Scoping Activity Updates

Tall Timbers Geospatial Center

TALL TIMBERS

Workflow

4/16/2020 Initial planning web-meeting with project leads and TOT

4/23/2020 Meeting updates to TOT

4/23/2020 Interim Report #1 submitted

4/23/2020 Survey developed by TT and SFE to gain focus for future meetings

5/08/2020 TOT Meeting – Landscape Portal Intro & Scoping Review

5/28/2020 Webinar Meeting #1 (Carl Nordman, NatureServe and Andy Beavers CEMML

6/30/2020 Webinar Meeting #2 (Todd Hawbaker, USGS/Beth Stys, FFWC and Josh Picotte, USGS)

7/15/2020 Interim Report #2 submitted

8/07/2020 Interim Report #2 Q/A presentation to TOT

10/06/2020 Webinar Meeting #3 presentation of InFORM , IFTDSS and Southern Fire Risk Assessment (Kim Ernstrom, USFS/Andrew Kirsch, NPS/Curt Stripling, SouthWRAP

10/15/2020 Interim Report #3 submitted

11/05/2020 Modification approved

12/09/2020 MTBS Postfire Tool Demo – Burn Severity Mapping Meeting (Michael Bogle, USFS, Josh Picotte, USGS

12/09/2020 Fire History/Fire Metrics Discussion (Lou Ballard, Edwin Christopher, Tate Fischer, Jennifer Hincley, Cameron Tongier, Jon Wallace, USFWS; Melanie Vanderhoof, USGS, Todd Hawbaker, USGS)

12/31/2020: SE FireMap Scoping Survey closed

12/27/2020 SE FHM processing completed

01/13/2021 Google Earth Engine SE FHM draft viewer completed

01/15/2021 Interim Report #4 submitted

01/30/2021 QA/QC Draft SE FHM completed and clipped

03/15/2021 Google Earth Engine SE FHM viewer enhancements completed

04/01/2021 User guides, product information guides, metadata and product survey completed for portal upload.

04/05/2021 Data use agreement finalized

04/10/2021 Data distribution site setup with reporting

04/16/2021 SEFireMap SFE Webinar conducted. Link: https://youtu.be/0FitNpo4MW4

Ongoing: Data requests and feedback

USDA NRCS
SOUTHEAST FIREMAP
v.1 DATA
DATA USE AGREEMENT

SE FIREMAP

This data use agreement applies to the Southeast FireMap (SE FireMap) data produced by Tall Timbers Research, Inc. in cooperation with USDA's Natural Resources Conservation Service (NRCS).

SE FireMap version/date: SE FireMap v.1, March 2021.

NRCS IS WILLING TO SHARE THE ABOVE DATA TO YOU ONLY UPON CONDITION THAT YOU ACCEPT ALL OF THE TERMS AND CONDITIONS CONTAINED IN THIS DATA USE AGREEMENT.

This data use agreement (Agreement) is between the authorized end user and Tall Timbers Research, Inc. (TTR) in cooperation with the NRCS and gives authorized end user certain limited rights to use the SE FireMap v.1 electronic data and associated documentation ("Data"). All rights not specifically granted in this Agreement are reserved to TTR/NRCS.

Reservation of Ownership and Grant of License: The Data provided by TTR represents intellectual property. TTR/NRCS retain exclusive rights, title, and ownership of the copy of the Data shared under this Agreement and, hereby, grant to authorized end user a personal, nonexclusive, nontransferable permission to use the Data on the terms and conditions of this agreement. From the date of receipt, authorized end user agrees to use reasonable effort to protect the Data from unauthorized use, reproduction, distribution, publication, or sale.

Permitted Uses:

1. The authorized end user may use this copy of the Data on a computer network serving an unlimited number of computer terminals associated with the authorized Site. A Site is defined as a single building or complex of buildings with a unique street address. The computer network includes computers, laptops, or other devices that may be used remotely but are associated with the authorized Site. Authorized end users may not share, transfer, loan, rent, lease, or sell this copy of the Data to another user outside the authorized Site.
2. The Data are produced for the purposes of promoting the efficiency and effectiveness of fire management towards conservation, economic, education and public safety goals for the benefit of United States taxpayers. The authorized end user agrees to not use the Data for any other purpose.
3. The authorized end user may produce maps, tables, and/or reports, using all or portions of the Data provided. All or portions of the Data may be merged directly into reports produced by the authorized end user. The "Southeast FireMap," version

number and date must be cited as the source of the Data in all products, publications, or presentations containing all or portions of the Data.

4. The authorized end user may use all or portions of this Data, alone or together with other data, to perform original analysis. Any products, publications, or presentations based on such analysis must cite TTR and NRCS as a source for original data used in the analysis and Tall Timbers Research, Inc. as for developing methods.

Uses Not Permitted:

1. The authorized end user shall not sublicense, sell, rent, lease, loan, transfer, assign, or provide access to electronic versions of the Data, in whole or in part, to unlicensed third parties, including partner agencies, clients or contractors. Printed maps of all or portions of these Data may only be provided to partner agencies, clients or contractors as part of a larger analysis or project related to the purposes listed under item 2 of Permitted Uses above.
2. The authorized end user shall not use all or portions of the Data in electronic, print, or other medium, to create products for distribution and sale that rely principally upon these Data. Additionally, Data shall not be used or provided in a web application or map service unless special written permission is granted in writing by TTR and NRCS.
3. The authorized end user shall not alter any substantive feature or characteristic of these Data. Alterations for aesthetic purposes, such as changes to the style and/or color of markers, polygon shadings, or fonts, are permitted.

Other conditions:

1. The Data require some understanding of data development methods and definitions for proper use and analysis. The authorized end user agrees to read the Data-associated reports, documentation of methods, attribute definitions, and metadata. TTR staff are available to advise all SE FireMap v.1 data users regarding the technical aspects of these data.
2. Eligibility to download and utilize the v.1 Data is dependent upon the Licensee's commitment to share feedback on the product. This feedback will be captured via an online survey (https://www.research.net/r/SEFireMapV1survey). Such comments will serve to improve the quality of the SE FireMap v.1 data in the next iteration.
3. NRCS encourages the authorized end user, at the authorized end user's convenience, to communicate to TTR/NRCS any errors or omissions found in the Web Map via the Landscape Partnership Portal (https://www.research.net/r/SEFireMapV1survey).
4. Upon request, the authorized end user will provide NRCS National Headquarters, Landscape Conservation Initiatives Team with a list of any reports or printed materials prepared using SE FireMap v.1 data and will provide a sample copy and/or a web link of such material, provided such materials may not be disclosed to any third party without express written permission. NRCS acknowledges that any reports or printed materials

prepared by the authorized end user using SE FireMap v.1 data are the sole and exclusive property of the authorized end user.

5. The authorized end user shall take reasonable precautions to ensure the security of SE FireMap v.1 data.

6. The authorized end user will indemnify and hold TTR/NRCS and its officers and employees harmless against any claims by third parties arising out of the use by Licensee of the Data provided hereunder.

Term: The permissions granted by this Agreement shall commence upon the authorized end user's receipt of the Data and shall continue for a period of one (1) year from the date of commencement of the agreement. NRCS/TTR shall consider the date of commencement of the agreement to be the date the Data was sent to the authorized end user by TTR. At the end of one year the authorized end user shall expire, and the authorized end user may not use the Data for any new projects, maps, presentations, or analyses. This agreement may be renewed by authorization through a new data use agreement. An updated version of the Data will be provided with each renewal. NRCS/TTR reserves the right to terminate this Agreement at any time for the authorized end user's material breach of this Agreement.

The authorized end user understands and acknowledges that their use of these data is time limited. This license expires one (1) year from the date of commencement of the license. Upon that date, the authorized end user agrees to: a) certify that all copies of these data have been destroyed or returned to TTR; or b) complete arrangements with NRCS/TTR to update the data sharing agreement.

Limited Warranty: The accuracy and completeness of the Data, and the opinions based thereon, are not guaranteed. Every effort has been made to provide accurate data in this package. The authorized end user acknowledges that the Data may contain some nonconformities, defects, errors, and/or omissions. TTR/NRCS do not warrant that the Data will meet authorized end user's needs or expectations, or that all nonconformities can or will be corrected.

Liability: Although TTR/NRCS maintains high standards of data quality control, TTR/NRCS makes no warranty as to the fitness of the SE FireMap v.1 data for any purpose, nor that the Data are necessarily accurate or complete. Neither TTR nor NRCS shall be held liable for the accuracy and completeness of these Data, or opinions or conclusions drawn from these Data. TTR nor NRCS are inviting reliance on these Data. The Data utilize remote sensing techniques and are not a replacement for site specific field surveys. Therefore, these Data should not be regarded as a final statement on the biological resources of the location provided, nor should these Data be substituted for on-site surveys.

TTR/NRCS represents, to the best of its information and belief, that: a) the provision of data does not infringe any statutory or common law copyright or any proprietary right of any third party; b) the provision of data does not invade the right of privacy of any third person or contain any matter libelous or otherwise in contravention of the rights of any third person; and c) the provision of data does not otherwise violate any federal or state statute or regulation. The authorized end user will indemnify and hold TTR/NRCS and its officers and employees harmless against any claims by third parties arising out of the use by authorized end user of the Data provided hereunder.

Waivers: No failure or delay by TTR, NRCS or the U.S. Department of Justice in enforcing any right under this Agreement shall be construed as a waiver of any future or other exercise of such right by TTR, NRCS or the Department of Justice.

Remedies: Failure of TTR or NRCS to discover or object to any inappropriate use shall not constitute its consent thereto or waiver its rights. In the event Licensee's use of the Data and Web Map violates the terms of this License Agreement, NRCS may forbid and enjoin Licensee's further use of the Data.

Data Product Description:
The SE FireMap v.1 dataset was developed by TTR and is derived from the USGS Landsat Burned Area Products (Hawbaker et al. 2017). TTR used Burned Area (BA) version 2 products to produce v.1 fire history metrics (Hawbaker et al. 2020), evaluating Landsat Burn Probability (BP) raster datasets for evidence of burns. The annual datasets span entire calendar years (e.g., Jan 1 through Dec 31) and indicate the maximum BP for each year (0-100%). For each year between 1994 and 2019, TTR combined the annual datasets of interest within individual Landsat Analysis Ready Data (ARD) tiles into a single annual raster dataset (i.e., mosaicked the tiles) for further processing. TTR performed all additional processing steps on the annual mosaicked datasets to provide regional consistency, identifying pixels as burned or unburned according to their probability value. Initially, all pixels with an annual BP between 85-100% were retained based on Hawbaker et al. (2017). Values between 90-100% were then converted to presence/absence rasters and image processing methods were utilized to remove 'speckling' (e.g., fill in small holes within a burned area and remove groups of pixels less than a specified size/amount). This process resulted in annual rasters and vectors indicating burn presence (with 90-100% probability) for groups of pixels greater than ~2.24 acres (e.g.,10 30m pixels, in any arrangement). Fire regime metrics such as number of times burned, year last burned, and time since previous fire (as measured from 2020) are included in the SE FireMap v.1 dataset and were derived using these annual presence/absence rasters and vectors.

> **Fire Frequency** refers to the number of times a specific location has burned in the period of record (or for a given period of interest if a subset of total fire record). In a raster dataset, fire frequency is calculated at a pixel level; in a vector dataset, it is calculated as the geometric intersection where more than one polygon overlap. Either way, the burned area is categorically differentiated from the unburned area, and the total number of occurrences is 'summed' over a pixel or common area through time. This value cannot be greater than the number of years in the fire history record.
>
> **Time Since Previous Fire (or Time Since Last Fire; TSPF or TSLF)** is the measure of time from a specific date back in time to the last date of a detected or known fire. Units can be months, days, or years. In the database, it is reported as the number of years from "present" to the last identifiable burn, since we used annual burned areas to populate the database. This value cannot be greater than the number of years in the fire history record.
> **Year Last Burned (YLB)** is the year of the last detected fire in a location; it corresponds with the Time Since Previous Fire. For the purposes of this project, the four-digit year was used to designate this information (i.e., YLB=2008). This value cannot be outside the range of years in the fire history record.

Fire Free Interval (FFI) is the period between two consecutive fires in a given location. In places where more than two fires have burned throughout time, FFI represents the interval between the 2 most recent fires and the longest (LFFI; or shortest [SFFI]) fire free intervals are calculated as the maximum (or minimum) period between two consecutive fires at a given location within the time period. For purposes of V.1 release, the LFFI metric was calculated for the complete fire record analyzed, 1994-2019. The term Fire Return Interval is often used interchangeably in the southeast with this term. However, the time between fires in a defined area is not specifically the same as the FRI, which is defined as the time period (T) divided by the number of fire occurrences plus 1 (i.e., T / [FRQ+1], Safford et al. [2014]; which more closely represents the average number of years between fires in a given time period).

Known Issues and Limitations: The fire history metrics were derived from Landsat Burned Area products described in the Metadata. The Burned Area products are meant to provide a supplemental spatial (and temporal) record of burned area detection. The products represent the general ecological pattern of fire on the landscape, and the derivative products (e.g., fire history metrics) can be used to help describe and analyze the fire regimes found in various ecosystems on both public and private lands in the Southeast. The data provided herein may not represent all fires and should not be considered a census database of known fire records. There are instances where known fires may not be mapped and other instances where fires are mapped but no known fires actually occurred (or did not fully burn); these are documented and known issues and limitations of using 30m remotely sensed products (see Vanderhoof et al. 2017). These Burned Area and Fire History products are meant to supplement local and regional expert knowledge by providing a seamless fire regime product to assist in management decisions, especially in those areas where fire records currently are not required or kept.

Known Limitations:

1. In agricultural and developed areas, frequent changes in site conditions (green vegetation, non-photosynthetic vegetation, burned, tilled) make it challenging to use change-detection approaches to distinguish burn events (Vanderhoof et al. 2017)
2. High soil moisture levels and consequently patchy (low severity) fires can also confound detection in certain circumstances. Wet soils can be much darker than dry soils, and may be misclassified as burned areas (Flasse et al. 2004)
3. Impediments to burned area detection include rapid green-up following a burn; cloud cover and shadows obscuring the land surface; difficulty detecting or differentiating a low intensity burns beneath tree canopies; and the spatial resolution of satellite imagery being too coarse to capture fine-scale differences or small burns (Hawbaker et al. 2008, 2017).

Considerations:

- The spatial resolution of the raster products used to produce the fire history metrics is 30 meters and while individual fires represent a combination of 10, 30-meter pixels, the application scale of the product is much larger in some cases.
- Fire history metrics produced by this product are not meant to replace local products but rather supplement these products where data gaps occur.
- This product supports regional and sub-regional analysis and may be inappropriate for site specific analysis given the limitations described above.

References:

Hawbaker, T.J.; Vanderhoof, M.K.; Beal, Y-J.; Takacs, J.D.; Schmidt, G.; Falgout, J.; Brunner, N.; Caldwell, M.; Dwyer, J. 2017. An automated approach to identify burned areas in LANDSAT images. Remote Sens. Environ., 198, 504–522.

Hawbaker, T.J., Vanderhoof, M.K., Schmidt, G.L., Beal, Y.J., Picotte, J.J., Takacs, J.D., Falgout, J.T. and Dwyer, J.L., 2020. The Landsat Burned Area algorithm and products for the conterminous United States. Remote Sensing of Environment, 244, p.111801.

United States Geological Survey [USGS]. 2019. Landsat Level-3 Burned Area Science Product. < *https://www.usgs.gov/centers/eros/science/usgs-eros-archive-landsat-landsat-level-3-burned-area-ba-science-product?qt-science_center_objects=0#qt-science_center_objects*>.
Digital Object Identification: doi.org/10.5066/F77W6BDJ

Vanderhoof, M. K.; N. Fairaux; Y-J. G. Beal; T.J. Hawbaker. 2017. Validation of the USGS LANDSAT Burned Area Essential Climate Variable (BAECV) across the conterminous United States. Remote Sens. Environ., 198, pp. 393-406.

LICENSEE:

Company/Organization: _____

Address: _____

City, State, Zip Code: _____

Licensee Signature: _____

Name: _____

Title: _____

Date: _____

Email: _____

What will the data be used for (be specific): _____

_____

_____

_____

_____

Where (geographic extent of use): _____

_____

Who will benefit from this use (Individual, Organization, Group, Initiative, etc.): _____

_____

_____

Submit completed form to Tall Timbers Research Inc. (SEFireMap@talltimbers.org)

AUTHORIZATION:

Approved by: _____ _____
Signature Name, Title

Date: _____

Southeast FireMap (SE FireMap) v.1 Beta
Landsat BA Derived Fire History Metrics
Product Information

In 2020, the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) provided funds through an agreement with the U.S. Endowment for Forestry and Communities to support the development of an improved regional fire mapping product. This new product, the Southeast FireMap (SE FireMap), utilizes a remote sensing approach to identify areas burned by both prescribed fire and wildfire activity on public and private lands, offering an improved fire mapping system for the Southeastern United States. This product was designed to serve as a critical decision support tool to maximize the effectiveness of fire management practices – helping achieve the varied objectives of the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and its partners such as keeping working lands working, restoring the longleaf pine ecosystem, supporting Department of Defense's (DoD) military and training mission, conserving listed and at-risk species, managing for wildfire risk, and minimizing the need to conserve species through regulation.

As part of this mapping project, a version 1 (v.1) beta or "pilot" product is being offered for 2021. The v.1 web map and data are intended for utilization by 3rd parties; however, a thorough understanding of appropriate use, interpretation and underlying data limitations are important to utility. This v.1 data is available for download on a case-by-case basis through a data use agreement with NRCS and Tall Timbers Research, Inc. (TTR). Developed during the SE FireMap project "Scoping Phase", this v.1 product provides the users with an initial burned area product and the opportunity to share feedback as product improvements are made. An improved (v.2) SE FireMap product is anticipated in 2022.

The v.1 web map, product information and a data request form can be found on the Landscape Partnership Portal (LPP) website (https://www.landscapepartnership.org/key-issues/wildland-fire/fire-mapping/regional-fire-mapping/se-firemap). New users will be required to register on the LPP site to access the web map.

Data Product Description: The SE FireMap v.1 dataset was developed by TTR and is derived from the USGS Landsat Burned Area Products (Hawbaker et al. 2017). TTR used Burned Area (BA) version 2 products to produce v.1 fire history metrics (Hawbaker et al. 2020), evaluating Landsat Burn Probability (BP) raster datasets for evidence of burns. The annual datasets span entire calendar years (e.g., Jan 1 through Dec 31) and indicate the maximum BP for each year

(0-100%). For each year between 1994 and 2019, TTR combined the annual datasets of interest within individual Landsat Analysis Ready Data (ARD) tiles into a single annual raster dataset (i.e., mosaicked the tiles) for further processing. TTR performed all additional processing steps on the annual mosaicked datasets to provide regional consistency, identifying pixels as burned or unburned according to their probability value. Initially, all pixels with an annual BP between 85-100% were retained based on Hawbaker et al. (2017). Values between 90-100% were then converted to presence/absence rasters and image processing methods were utilized to remove 'speckling' (e.g., fill in small holes within a burned area and remove groups of pixels less than a specified size/amount). This process resulted in annual rasters and vectors indicating burn presence (with 90-100% probability) for groups of pixels greater than ~2.24 acres (e.g.,10 30m pixels, in any arrangement). Fire regime metrics such as number of times burned, year last burned, and time since previous fire (as measured from 2020) are included in the SE FireMap v.1 dataset and were derived using these annual presence/absence rasters and vectors.

Fire Frequency refers to the number of times a specific location has burned in the period of record (or for a given period of interest if a subset of total fire record). In a raster dataset, fire frequency is calculated at a pixel level; in a vector dataset, it is calculated as the geometric intersection where more than one polygon overlap. Either way, the burned area is categorically differentiated from the unburned area, and the total number of occurrences is 'summed' over a pixel or common area through time. This value cannot be greater than the number of years in the fire history record.

Time Since Previous Fire (or Time Since Last Fire; TSPF or TSLF) is the measure of time from a specific date back in time to the last date of a detected or known fire. Units can be months, days, or years. In the database, it is reported as the number of years from "present" to the last identifiable burn, since we used annual burned areas to populate the database. This value cannot be greater than the number of years in the fire history record.

Year Last Burned (YLB) is the year of the last detected fire in a location; it corresponds with the Time Since Previous Fire. For the purposes of this project, the four-digit year was used to designate this information (i.e., YLB=2008). This value cannot be outside the range of years in the fire history record.

Fire Free Interval (FFI) is the period between two consecutive fires in a given location. In places where more than two fires have burned throughout time, FFI represents the interval between the 2 most recent fires and the longest (LFFI; or shortest [SFFI]) fire free intervals are calculated as the maximum (or minimum) period

between two consecutive fires at a given location within the time period. For purposes of V.1 release, the LFFI metric was calculated for the complete fire record analyzed, 1994-2019. The term Fire Return Interval is often used interchangeably in the southeast with this term. However, the time between fires in a defined area is not specifically the same as the FRI, which is defined as the time period (T) divided by the number of fire occurrences plus 1 (i.e., T / [FRQ+1], Safford et al. [2014]; which more closely represents the average number of years between fires in a given time period).

Known Issues and Limitations: The fire history metrics were derived from Landsat Burned Area products described in the Metadata. The Burned Area products are meant to provide a supplemental spatial (and temporal) record of burned area detection. The products represent the general ecological pattern of fire on the landscape, and the derivative products (e.g., fire history metrics) can be used to help describe and analyze the fire regimes found in various ecosystems on both public and private lands in the Southeast. The data provided herein may not represent all fires and should not be considered a census database of known fire records. There are instances where known fires may not be mapped and other instances where fires are mapped but no known fires actually occurred (or did not fully burn); these are documented and known issues and limitations of using 30m remotely sensed products (see Vanderhoof et al. 2017). These Burned Area and Fire History products are meant to supplement local and regional expert knowledge by providing a seamless fire regime product to assist in management decisions, especially in those areas where fire records currently are not required or kept.

Known Limitations:

1. In agricultural and developed areas, frequent changes in site conditions (green vegetation, non-photosynthetic vegetation, burned, tilled) make it challenging to use change-detection approaches to distinguish burn events (Vanderhoof et al. 2017)
2. High soil moisture levels and consequently patchy (low severity) fires can also confound detection in certain circumstances. Wet soils can be much darker than dry soils, and may be misclassified as burned areas (Flasse et al. 2004)
3. Impediments to burned area detection include rapid green-up following a burn; cloud cover and shadows obscuring the land surface; difficulty detecting or differentiating a low intensity burns beneath tree canopies; and the spatial resolution of satellite imagery being too coarse to capture fine-scale differences or small burns (Hawbaker et al. 2008, 2017).

Considerations:

- The spatial resolution of the raster products used to produce the fire history metrics is 30 meters and while individual fires represent a combination of 10, 30-meter pixels, the application scale of the product is much larger in some cases.
- Fire history metrics produced by this product are not meant to replace local products but rather supplement these products where data gaps occur.
- This product supports regional and sub-regional analysis and may be inappropriate for site specific analysis given the limitations described above.

References:

Hawbaker, T.J.; Vanderhoof, M.K.; Beal, Y-J.; Takacs, J.D.; Schmidt, G.; Falgout, J.; Brunner, N.; Caldwell, M.; Dwyer, J. 2017. An automated approach to identify burned areas in LANDSAT images. Remote Sens. Environ., 198, 504–522.

Hawbaker, T.J., Vanderhoof, M.K., Schmidt, G.L., Beal, Y.J., Picotte, J.J., Takacs, J.D., Falgout, J.T. and Dwyer, J.L., 2020. The Landsat Burned Area algorithm and products for the conterminous United States. Remote Sensing of Environment, 244, p.111801.

United States Geological Survey [USGS]. 2019. Landsat Level-3 Burned Area Science Product. < *https://www.usgs.gov/centers/eros/science/usgs-eros-archive-landsat-landsat-level-3-burned-area-ba-science-product?qt-science_center_objects=0#qt-science_center_objects*>.
Digital Object Identification: doi.org/10.5066/F77W6BDJ

Vanderhoof, M. K.; N. Fairaux; Y-J. G. Beal; T.J. Hawbaker. 2017. Validation of the USGS LANDSAT Burned Area Essential Climate Variable (BAECV) across the conterminous United States. Remote Sens. Environ., 198, pp. 393-406.

Southeast FireMap (SE FireMap) v.1 Beta
Fire History Metrics Viewer
User Guide

SE FIREMAP

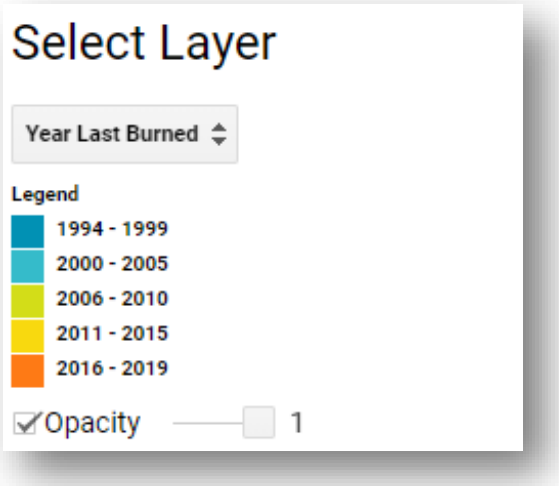
Functionality of the [web viewer]:

- **Select Layer**
- **View NAIP Imagery**
- **Render Boundaries**
- **Visit Public Lands**
- **Pixel Inspector**

**Please note - this application is a simple raster viewer and not a computational tool.*

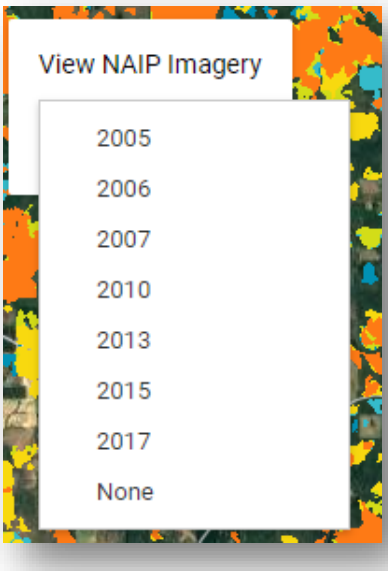
Select Layer

- Use a drop-down list to select raster layers representing specific fire history metrics. See the v.1 Product Information document for descriptions.
    - Layers include: Year Last Burned, Time Since Previous Fire, Longest Fire Free Interval, Fire Frequency, Annual Burned Area (1994-2019), National Land Cover Database (2016)
- Raster layers have a pre-defined classification scheme which is reflected in the map legend
- Users can set layer transparency with the opacity slider
- If the opacity checkbox is not selected, raster layer selection and visualization is disabled



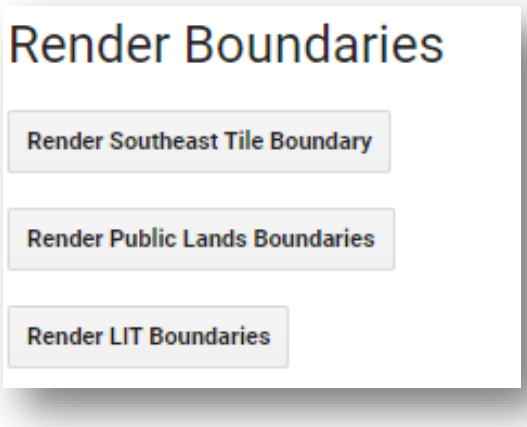
View NAIP Imagery

- Use the NAIP imagery panel in the top left corner of the map to add historical, high resolution (1m) imagery to the map



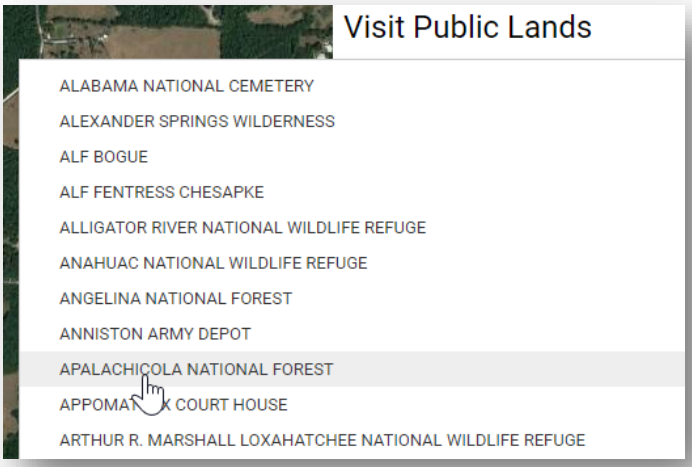
Render Boundaries

- These buttons can be clicked to render different boundaries:
  - The extent of the Southeast FireMap v.1data
  - All public lands that exist within the project extent
  - ALRI Local Implementation Team (LIT) boundaries



Visit Public Lands

- Use a drop-down list to select from public lands in the project area
- The viewer will subsequently zoom to the selected property and add the boundary to the map



Pixel Inspector

- Users can zoom into the map and click on individual pixels to see what their value is
- The pixel inspector will print available fire history metrics for the selected pixel

**While exploring an area of interest, it is recommended that the user inspect multiple pixels to get an informed idea of the fire history. Neighboring pixels may have different fire history metrics*

Any specific questions relating to the SE FireMap v.1 Beta Web Viewer functionality not addressed in this user guide or supporting documentation can be directed to SEFireMap@talltimbers.org

EXIT

SE FireMap Version 1 .0 Product Feedback

Thank you for participating in this survey! As the SE FireMap project team works to improve this product, user community feedback is very helpful. Please keep in mind known issues and limitations with the Version 1.0 product as you fill out this form - a summary can be found here.

General Review Questions:

Do the fire history metrics provide a good spatial representation of the pattern of fire in the Southeastern US? Please consider both public and private lands.

- [ ] Yes
- [ ] No

Please Explain.

Are the fire history metrics provided useful in making critical conservation management decisions in the Southeastern US?

- ◯ Yes
- ◯ No

Please Explain.

What fire history metrics do you find most useful?

- ◯ Time Since Previous Fire
- ◯ Year Last Burned
- ◯ Longest Fire Free Interval
- ◯ All of the Above

Please Explain

How do you plan to use the SE FireMap (planned use and geographic extent)?

Are there areas of consistent problems or issues?

- [ ] YES
- [ ] NO

If Yes Please discuss the magnitude and implication of issues or problems with the data. Do these problems or issues relate to any of the known limitations discussed in the product documentation?

What other fire history metrics or datasets need to be added to enhance the usefulness of the SE FireMap?

Individual Reviewer Questions:

* Contact

Name

Title

Email
Address

Date

* What agency/organization/stakeholder group do you represent?

* How Did you learn about the V.1 SE Fire Map Product?

Done