

## Study Area: Three Ridges Wilderness Area

*Data sources:*

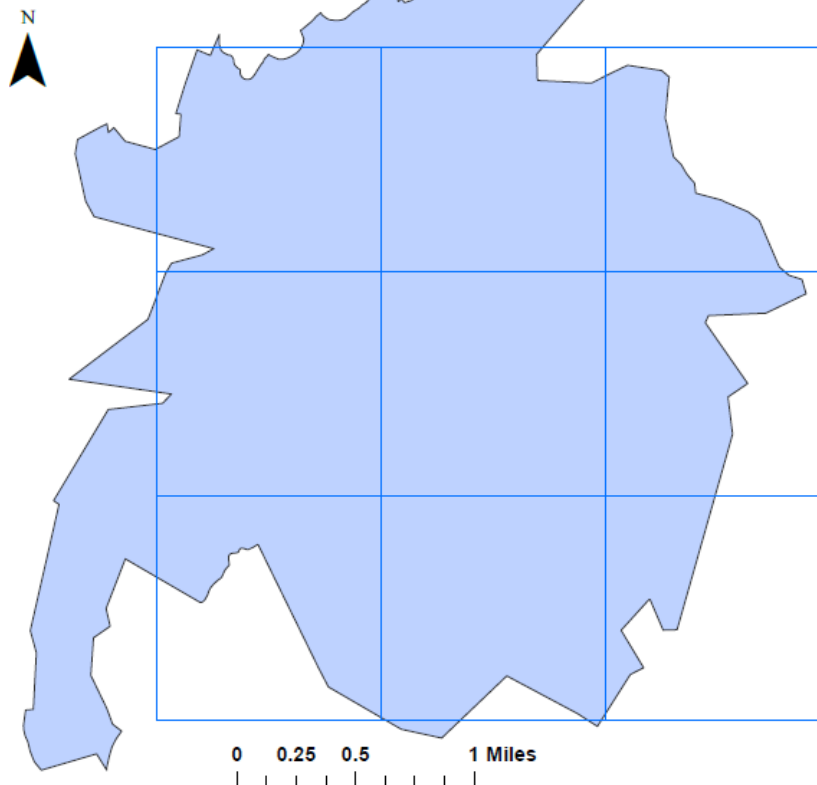
*National Weather Service*

*US Department of Agriculture Forest Service*

*Virginia Geographic Information Network*

□ Tiles used for study

■ Three Ridges Wilderness Area



Congress designated this area in 2000 and it now has a total of over 4,000 acres.

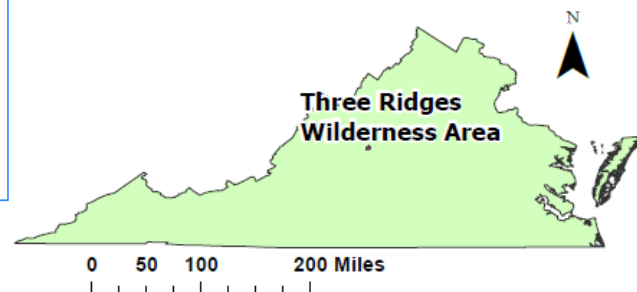
It is located within George Washington National Forest, east of the Blue Ridge Parkway and north of the Tye River.

Elevations in this area range from 1,000 feet at the Tye River to 4,000 feet at Three Ridges.

This area is generally steep and rugged, and consists of undulating ridges with deep V-shaped hollows.

It is also part of the 111 million acre National Wilderness Preservation System, which provides clean air, water, and habitat critical for rare and endangered plants and animals.

Source: <https://www.wilderness.net/NWPS/wildView?WID=601>



## Hillshade

*Source: Virginia Geographic Information Network*

A digital elevation model (DEM) was created using the elevation values of ground classified points in the LAS dataset. The Hillshade tool was used to produce this hillshade map from the DEM.

Value



The hillshade raster has an integer value range of 0 to 255.



0 0.5 1 2 Miles

0 0.5 1 2 Miles



## Aerial Photo

*Source: Virginia Geographic Information Network*

The File System Rasters for the study area were located using the Virginia Base Map Program (VBMP) from VGIN. A Mosaic Raster was created by combining all 9 of the File System Rasters for the study area.

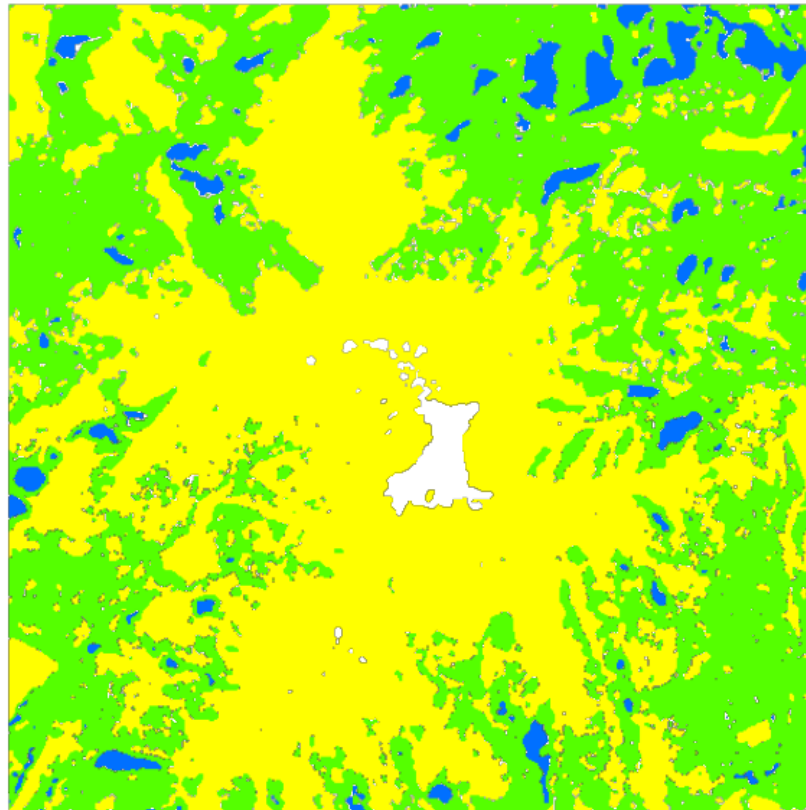
- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3

The 3 band imagery raster is displayed using an RGB composite.

## LiDAR Intensity Data for Mapping Inundated Areas

■ Inundated ■ Non-inundated ■ Transition

*Data source: Virginia Geographic Information Network*



Intensity measures the return strength of the laser pulse that generated each point in an LAS dataset.

An intensity raster was created using intensity values of all points in the LAS dataset.

To reduce noise and preserve boundaries between classes, the intensity image was passed through an enhanced Lee filter with gradually increasing kernel sizes of 3 (twice), 5, 7, and 9.

Inundated and non-inundated classes are easier to distinguish after filtering because filtering reduces variability in intensity values within the two classes.

The Reclassify tool was used to distinguish between forest classes. Areas with intensity values between 0 and 50 were mapped as inundated and areas with intensity values between 80 and 255 were mapped as non-inundated. The 30 DN range between the 2 classes was mapped as transition to account for variability in intensity caused by differences in vegetation condition.

