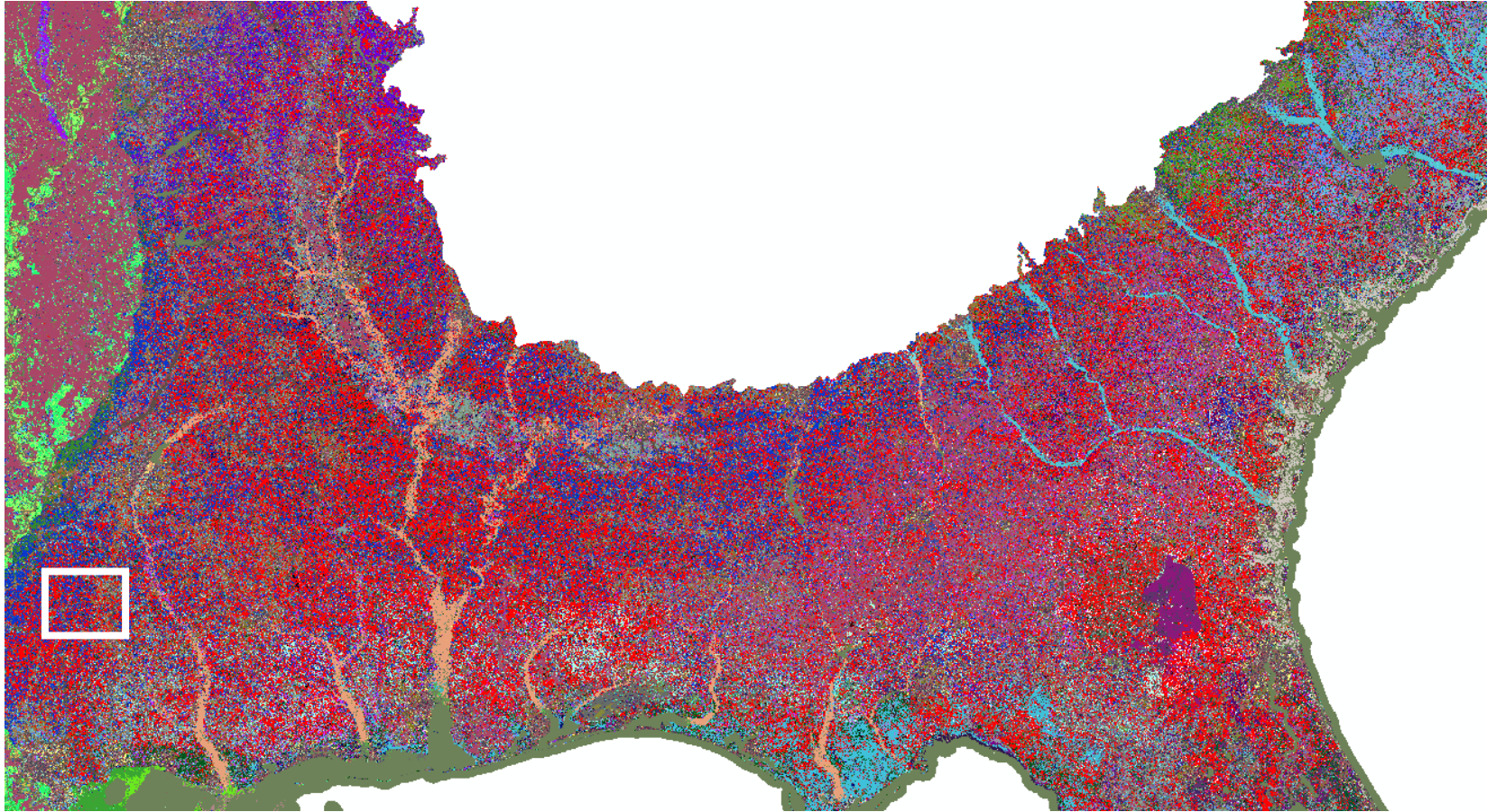


A photograph of a forest path with a controlled fire burning along the left side, used as a background for the title.

Southeastern Results

Changes and Improvements

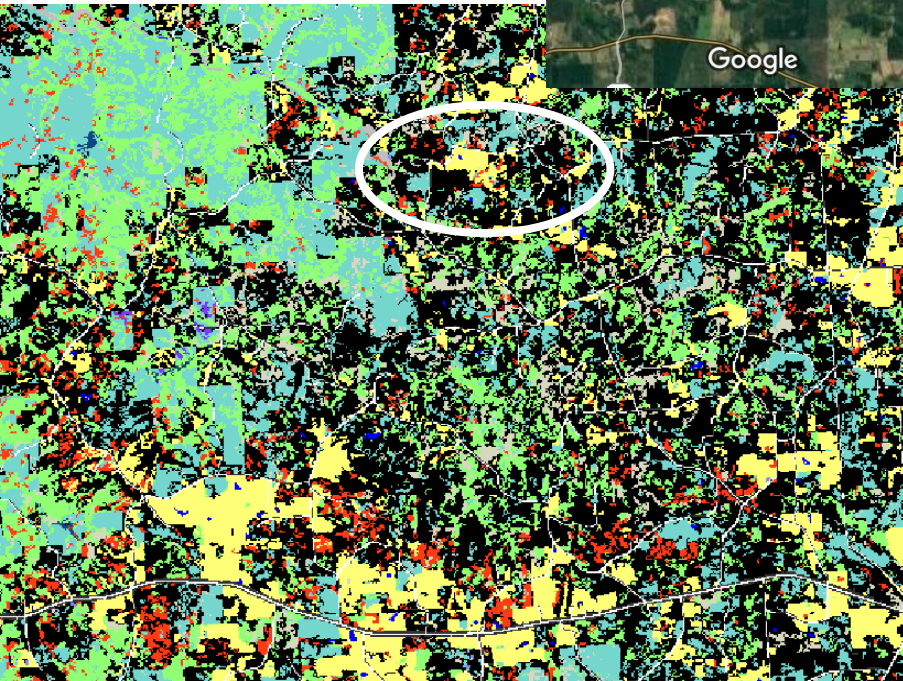
SE Coastal Plain Pine Plantations



SE Coastal Plain Pine Plantations



LF 2014



LF 2016 Remap

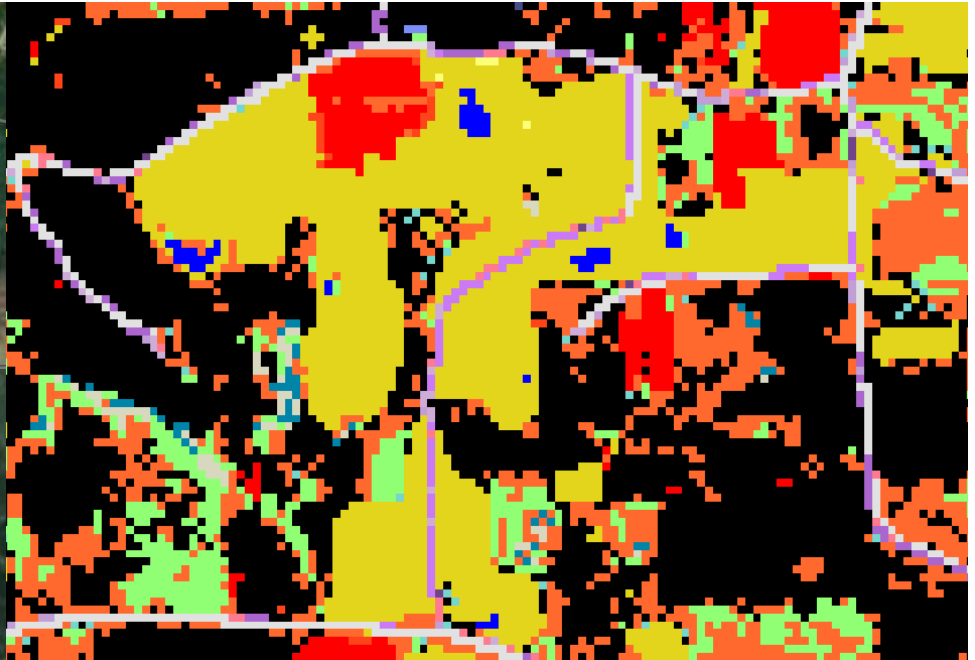


Detailed Look

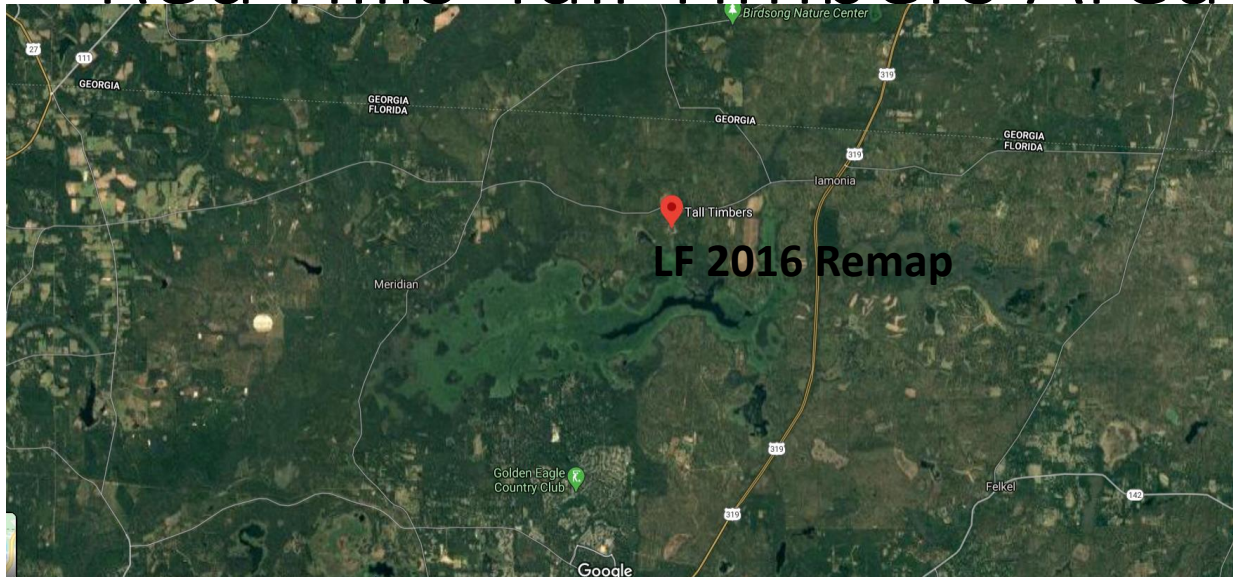
Google Earth



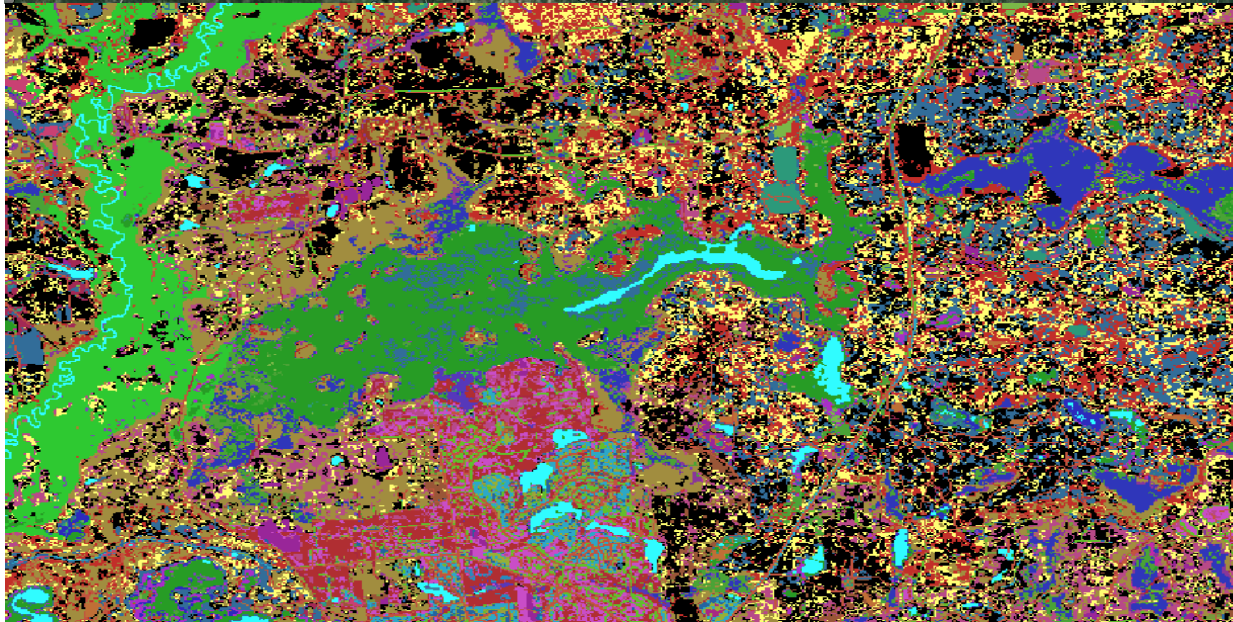
LF 2016 Remap



Red Hills-Tall Timbers Area



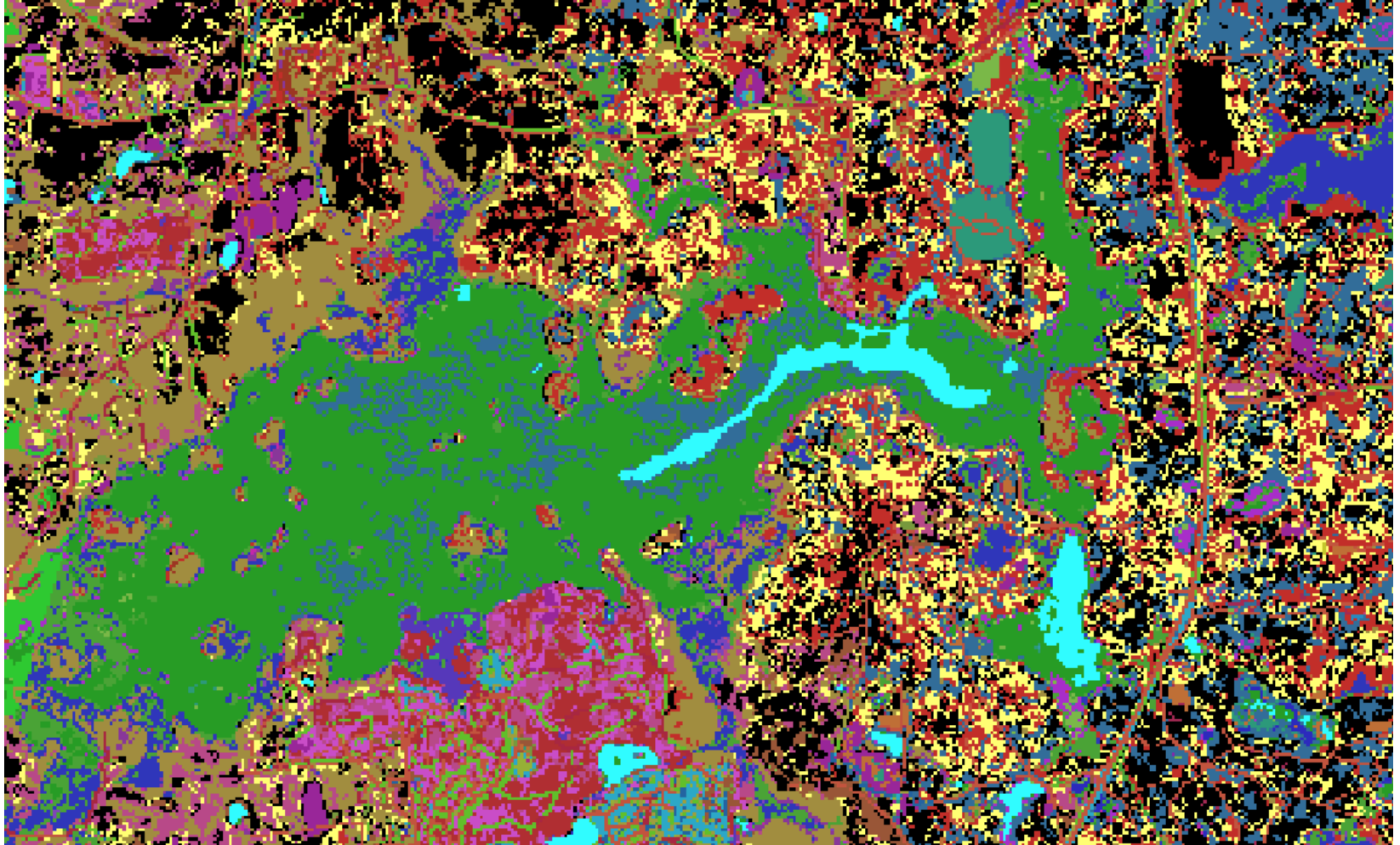
Google Earth



LF 2016 Remap

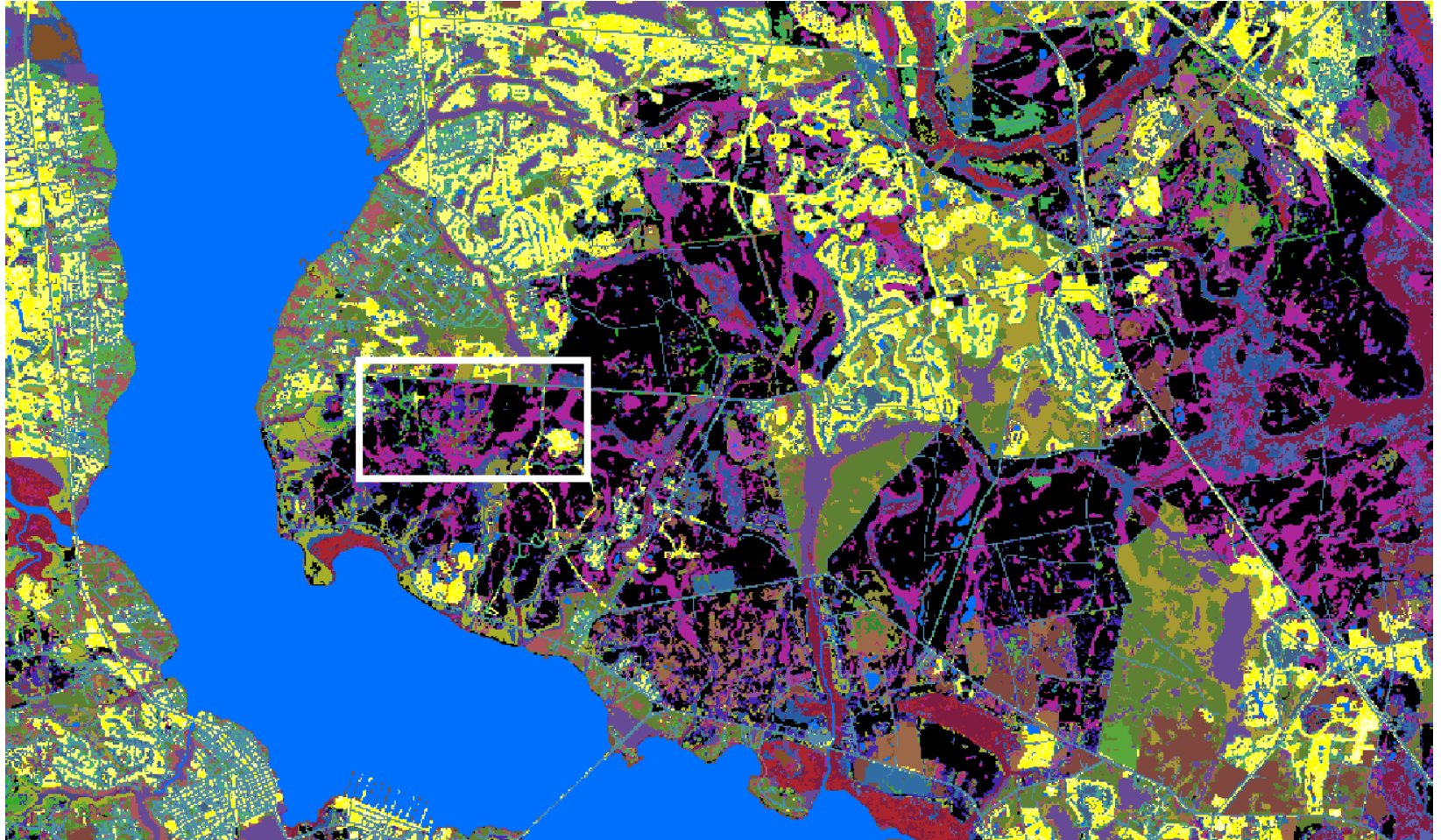
Red Hills-Tall Timbers Area

LF 2016 Remap



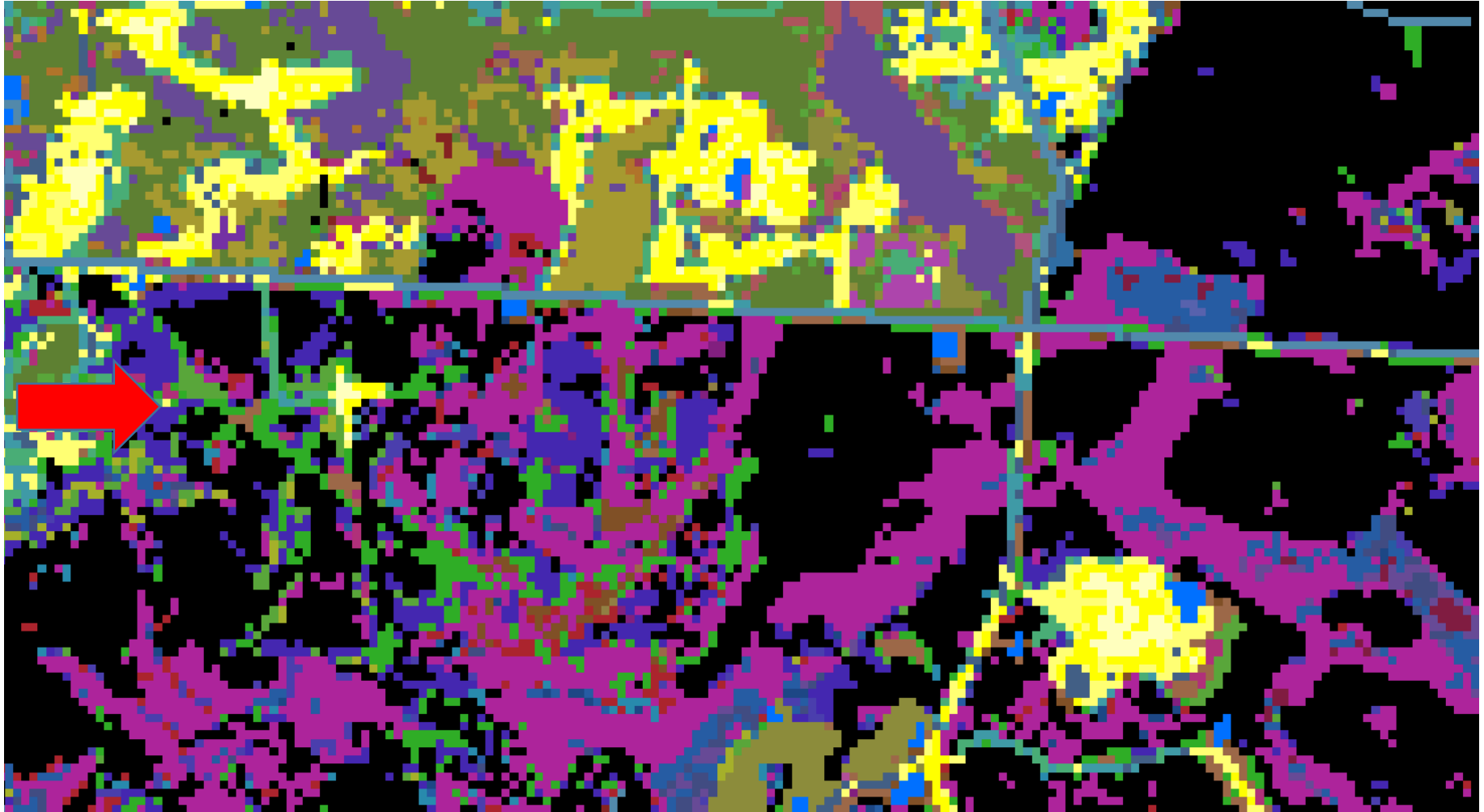
St. Johns County, FL

LF 2016 Remap



St. Johns County, FL

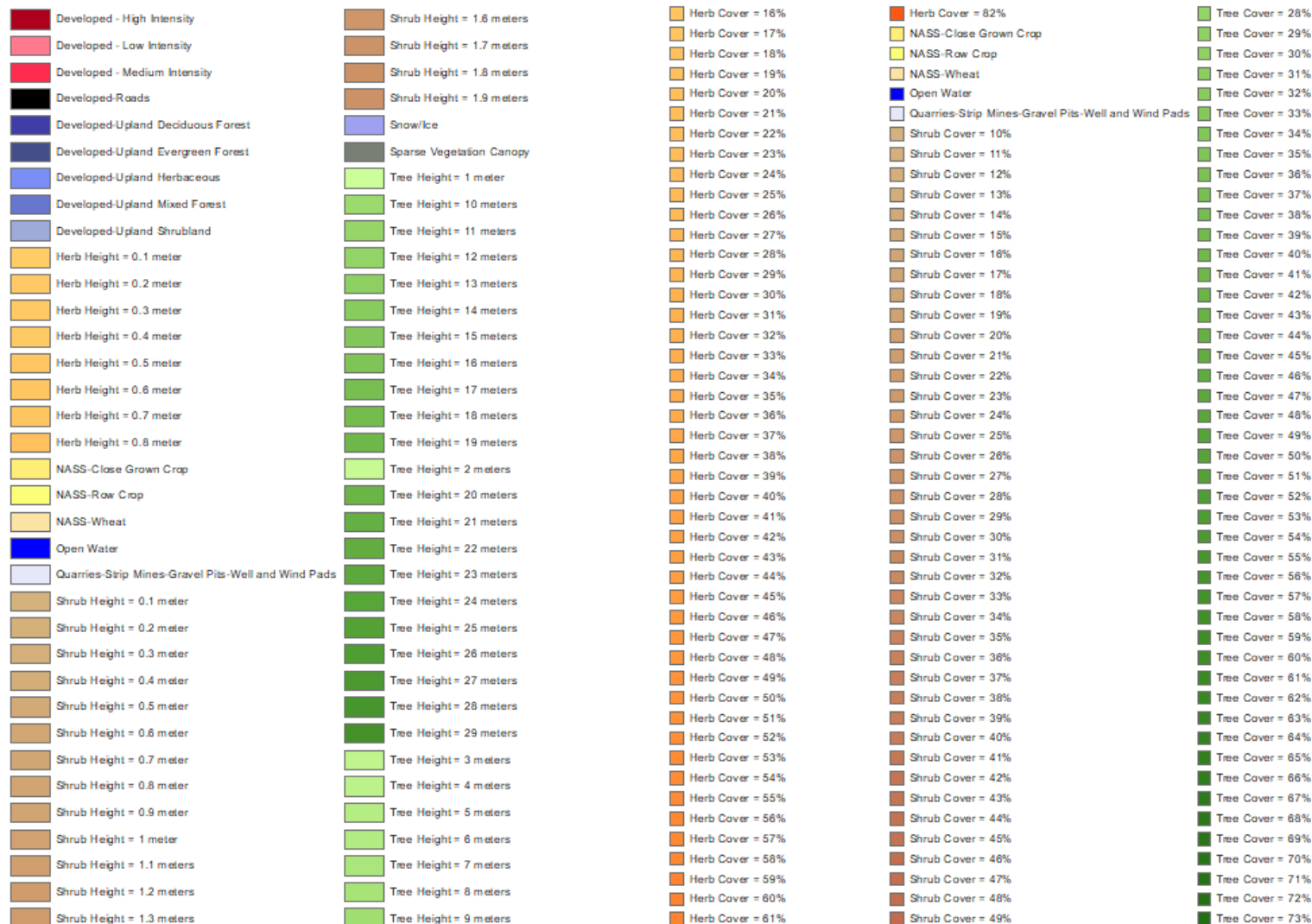
LF 2016 Remap



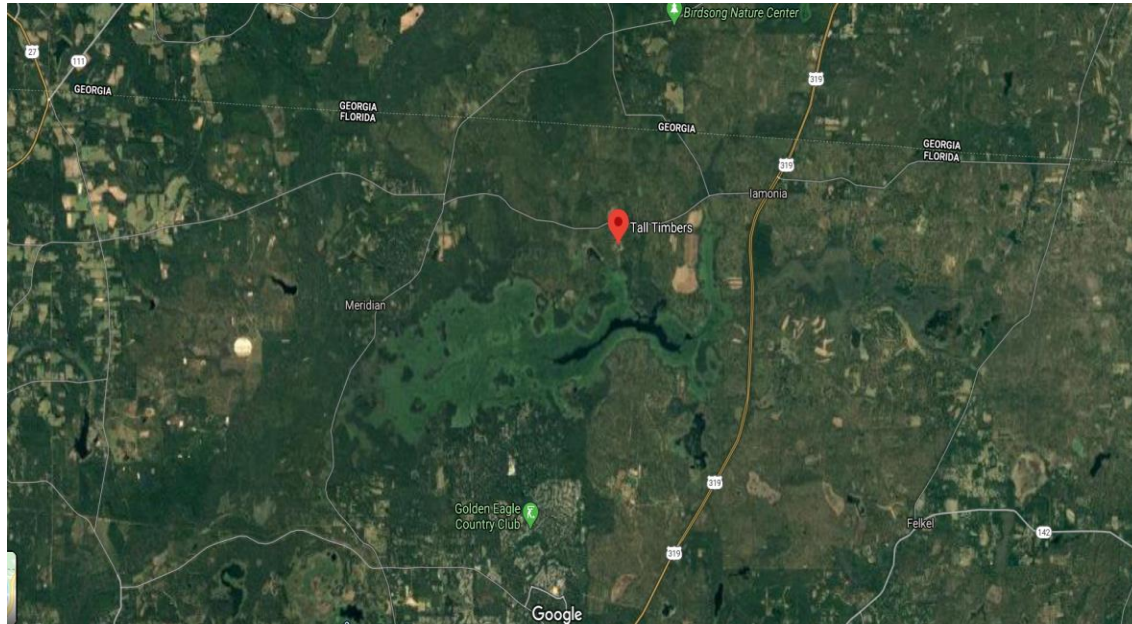
St. Johns County, FL



Continuous Height & Cover

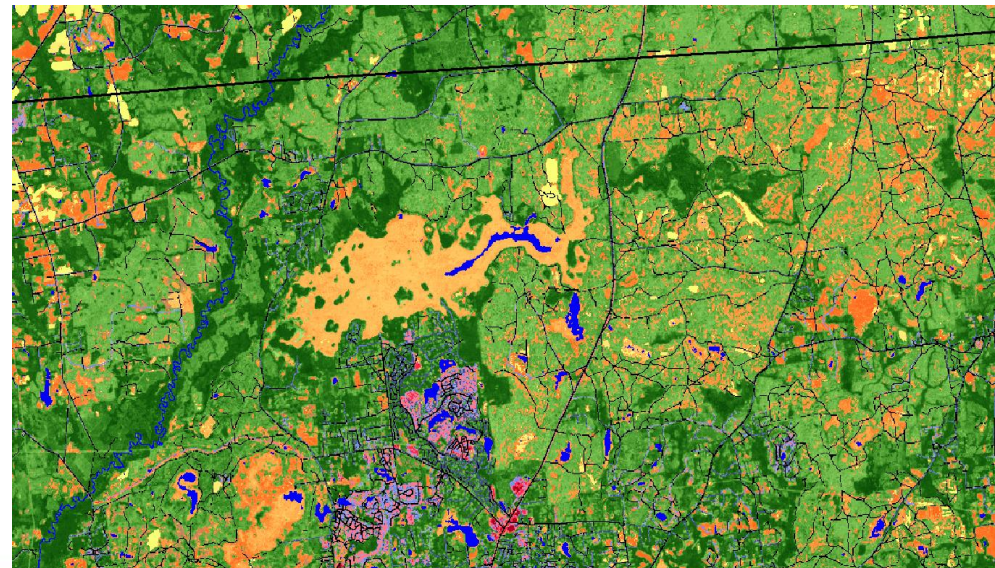
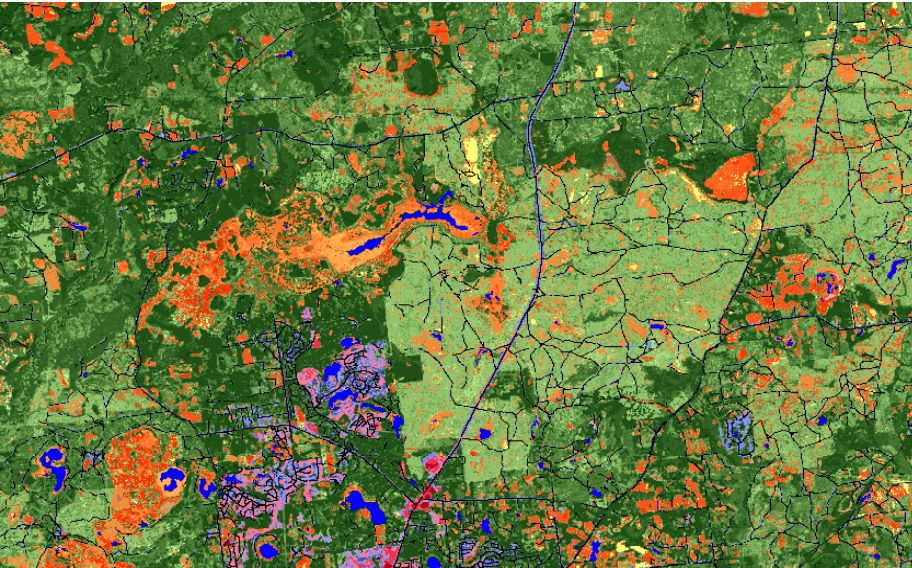


Red Hills-Tall Timbers Area



LF 2014

LF Remap 2016

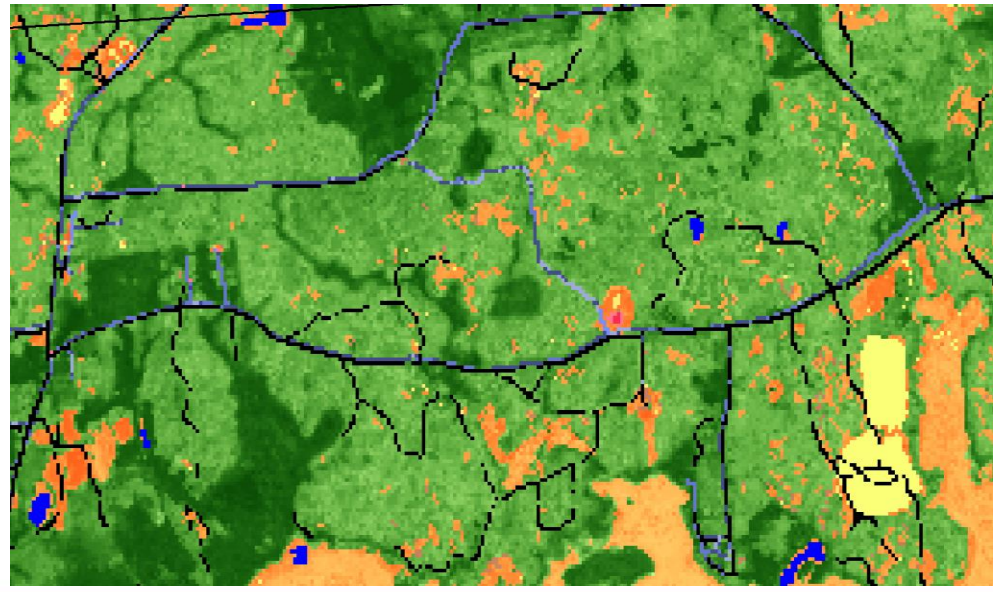
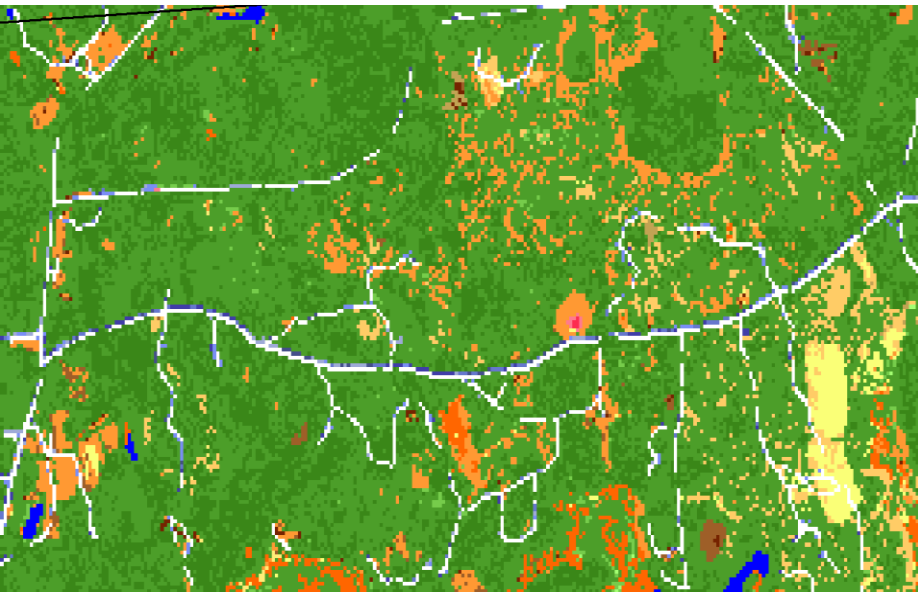


Red Hills-Tall Timbers Area



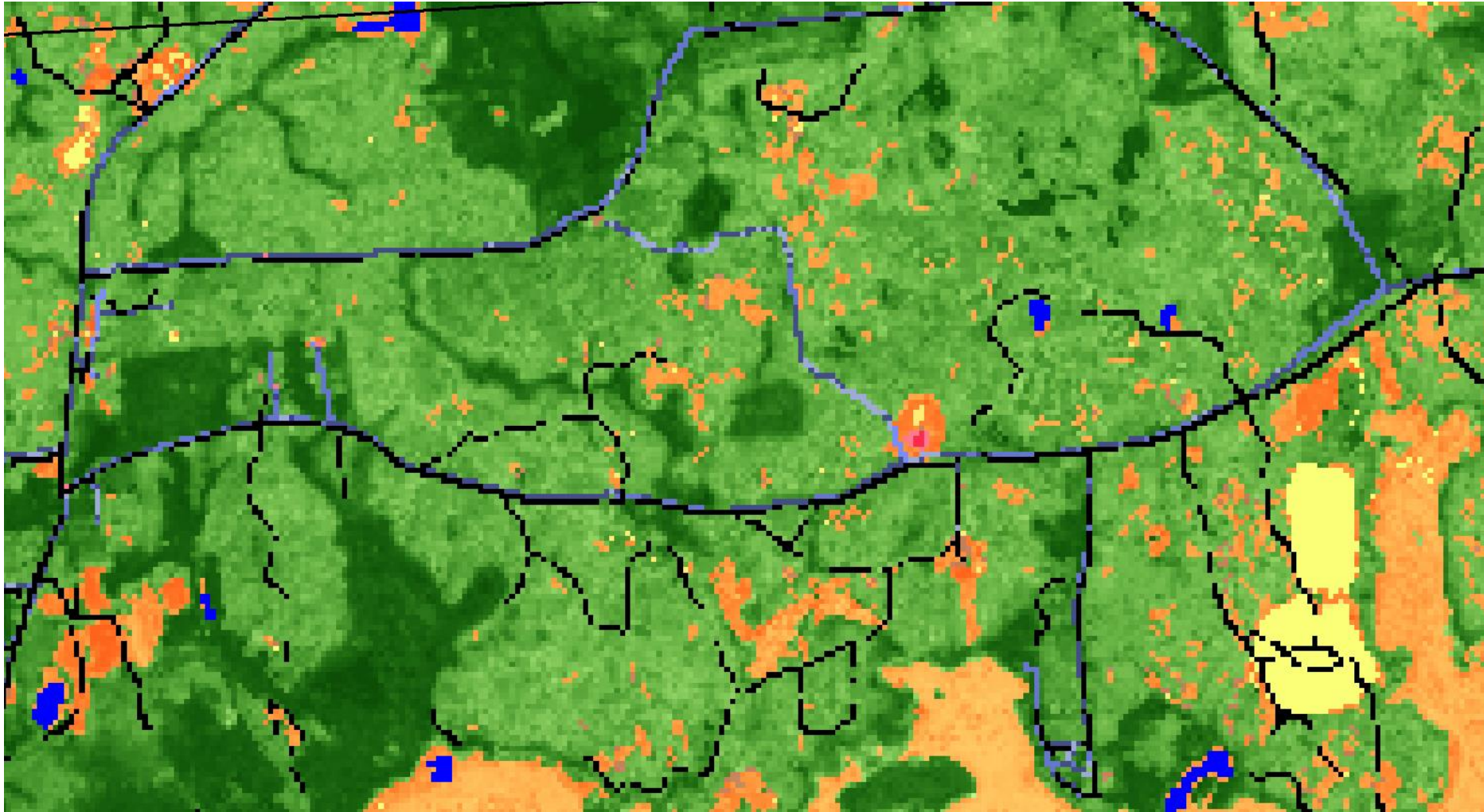
LF 2014

LF Remap 2016



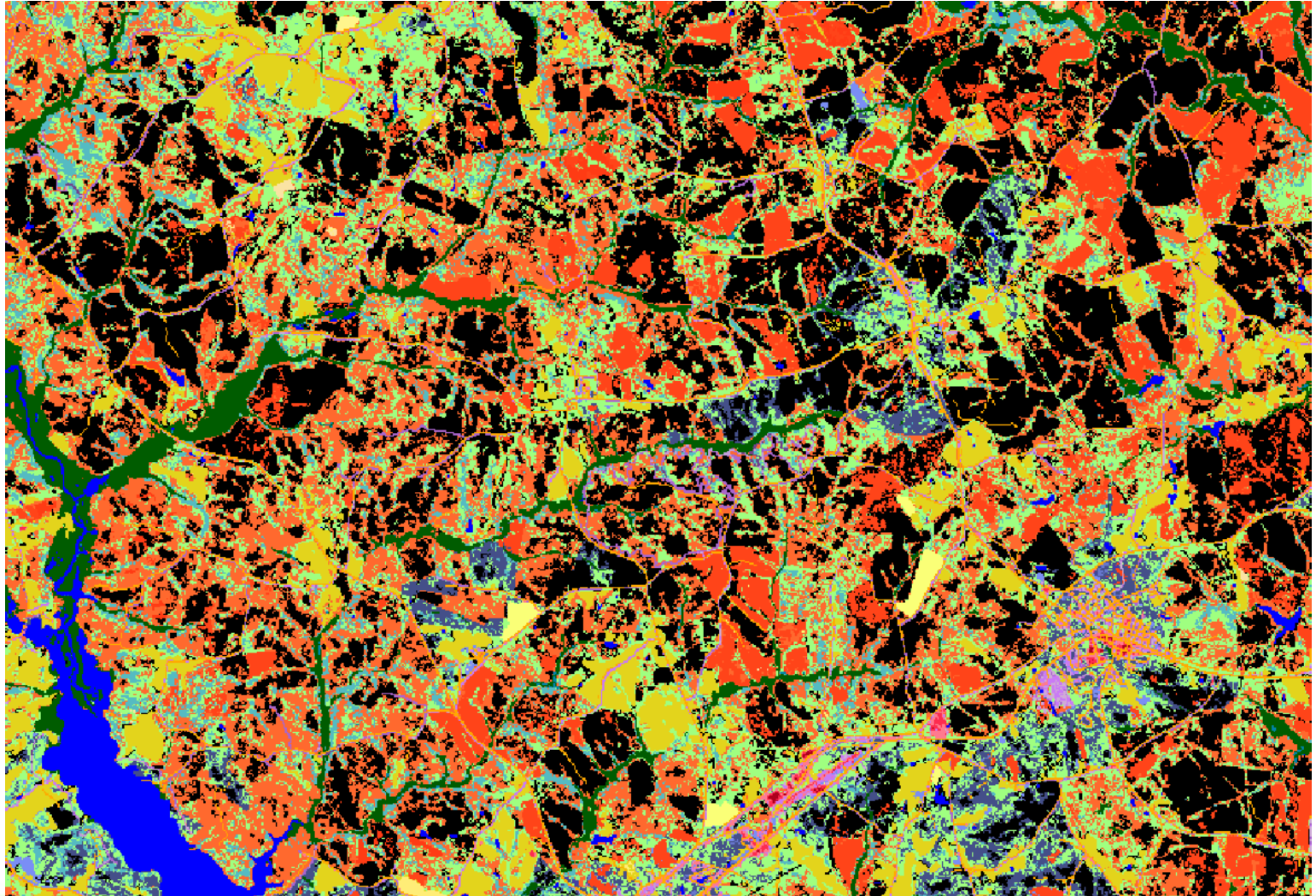
Red Hills-Tall Timbers Area

LF 2016 Remap



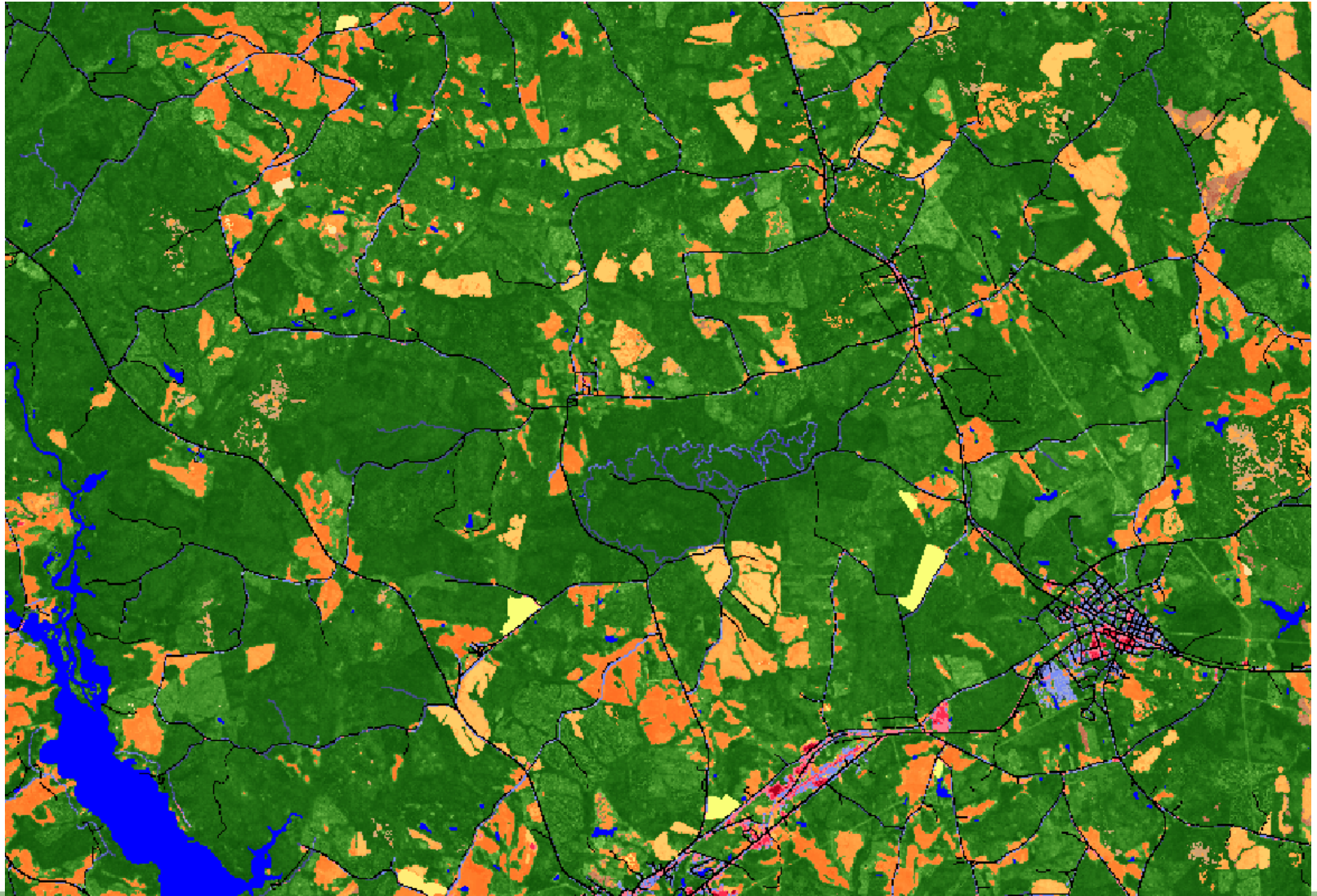
Central Georgia Piedmont

LF 2016 Remap



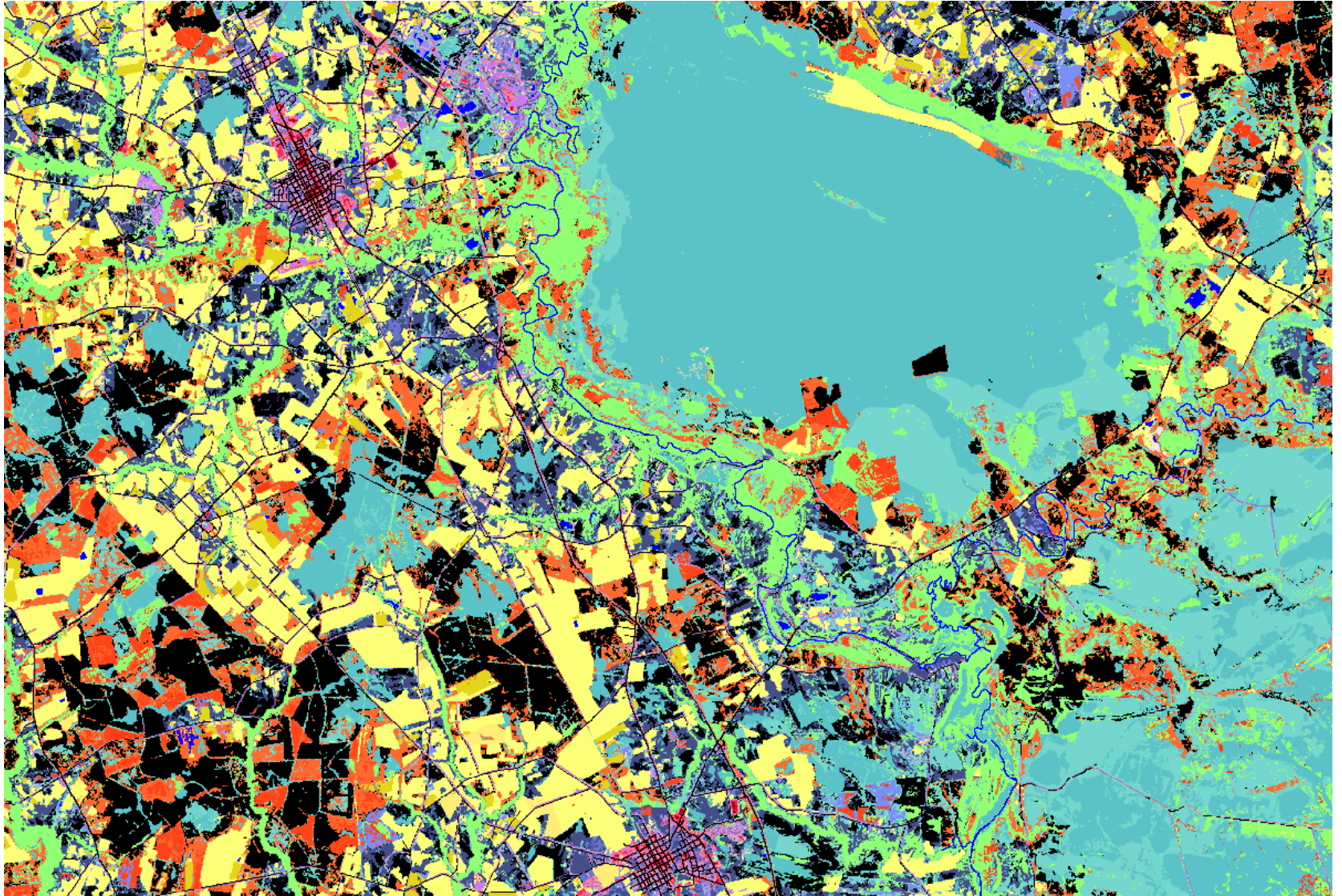
Central Georgia Piedmont

LF 2016 Remap



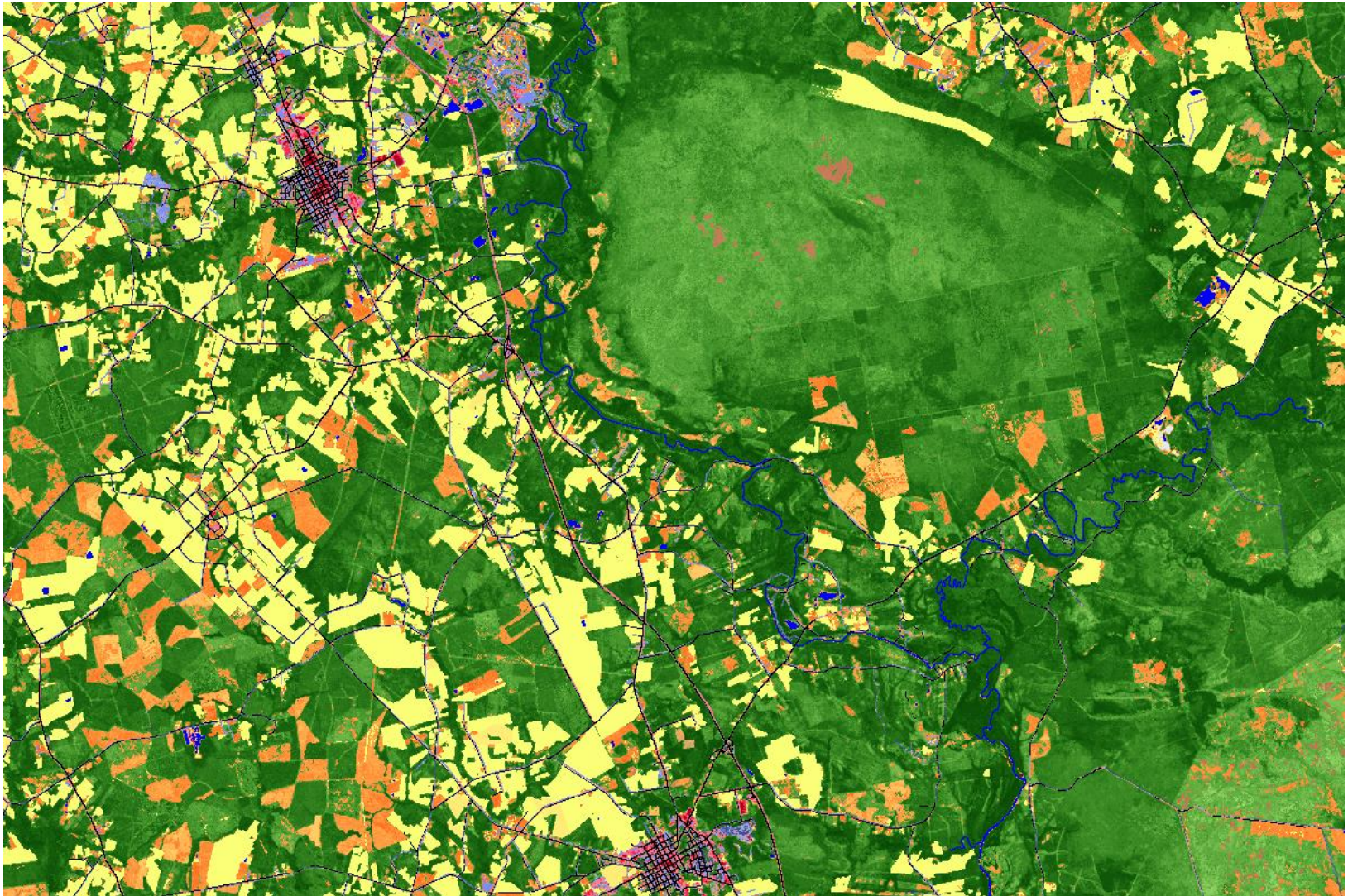
Angola Bay, NC

LF 2016 Remap



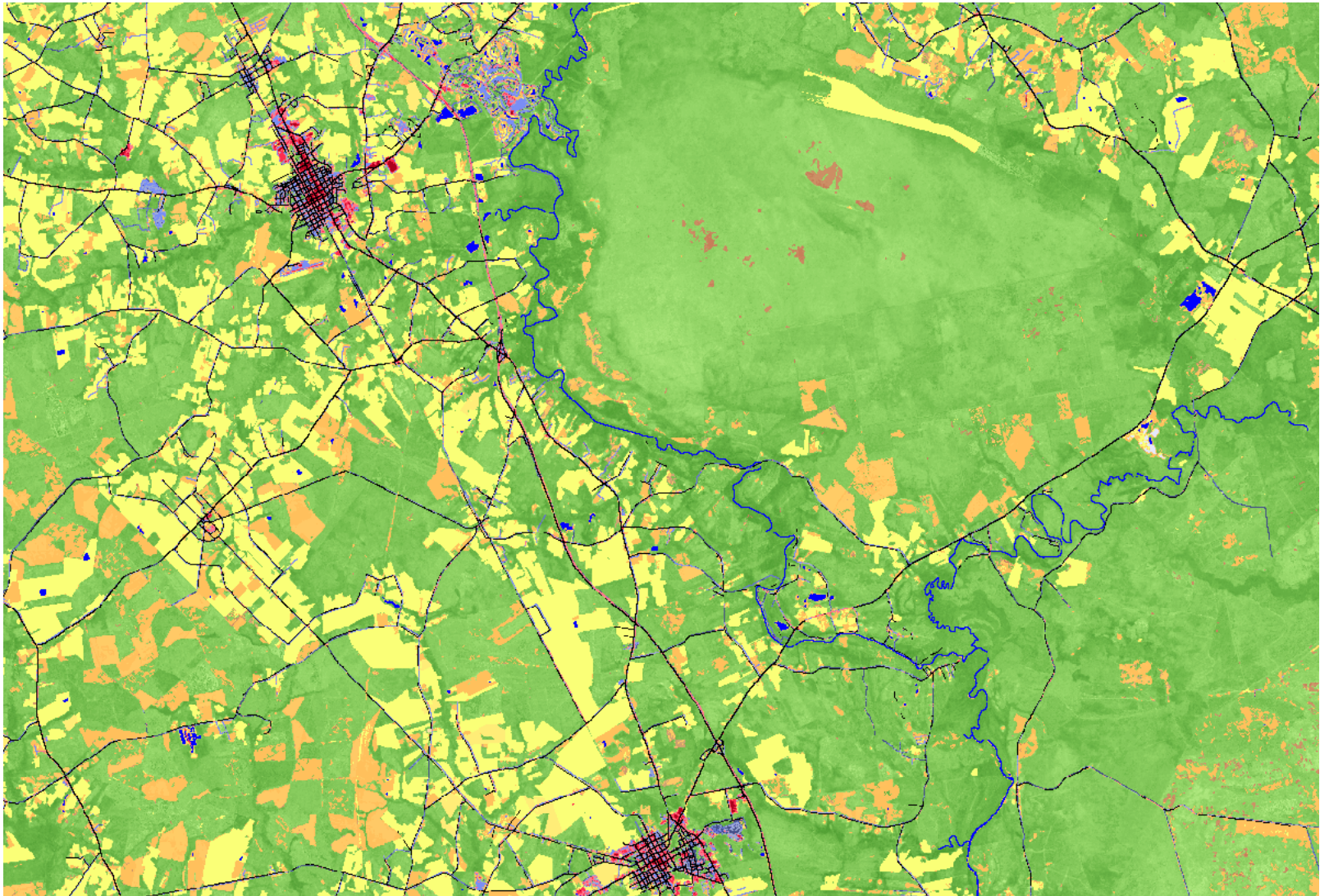
Angola Bay, NC

LF 2016 Remap



Angola Bay, NC

LF 2016 Remap



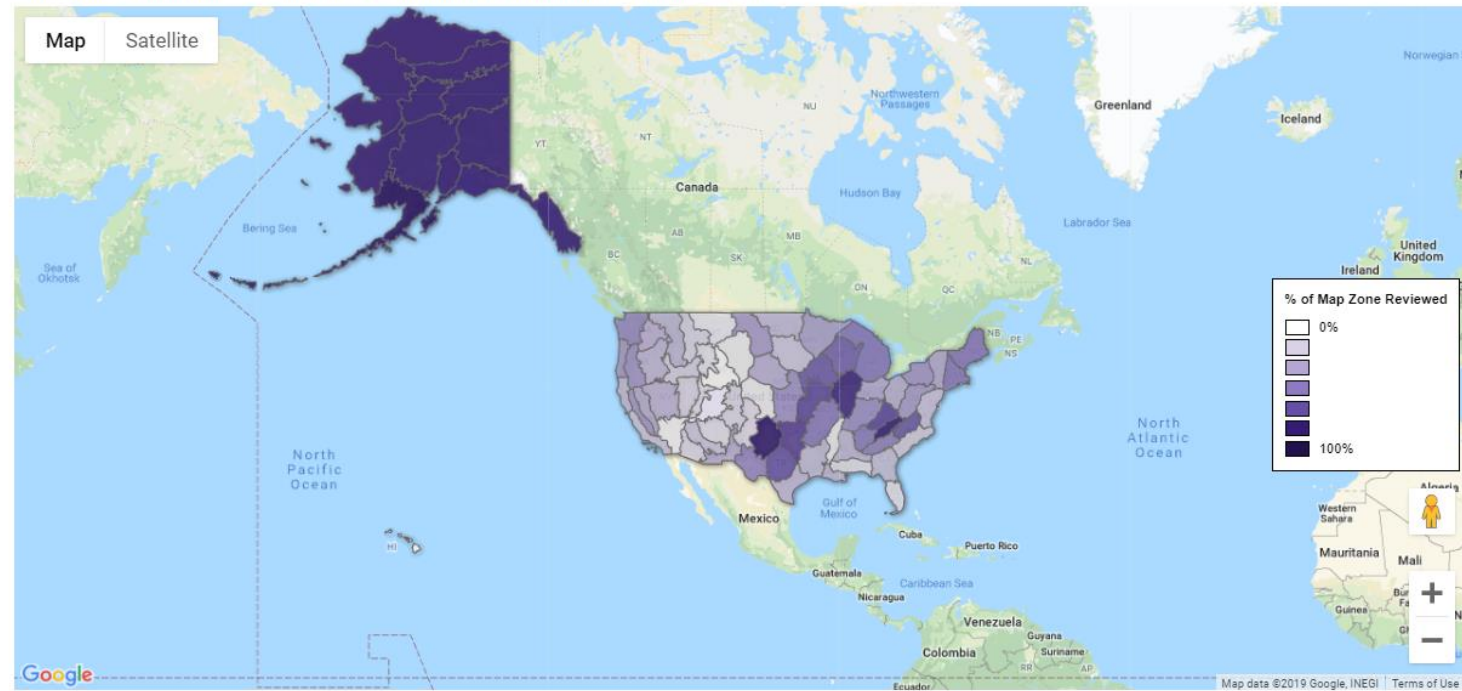
BpS Review

- BpS models/descriptions updated with new science
- Succession class mapping rules completed
- New more complete model description document
- User-friendly data access website

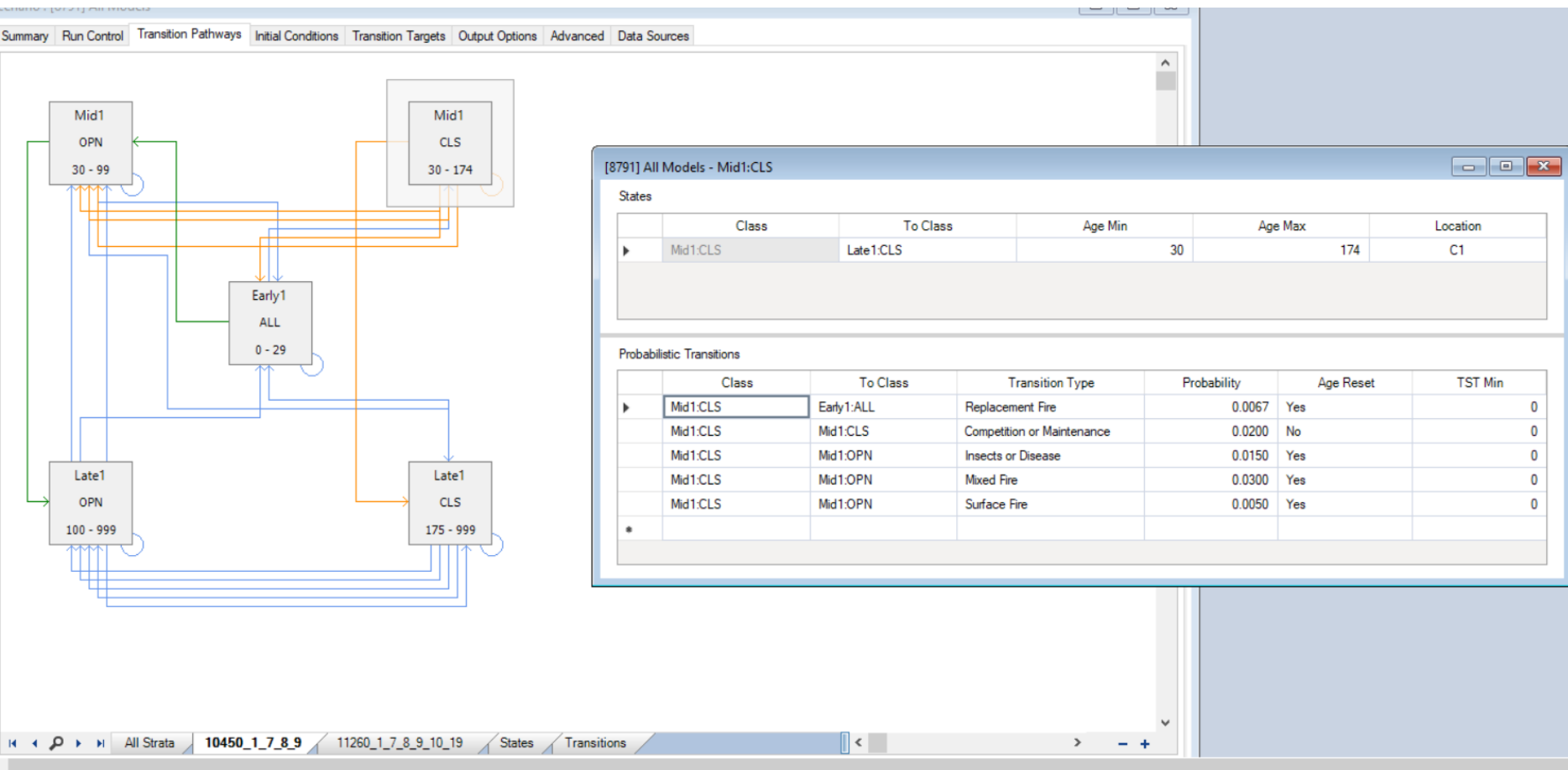
BpS Review Progress

Does your area need review?

Click on a Map Zone below to see a status report for your area. Help us fill in the map and improve the data!



BpS Models/Descriptions



Example Applications

PUBLIC VIEWER

HOME WHAT'S YOUR RISK? MAP THEM

LAYERS

- Wildfire Risk
- WUI Risk Index
- Wildland Urban
- Community Pro
- Wildfire Ignition
- Characteristic F
- Landscape Charac

BASEMAPS

- Surface Fuels
- ESRI Light Gray
- ESRI Topo
- Bing Aerial
- Bing Streets

REFERENCE

- Community Risk
- States
- County Boundar
- National Park S

Wildland Decision Support System

Home

- About WFDSS
- What's New In WFDSS
- Training Resources
- NWCG Training WFDSS Courses
- Data
- Related References
- WFDSS Help
- Sign In to Production
- Sign In to Training
- Request Account

assessment projects. Texas has statewide fuels and canopy maps that delineate pine plantation areas.



Fire, Fuel, Smoke
Rocky Mountain

HOME

GENERAL

RESEARCH

APPS & PRODUCTS

CHARTERED PROGRAMS

Home

Wildfire

Wildfire

The

Fire

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**WILDFIRE RISK TO
COMMUNITIES**



UNDERSTAND



EXPLORE



REDUCE



Example Applications

WHAM! LANDFIRE Web-Hosted Ap X

maps.tnc.org/landfire/


Weather Recipes TNC LANDFIRE Personal Florida COVID-19 Con... Coronavirus (COVID-1... Here's how to take a v... Johns Hopkins Corona... 7 Secrets People Who ... Ecol

Dark Gray

Dark Gray

Dark Gray


Modeling the Effects of Climate Change, Urbanization and Fire on t



dependent longl
investigating how
ecosystem, the a
(135% increase i
maintained oper
drivers. Results i
attainable if a gr
areas as oppose

Project Type(s):

Evaluating Management Scenarios for Atlantic Coastal Plain Pocosin Soils



Project Description: The [North Carolina Chapter of The Nature Conservancy](#) and partners modified LANDFIRE state-and-transition models and used them to [explore management options for restoring longleaf flatwoods, longleaf savannas, and pocosins.](#)

Project Type(s): Water and Natural Resources

Select Project Types to Map

- ☒ Carbon and Climate
- ☒ Water and Natural Resources
- ☒ Wildland Fire and Smoke
- ☒ Wildlife
- ☐ Other

Take-home Messages

LANDFIRE products

- are comprehensive, compatible, *current* and *consistent*. (4 C's)
- are designed for use at large landscape, regional and national scales.
- can be modified for local use.

LF Remap incorporated new processes and data sets to improve usability of the products, and represents conditions in 2016.

Users can help improve LANDFIRE products by providing plots and data + feedback.



Feedback



E-mail: helpdesk@landfire.gov

Website:

<https://landfire.gov/contactus.php>

A screenshot of the LANDFIRE website's contact form. The page has a green header with the LANDFIRE logo and navigation links: Home, About, Data Products, Contribute Data, Methods & Applications, Improvements, and Search. Below the header is a section titled "LANDFIRE Helpdesk" with a "Data" menu and icons for various data types: Wetlands, Wetlands, Wetlands, Wetlands, Wetlands, Wetlands, and Wetlands. The "Contact Us" section contains a form with fields for First Name, Last Name, Email, Subject, and a large text area for Feedback/Concerns. A "Submit" button is at the bottom. A note states: "NOTE: You should receive a confirmation email from the helpdesk within one business day. If you do not, please resend your question or feedback." The form is protected by reCAPTCHA.

LANDFIRE ONLINE



<https://www.landfire.gov>



TNC Science Website:

www.conservationgateway.org Search for
LANDFIRE



http://twitter.com/nature_LANDFIRE



LANDFIREvideo



LANDFIRE Monthly Postcard-must opt-in



LANDFIRE@tnc.org

