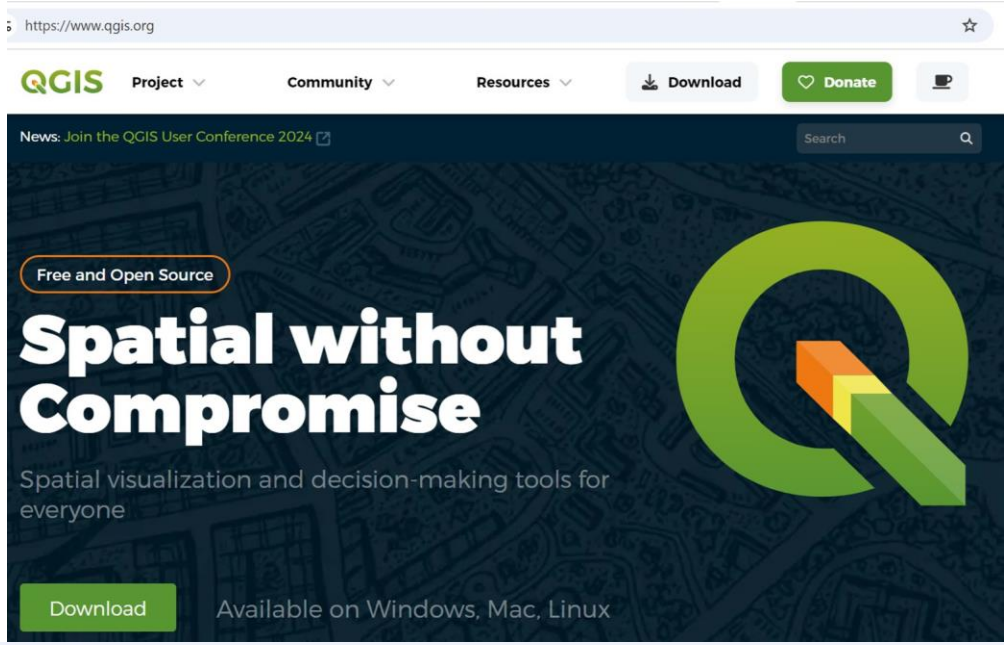
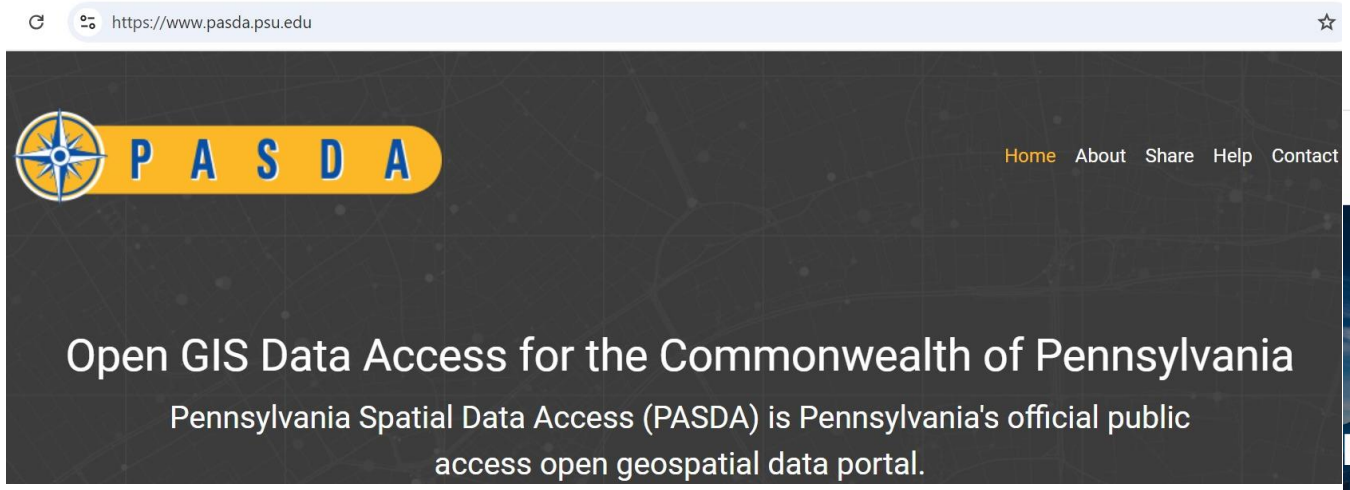
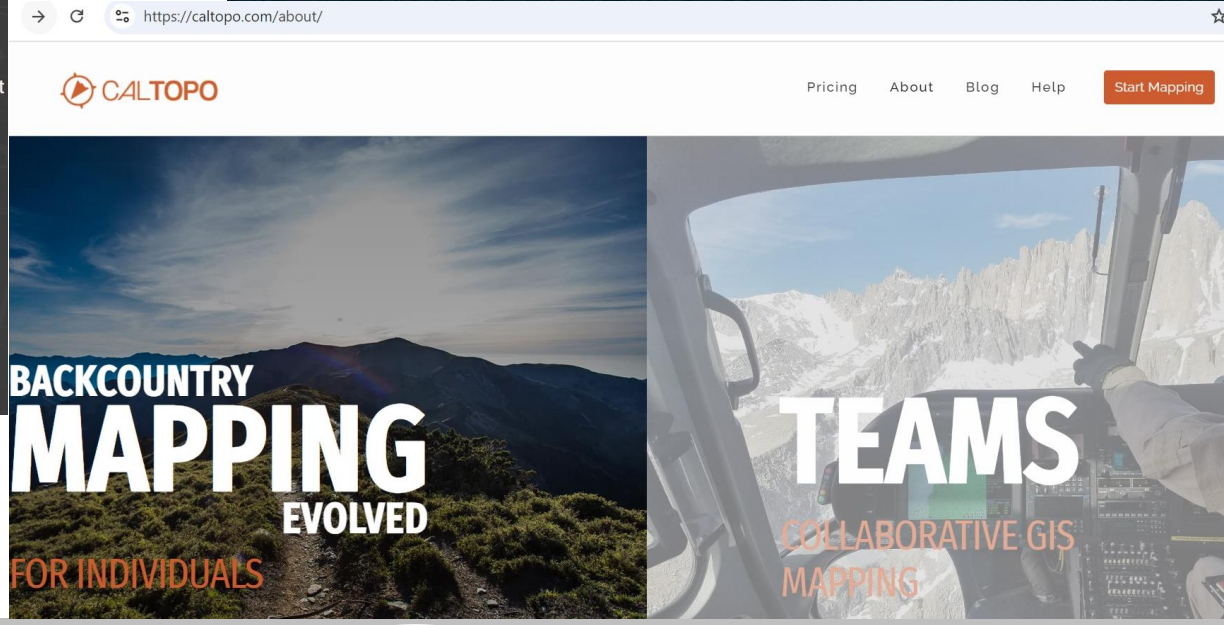
Practical Application

- QGIS
- Imagery & Data
- Potential Projects
- CalTopo Apps







Jeff Osborne
Forest Stewardship Program Specialist
jao5194@psu.edu

https://www.qgis.org

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Spatial visualization and decision-making tools for everyone

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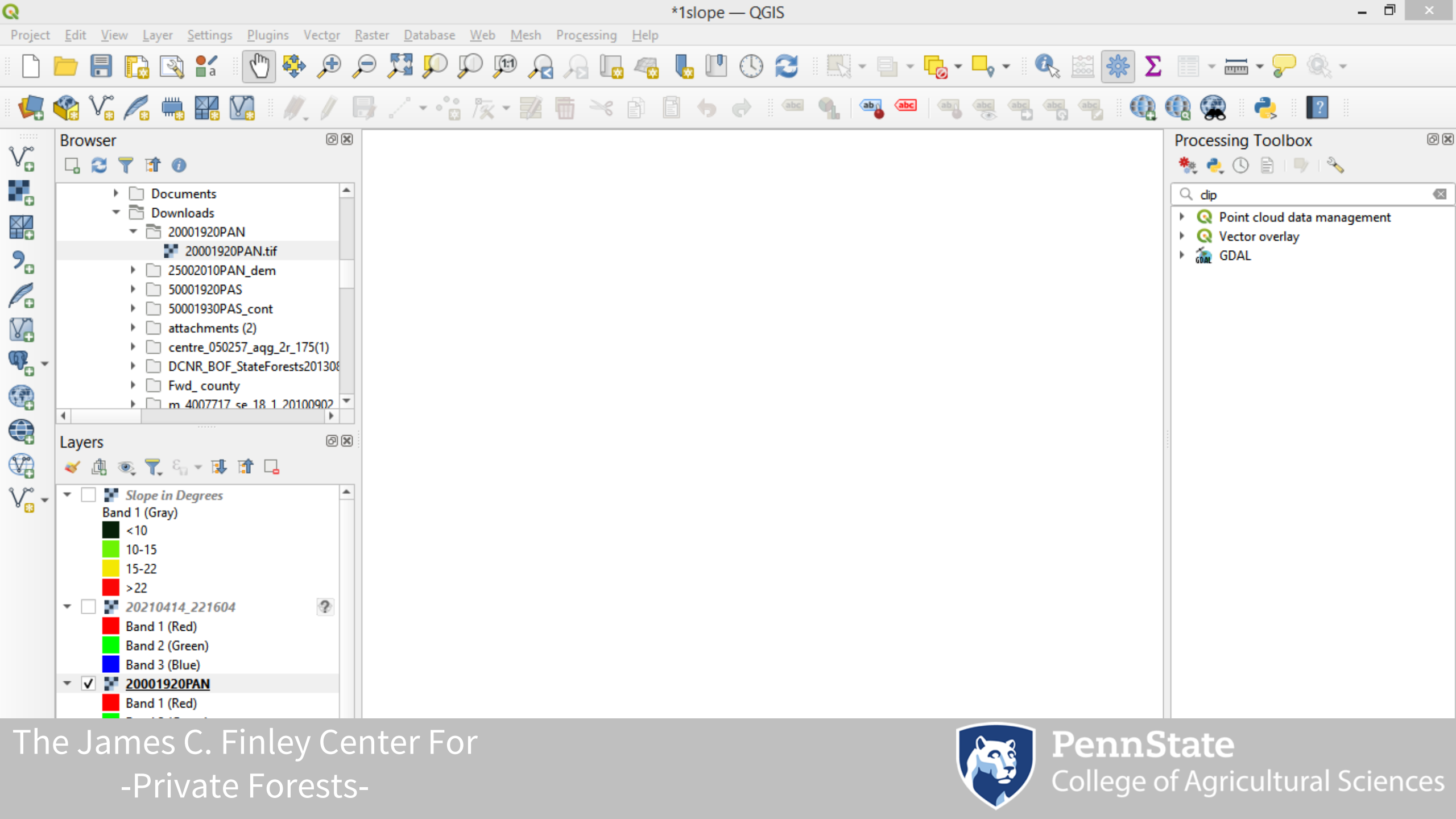

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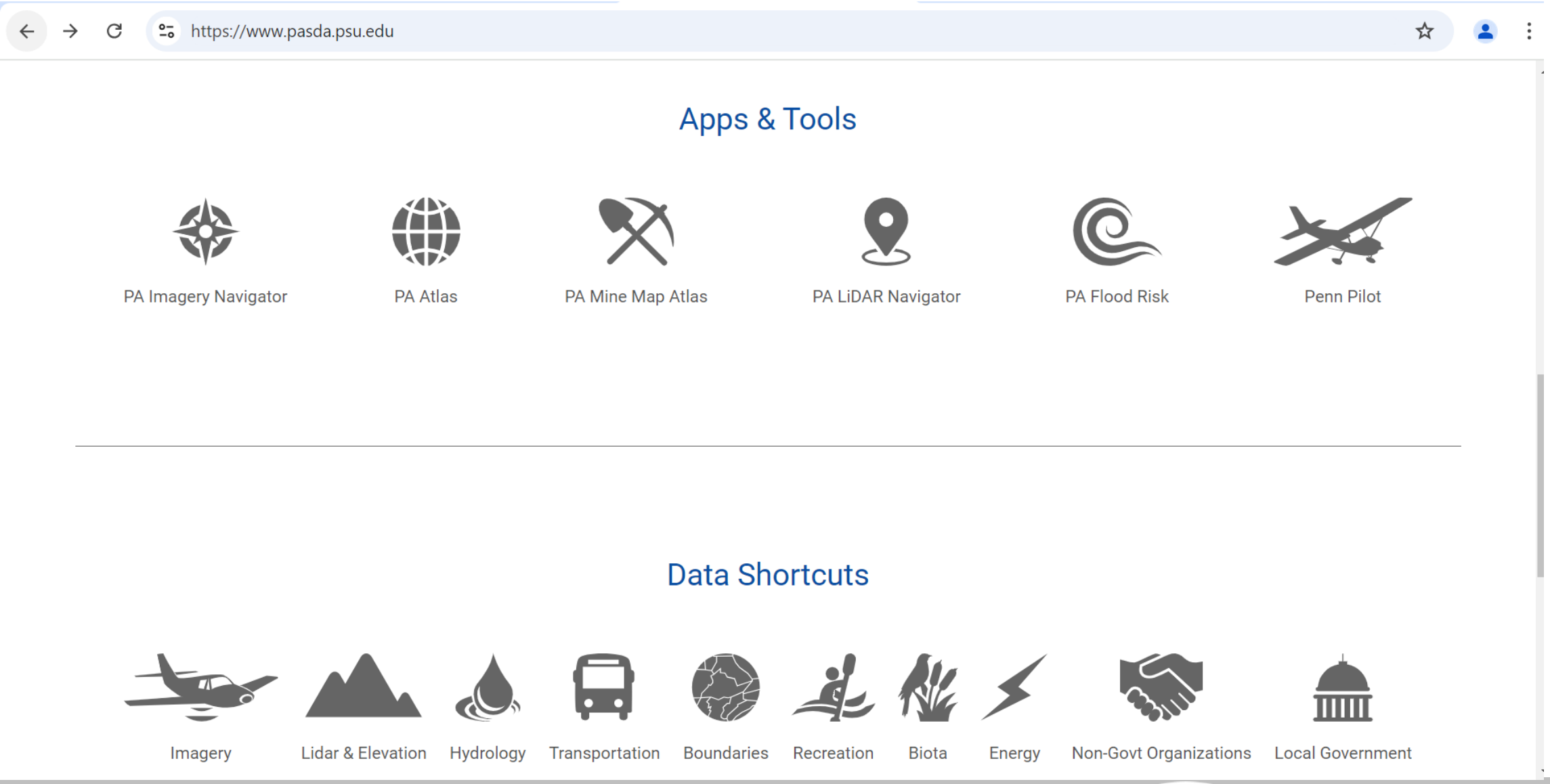
PASDA (Pennsylvania Spatial Data Access)



Date	Title	Provider
2010	**Allegheny County - Greenways** The Greenways feature class consists of a compilation of the following data: agricultural easements, Allegheny Land Trust GREENPRINT, Conservation Streams buffered by 50 ft, Forested Floodplains, City of Pittsburgh designated Greenways, Land Trust Properties, Rivers buffered by 100 ft, sensitive slopes, wetlands 1 acre or more buffered by 50 ft, golf courses, parks and trails. Building footprints have been deleted from the feature class, but can be added back (see ModelWorkspace\Buildings_in_Greenways). **Metadata** | **Download** | **Preview** | **KMZ** | **Spreadsheet** | Add to ArcMap: **Image** or **Feature** | **Add to ArcGIS Pro** | **More Options...**	Allegheny County
2000	**Allegheny County - NWI (National Wetlands Inventory)** NWI (National Wetlands Inventory) digital data files are records of wetlands location and classification as defined by the U.S. Fish & Wildlife Service. This dataset is one of a series available in 7.5 minute by 7.5 minute blocks containing ground planimetric coordinates of wetlands point, line, and area features and wetlands attributes. When completed, the series will provide coverage for all of the contiguous United States, Hawaii, Alaska, and U.S. protectorates in the Pacific and Caribbean. The digital data as well as the hardcopy maps that were used as the source for the digital data are produced and distributed by the U.S. Fish & Wildlife Service's National Wetlands Inventory project. This data set is derived from the national coverage and only includes the area within the boundary of Allegheny County. **Metadata** | **Download** | **Preview** | **KMZ** | **Spreadsheet** | Add to ArcMap: **Image** or **Feature** | **Add to ArcGIS Pro** | **More Options...**	Allegheny County
2024	**Cambria County Address Points** This dataset contains wetlands in Cambria County. **Metadata** | **Download** | **Preview** | **KMZ** | **Spreadsheet** | **GeoJSON** | Add to ArcMap: **Image** or **Feature** | **Add to ArcGIS Pro** | **More Options...**	Cambria County
2024	**Cambria County Parcels** This dataset contains wetlands in Cambria County. **Metadata** | **Download** | **Preview** | **KMZ** | **GeoJSON** | Add to ArcMap: **Image** or **Feature** | **Add to ArcGIS Pro** | **More Options...**	Cambria County

https://maps.psiee.psu.edu/ImageryNavigator/

PENNSYLVANIA IMAGERY NAVIGATOR

View and Download Imagery for Pennsylvania

Help | About

Display Imagery: Statewide 2018 - 2020

Display Tile Index: None

Display Overlays: Roads, Places, etc

Find a County:

Find an Address: *(Street , Zip)* Find

1 : 4,622,324

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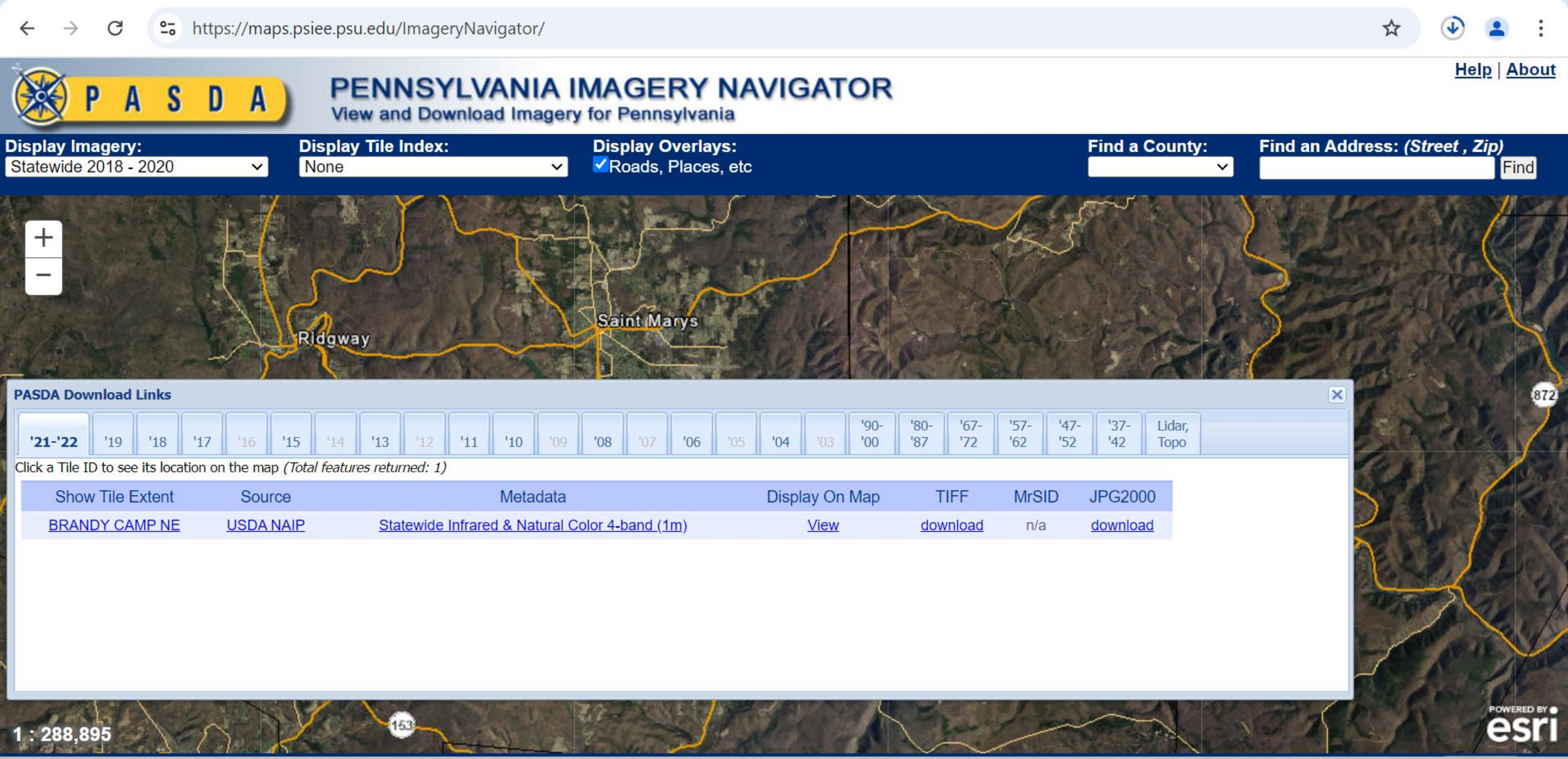

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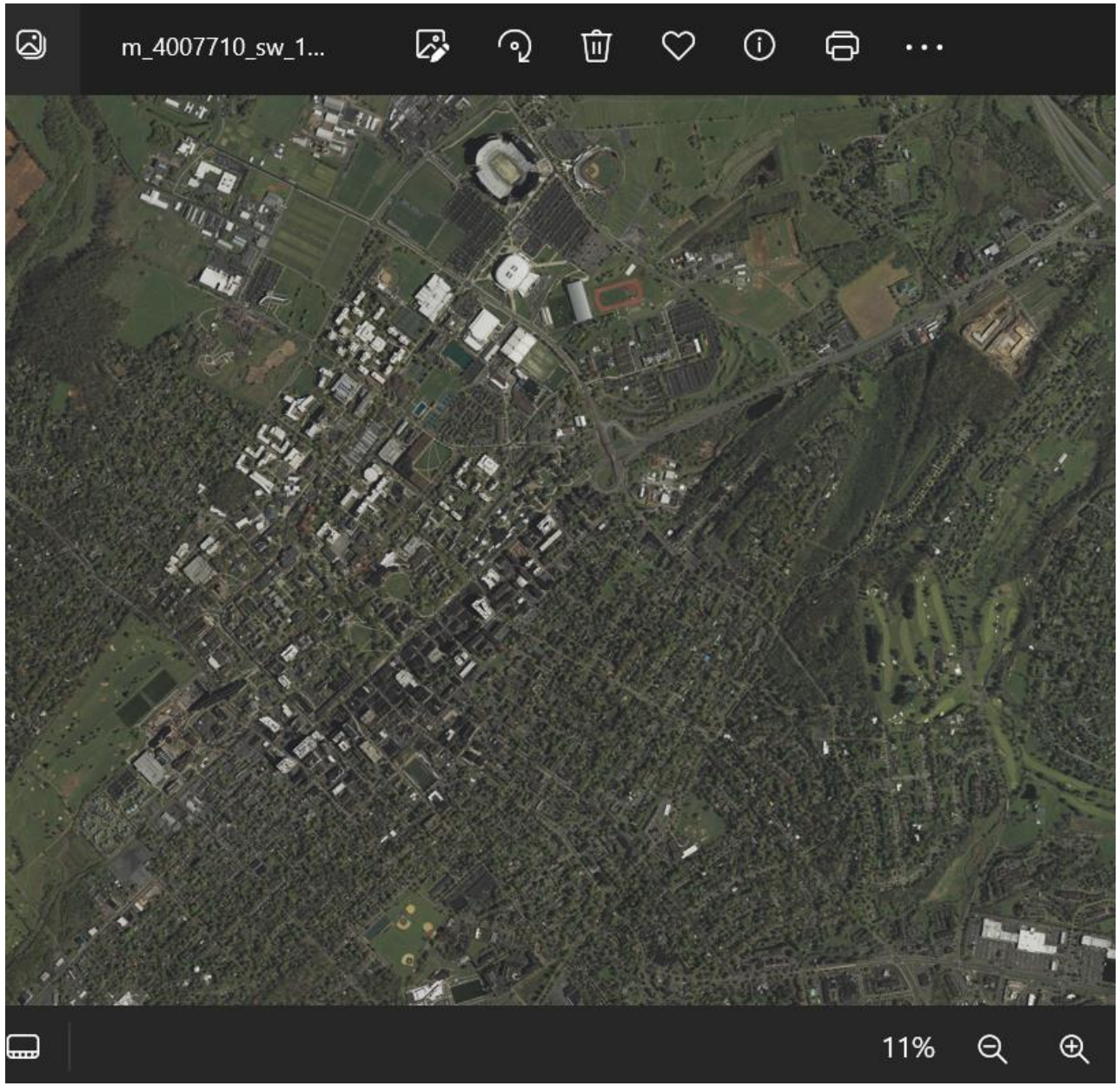
TIFF File

- ~500 MB
- Can be opened with picture viewer.
- Comes with meta data file and can be opened in GIS



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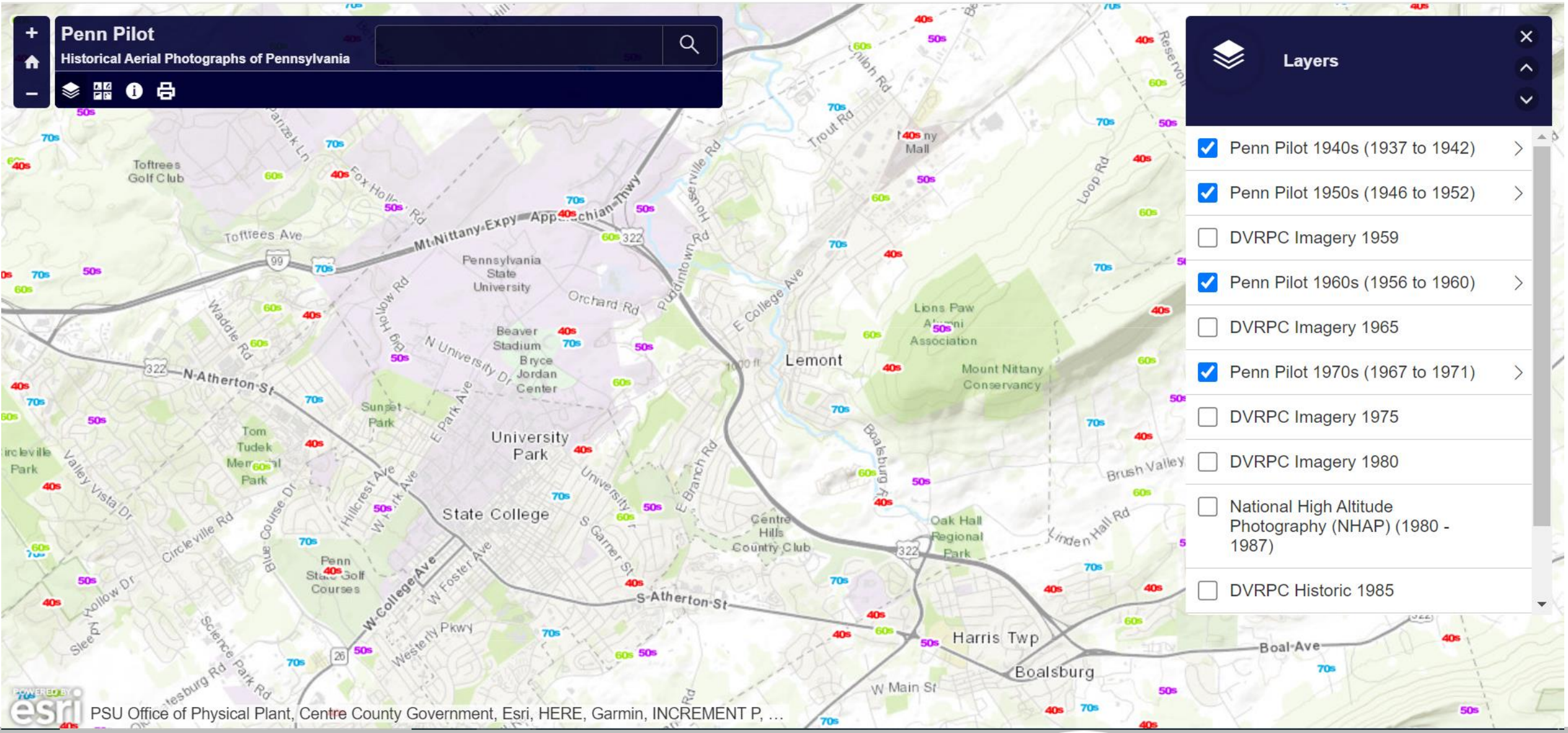

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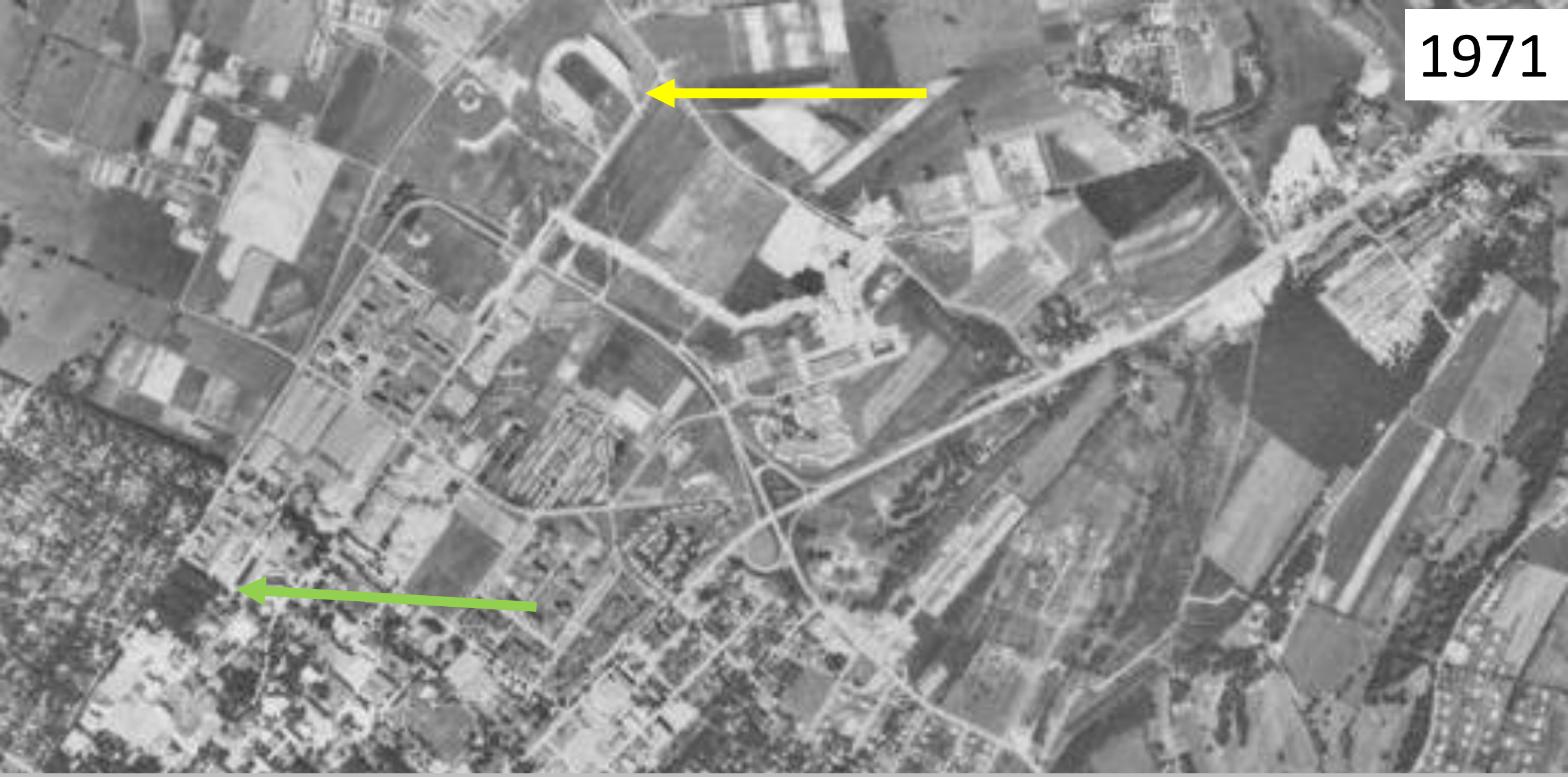
1949

1957


1971

https://maps.psiee.psu.edu/ImageryNavigator/

PENNSYLVANIA IMAGERY NAVIGATOR

View and Download Imagery for Pennsylvania

Help | About

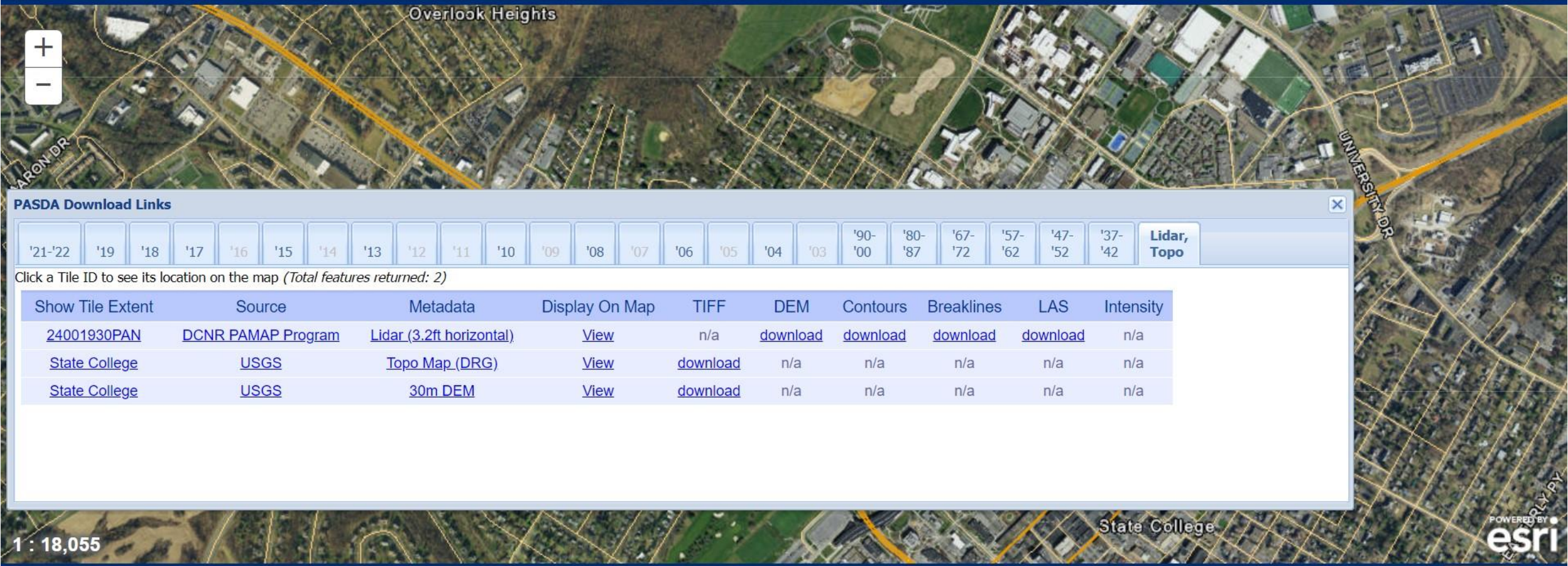
Display Imagery: Statewide 2018 - 2020

Display Tile Index: None

Display Overlays: Roads, Places, etc

Find a County:

Find an Address: *(Street , Zip)* Find



PASDA Download Links

'21-'22 | '19 | '18 | '17 | '16 | '15 | '14 | '13 | '12 | '11 | '10 | '09 | '08 | '07 | '06 | '05 | '04 | '03 | '90-'00 | '80-'87 | '67-'72 | '57-'62 | '47-'52 | '37-'42 | **Lidar, Topo**

Click a Tile ID to see its location on the map *(Total features returned: 2)*

Show Tile Extent	Source	Metadata	Display On Map	TIFF	DEM	Contours	Breaklines	LAS	Intensity
24001930PAN	DCNR PAMAP Program	Lidar (3.2ft horizontal)	View	n/a	download	download	download	download	n/a
State College	USGS	Topo Map (DRG)	View	download	n/a	n/a	n/a	n/a	n/a
State College	USGS	30m DEM	View	download	n/a	n/a	n/a	n/a	n/a

Right-Click on the map to download an image tile. (Click here for Advanced Download Options)

Print Map

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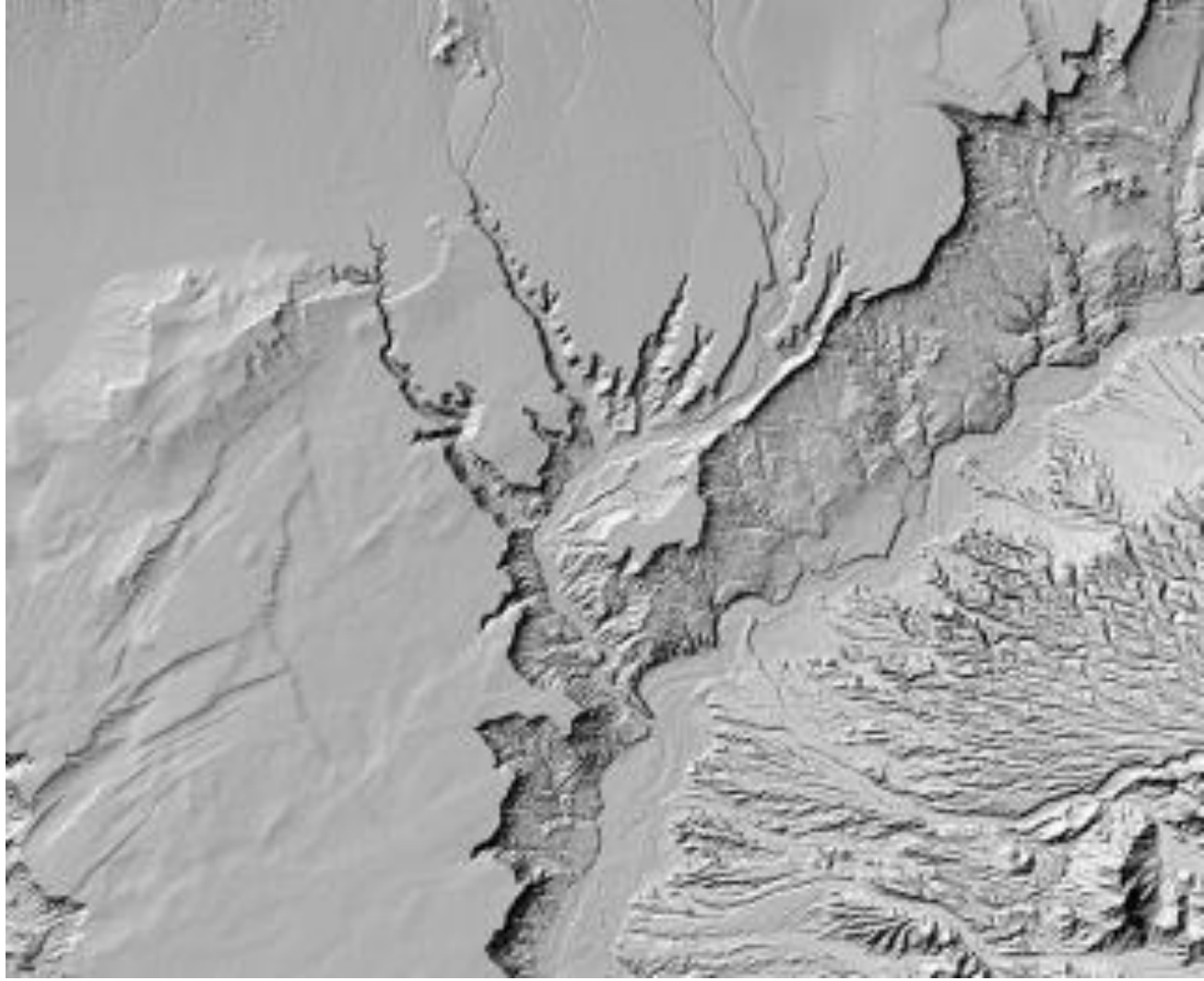
Digital Elevation Models

- Opened in GIS
- Shows ground surface
- Can be used to see trails, used and old
- Used to create watershed, viewshed, and other informative maps



Shaded relief rendering of EarthDEM data showing the Virgin River, Nevada. DEM derived from Maxar imagery. Credit: EarthDEM Project.

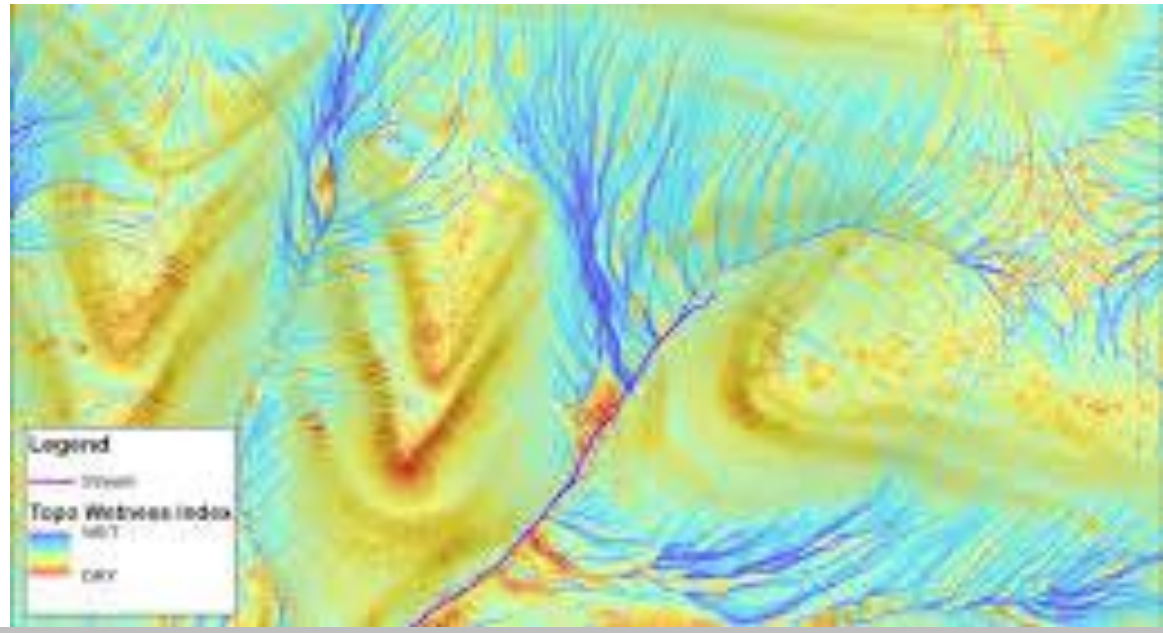
Watershed Catchment Analysis

- Determine the area drained through a certain point
- Useful if you need to determine drained area for bridge permits

Topographic Wetness Index

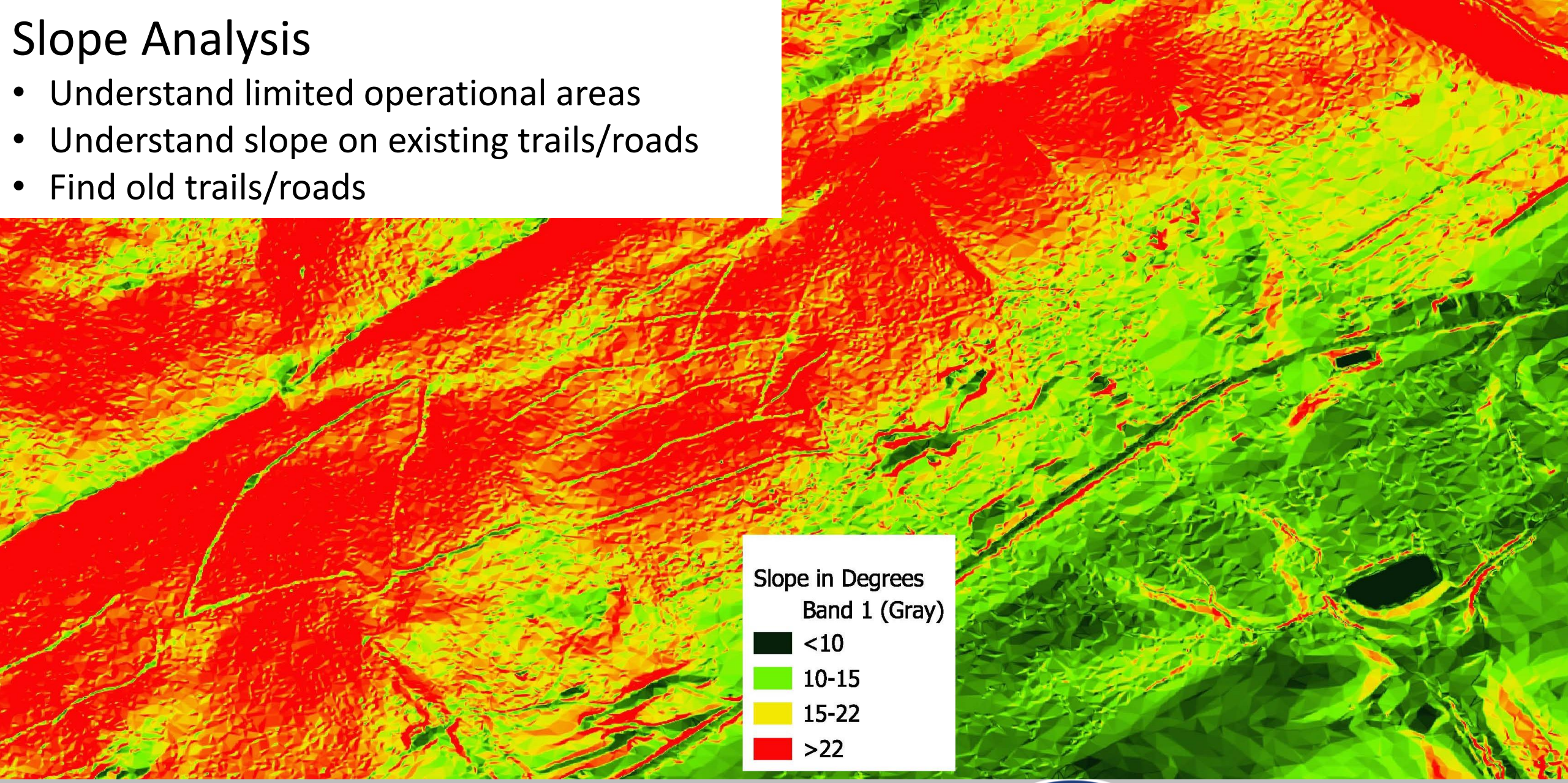
Predicts moisture of area.

Red dry, blue wet



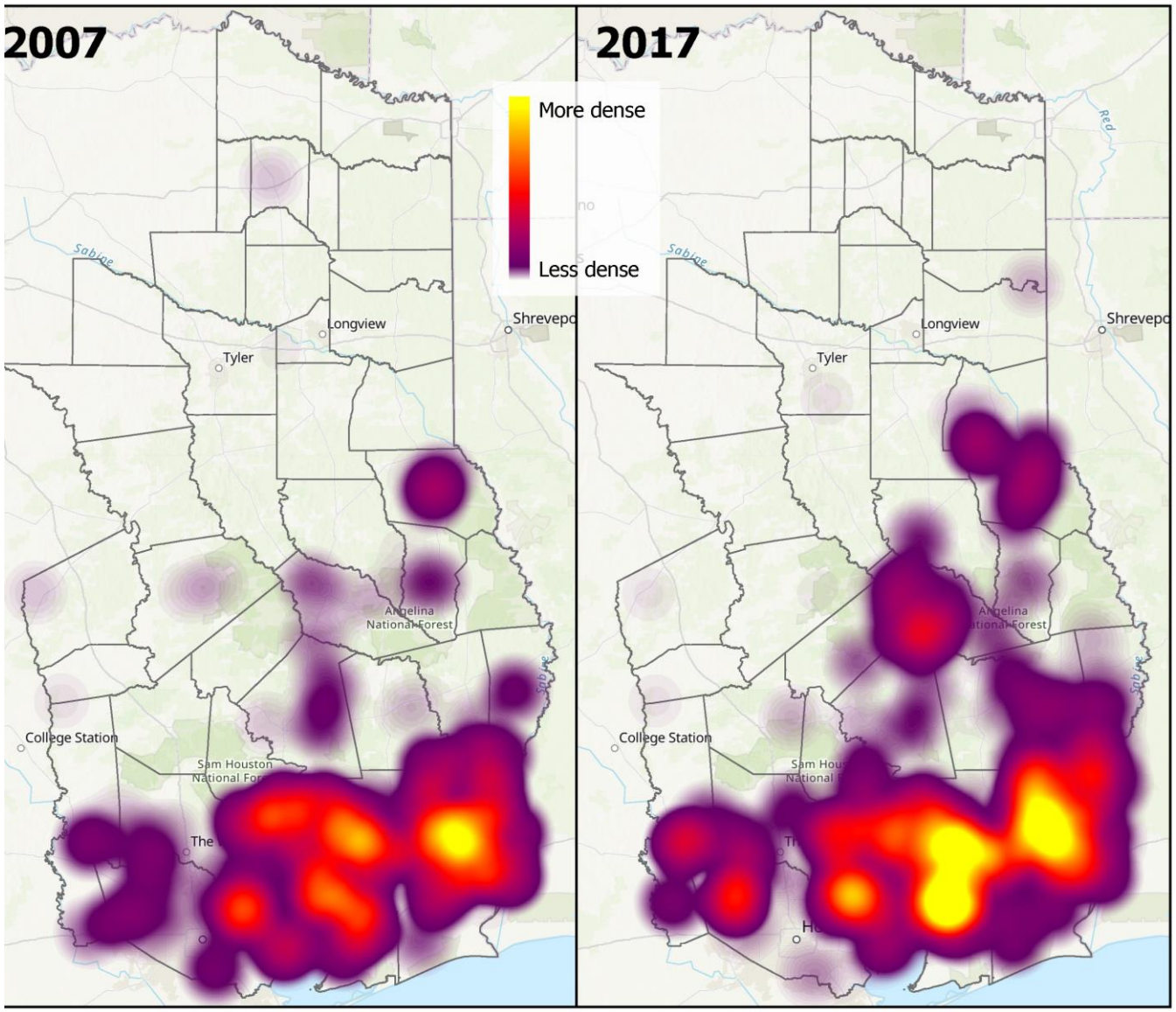
Slope Analysis

- Understand limited operational areas
- Understand slope on existing trails/roads
- Find old trails/roads



Inventory heatmap to visualize different attributes:

- Volume
- Basal area
- Invasive species occurrence

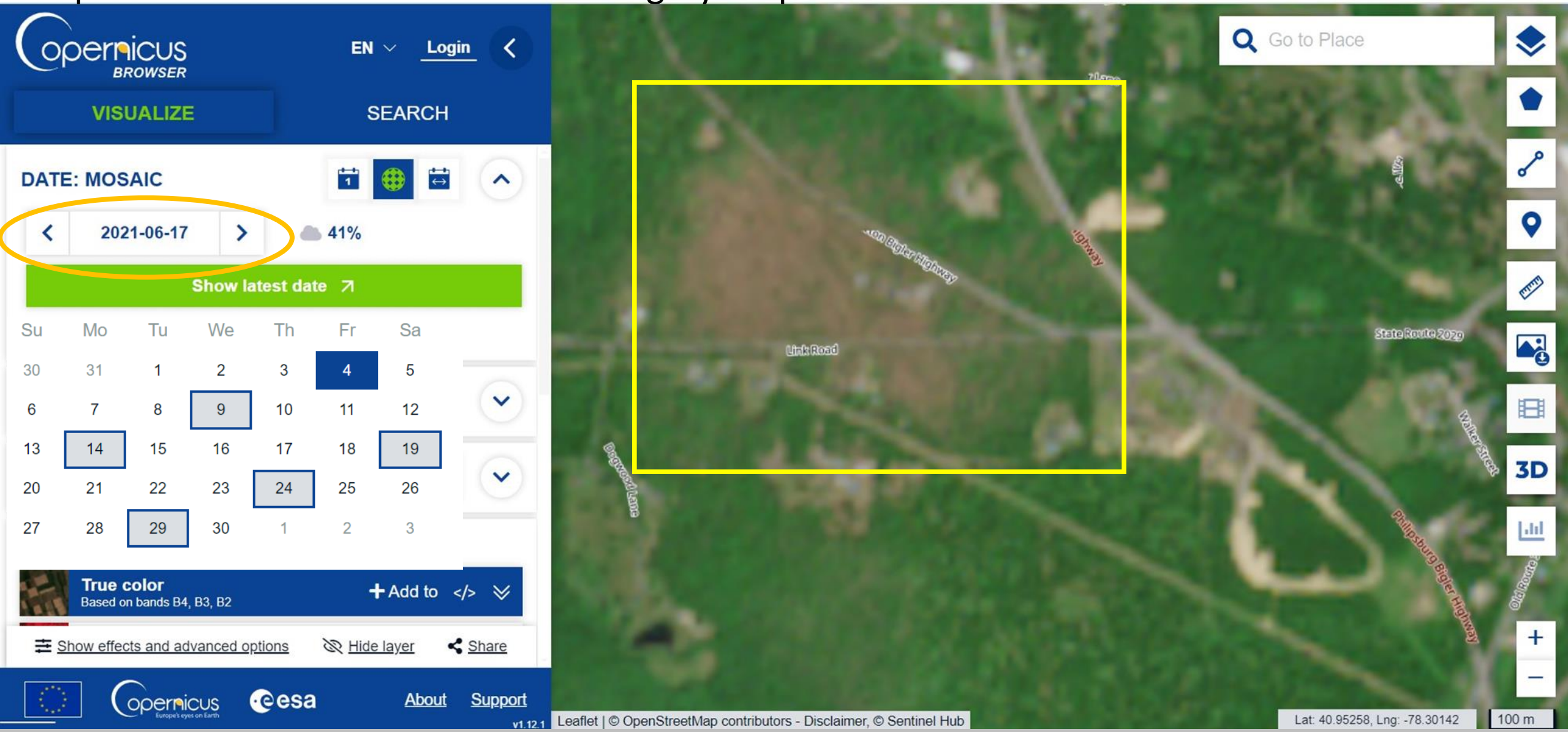


Chinese Tallowtree, 2007-2017

Based on FIA plots in East Texas from 2007 and 2017 inventories
Values are number of Chinese tallowtrees per acre, for live trees at least 1 inch in diameter
The two heat maps have equivalent scales

Texas A&M Forest Service
Rebekah Zehnder, Forest Analytics Department
Forest Resource Development & Sustainable Forestry

Frequent Lower Resolution Satellite Imagery- Copernicus Browser- Defoliation



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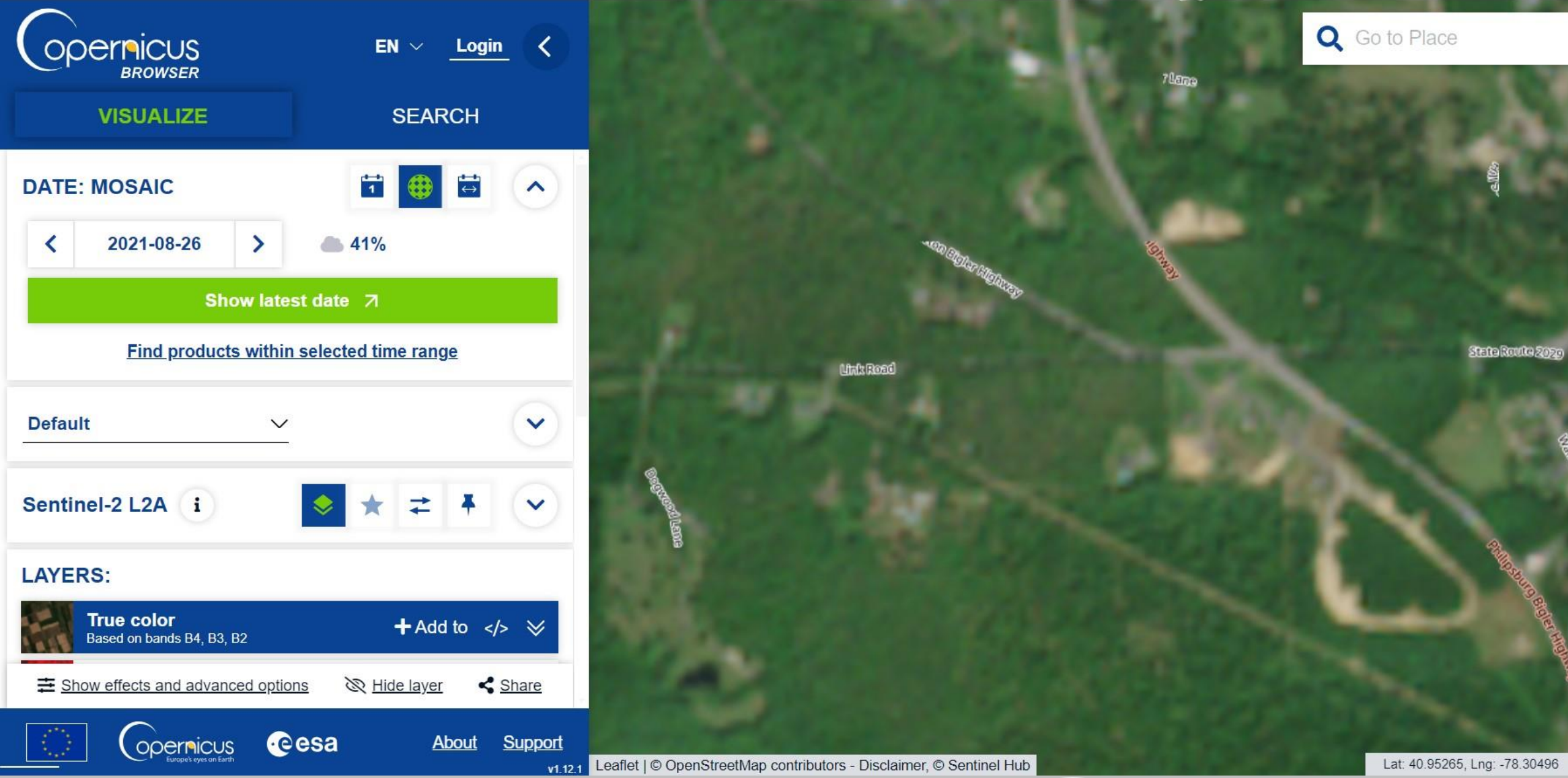

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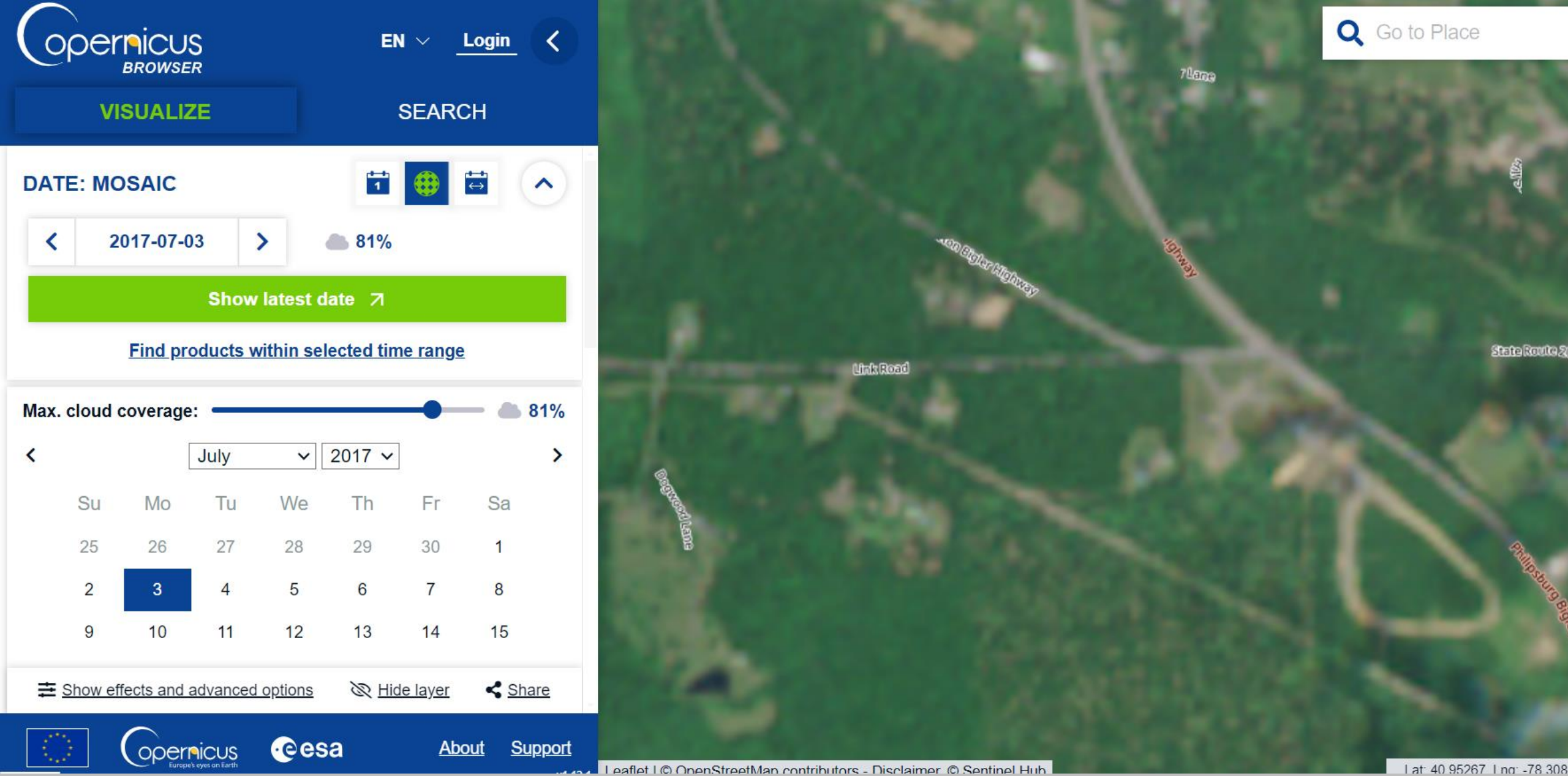

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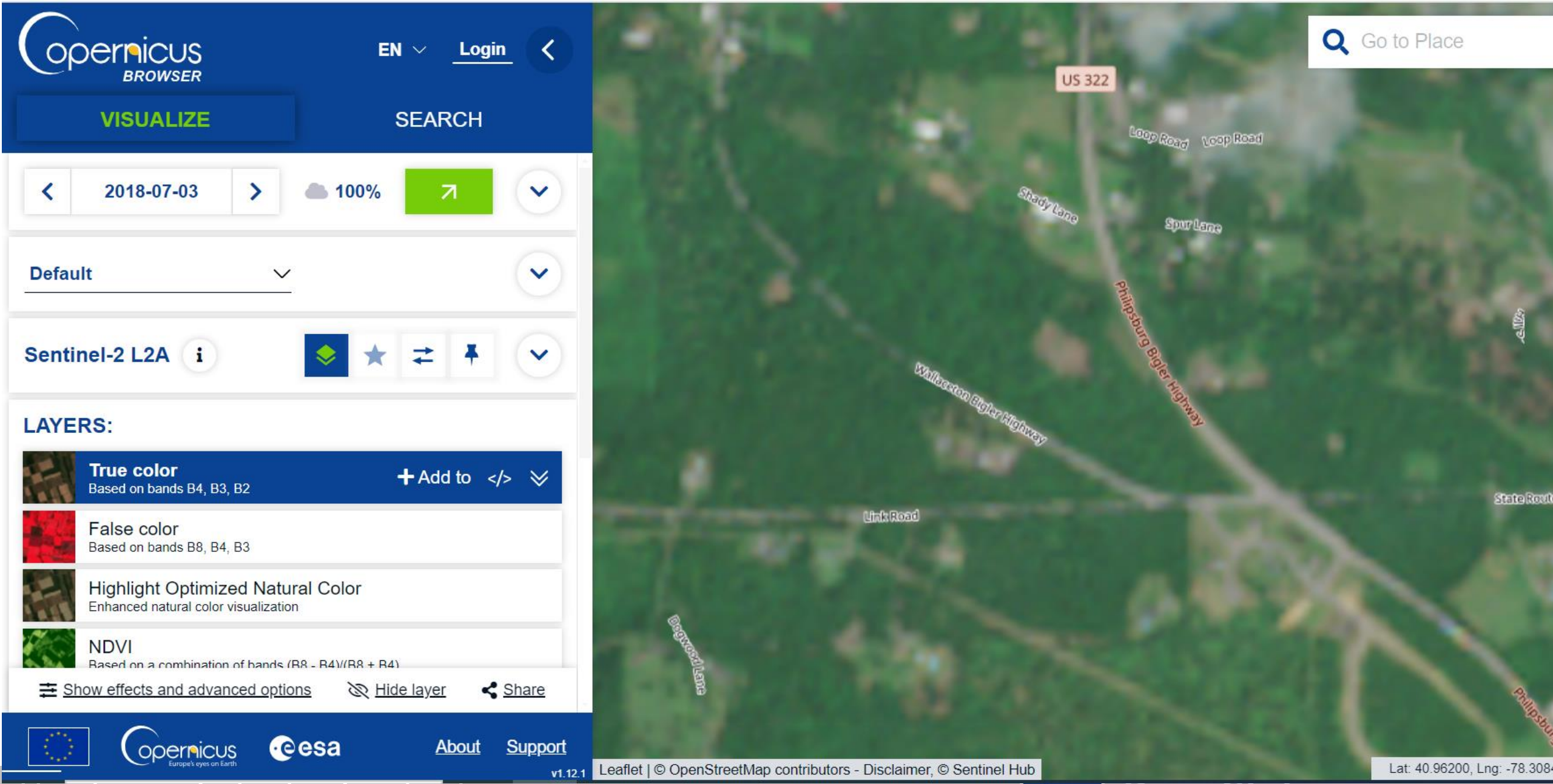

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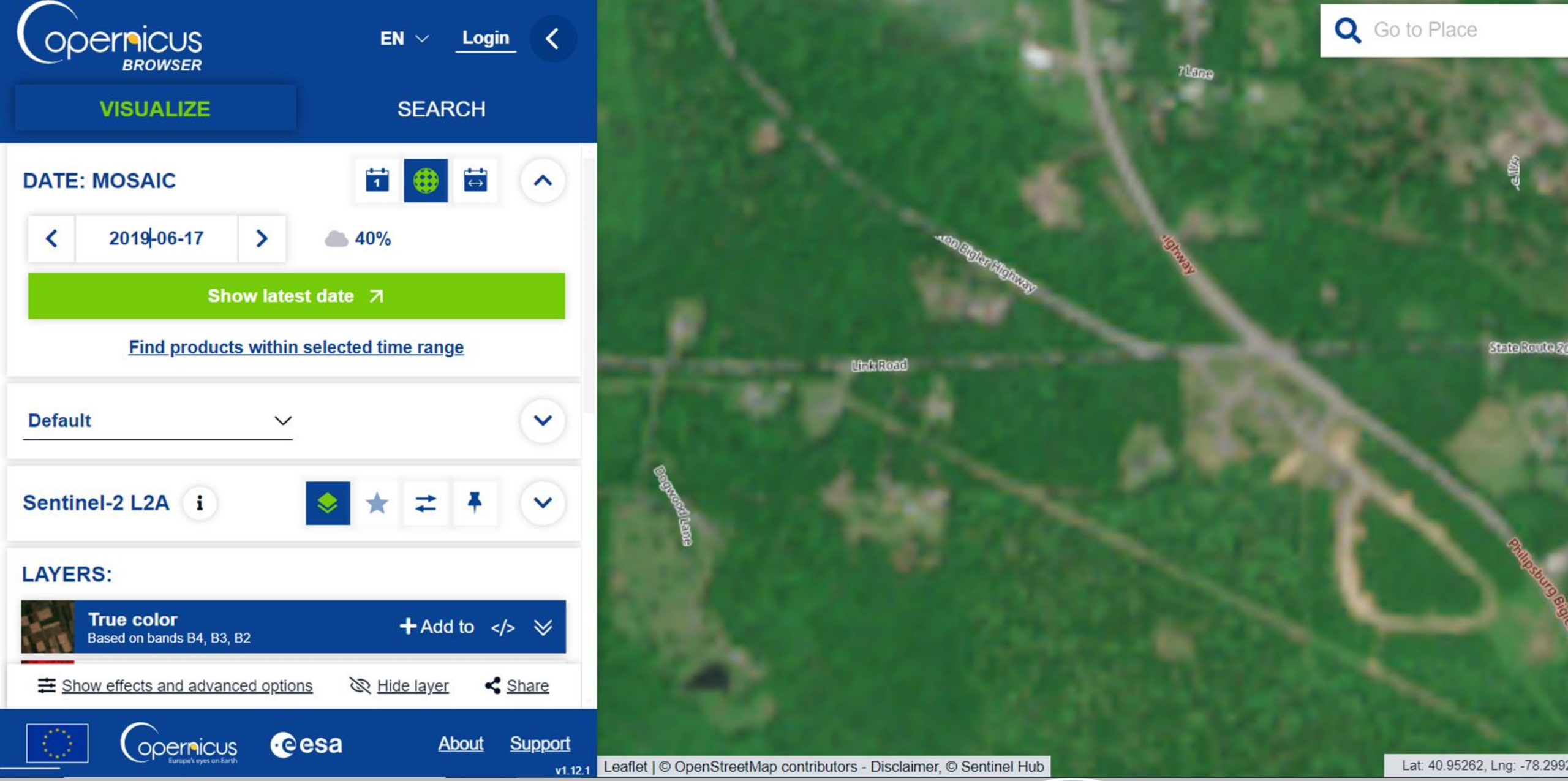

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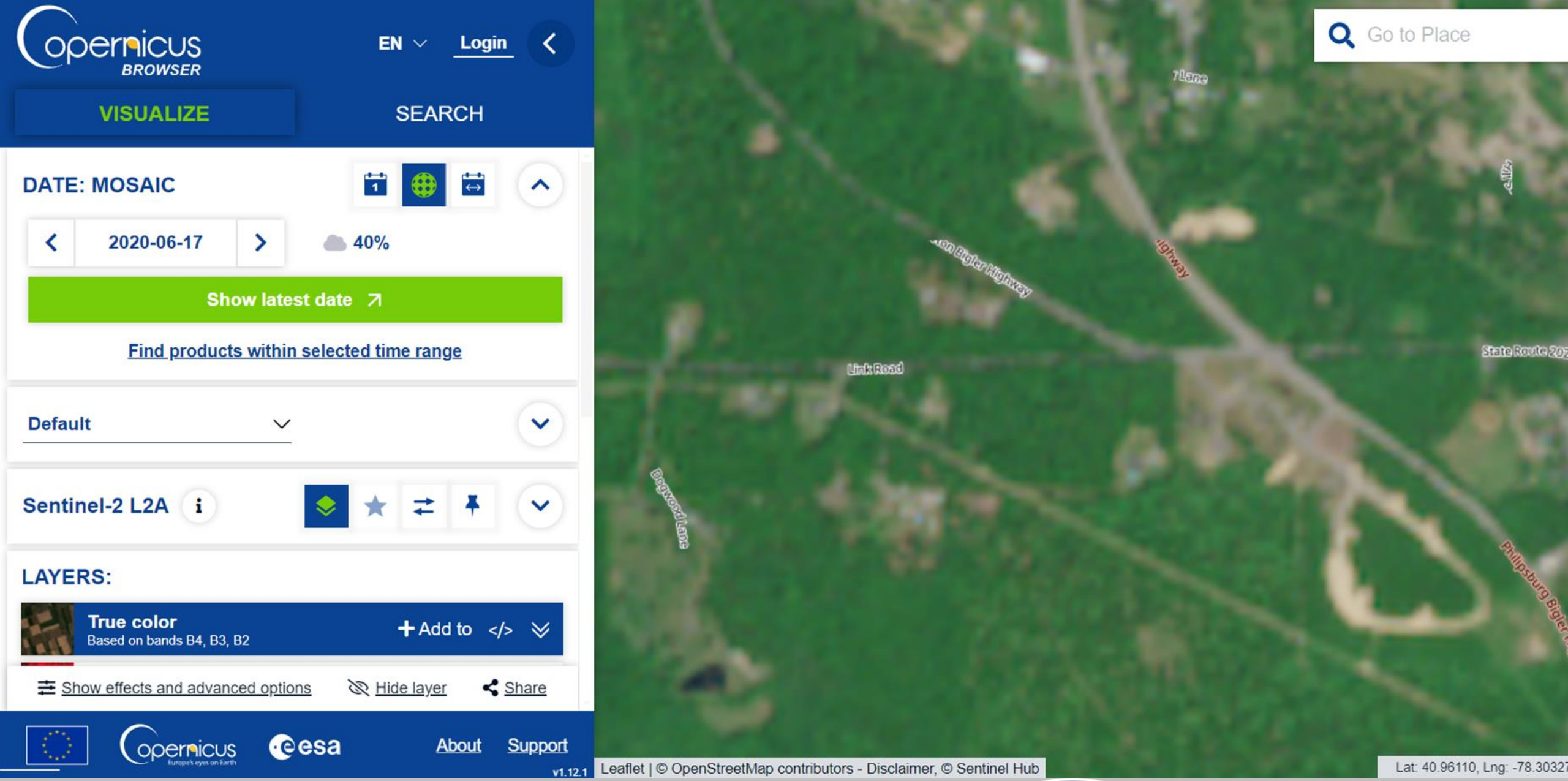

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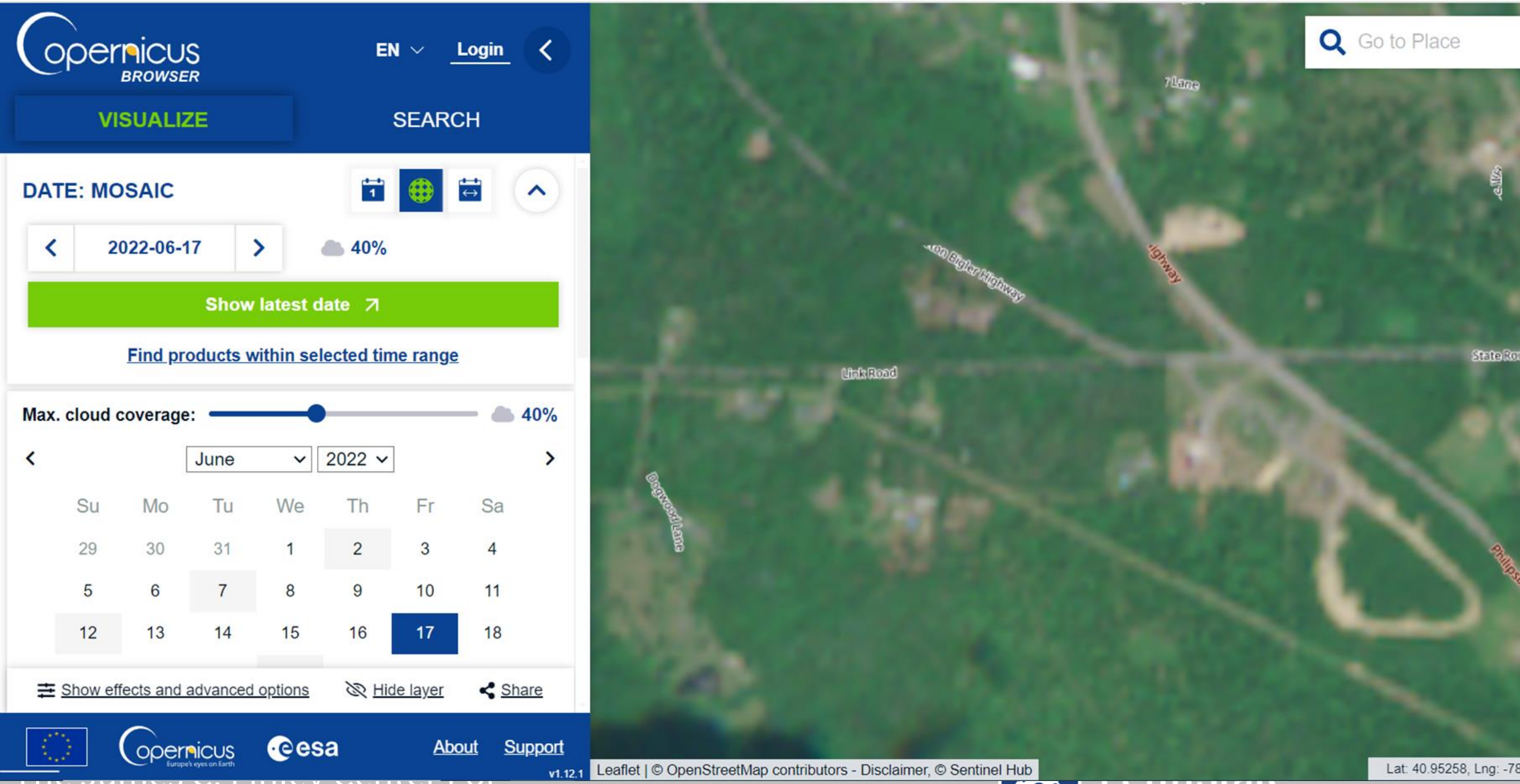

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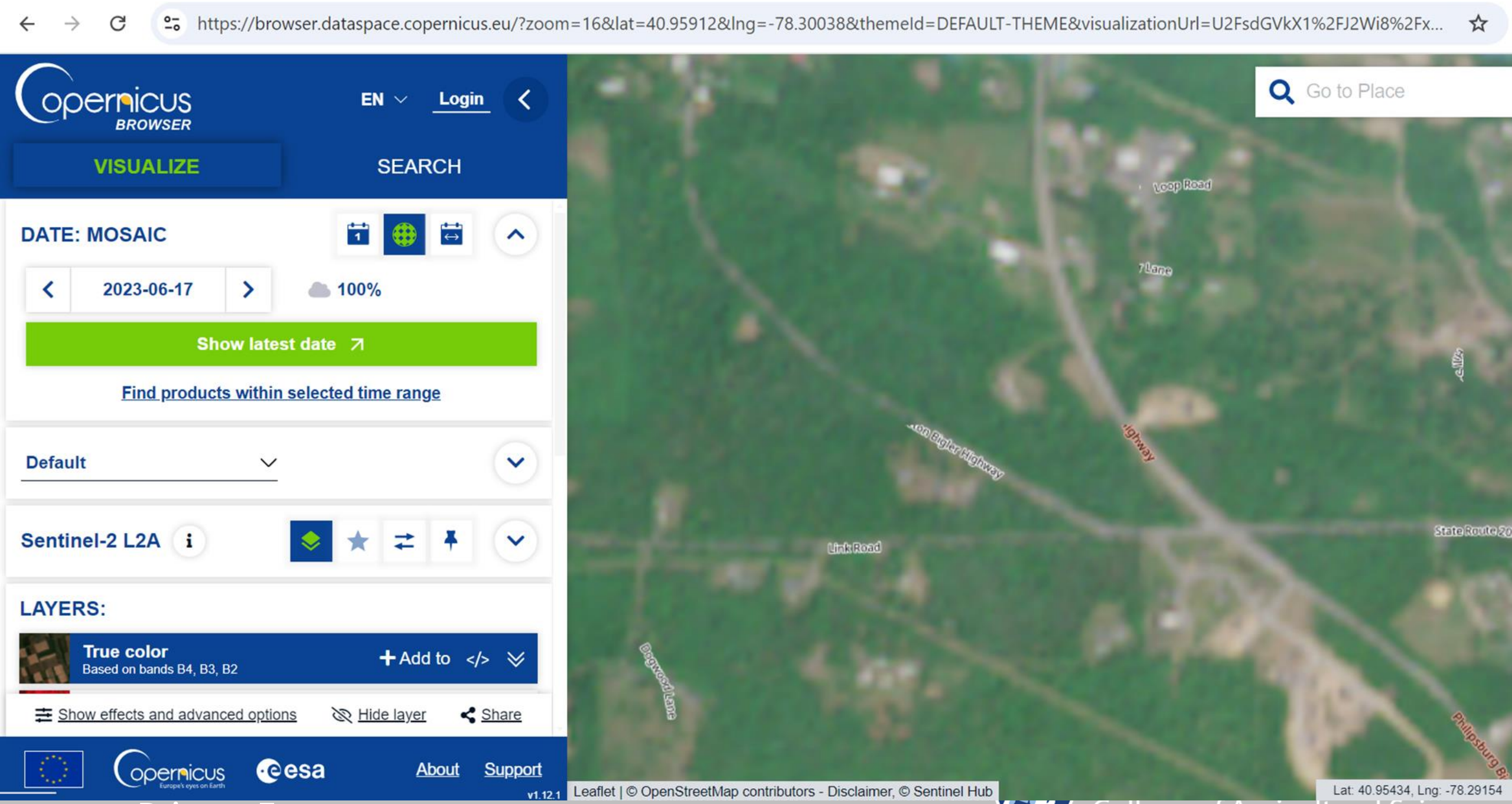
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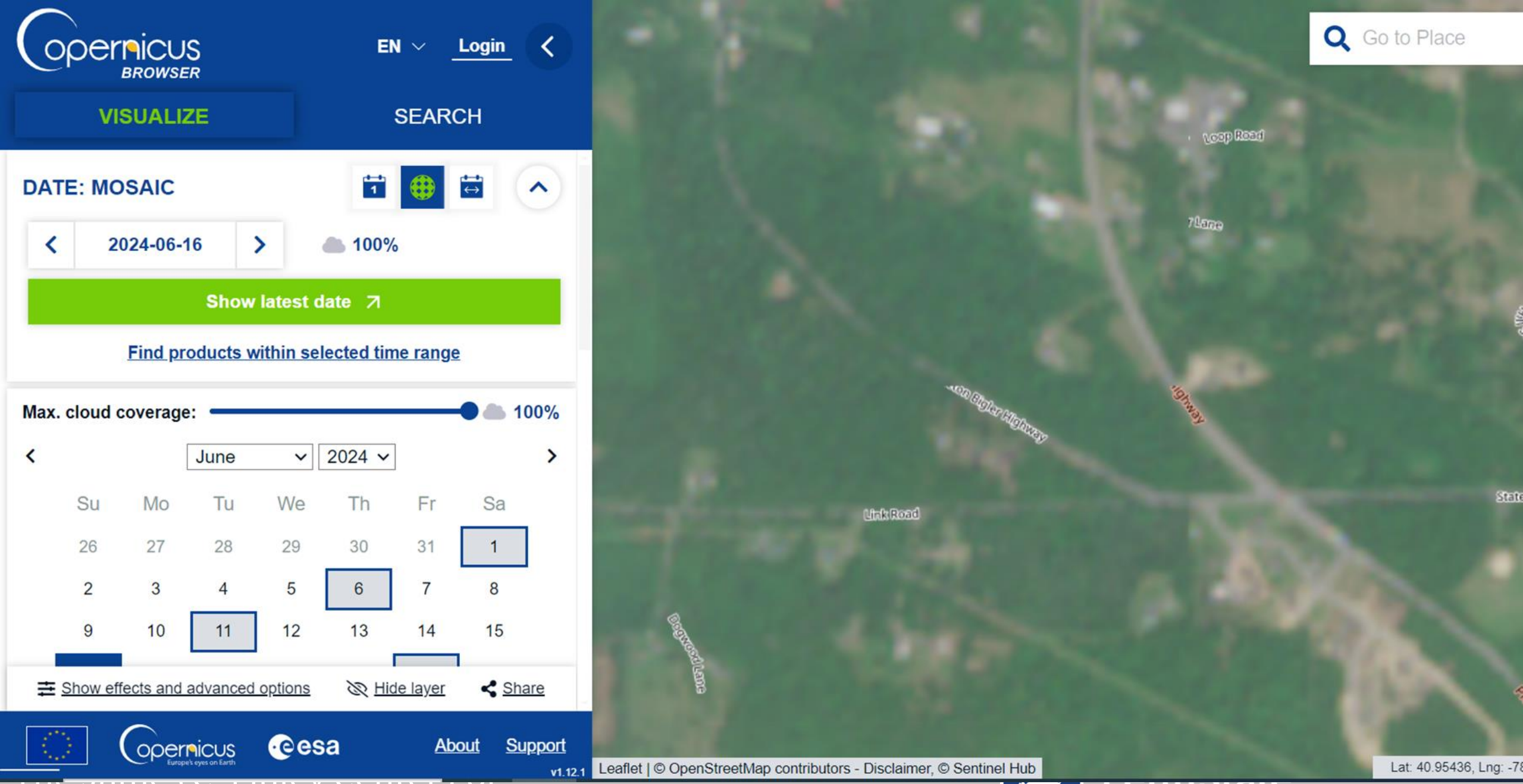
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100%
Show latest date
Find products within selected time range
Max. cloud coverage:
100%
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2024
Su Mo Tu We Th Fr Sa
26 27 28 29 30 31 1
2 3 4 5 6 7 8
9 10 11 12 13 14 15
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Share
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Support
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Go to Place
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Link Road
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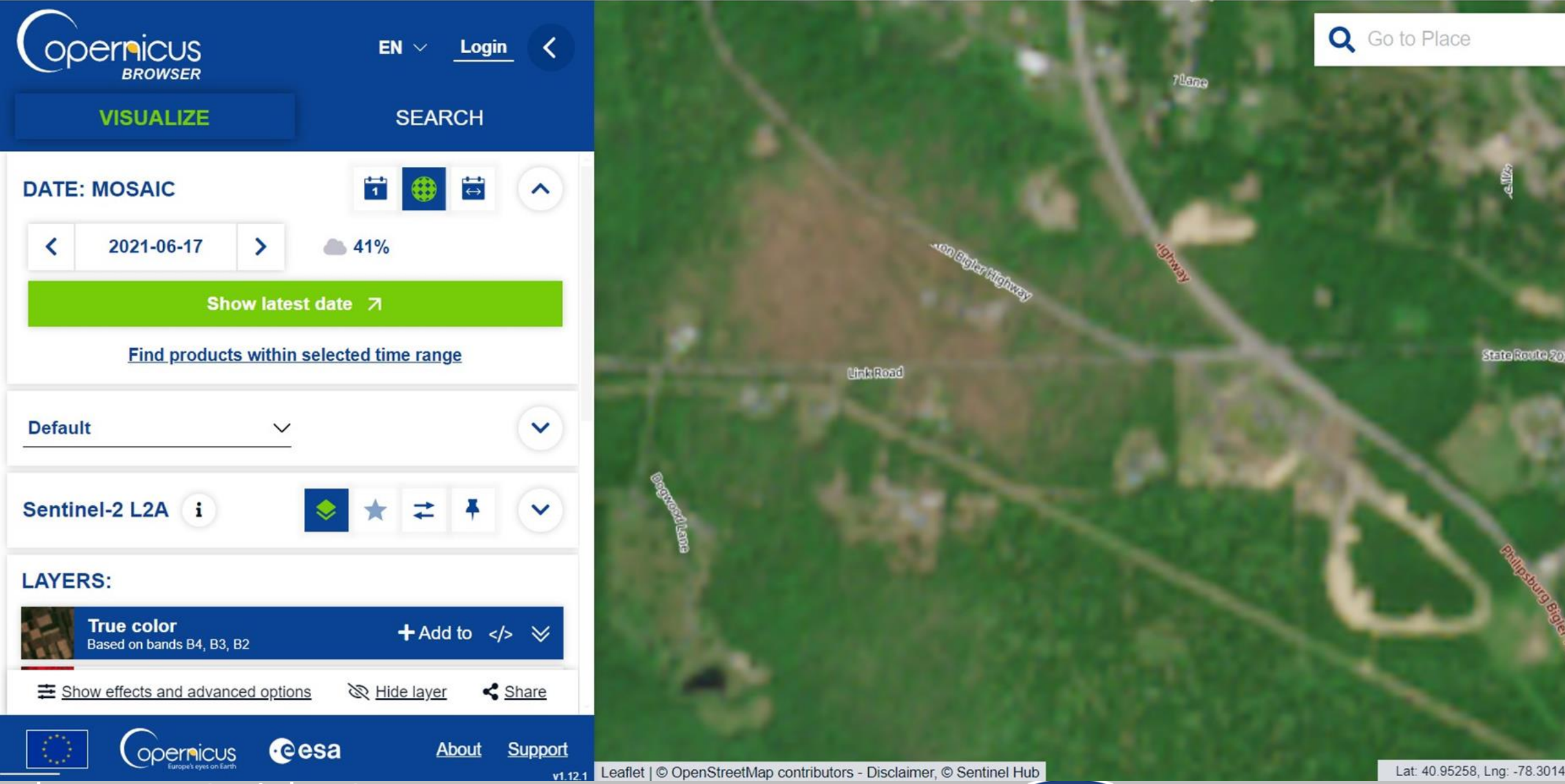

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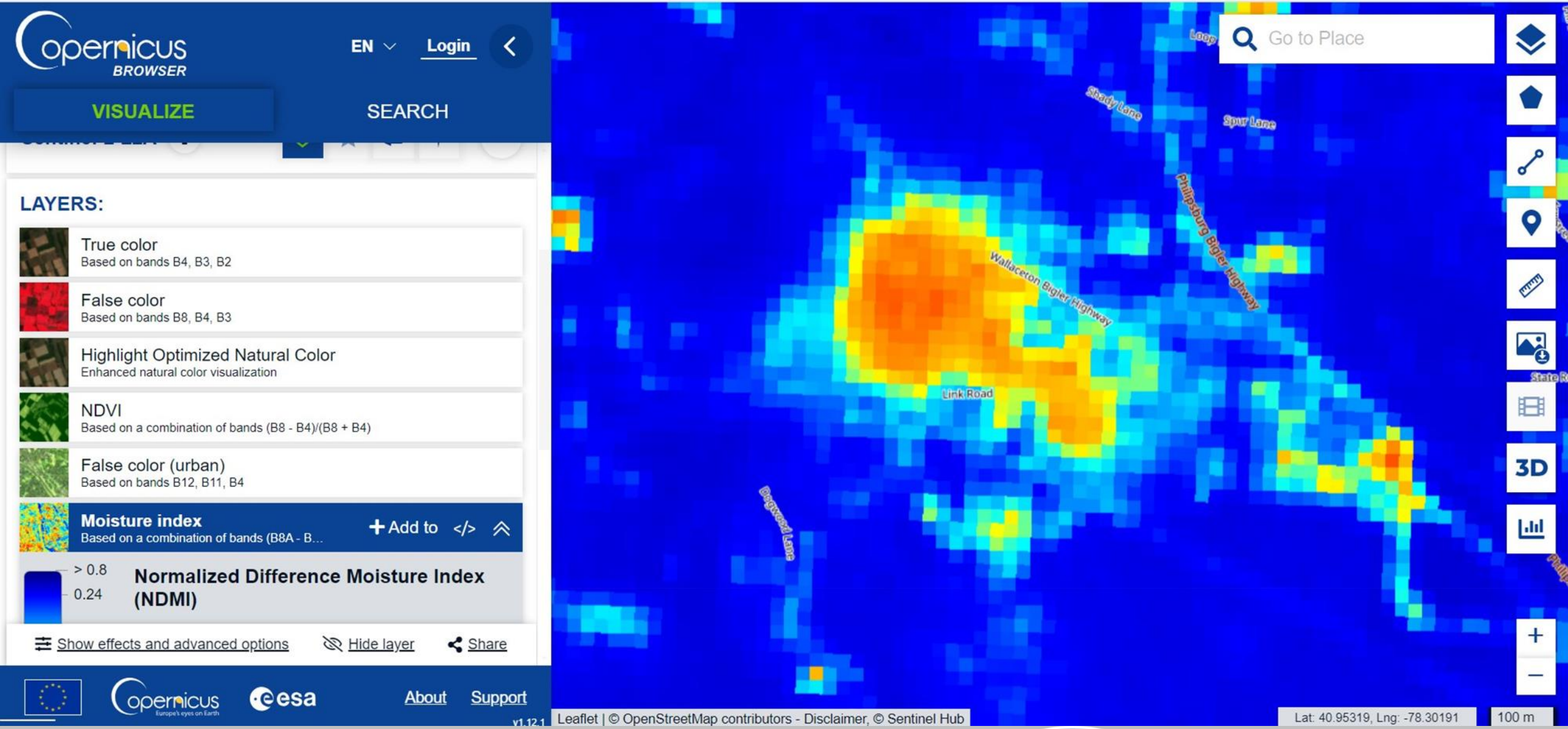

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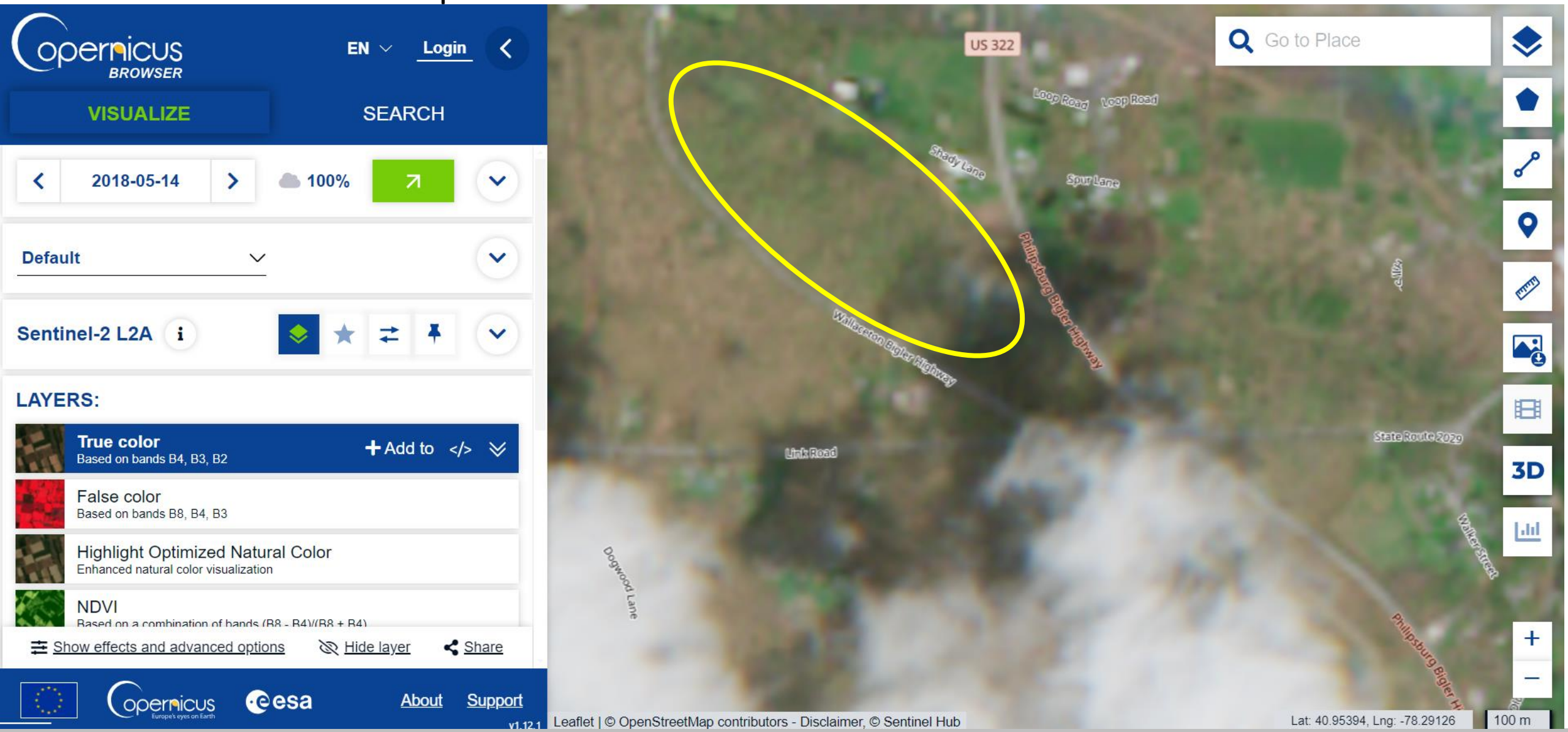
Leaf-on time for different species



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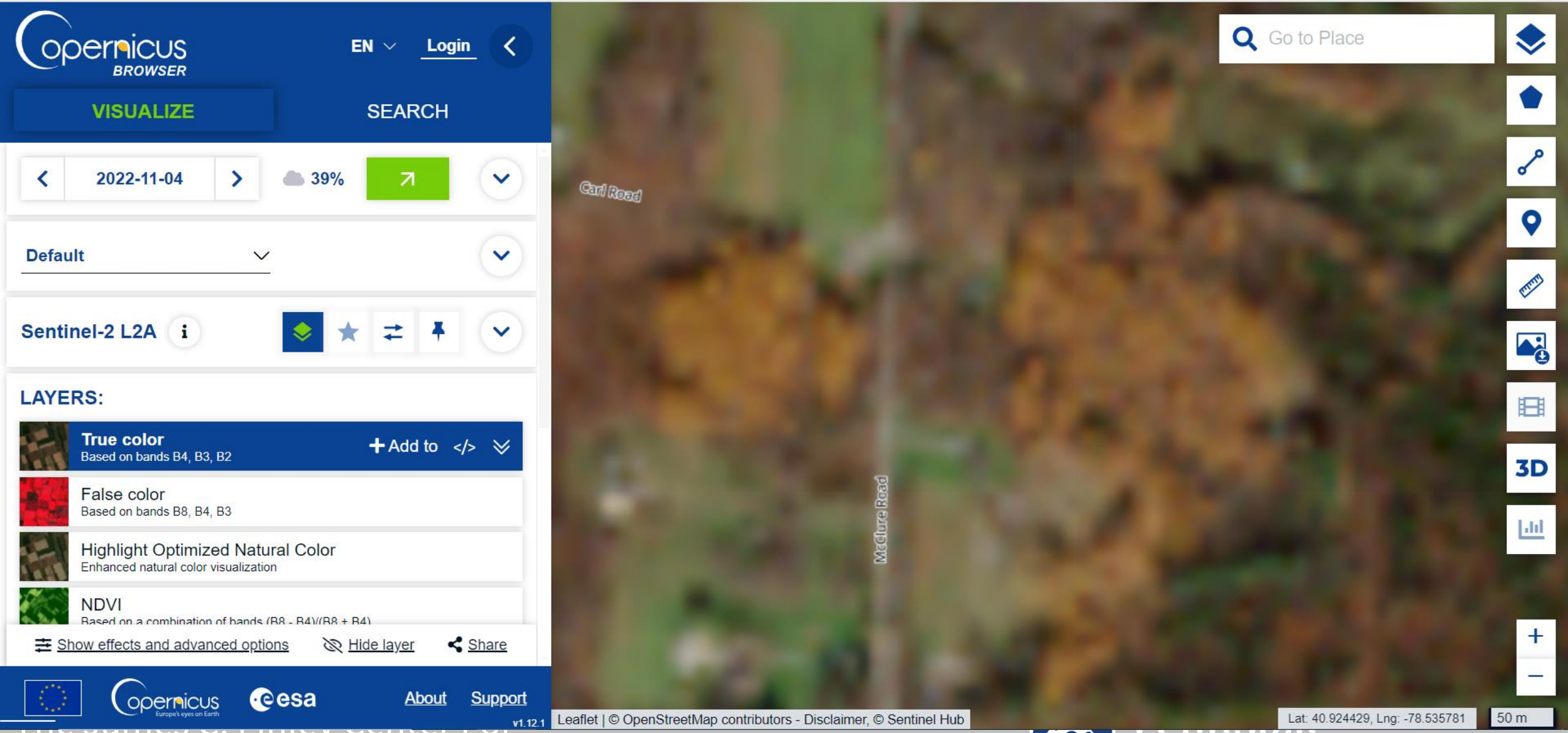
Leaf-off or foliage color change time for different species- yellow-orange= larch plantation



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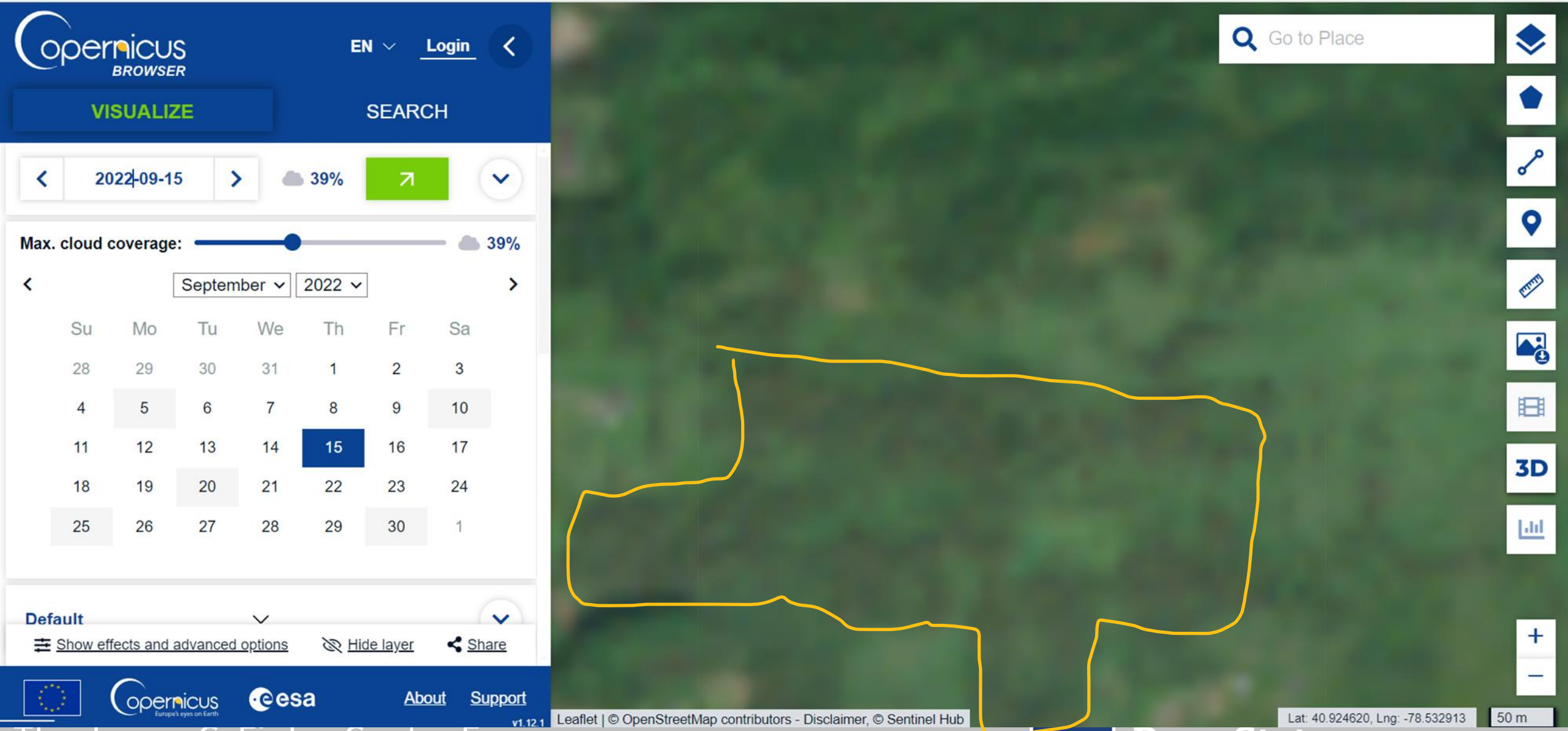
Leaf pests for different species- Black locust leaf miner- worse year, more brown



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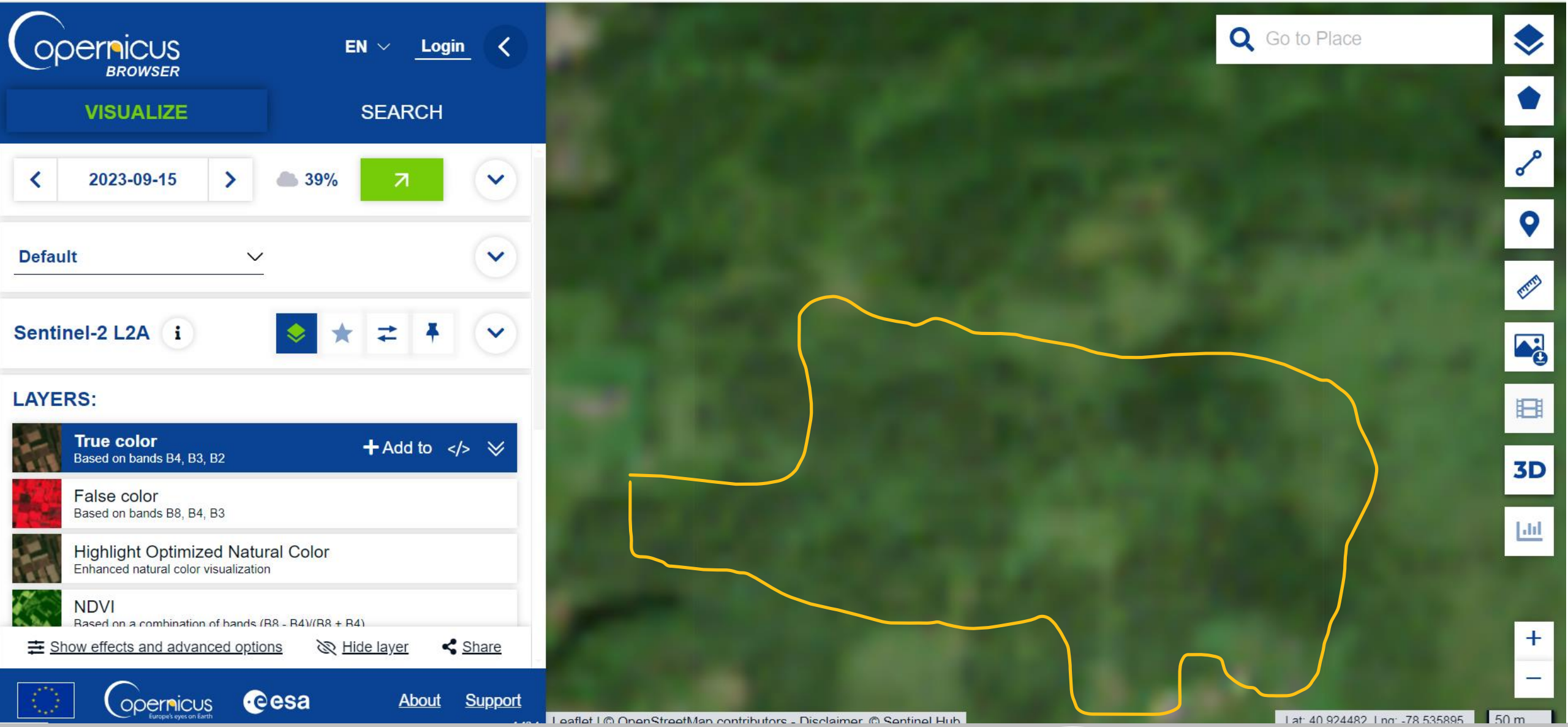
Better year, less brown



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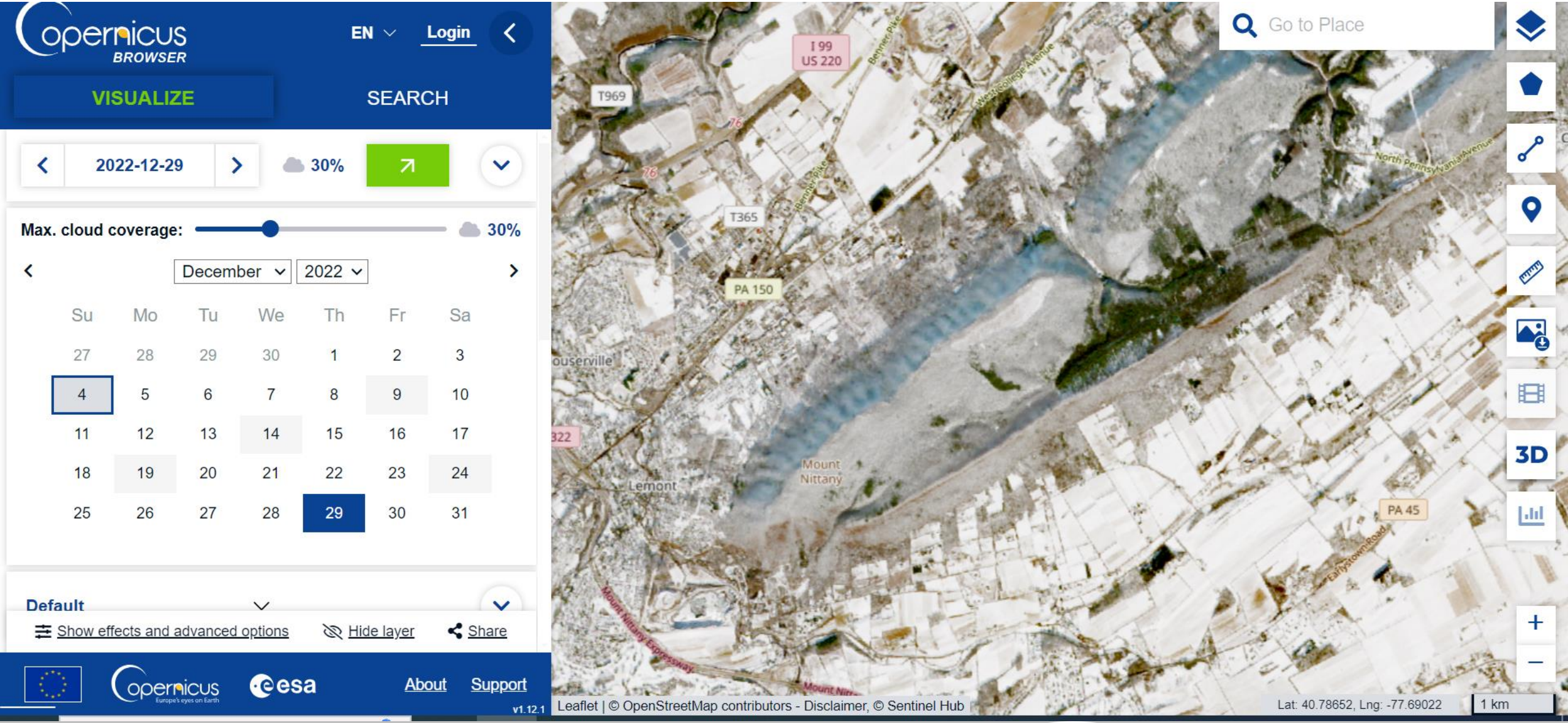
Snow cover



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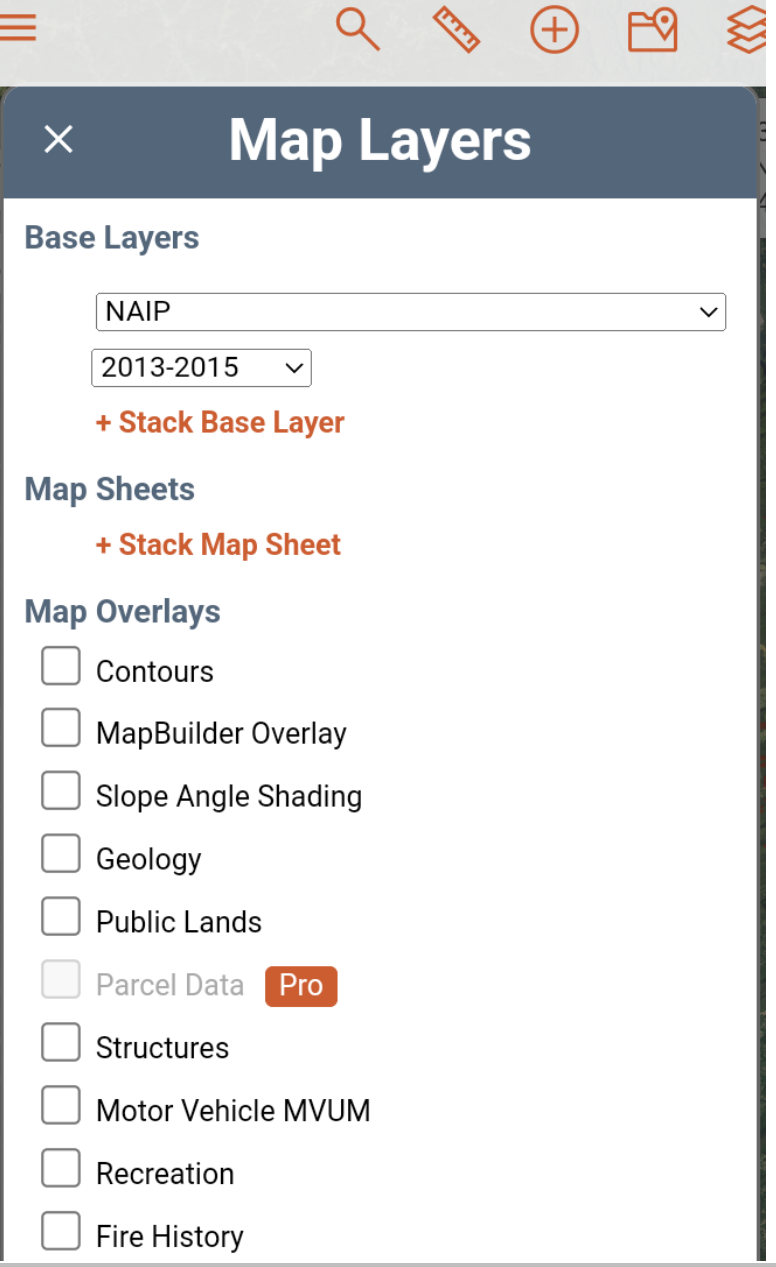
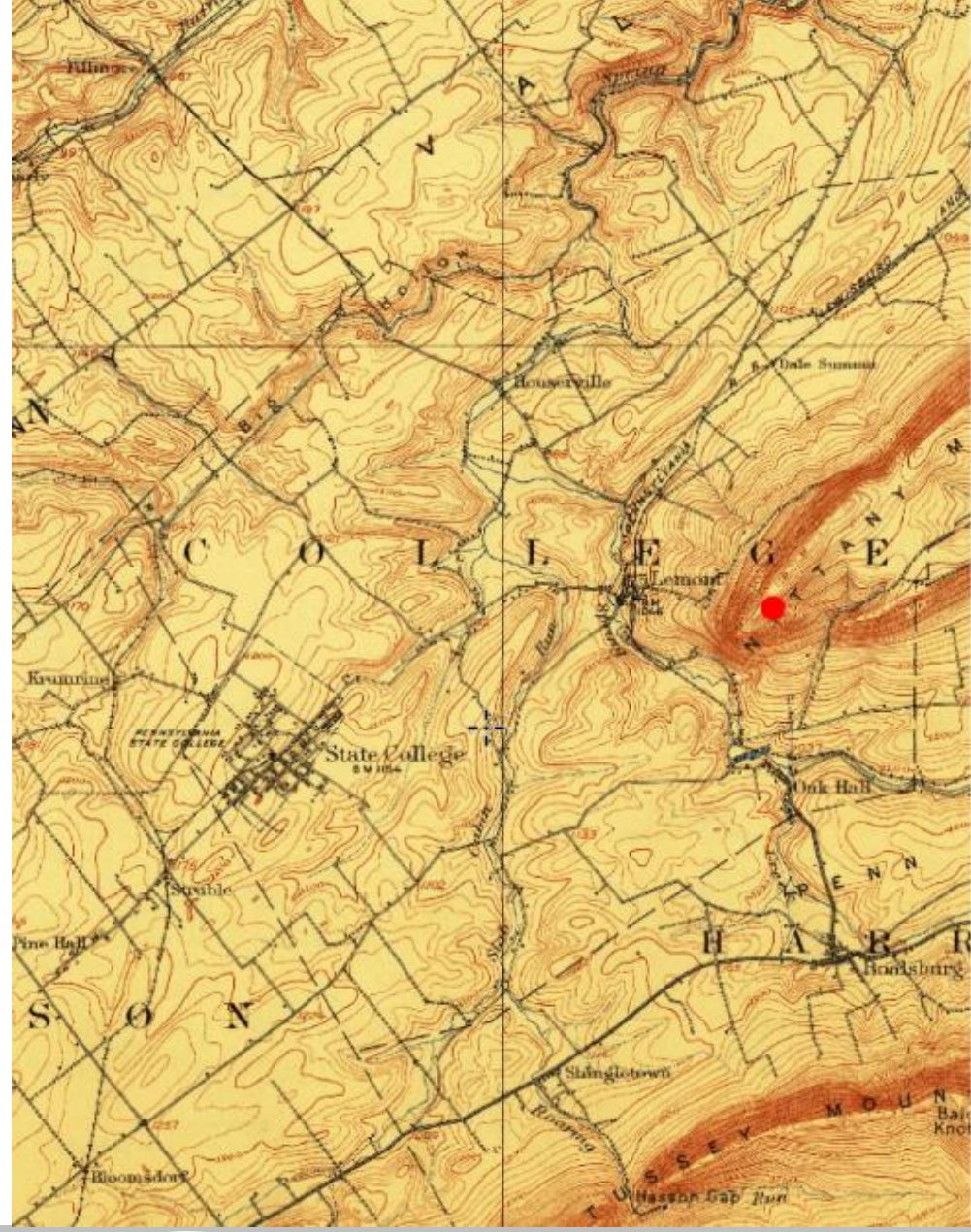
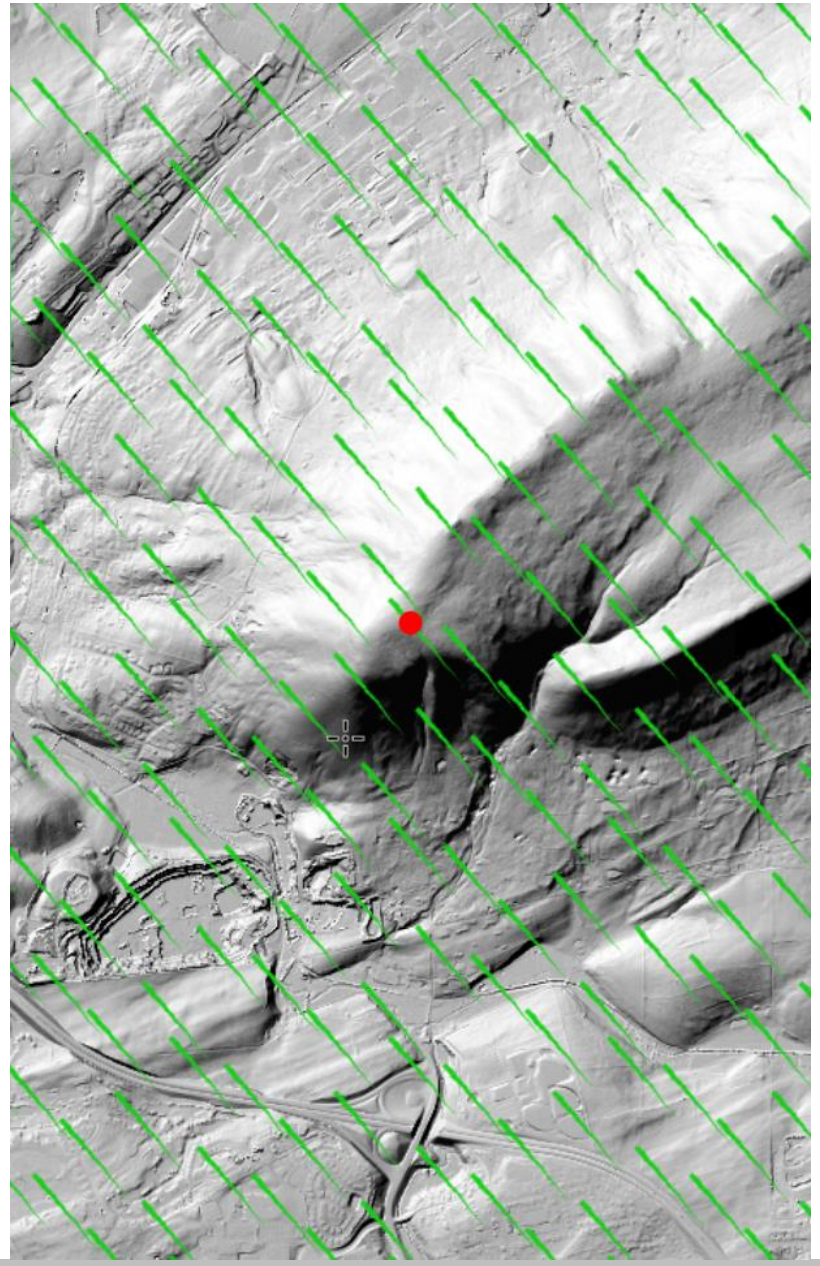
Historic Topographic map
1915

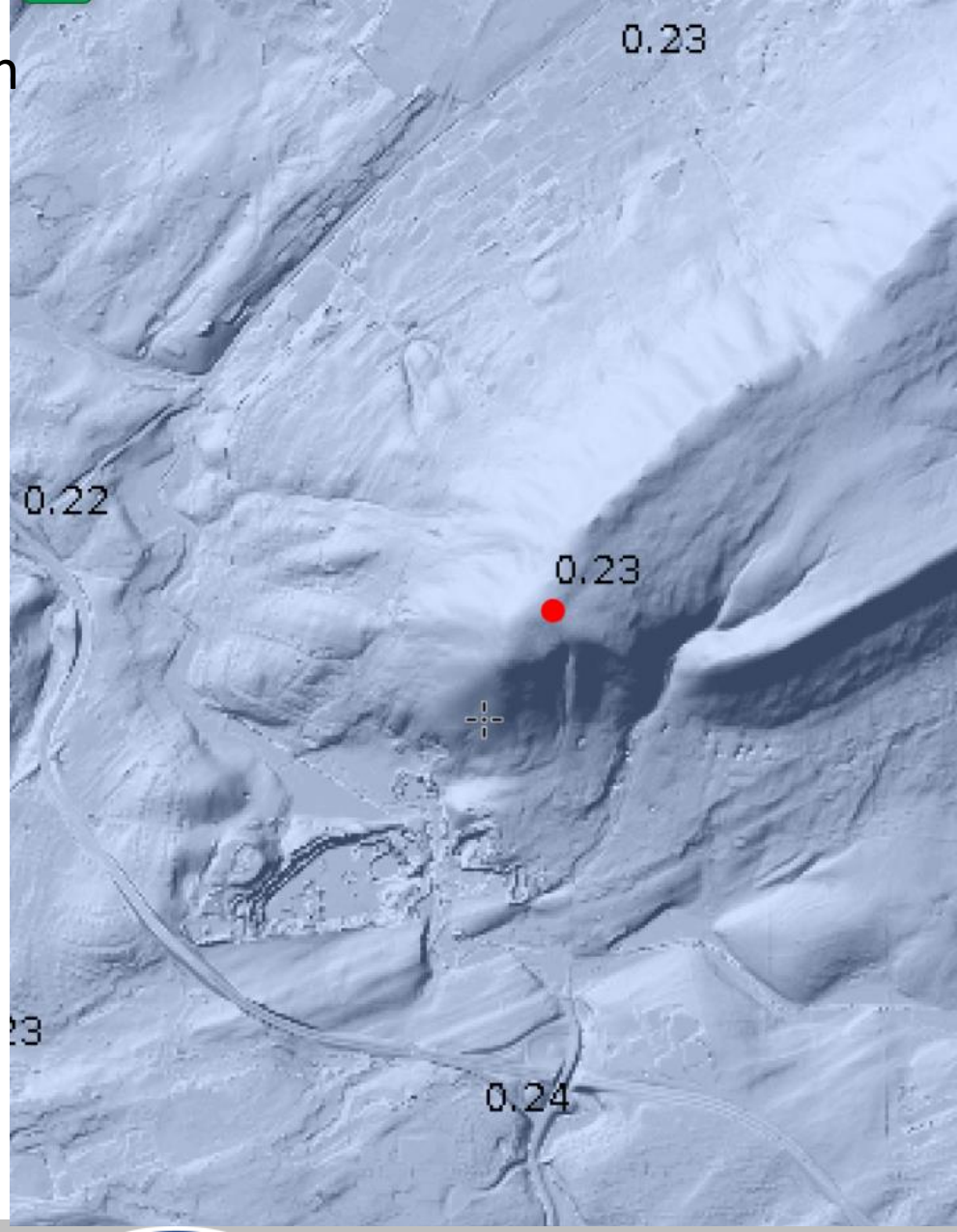




Wind Speed and Direction, Current and Forecast

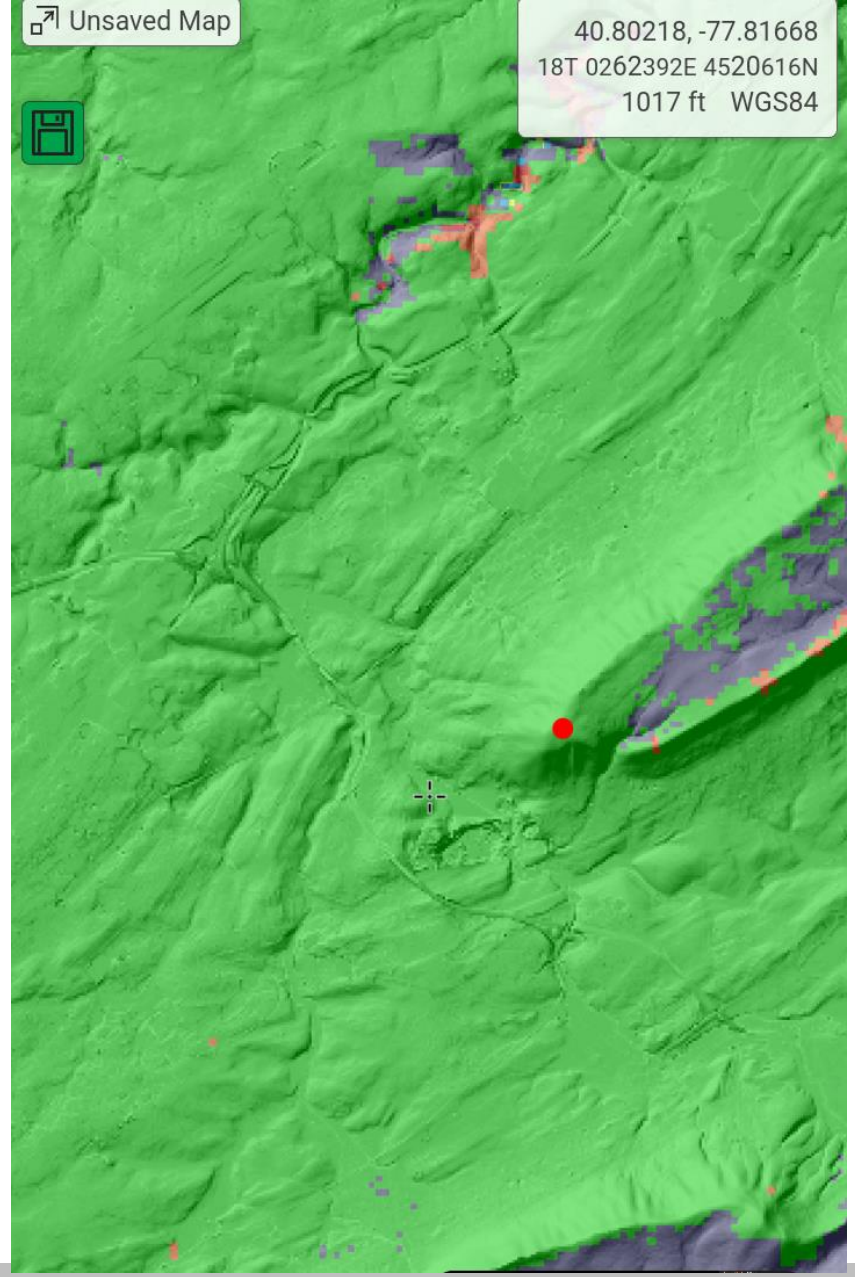


Precipitation Forecast



Cell Coverage

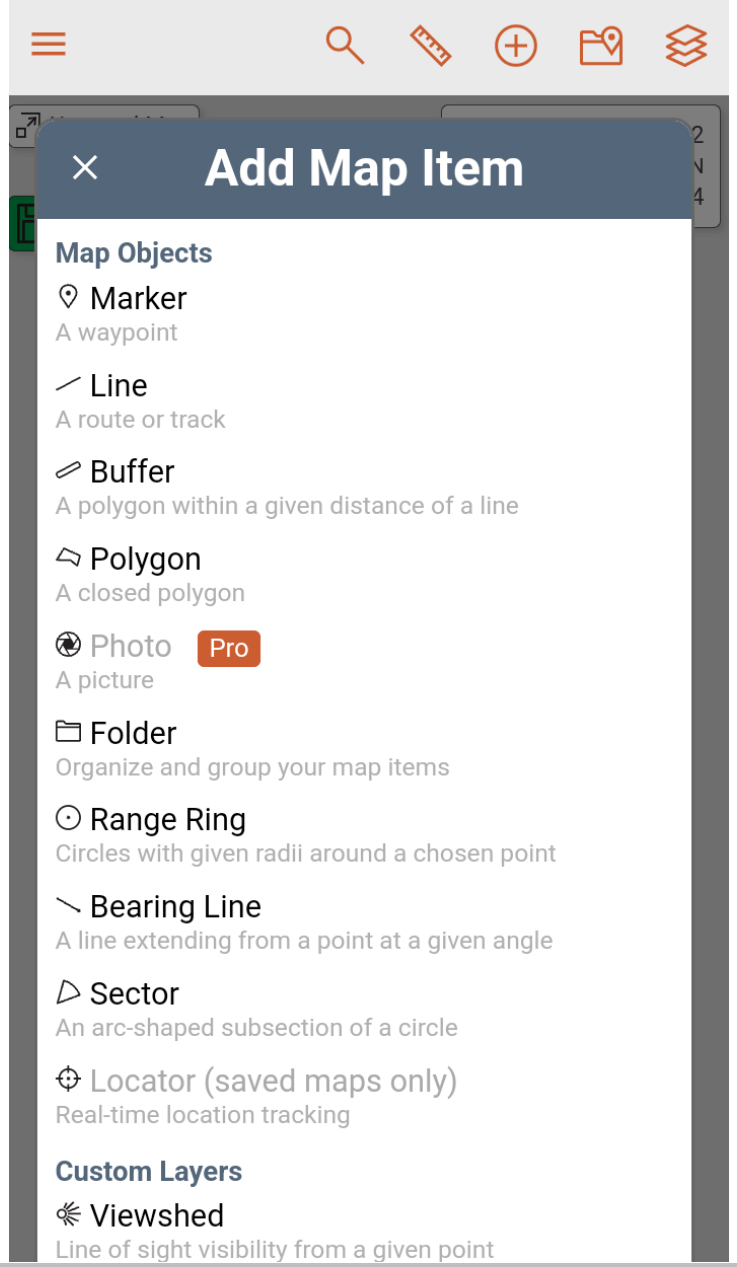
- AT&T
- T-Mobile
- Version



Sunlight

Time of day and year (November at 8:30 AM)

Viewshed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A waypoint
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A route or track
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A polygon within a given distance of a line
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Bearing Line
A line extending from a point at a given angle
Sector
An arc-shaped subsection of a circle
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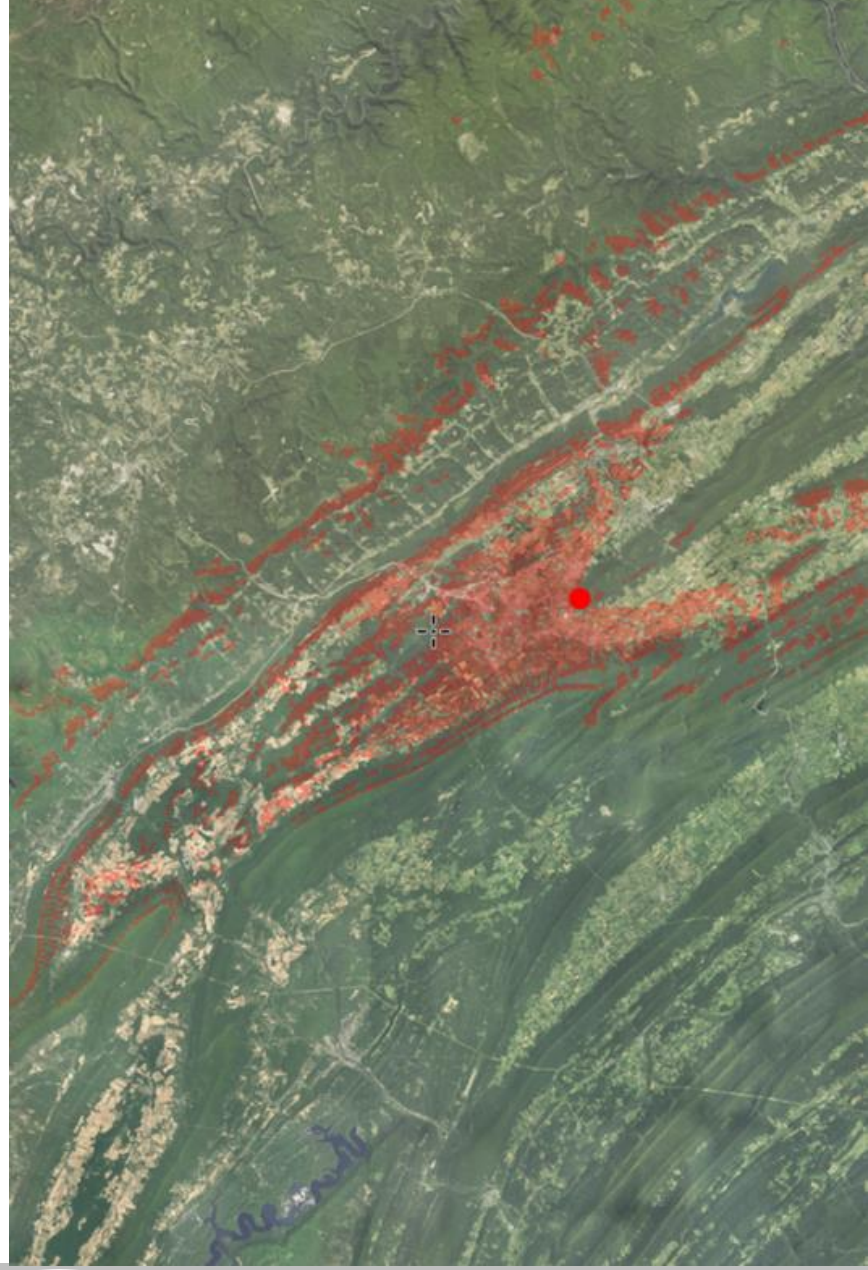
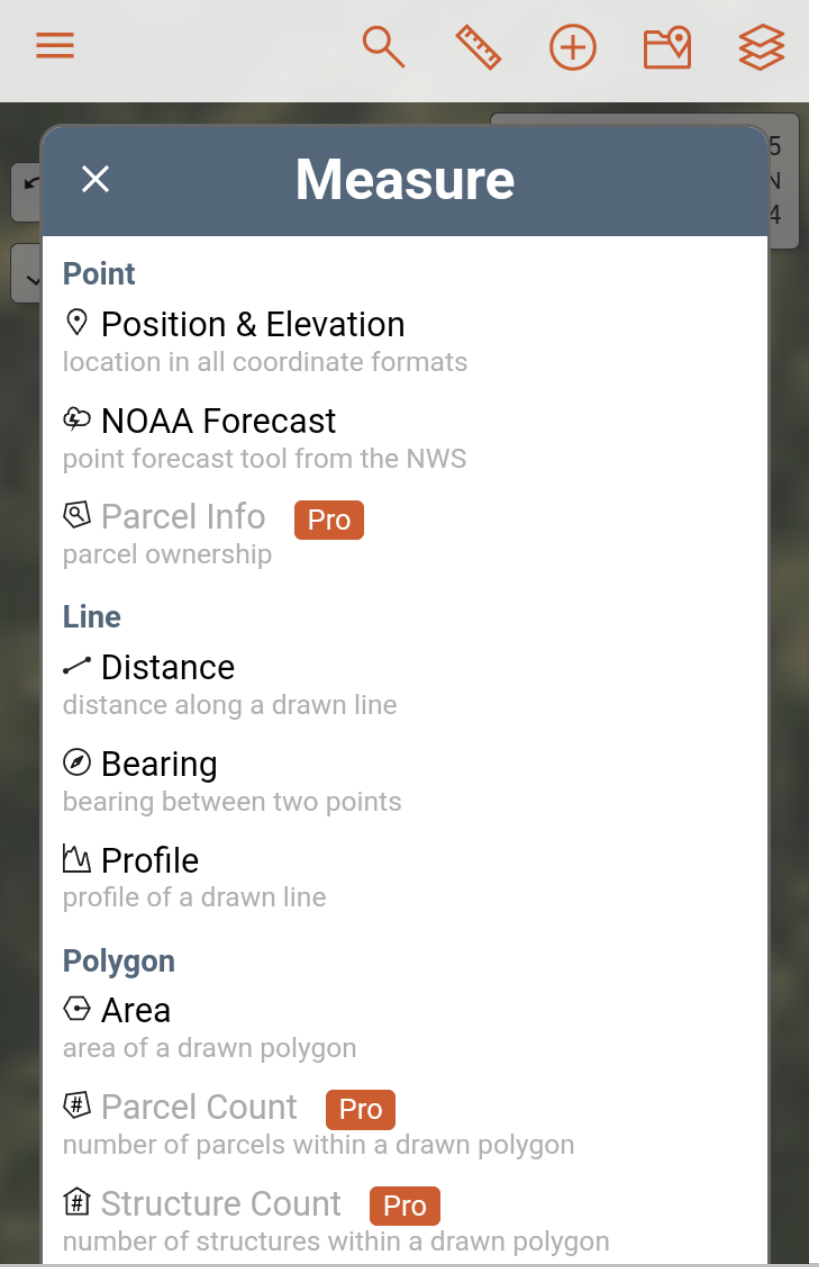
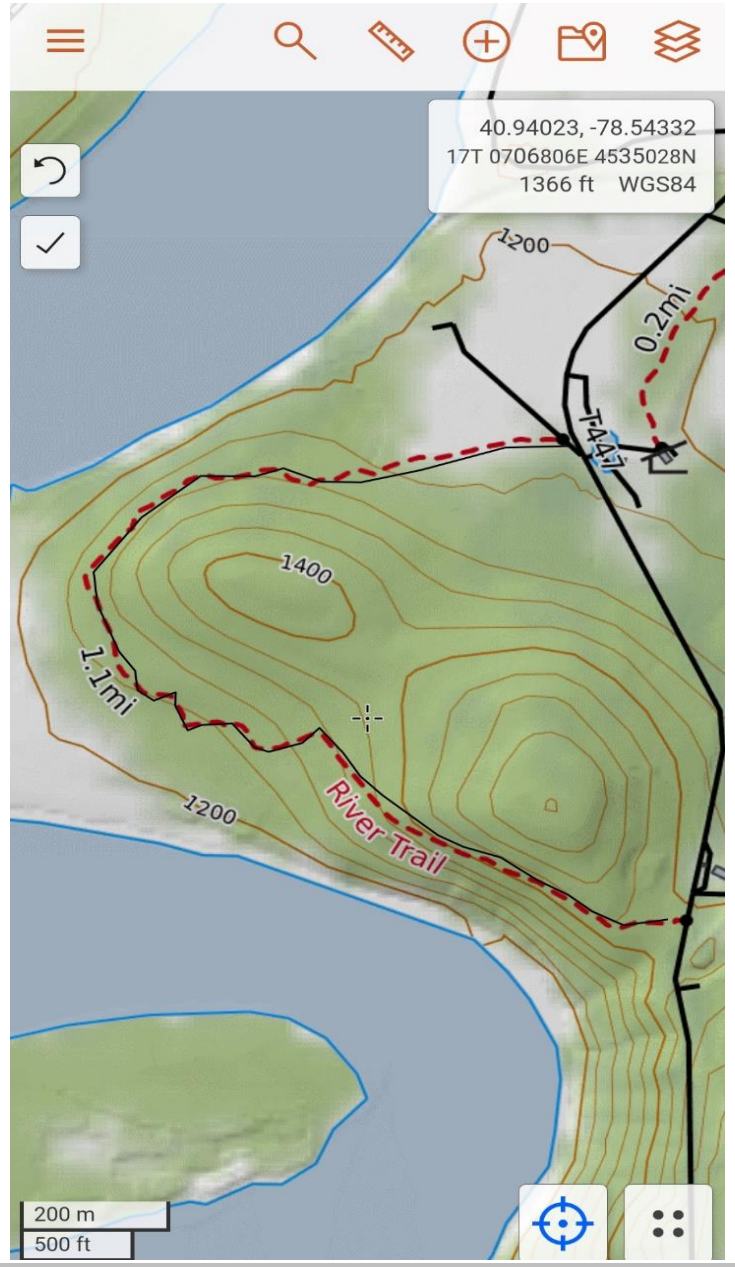
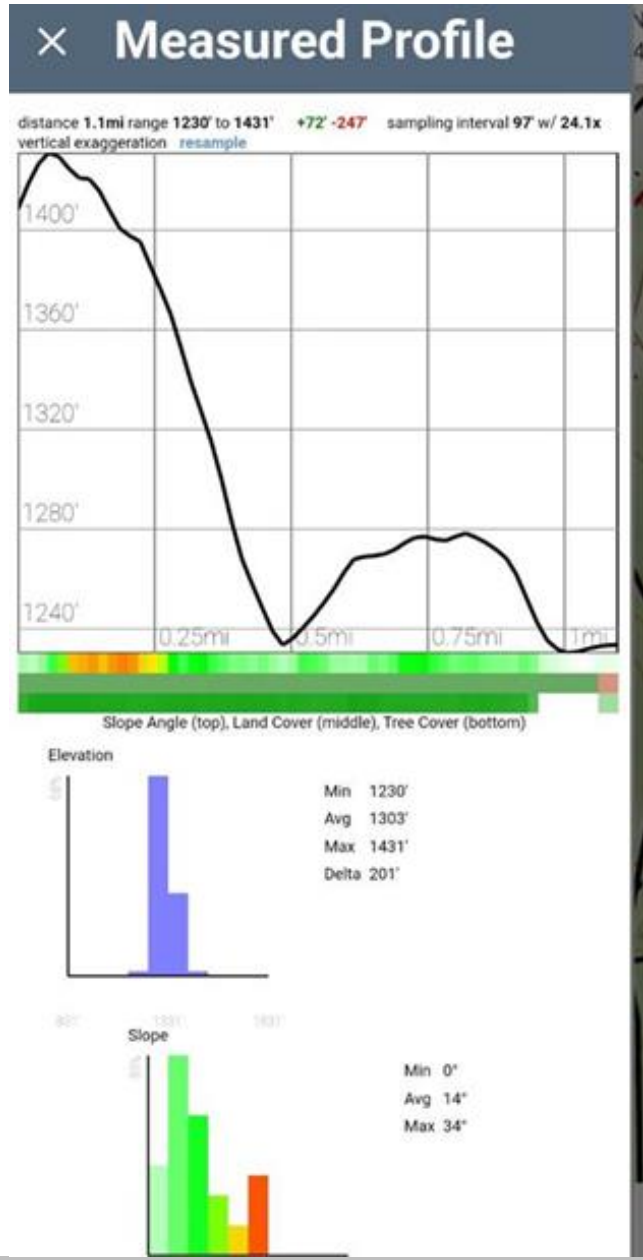
Custom Layers
Viewshed
Line of sight visibility from a given point









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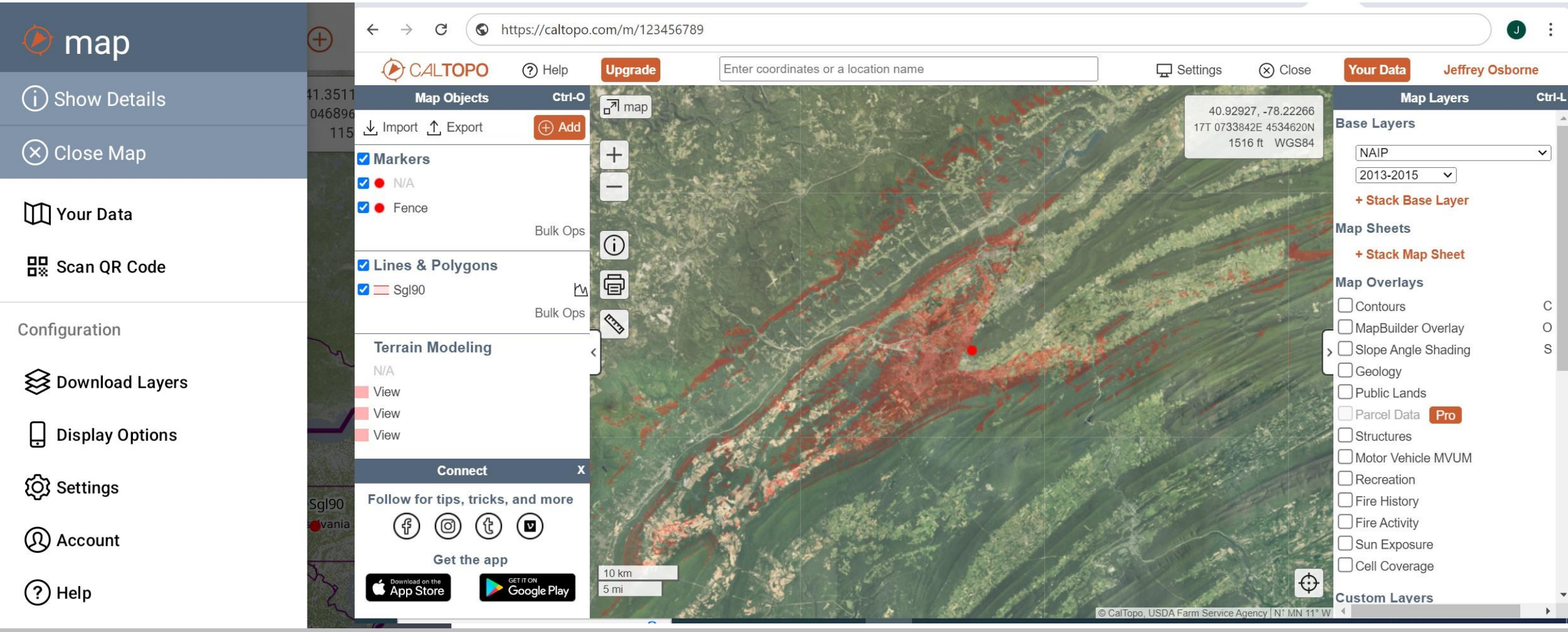
Share map and open on computer



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Questions?

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