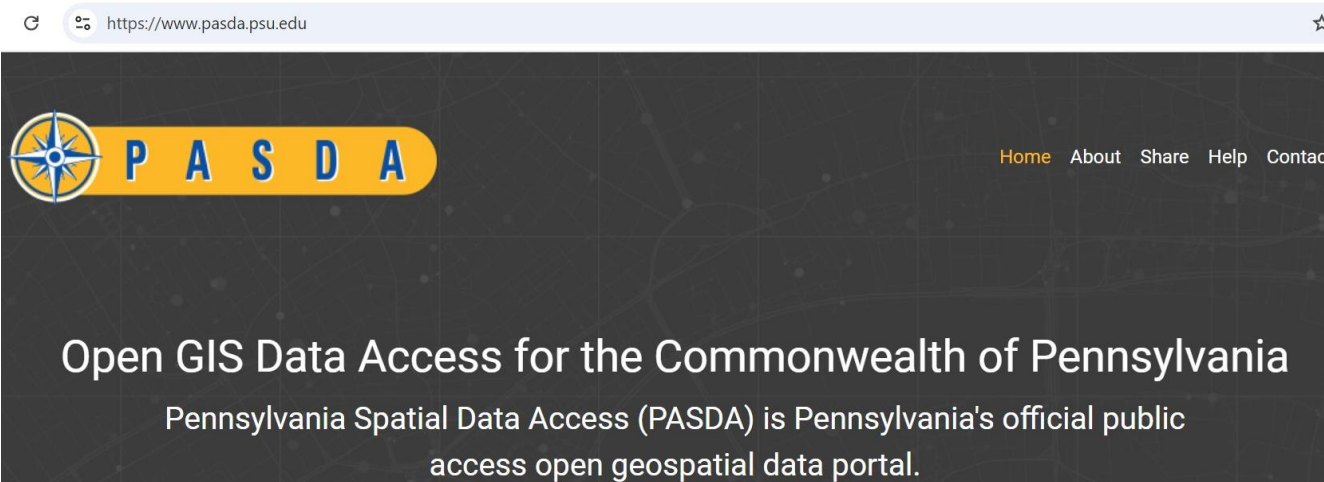
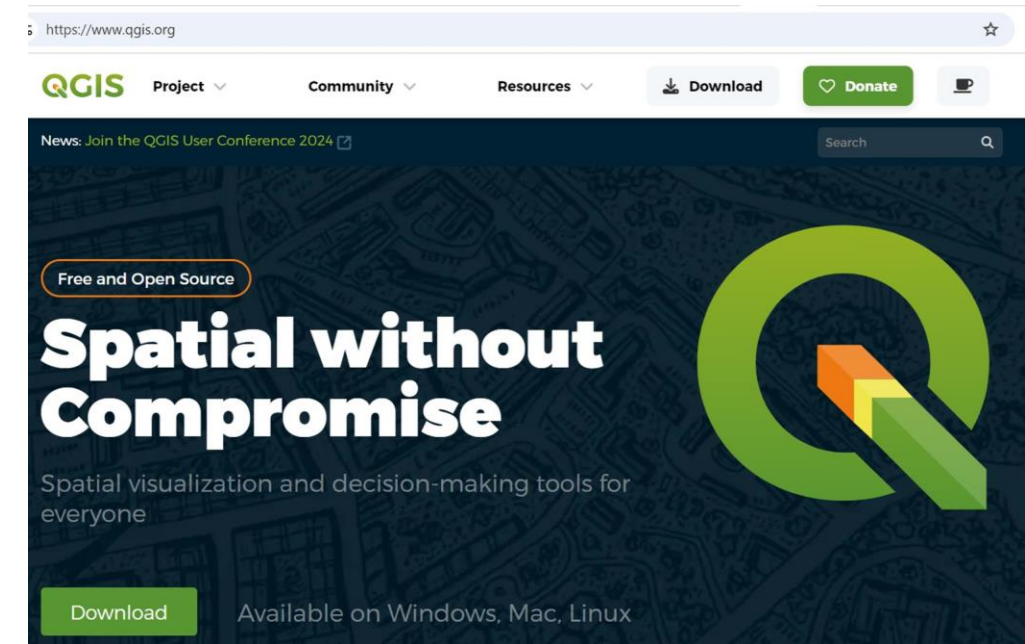
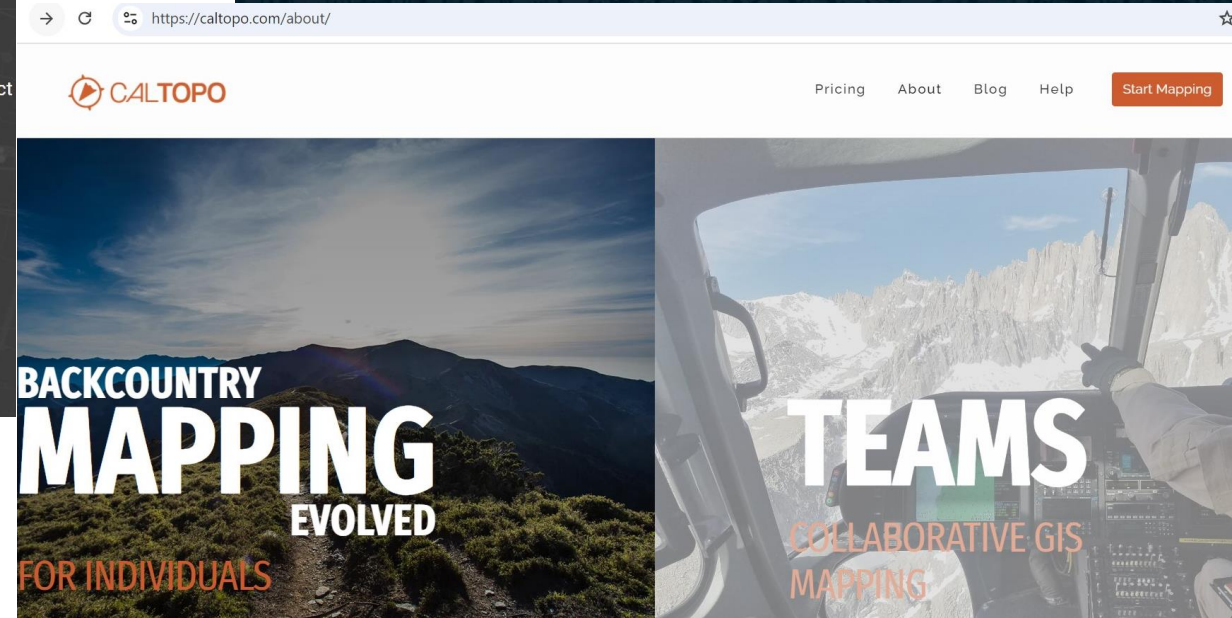


Practical Application

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



Jeff Osborne
Forest Stewardship Program Specialist
jao5194@psu.edu



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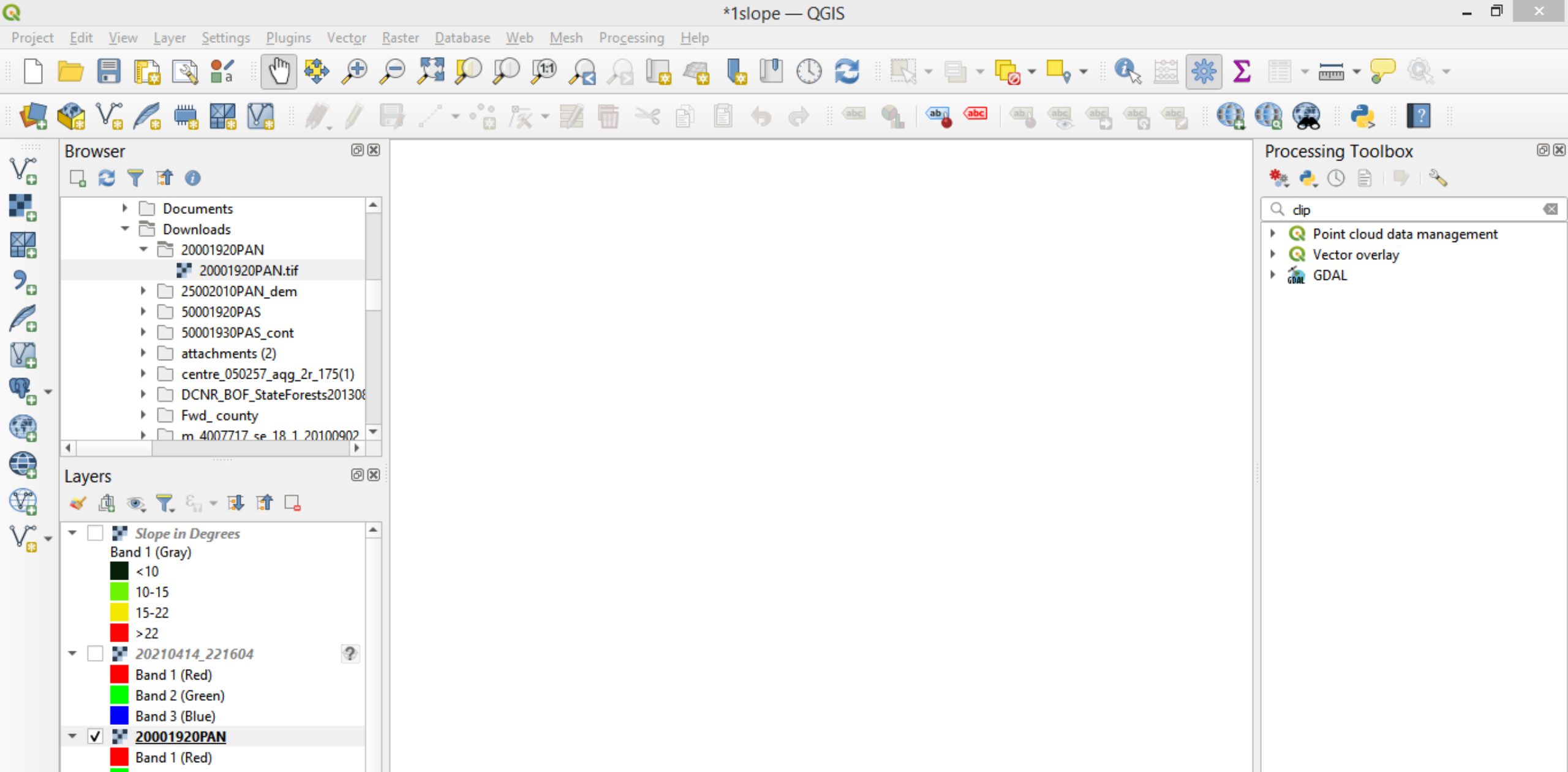
Available on Windows, Mac, Linux



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PASDA (Pennsylvania Spatial Data Access)

← → ↻ 🔍 https://www.pasda.psu.edu ☆ 👤 ⋮


Apps & Tools




PA Imagery Navigator




PA Atlas




PA Mine Map Atlas



PA LiDAR Navigator




PA Flood Risk




Penn Pilot


Data Shortcuts




Imagery




Lidar & Elevation




Hydrology




Transportation




Boundaries




Recreation




Biota



Energy



Non-Govt Organizations



Local Government



| Date | Title | Provider |
|------|---|------------------|
| 2010 | <p>Allegheny County - Greenways</p> <p>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).</p> <p>Metadata Download Preview KMZ Spreadsheet Add to ArcMap: Image or Feature Add to ArcGIS Pro More Options...</p> | Allegheny County |
| 2000 | <p>Allegheny County - NWI (National Wetlands Inventory)</p> <p>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.</p> <p>Metadata Download Preview KMZ Spreadsheet Add to ArcMap: Image or Feature Add to ArcGIS Pro More Options...</p> | Allegheny County |
| 2024 | <p>Cambria County Address Points</p> <p>This dataset contains wetlands in Cambria County.</p> <p>Metadata Download Preview KMZ Spreadsheet GeoJSON Add to ArcMap: Image or Feature Add to ArcGIS Pro More Options...</p> | Cambria County |
| 2024 | <p>Cambria County Parcels</p> <p>This dataset contains wetlands in Cambria County.</p> <p>Metadata Download Preview KMZ GeoJSON Add to ArcMap: Image or Feature Add to ArcGIS Pro More Options...</p> | Cambria County |



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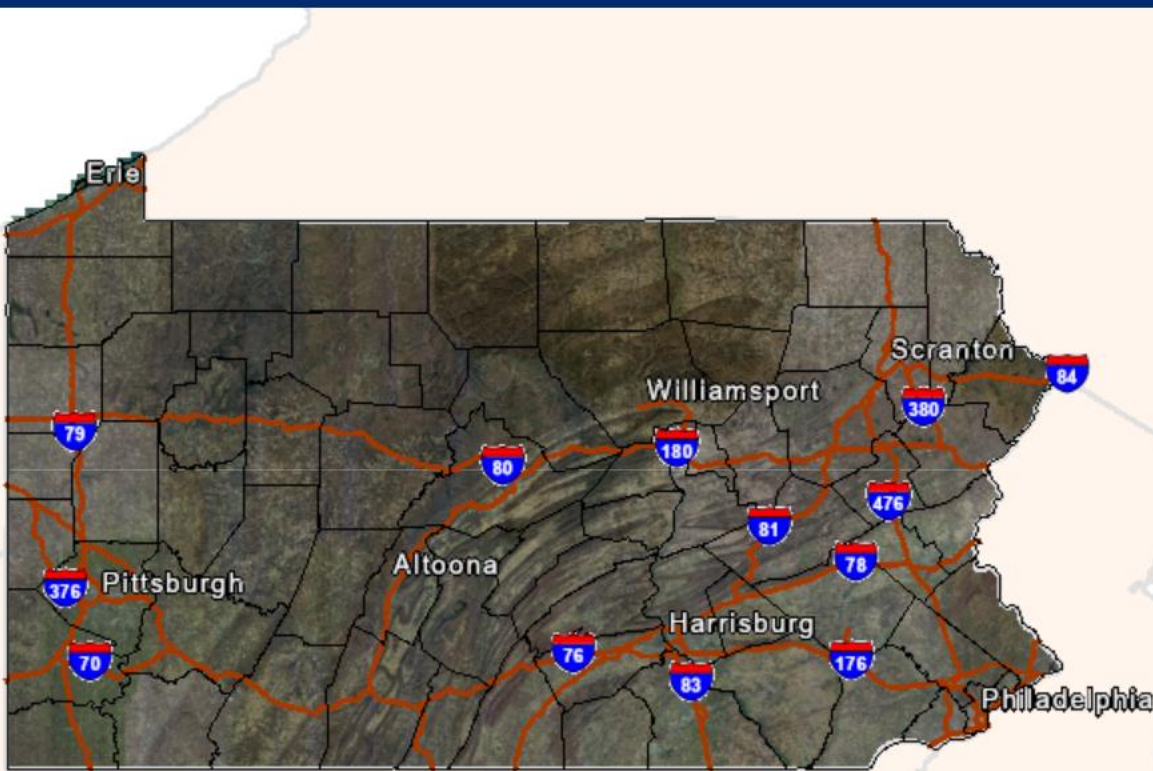
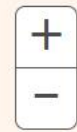
Display Imagery:
Statewide 2018 - 2020

Display Tile Index:
None

Display Overlays:
☒ Roads, Places, etc

Find a County:

Find an Address: (Street , Zip)
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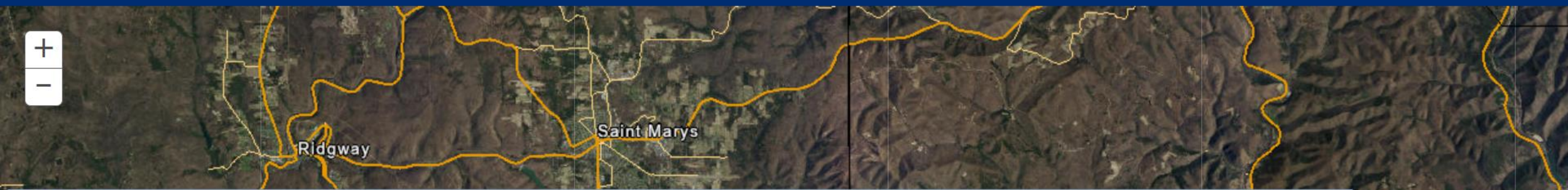
Display Imagery:
Statewide 2018 - 2020

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-'42Lidar, Topo

Click a Tile ID to see its location on the map (Total features returned: 1)

| Show Tile Extent | Source | Metadata | Display On Map | TIFF | MrSID | JPG2000 |
|--------------------------------|---------------------------|--|----------------------|--------------------------|-------|--------------------------|
| BRANDY CAMP NE | USDA NAIP | Statewide Infrared & Natural Color 4-band (1m) | View | download | n/a | download |

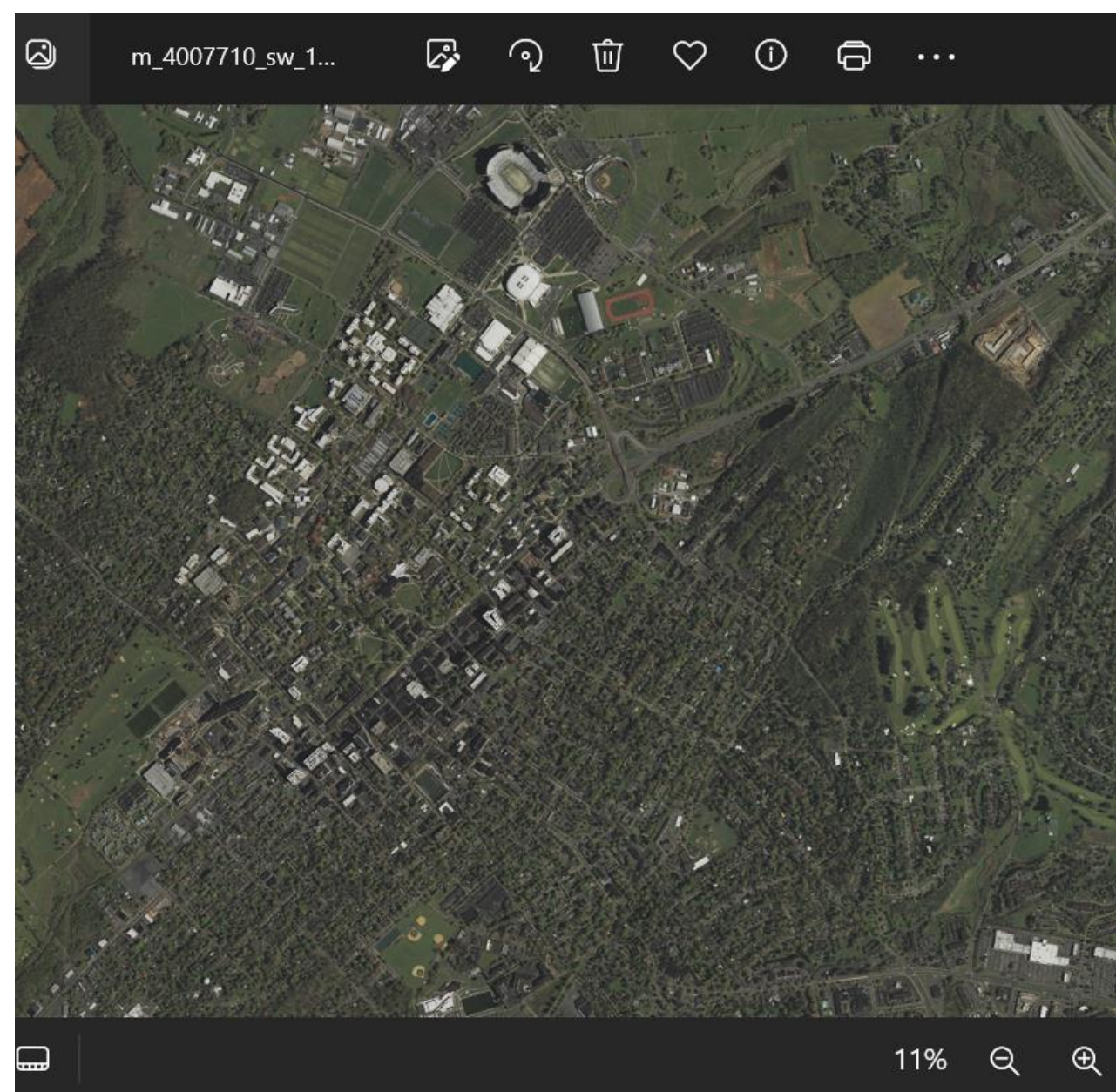
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TIFF File

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



+

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Penn Pilot

Historical Aerial Photographs of Pennsylvania

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Layers

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☒ Penn Pilot 1940s (1937 to 1942) >

☒ Penn Pilot 1950s (1946 to 1952) >

☐ DVRPC Imagery 1959

☒ Penn Pilot 1960s (1956 to 1960) >

☐ DVRPC Imagery 1965

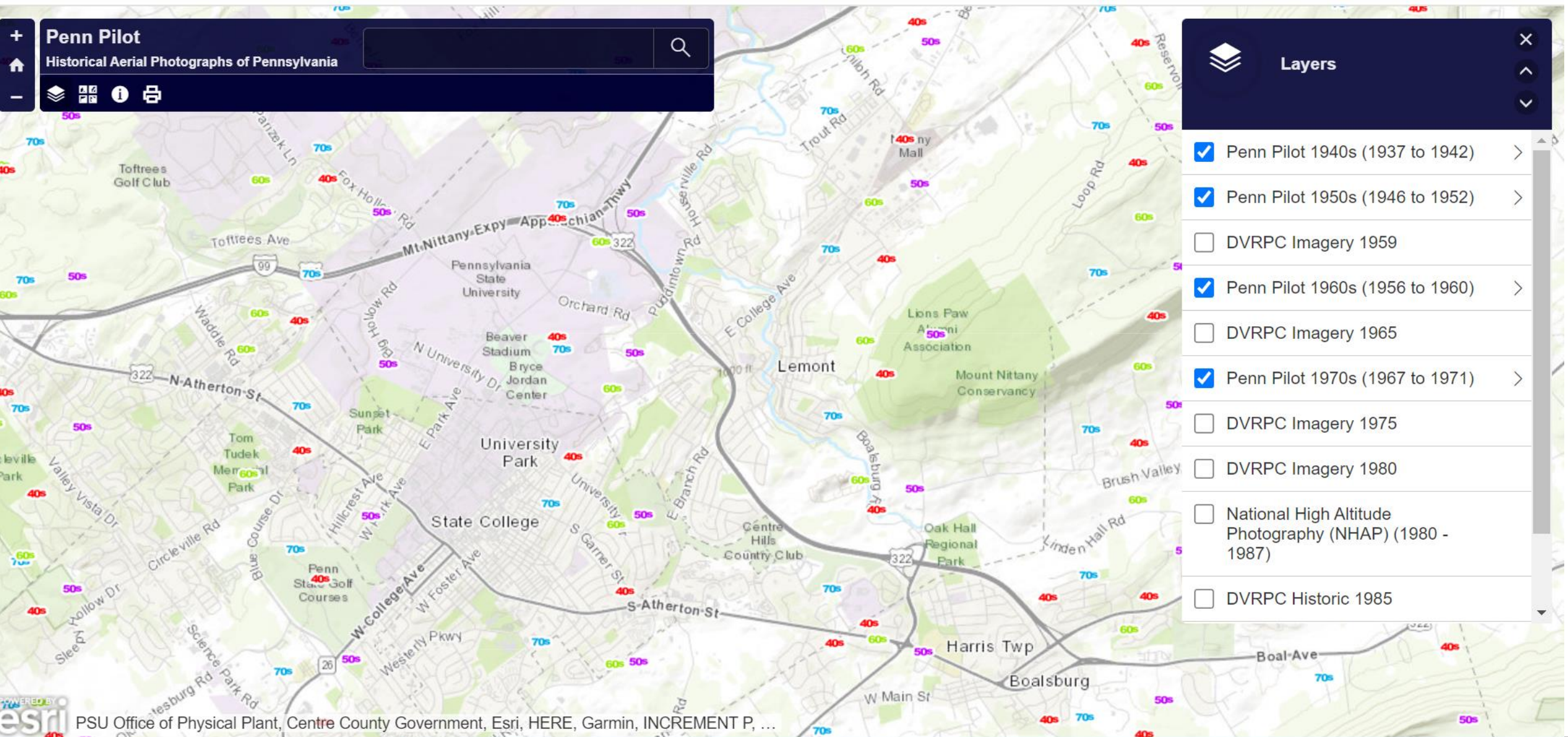
☒ Penn Pilot 1970s (1967 to 1971) >

☐ DVRPC Imagery 1975

☐ DVRPC Imagery 1980

☐ National High Altitude Photography (NHAP) (1980 - 1987)

☐ DVRPC Historic 1985



1938



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1949



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1957

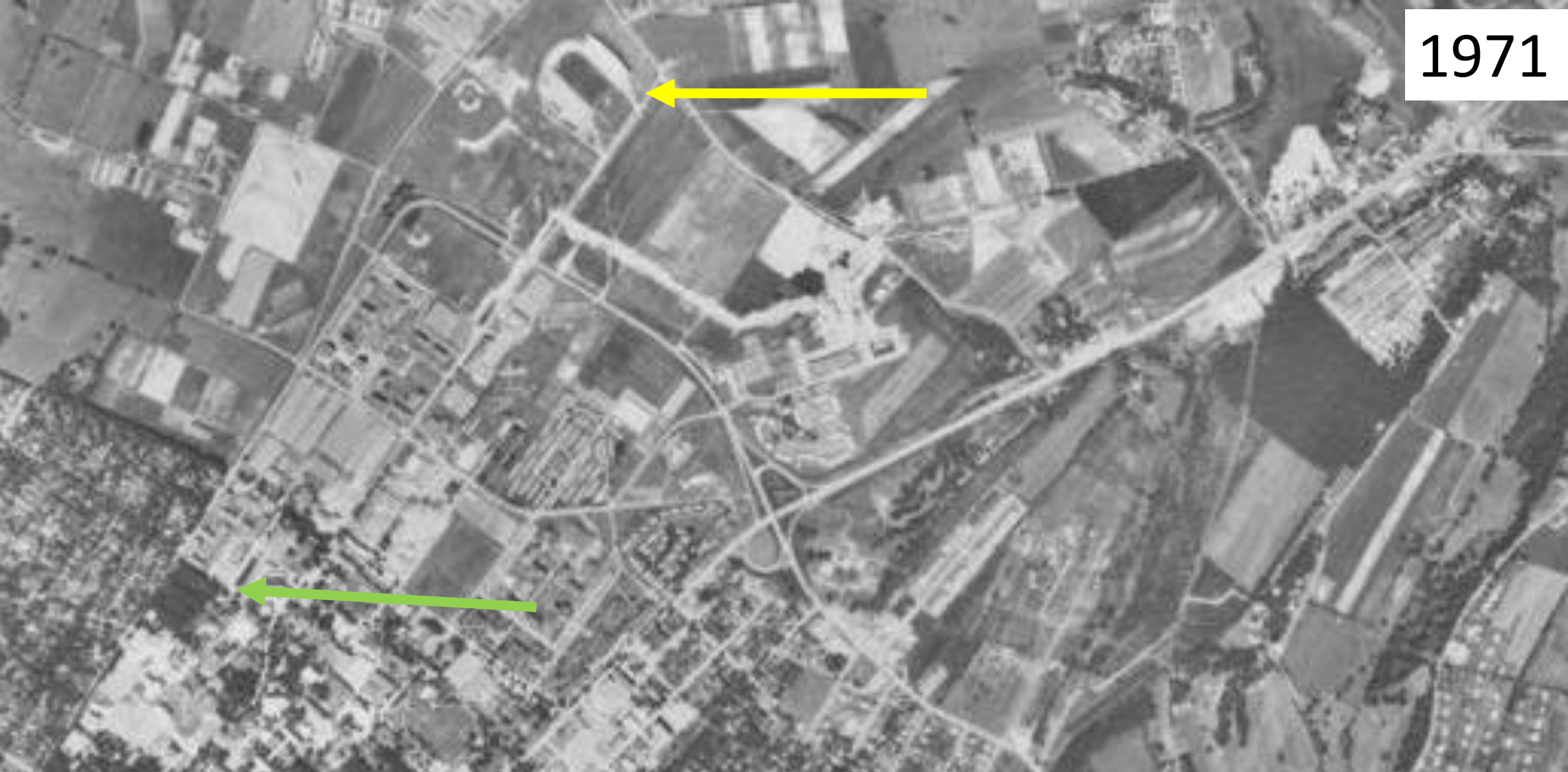


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Display Imagery:
Statewide 2018 - 2020

Display Tile Index:
None

Display Overlays:
☒ Roads, Places, etc

Find a County:

Find an Address: (Street , Zip)



PASDA Download Links

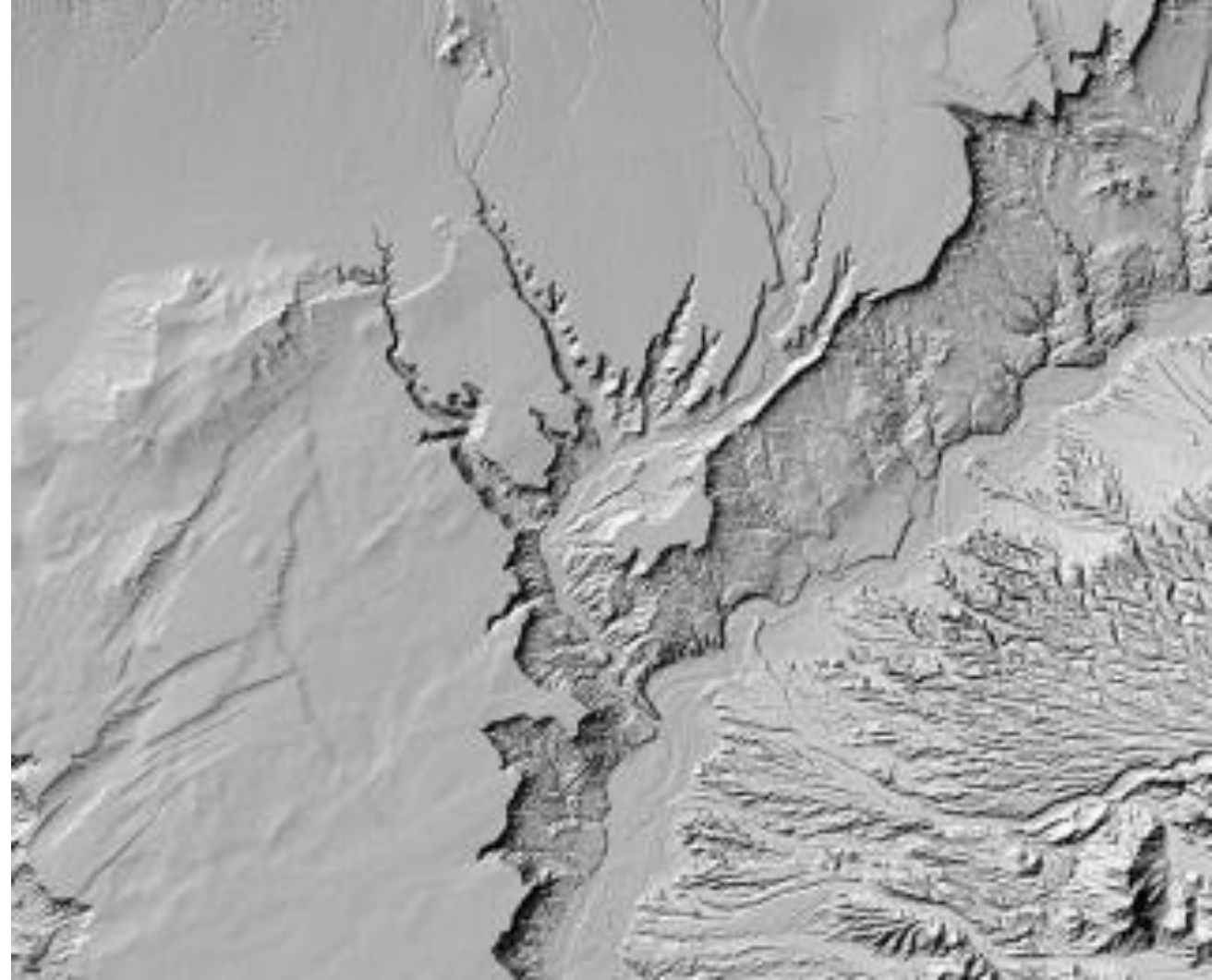
'21-'22' '19' '18' '17' '16' '15' '14' '13' '12' '11' '10' '09' '08' '07' '06' '05' '04' '03' '90-'00' '80-'87' '67-'72' '57-'62' '47-'52' '37-'42' **Lidar, Topo**

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 |

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

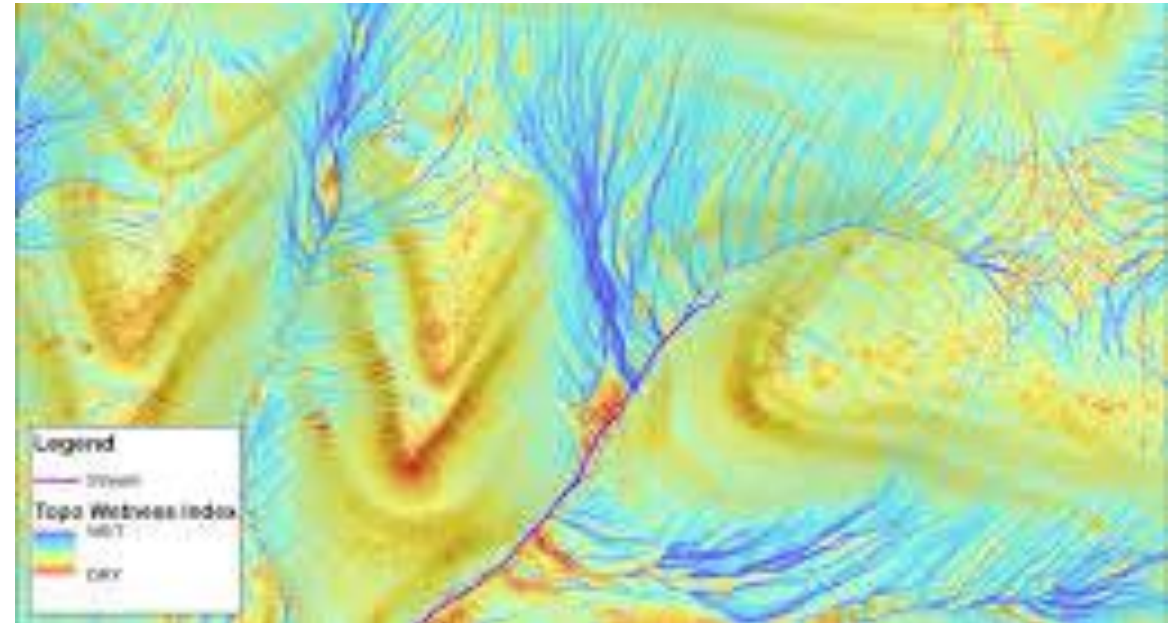
- Determine the area drained through a certain point
- Useful if you need to determine drained area for bridge permits



Topographic Wetness Index

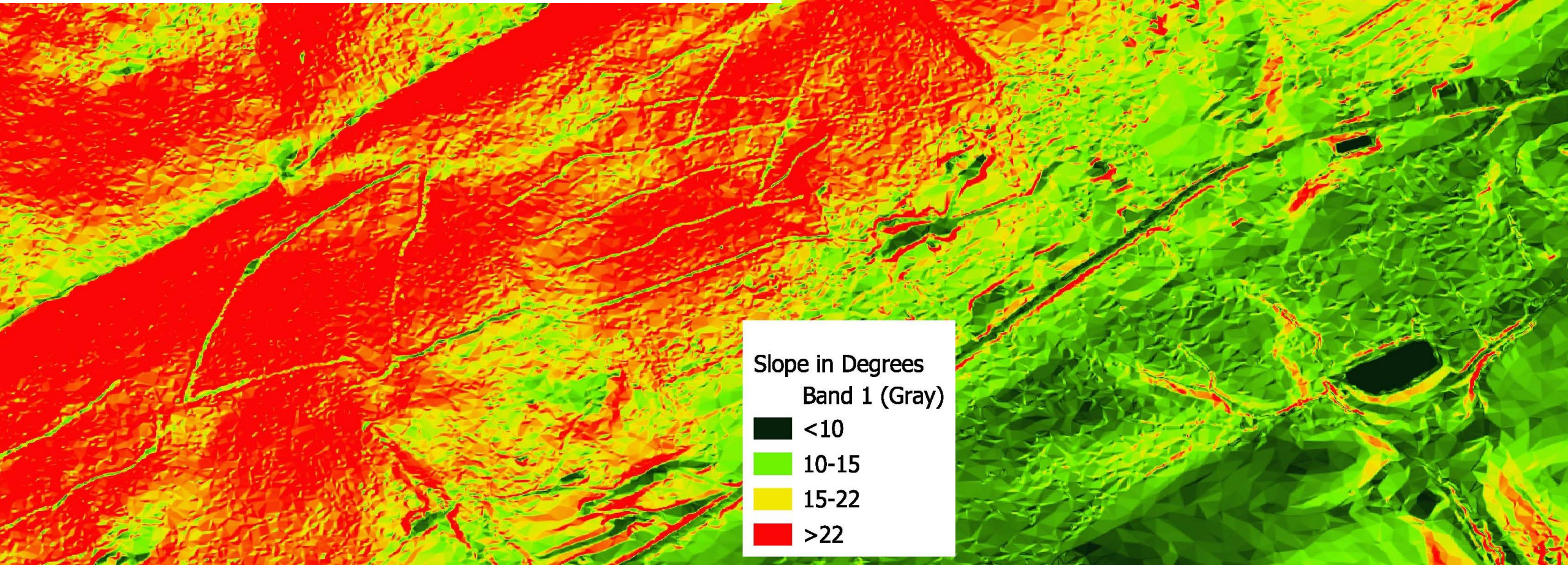
Predicts moisture of area.

Red dry, blue wet



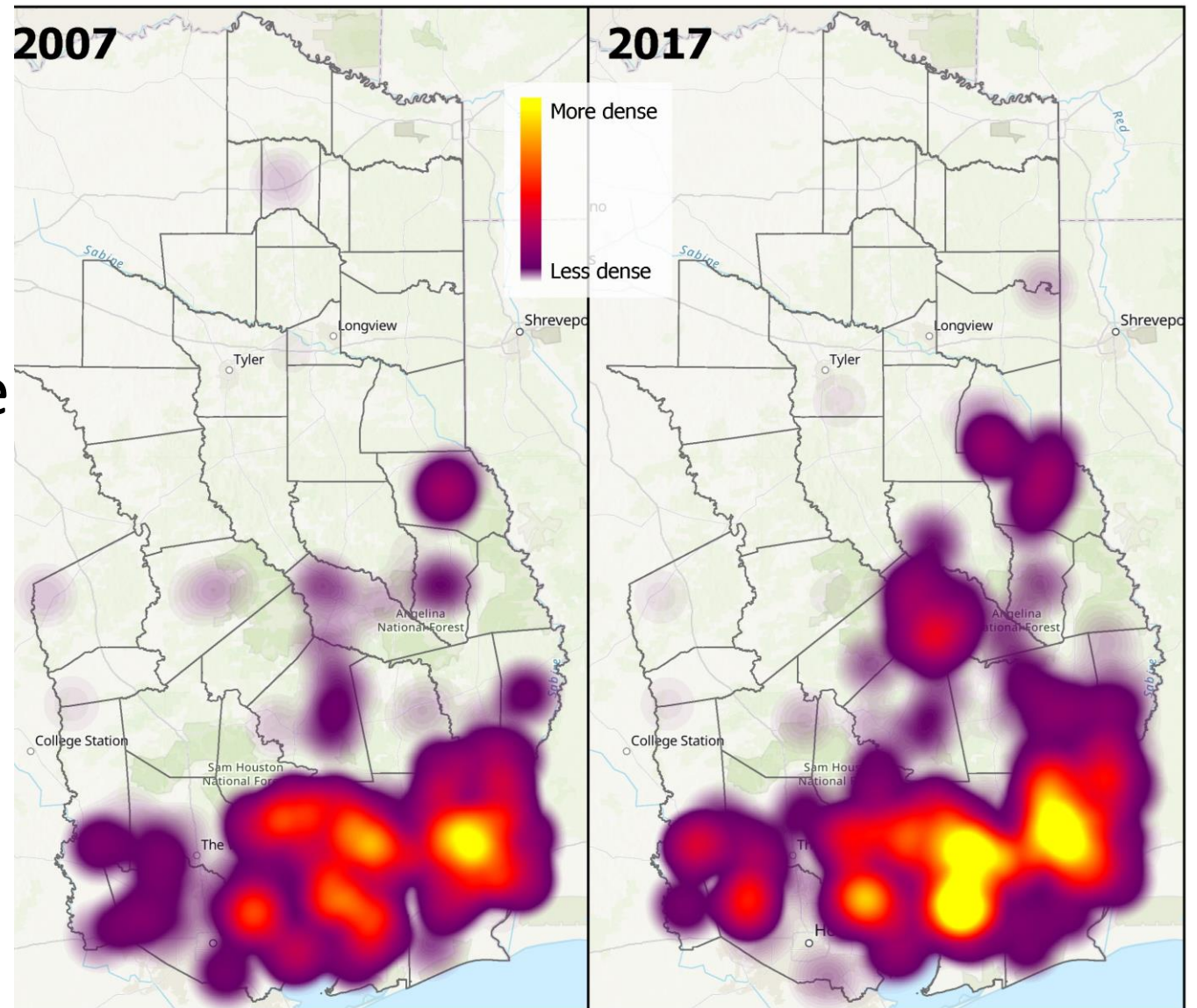
Slope Analysis

- 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



Frequent Lower Resolution Satellite Imagery- Copernicus Browser- Defoliation

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True color
Based on bands B4, B3, B2

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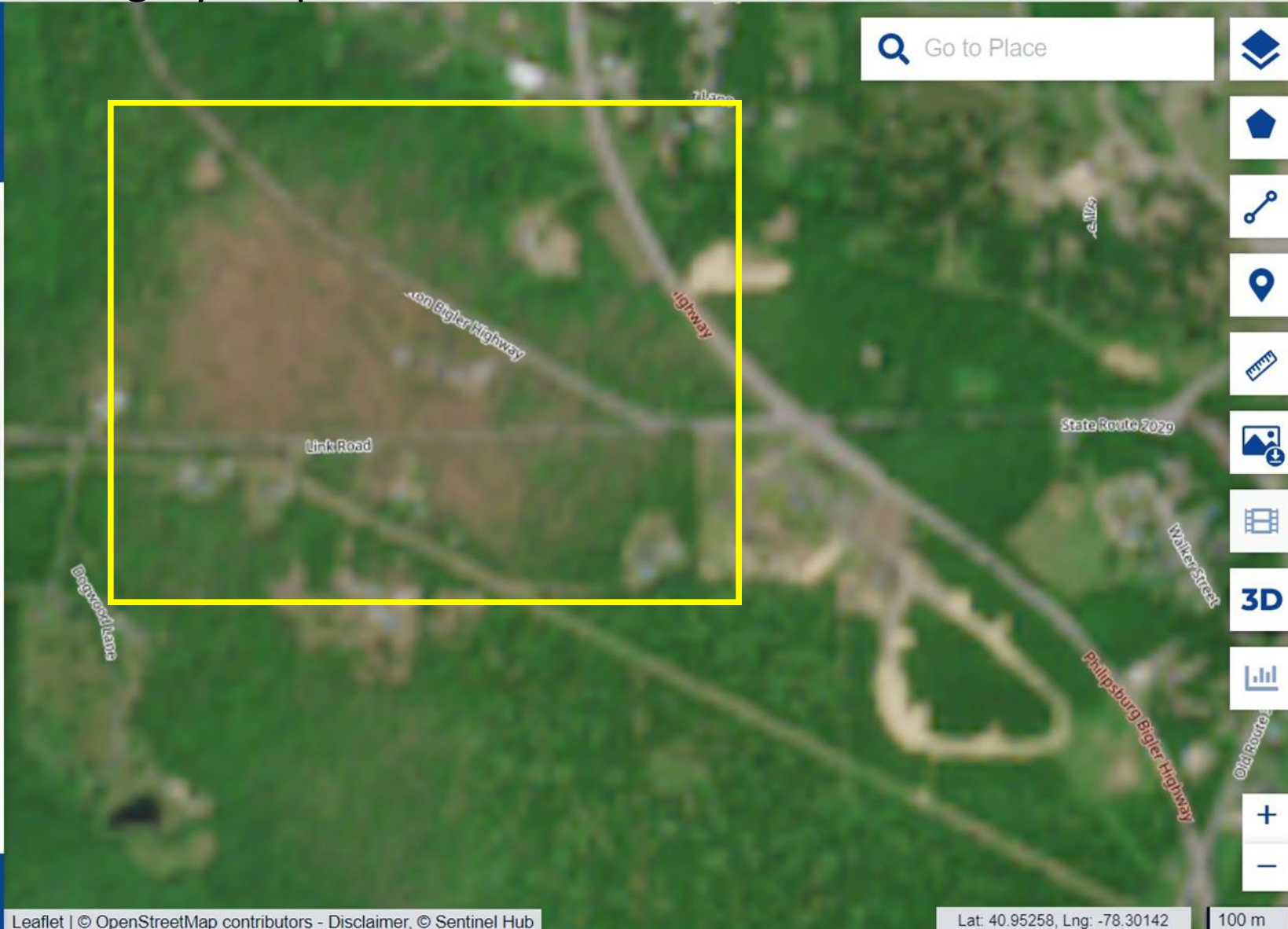
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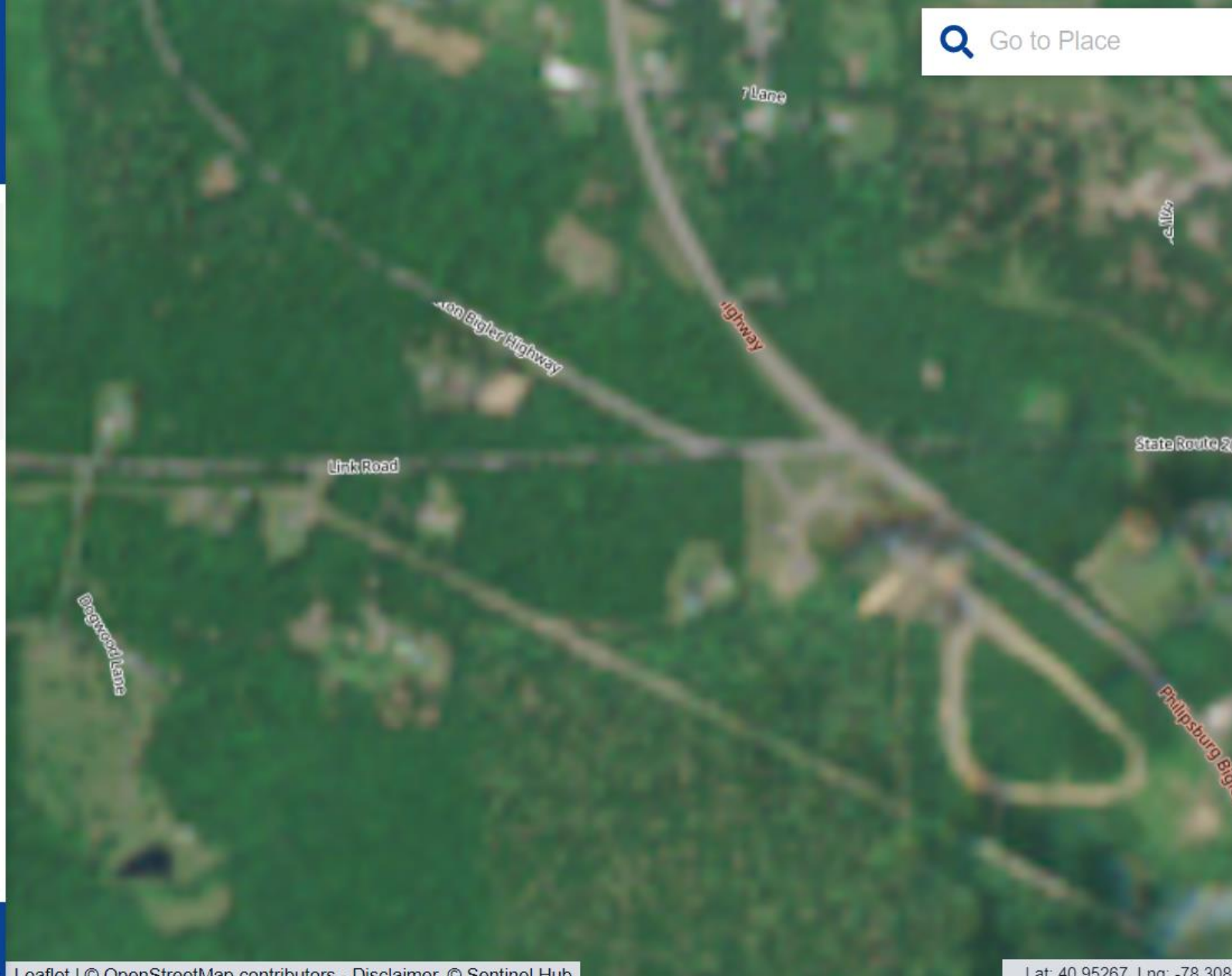
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
Based on bands B4, B3, B2

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False color

Based on bands B8, B4, B3



Highlight Optimized Natural Color


Enhanced natural color visualization




NDVI

Based on a combination of bands $(B8 - B4)/(B8 + B4)$

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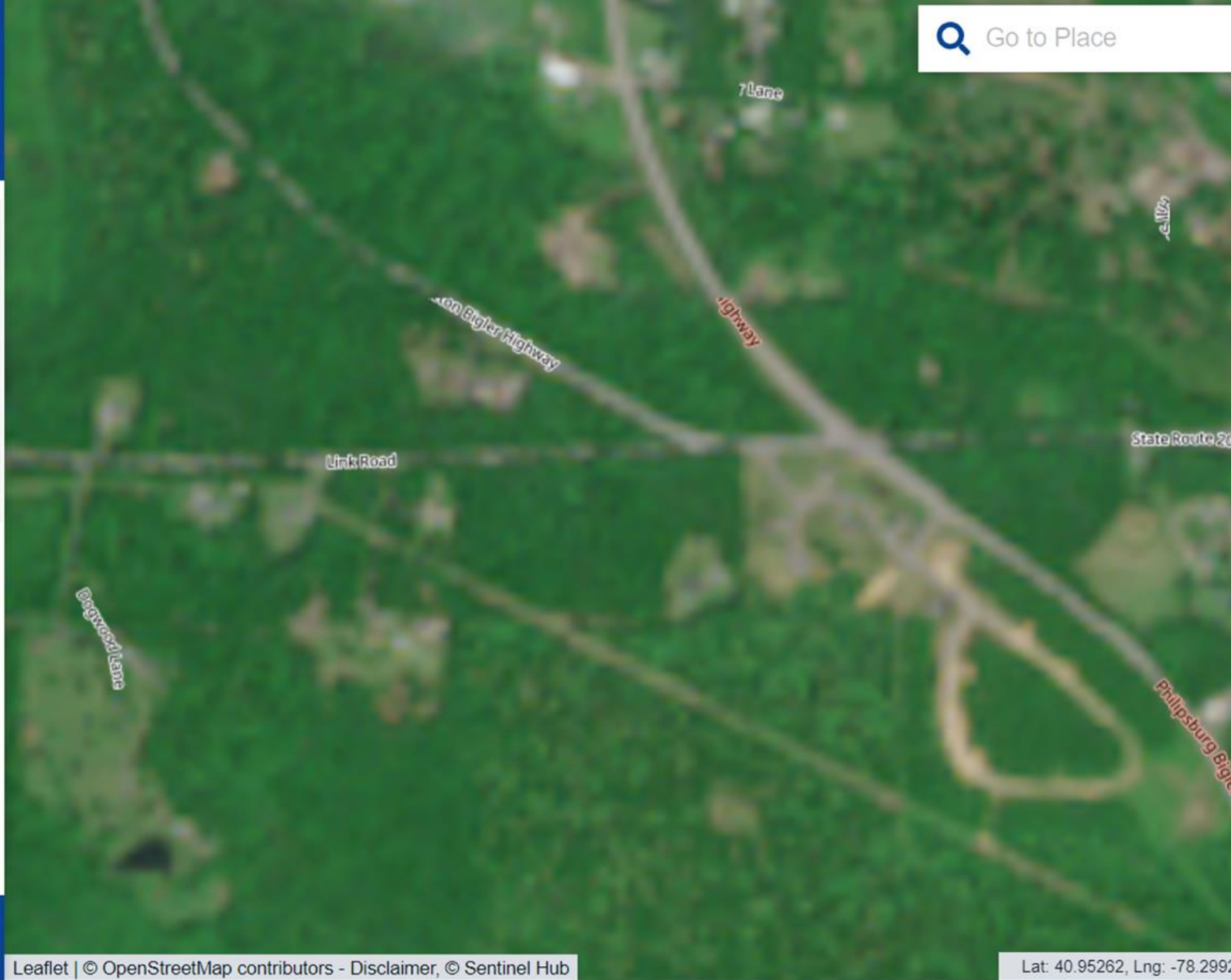
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True color
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
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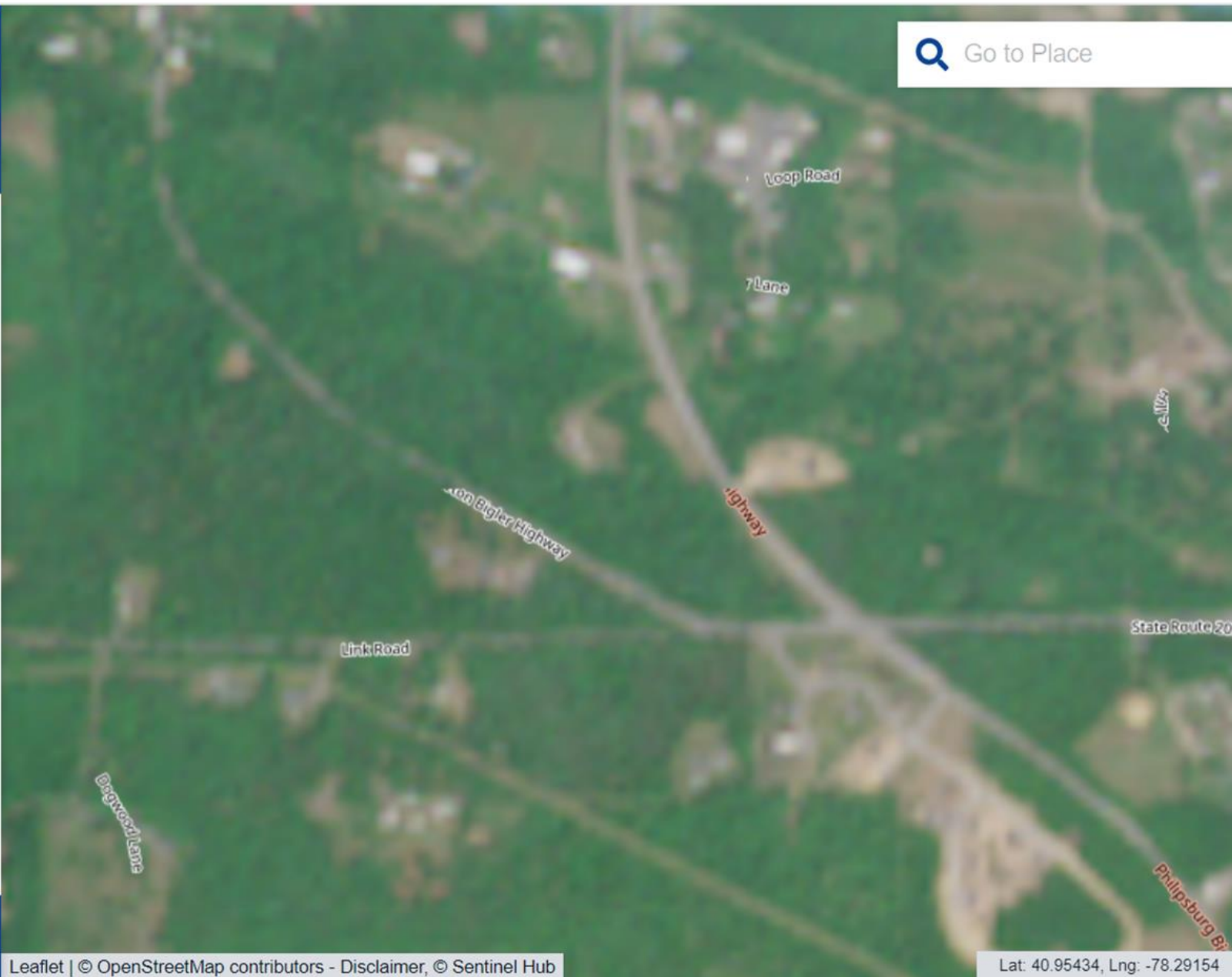
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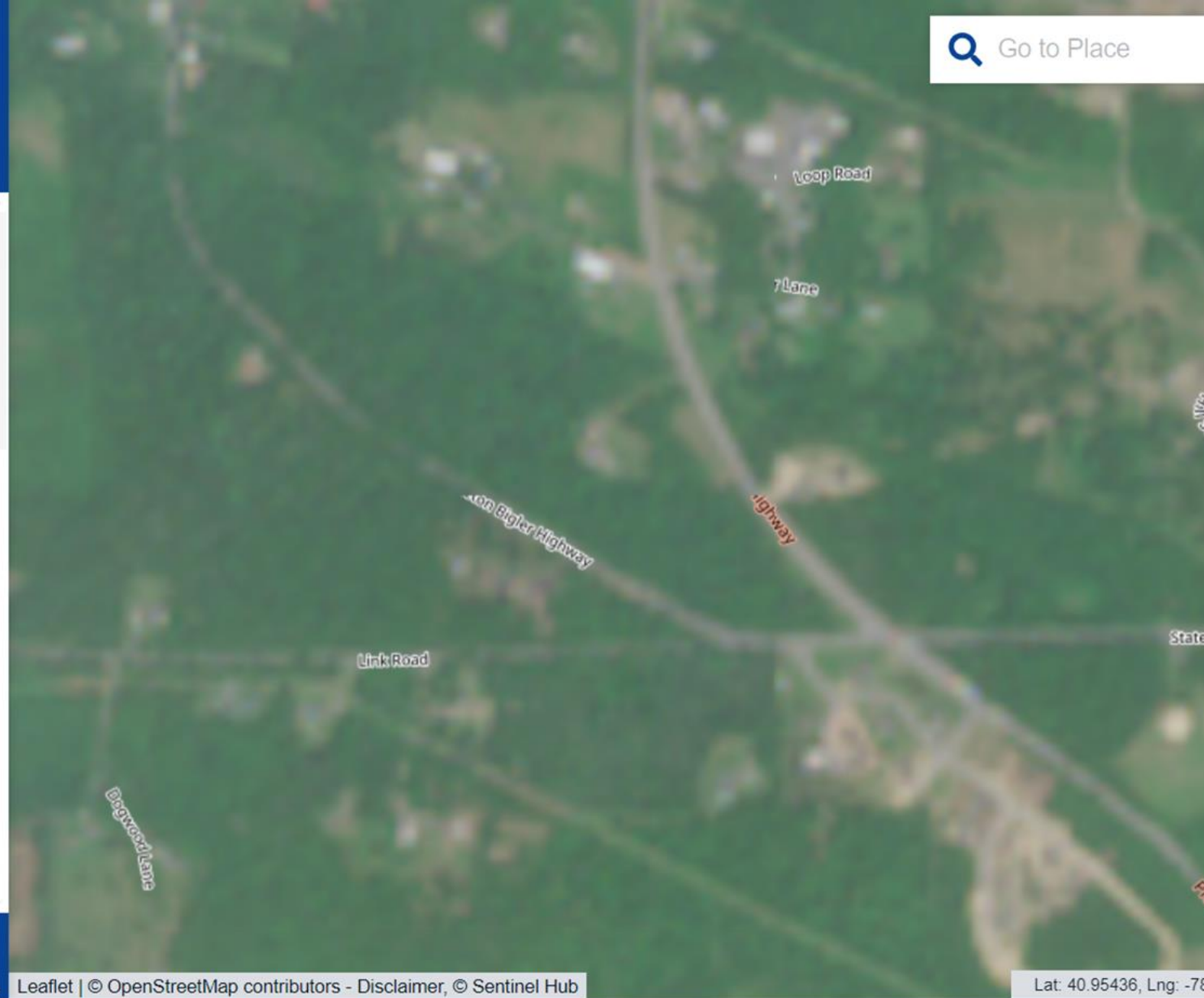
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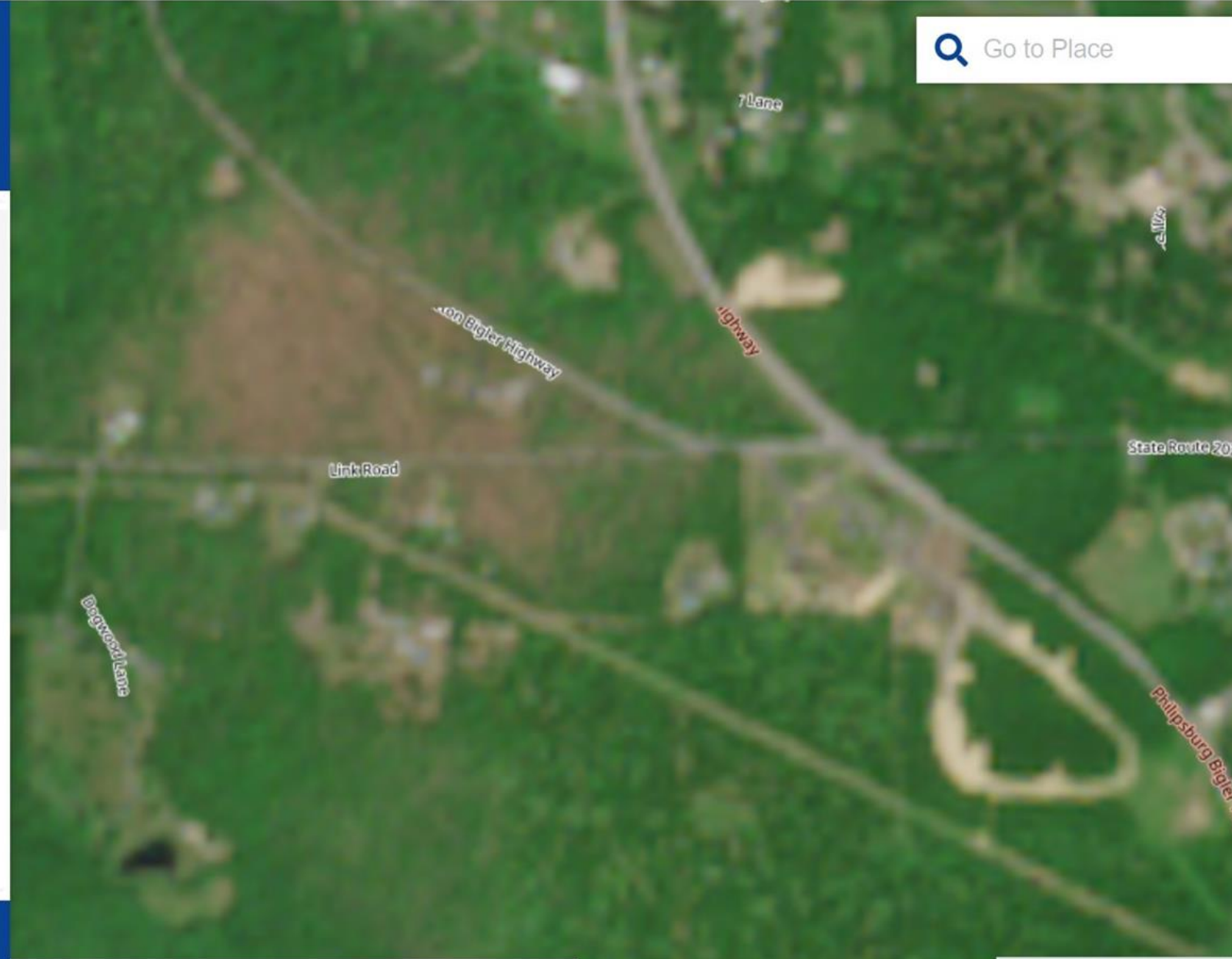
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
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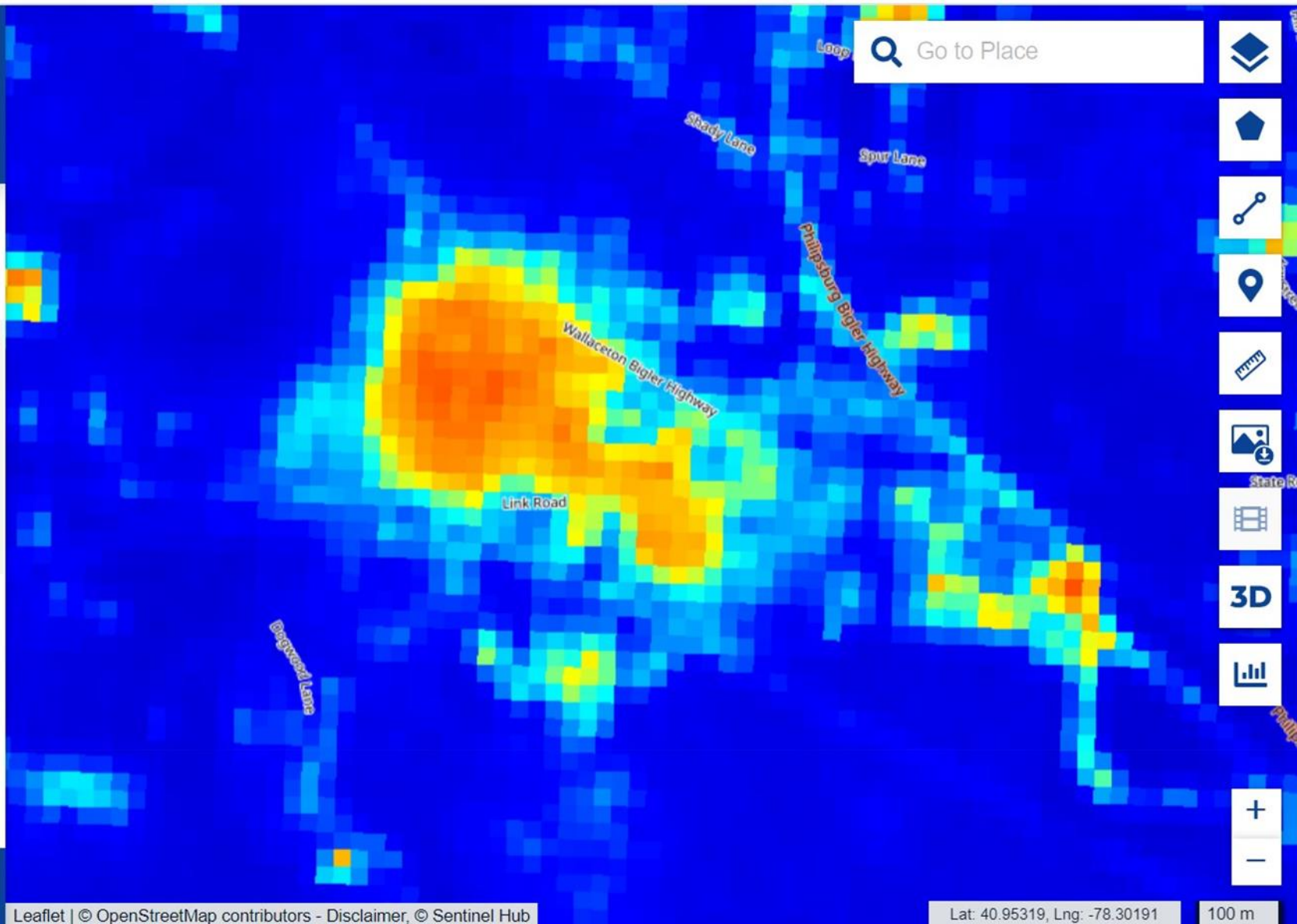
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True color
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 Based on bands B8, B4, B3
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Highlight Optimized Natural Color
 Enhanced natural color visualization
- 
NDVI
 Based on a combination of bands $(B8 - B4) / (B8 + B4)$
- 
False color (urban)
 Based on bands B12, B11, B4
- 
Moisture index
 Based on a combination of bands (B8A - B...

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Normalized Difference Moisture Index (NDMI)
 > 0.8
 0.24

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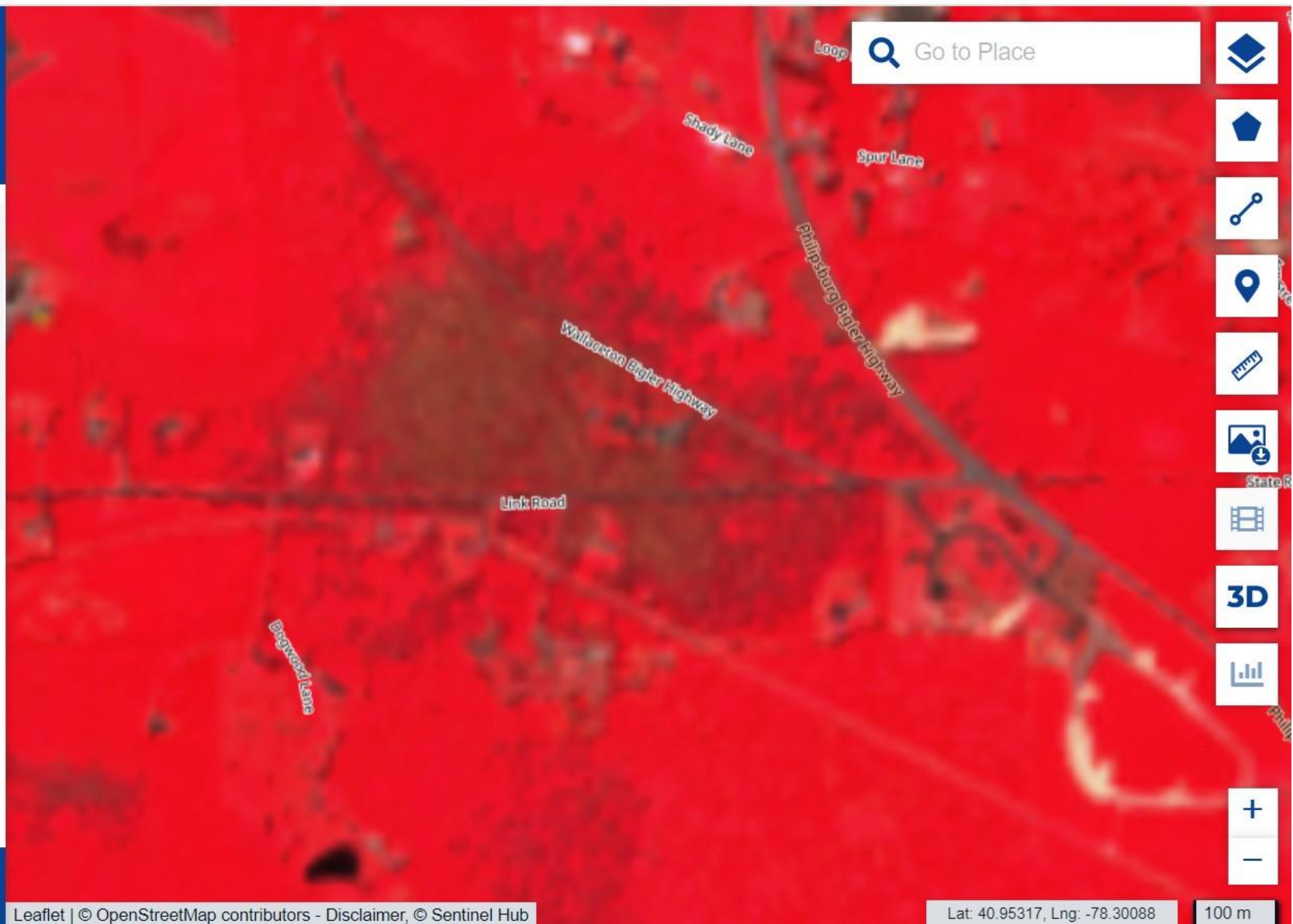
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Based on bands B4, B3, B2
-  **False color**
Based on bands B8, B4, B3 + Add to </> ⌵
-  Highlight Optimized Natural Color
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Leaf-on time for different species

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
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Based on bands B8, B4, B3


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 NDVI
Based on a combination of bands (R8 - R4)/(R8 + R4)

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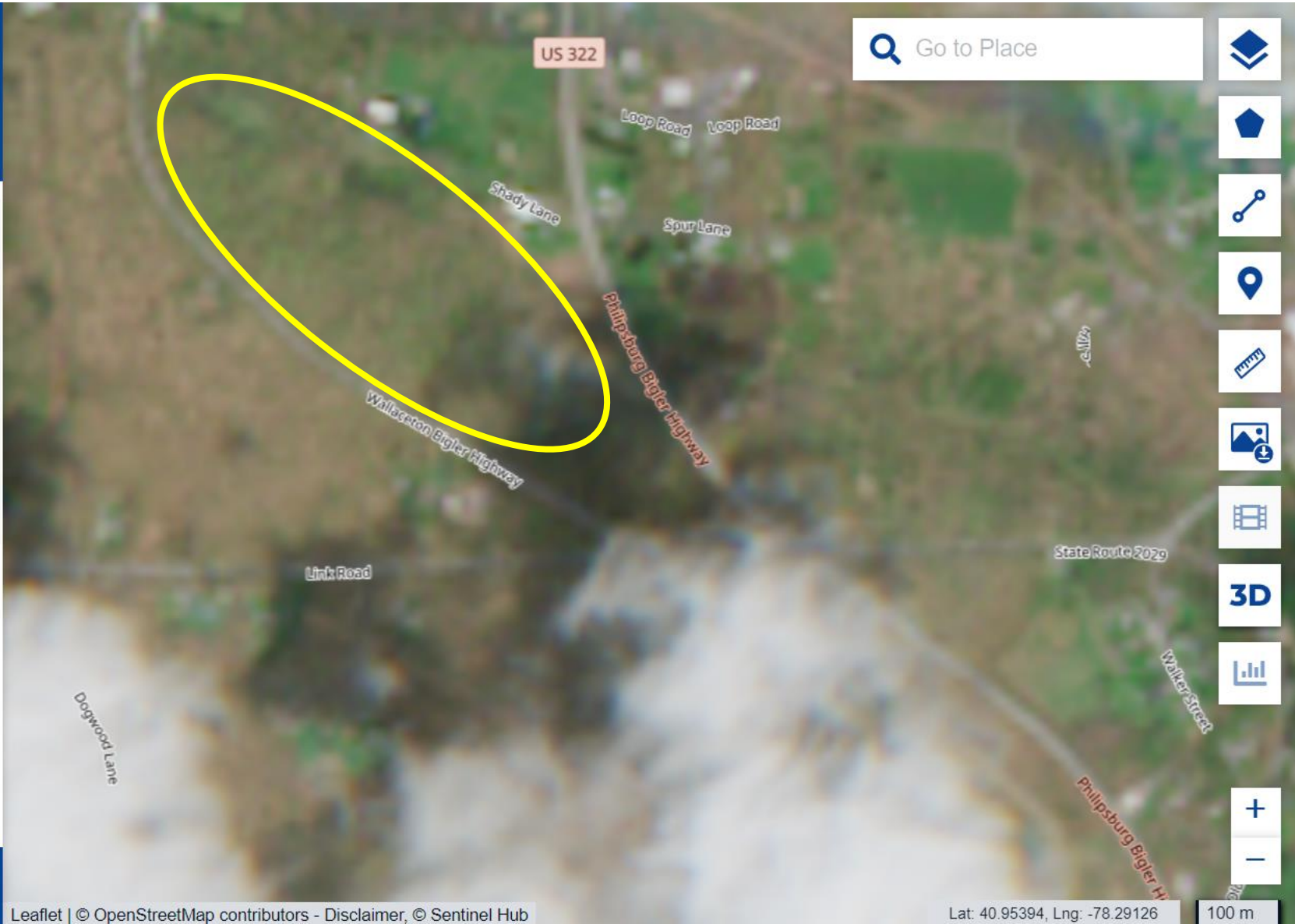
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Leaf-off or foliage color change time for different species- yellow-orange= larch plantation



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False color
Based on bands B8, B4, B3



Highlight Optimized Natural Color
Enhanced natural color visualization






NDVI
Based on a combination of bands $(R8 - R4) / (R8 + R4)$

Show effects and advanced options

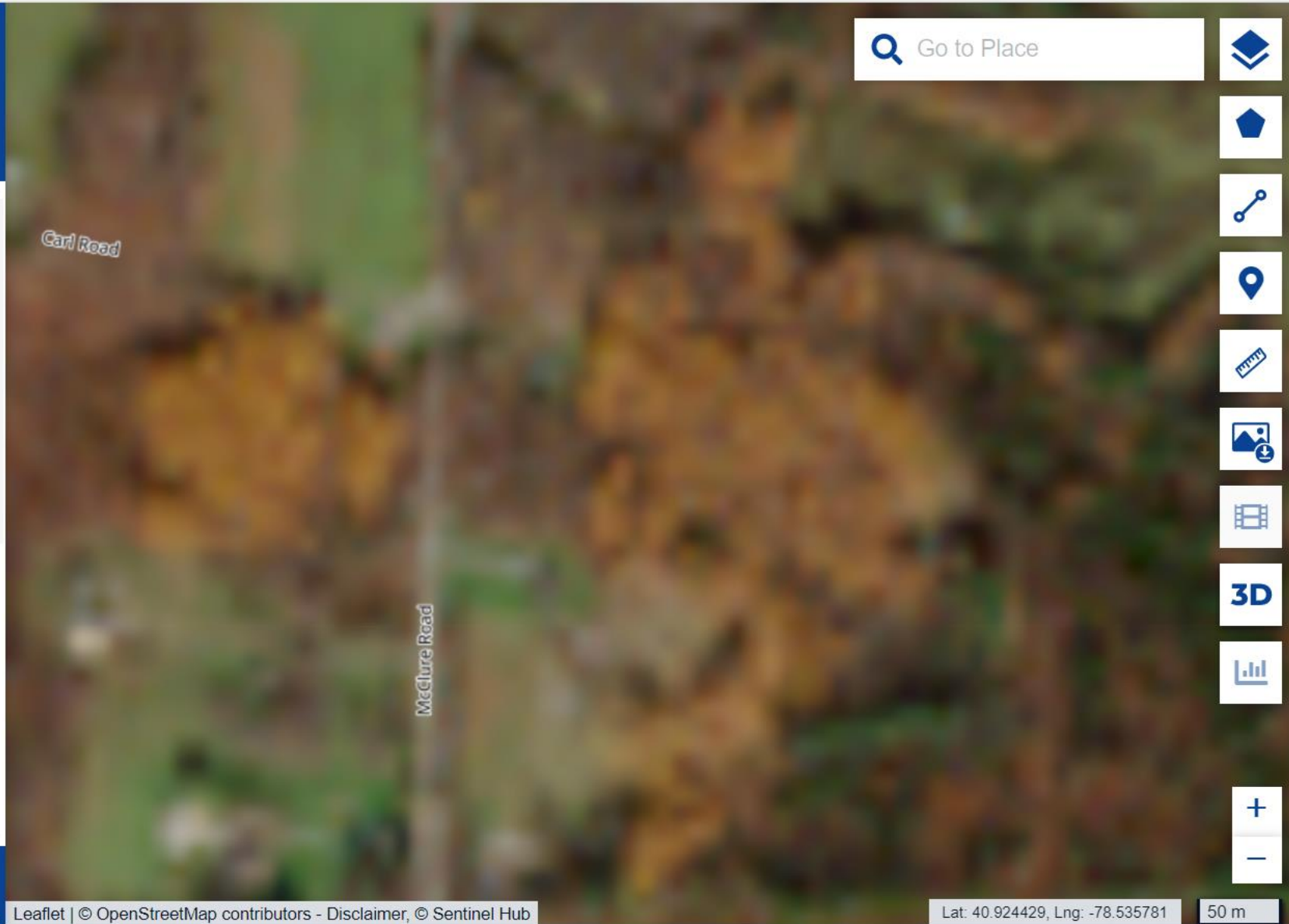
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Leaf pests for different species- Black locust leaf miner- worse year, more brown



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cloud 39%

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Max. cloud coverage:

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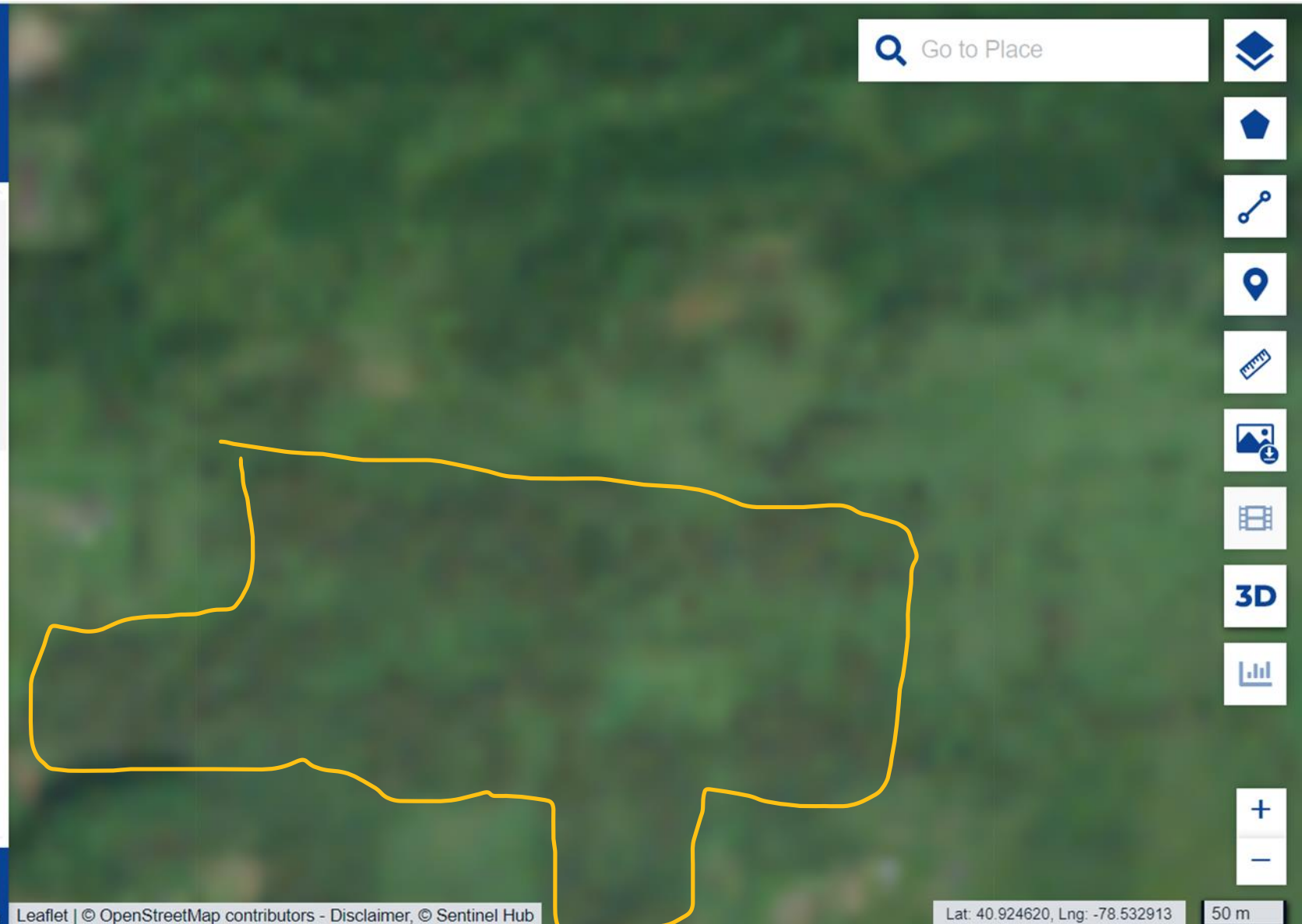
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The screenshot displays a web-based map application. The main area shows a satellite image of a green field with a yellow polygon outlining a specific region. The interface includes a search bar at the top right with the text "Go to Place", a vertical toolbar on the right with icons for map controls, and a status bar at the bottom with coordinates and a scale of 50 m.

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◀ 2022-12-29 ▶

☁ 30% ➔ ▼

Max. cloud coverage:

☁ 30%

◀

December ▼ 2022 ▼

▶

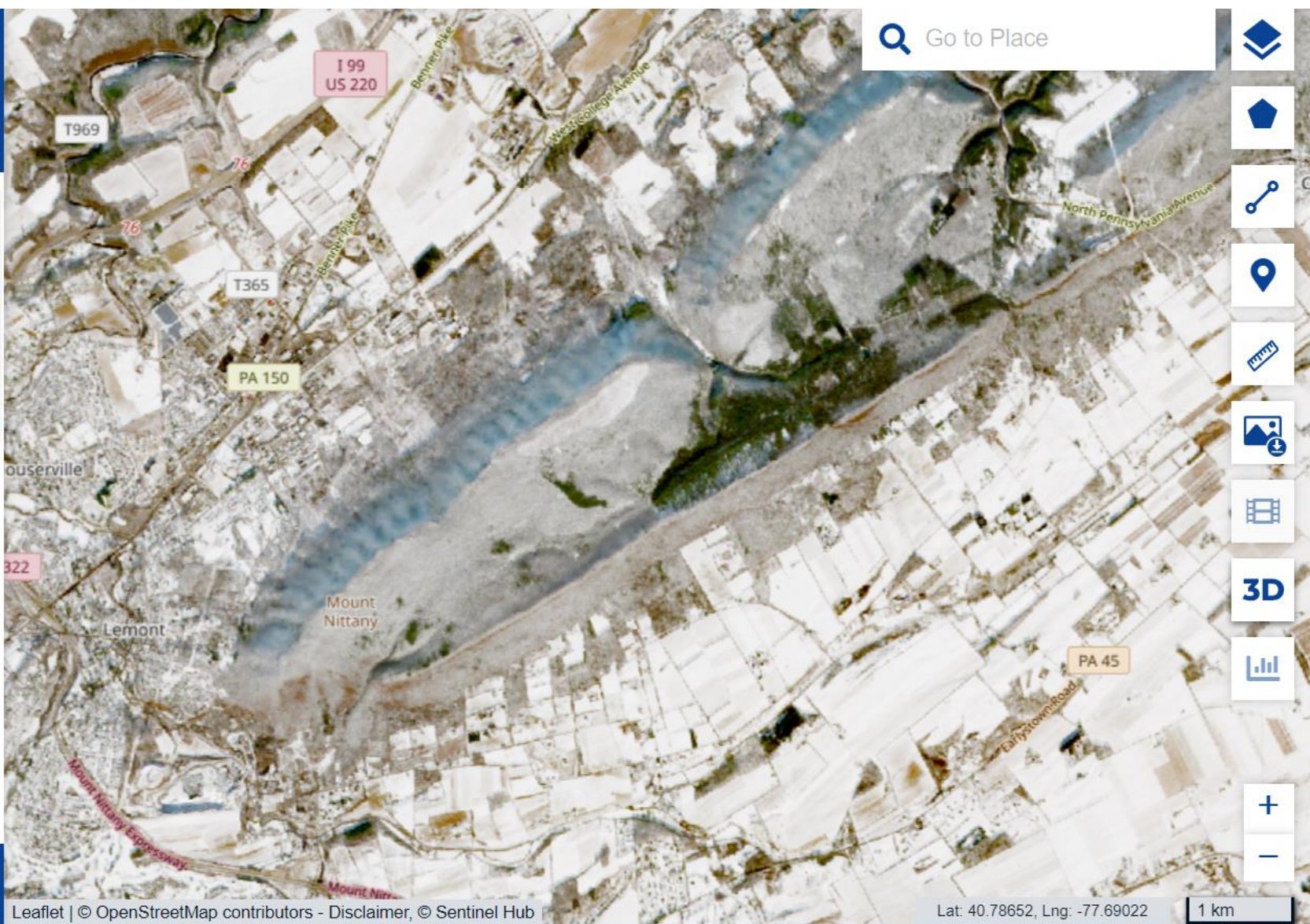
| Su | Mo | Tu | We | Th | Fr | Sa |
|----|----|----|----|----|----|----|
| 27 | 28 | 29 | 30 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

Default ▼

⚙ Show effects and advanced options

🔕 Hide layer

🔗 Share



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×

Map Layers

Base Layers

NAIP

2013-2015

+ Stack Base Layer

Map Sheets

+ Stack Map Sheet

Map Overlays

☐ Contours

☐ MapBuilder Overlay

☐ Slope Angle Shading

☐ Geology

☐ Public Lands

☐ Parcel Data

Pro

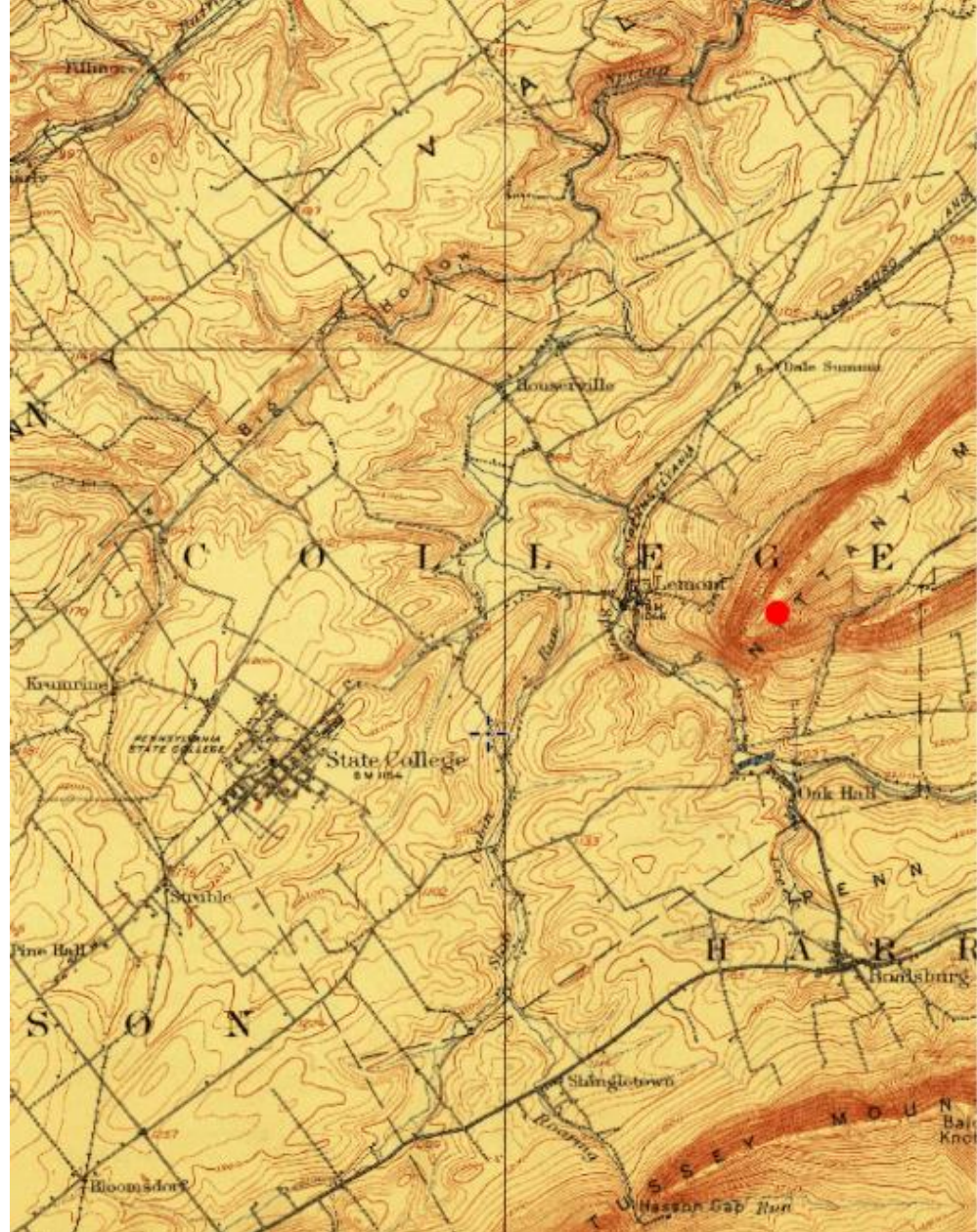
☐ Structures

☐ Motor Vehicle MVUM

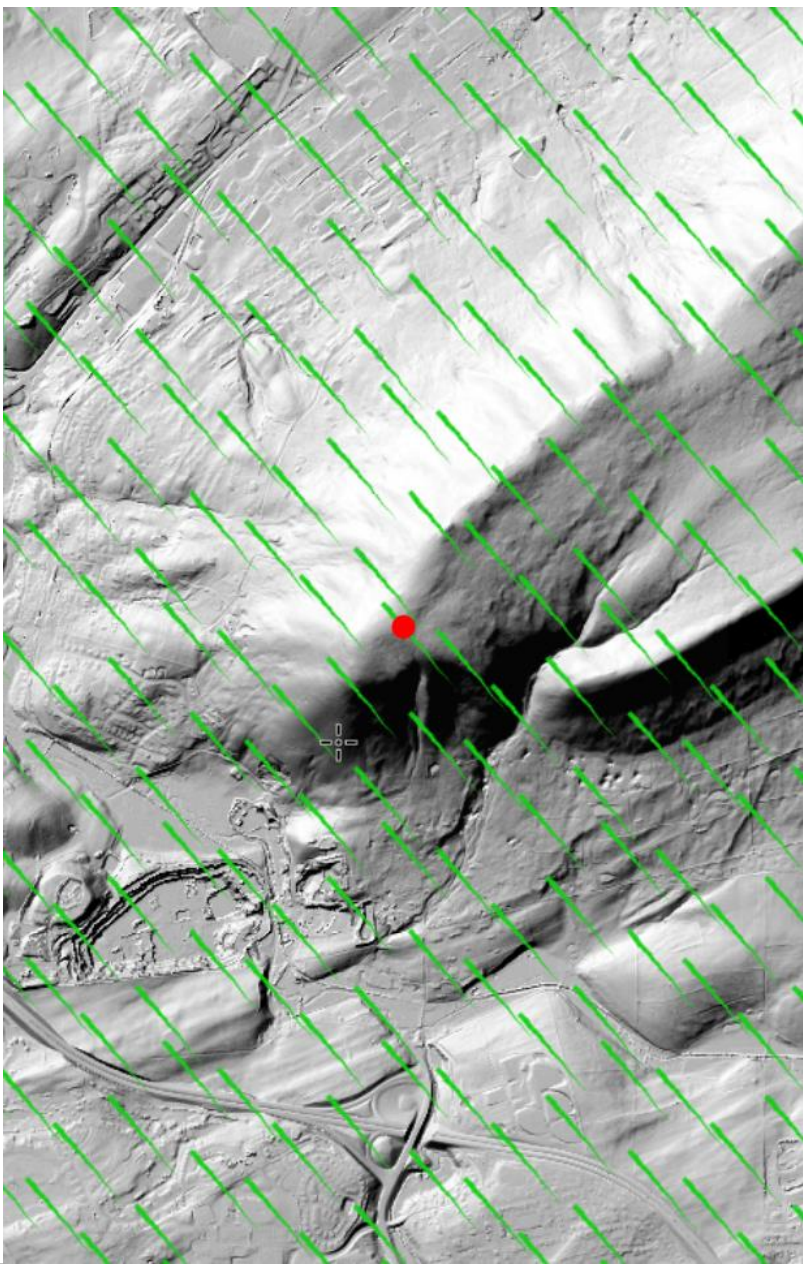
☐ Recreation

☐ Fire History

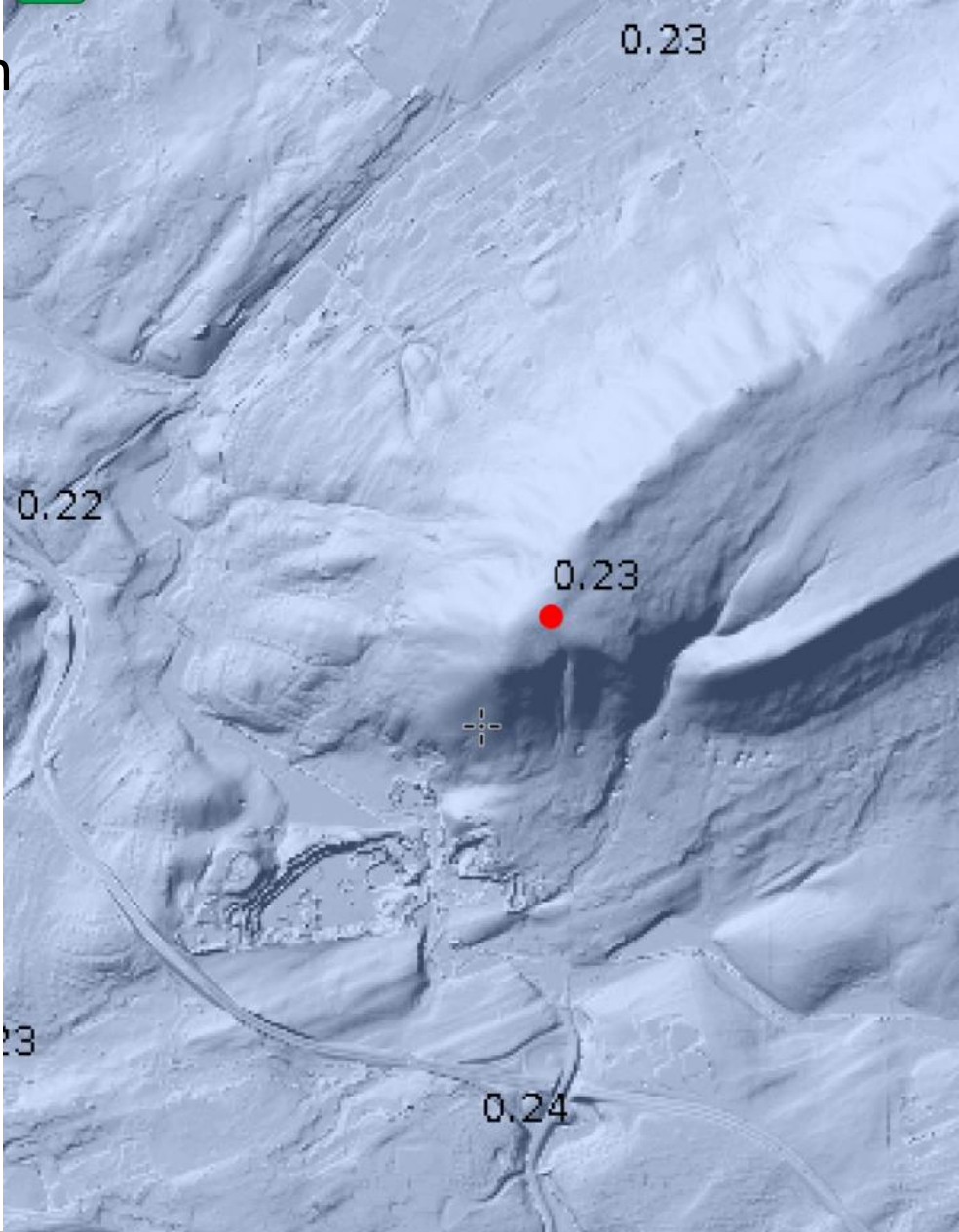
Historic Topographic map 1915



Wind Speed
and Direction,
Current and
Forecast

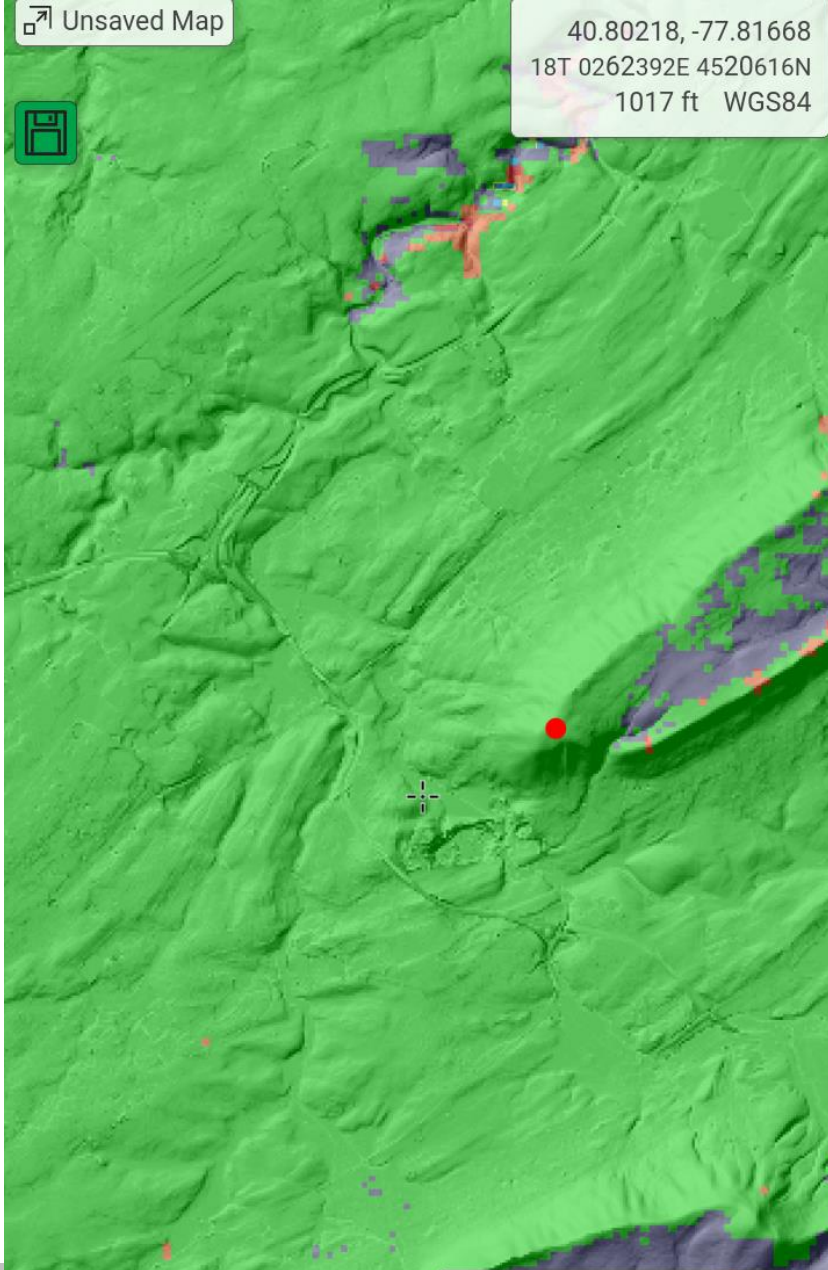


Precipitation
Forecast



Cell Coverage

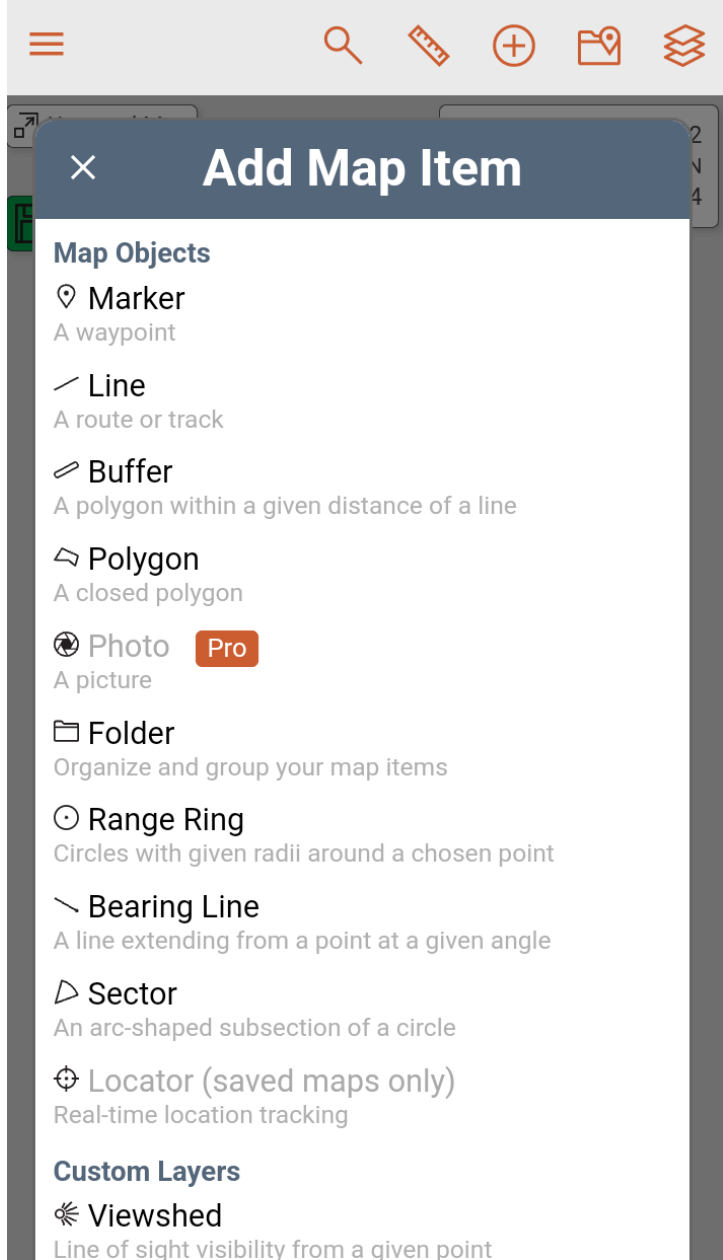
- AT&T
- T-Mobile
- Version



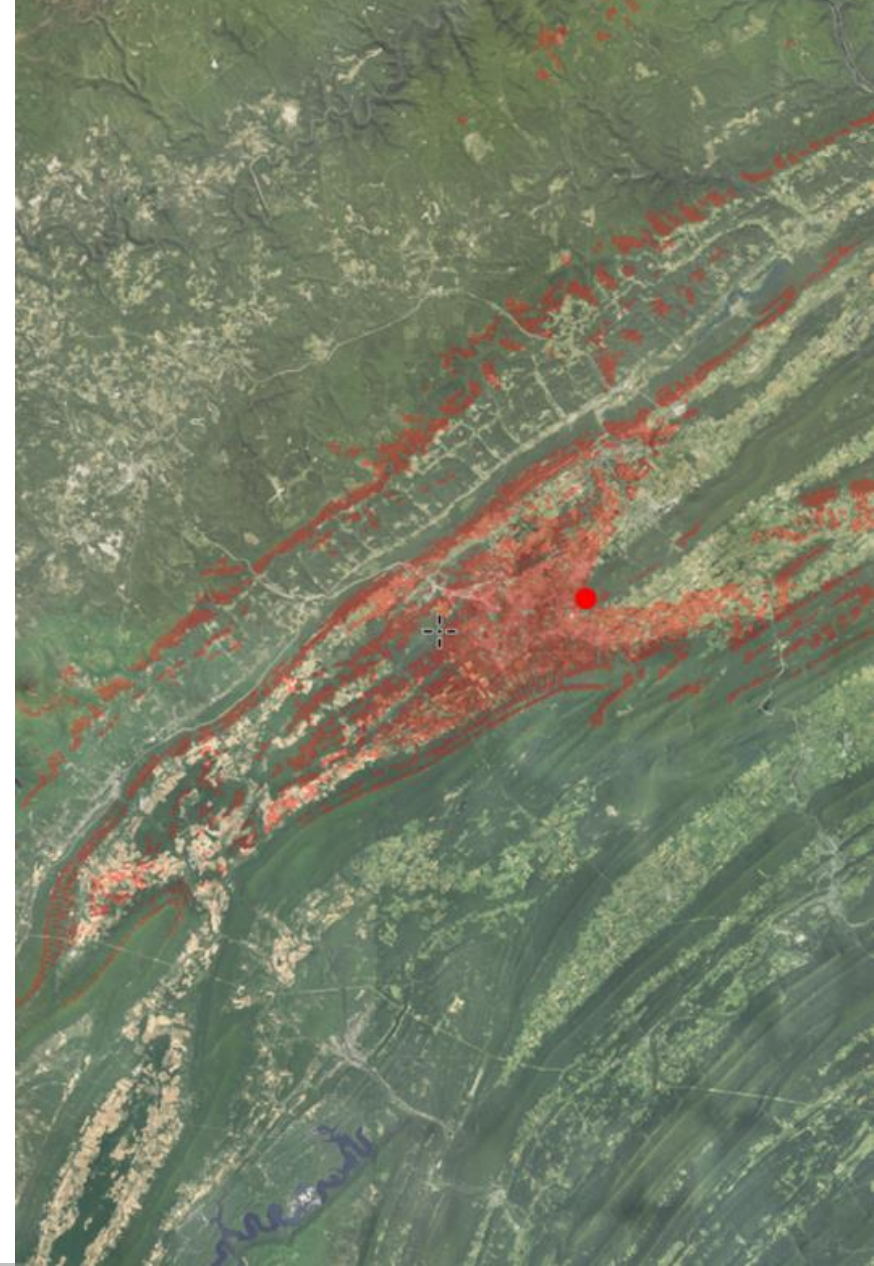
Sunlight

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





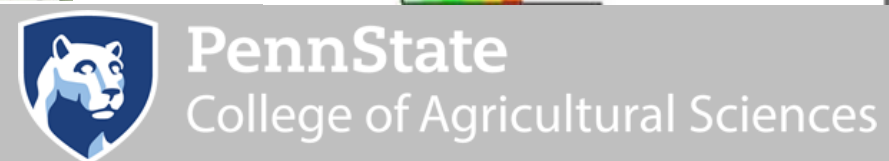
Viewshed



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map

Show Details

Close Map

Your Data

Scan QR Code

Configuration

Download Layers

Display Options

Settings

Account

Help

CALTOPO

Help

Upgrade

Enter coordinates or a location name

Settings

Close

Your Data

Jeffrey Osborne

Map Objects

Ctrl-O

Import Export Add

Markers

N/A

Fence

Lines & Polygons

Sgl90

Terrain Modeling

N/A

View

View

View

Connect

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40.92927, -78.22266

17T 0733842E 4534620N

1516 ft WGS84

Map Layers

Ctrl-L

Base Layers

NAIP

2013-2015

+ Stack Base Layer

Map Sheets

+ Stack Map Sheet

Map Overlays

Contours

MapBuilder Overlay

Slope Angle Shading

Geology

Public Lands

Parcel Data Pro

Structures

Motor Vehicle MVUM

Recreation

Fire History

Fire Activity

Sun Exposure

Cell Coverage

Custom Layers

10 km

5 mi

© CalTopo, USDA Farm Service Agency | N 1 MN 11° W

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Questions?

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