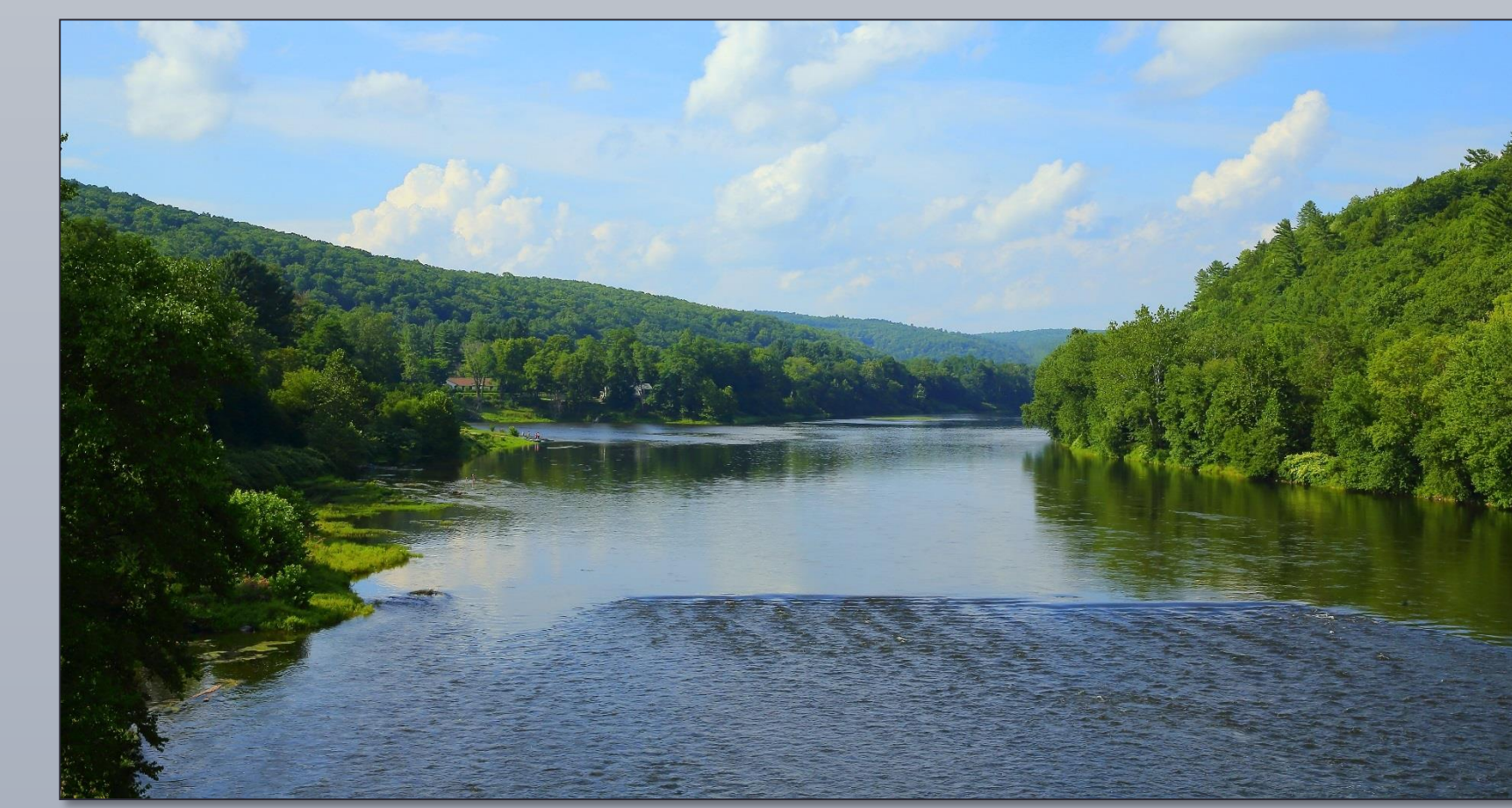
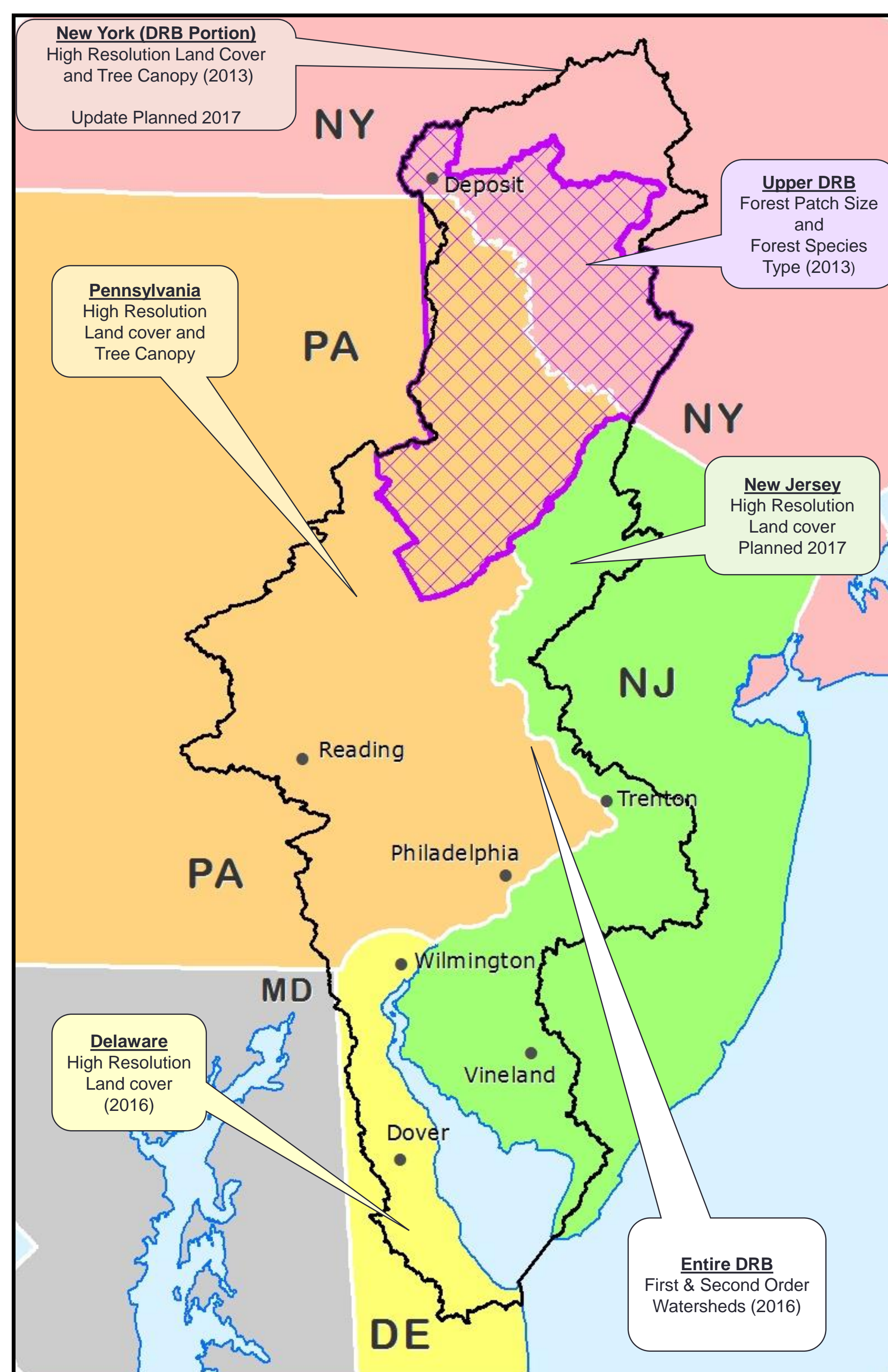


Progress in Water Resource Mapping in the Delaware Estuary

Karen Reavy, Kenneth Najjar, PhD., and Chad Pindar, Delaware River Basin Commission



MAPPING STATUS



HEADWATERS

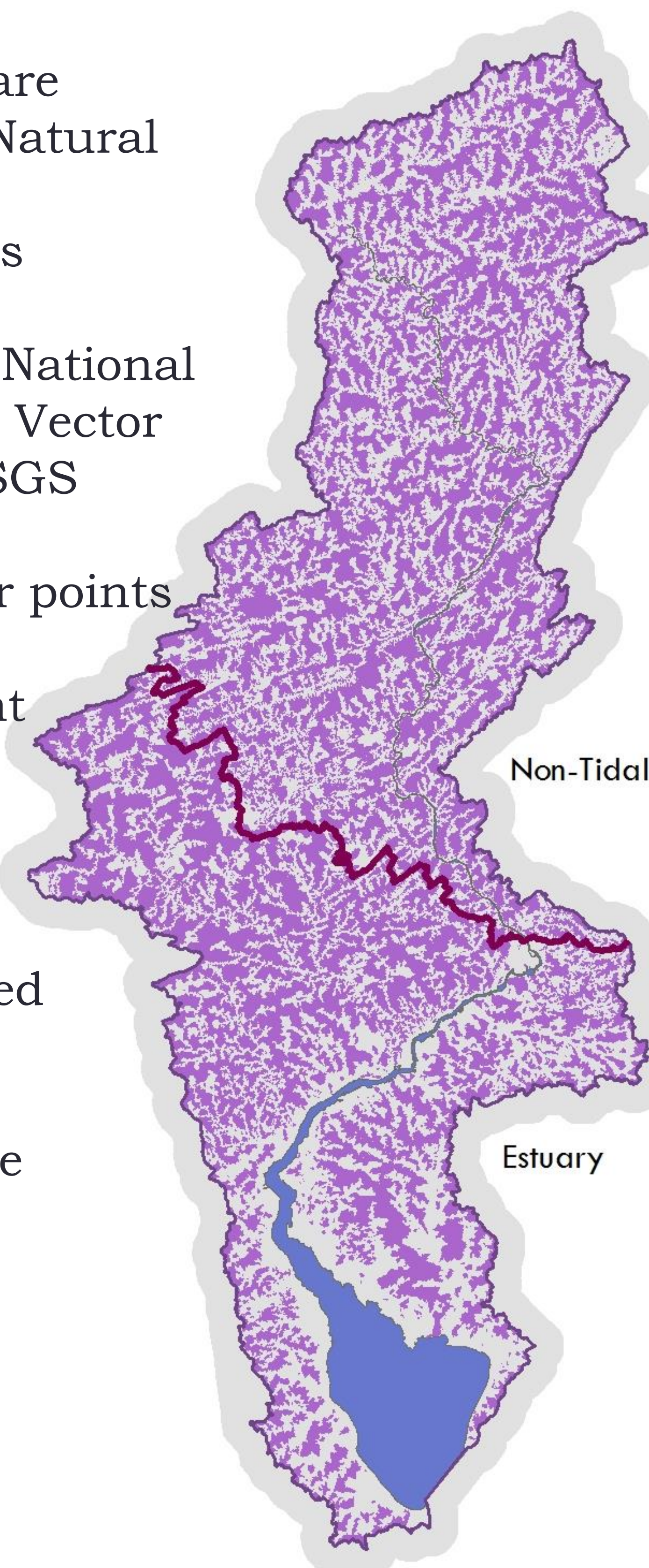
Initial work in 2012:

- Focused on upper 1/3 of Delaware River Basin for potential Natural Gas development.
- Map 1st order stream catchments
- Hydrologically corrected Digital Elevation Model (DEM) & National Hydrographic Data (NHD) Vector lines (i.e. blue lines on USGS paper quad map)
- Manually picked watershed pour points
- Semi-automated method in GIS to create catchment areas for the pour points



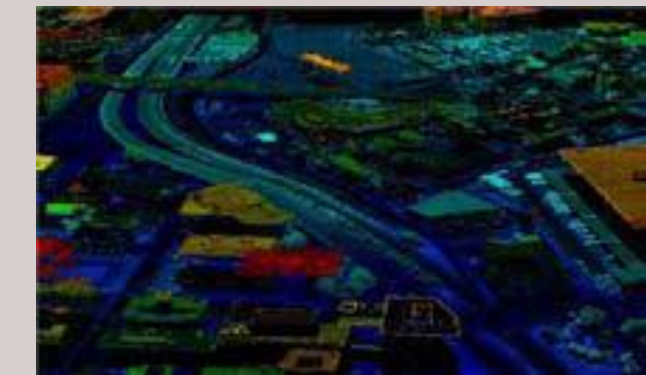
2015 work

- Complete the rest of the Basin with semi-automated methods
- QA/QC areas and manually fill in "Gap" areas from the automated method

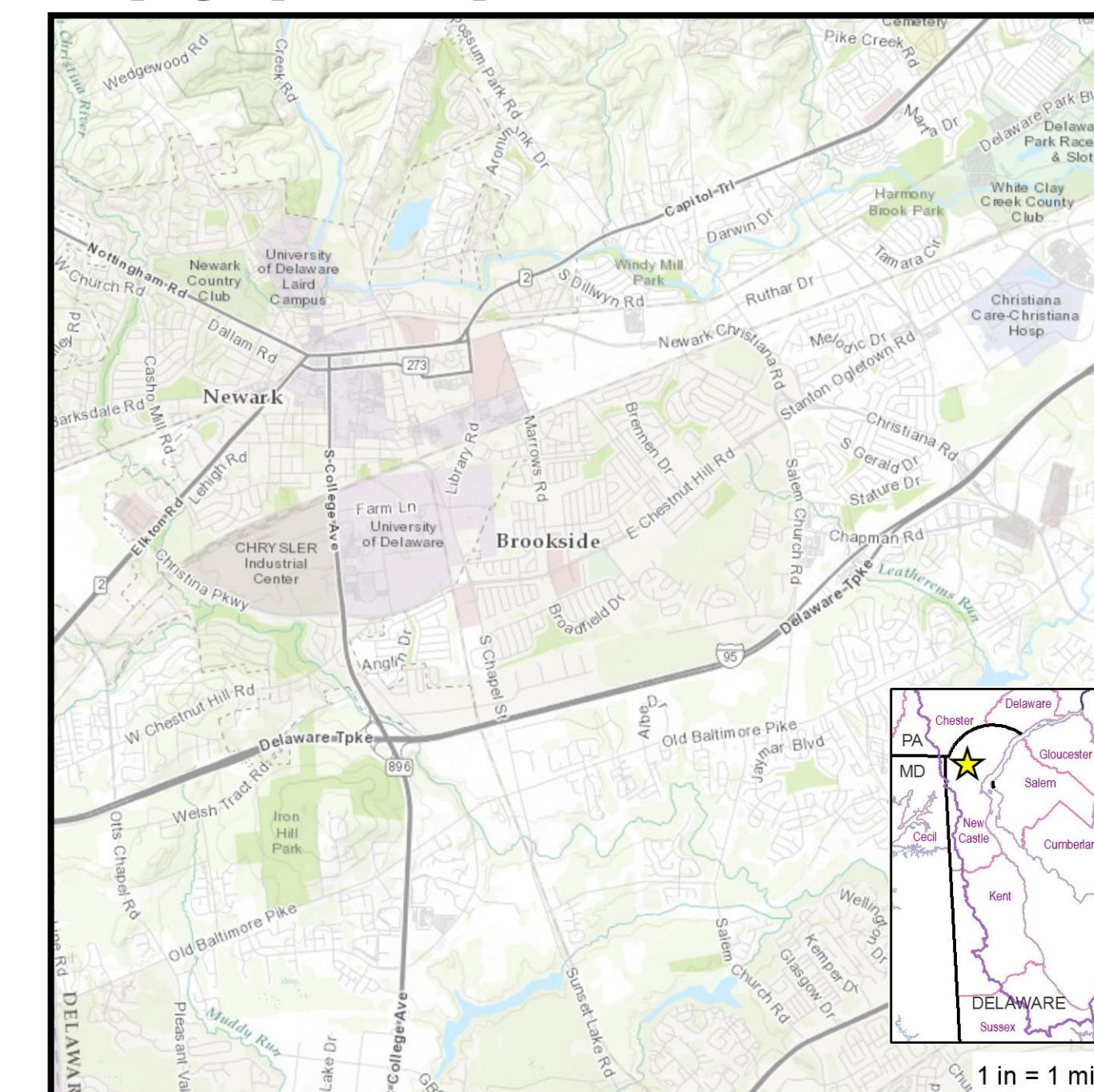
~6,800 Square Miles of the Delaware River Basin or 53% of the Land Area is covered by headwater watersheds



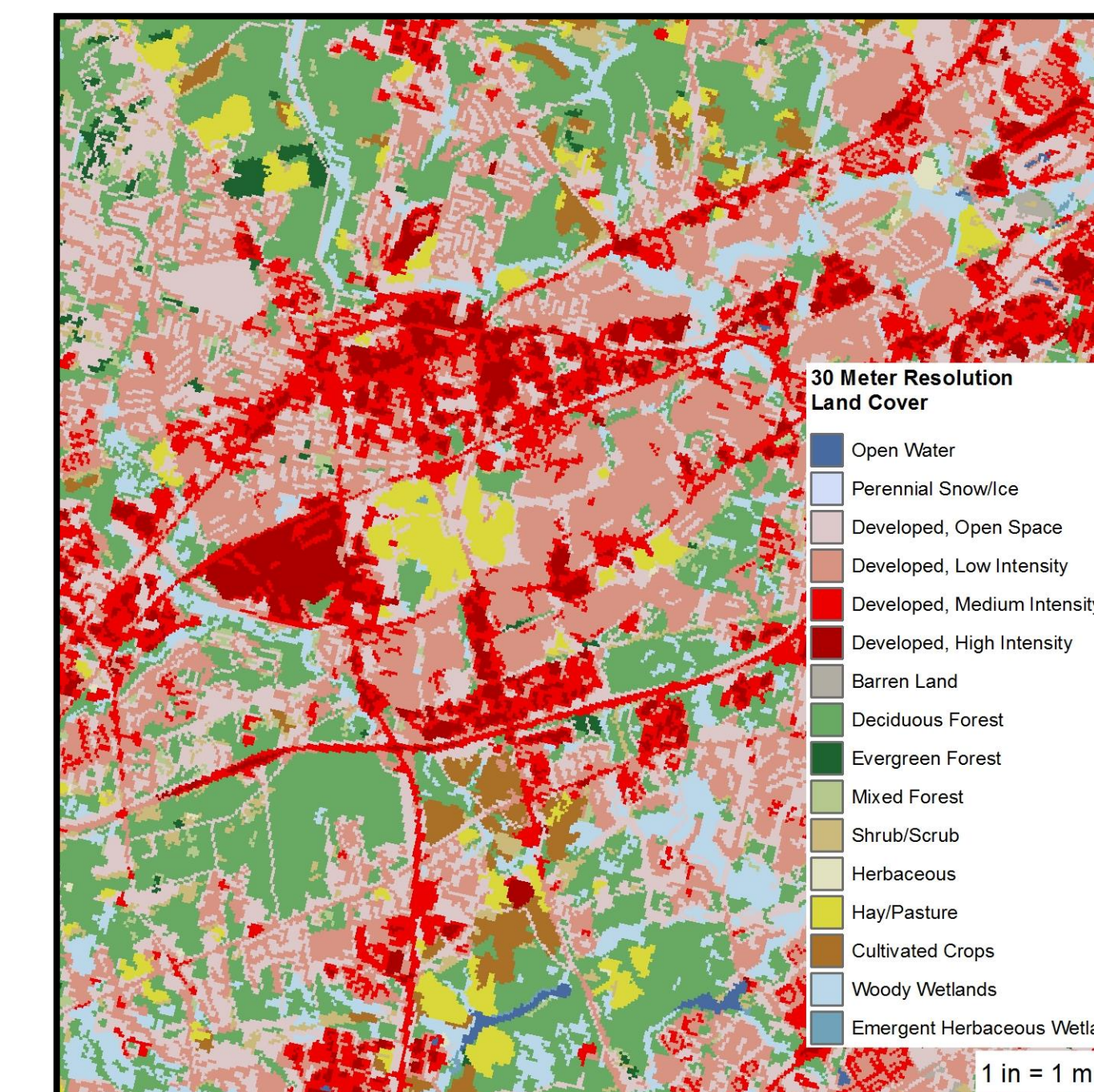
HIGH RESOLUTION LAND COVER

	Data Description		Purpose
IMAGERY	High-resolution (1 meter or better), preferably leaf-on, multispectral imagery with near-infrared band imagery.		Automated techniques use spectral (color) and spatial (context, size, shape, pattern) information in the imagery to extract land cover features
GIS DATA	Polygons or lines representing existing mapped features such as building footprints, roads, and hydrography.		These vector datasets reduce the number of features that must be mapped in the automated process and help ensure that the resultant land cover dataset is consistent with existing maps.
LIDAR	Complete point cloud in LAS format with ground returns classified		Surface models are derived from LIDAR and incorporated into the automated process. These surface models are useful for differentiating features based on structural characteristics. LIDAR, unlike imagery, is not sensitive to sunlight and can identify features obscured by shadows.

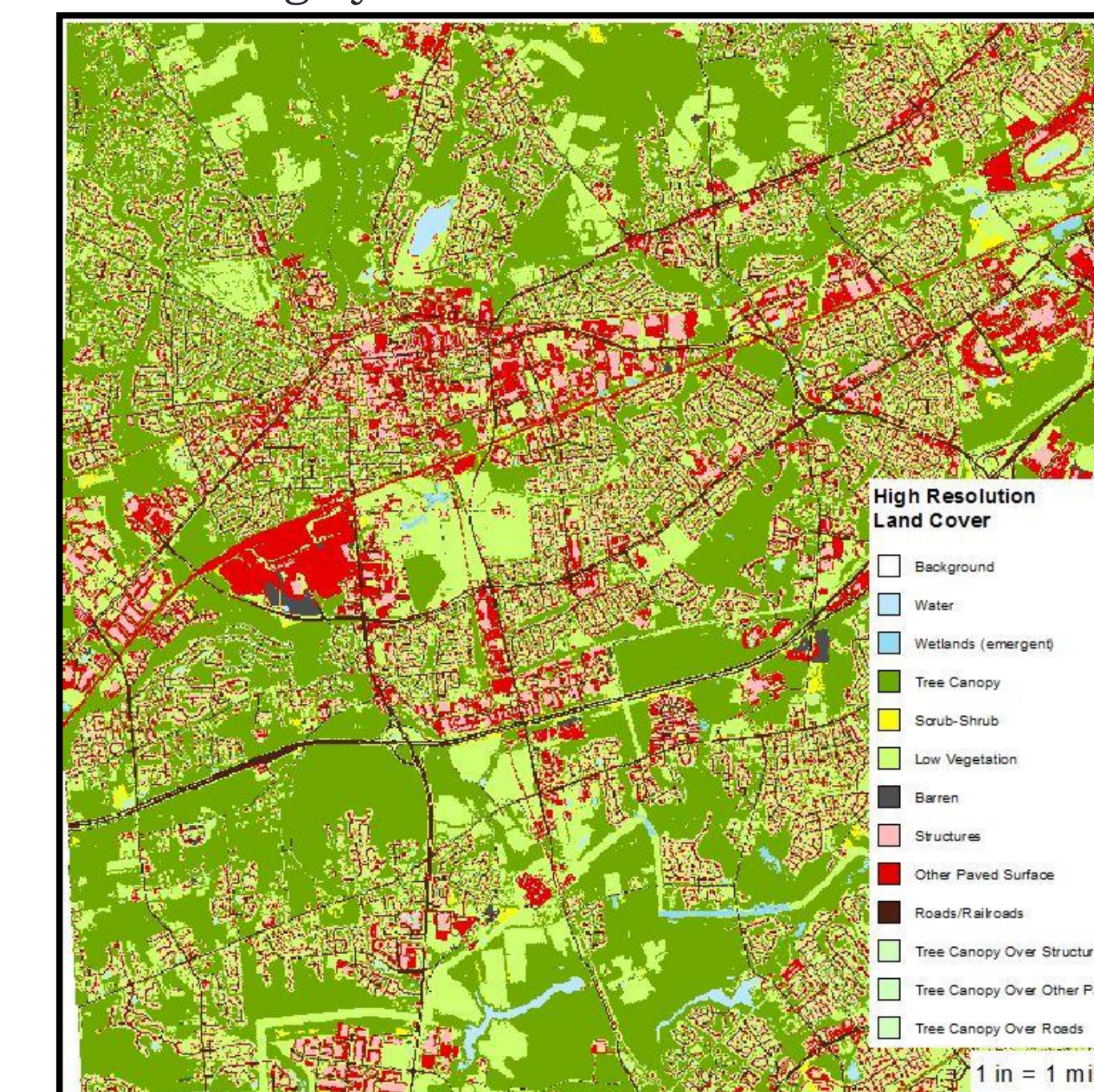
Topographic Map



30 Meter Resolution Satellite derived data



1 Meter Resolution NAIP Imagery and Lidar Point Cloud derived data



WHERE TO FIND DATA



Keyword Search DRWI

www.pasda.psu.edu

ABSTRACT

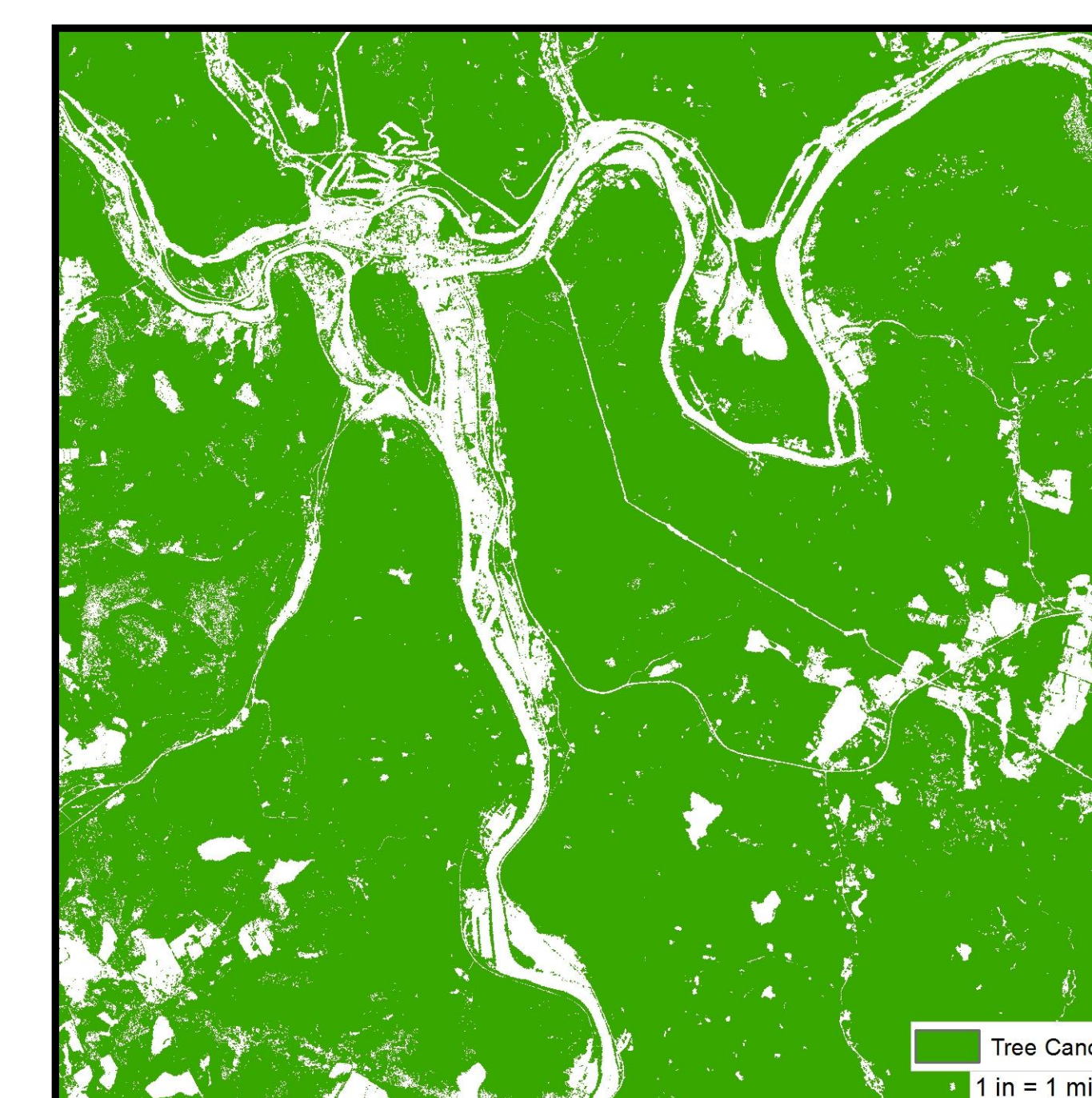
The Delaware River Basin (DRB) has long been a watershed of interest for study and evaluation, likely due to the large population served (~ 15M people) and the variety of other water uses it supports. The Delaware River Basin Commission (DRBC) as well as other public and non-public entities have been gathering new mapping data to describe landscape and watershed features for use in evaluating the health of the basin and for planning restoration and protective actions.

THANK YOU

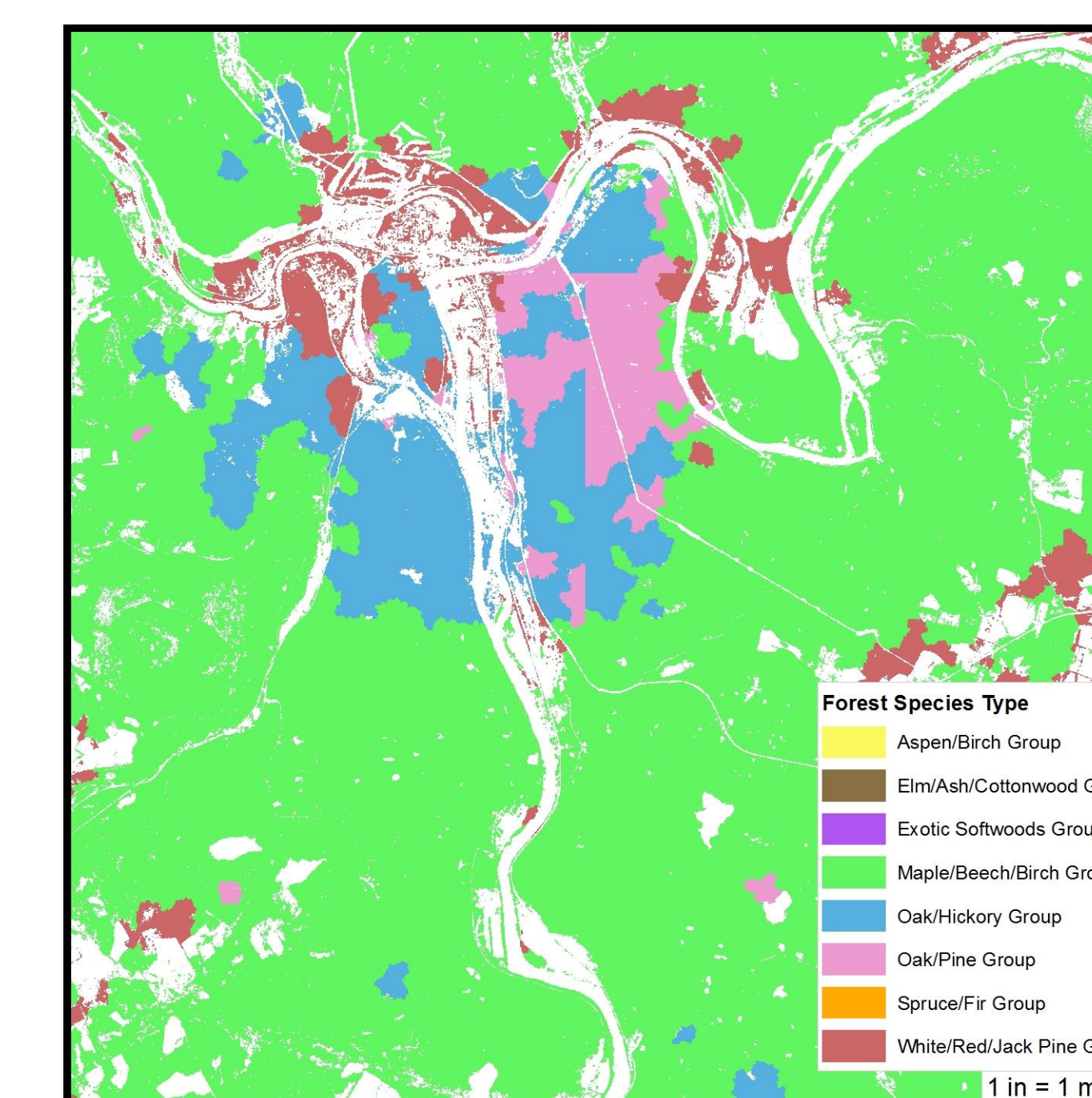
- William Penn Foundation
- USGS New Cumberland, Pennsylvania Office
- University of Vermont

ADDITIONAL FOREST MAPPING PRODUCTS

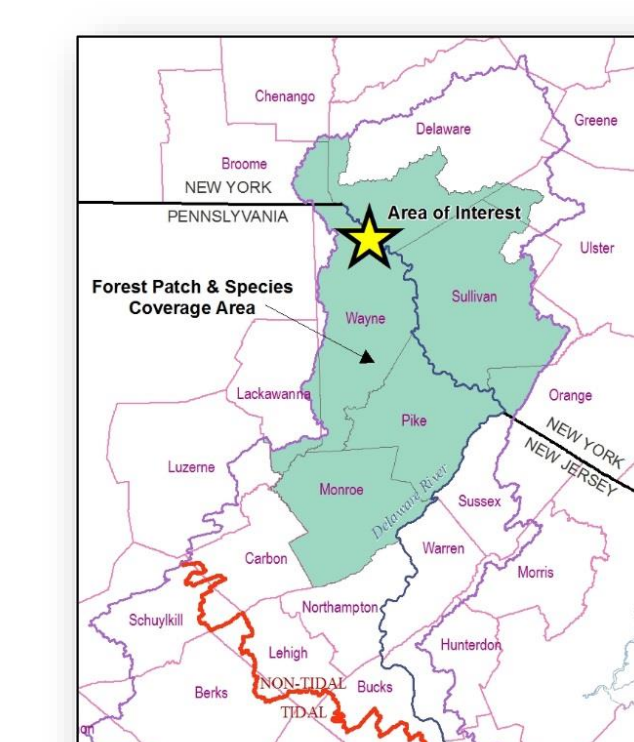
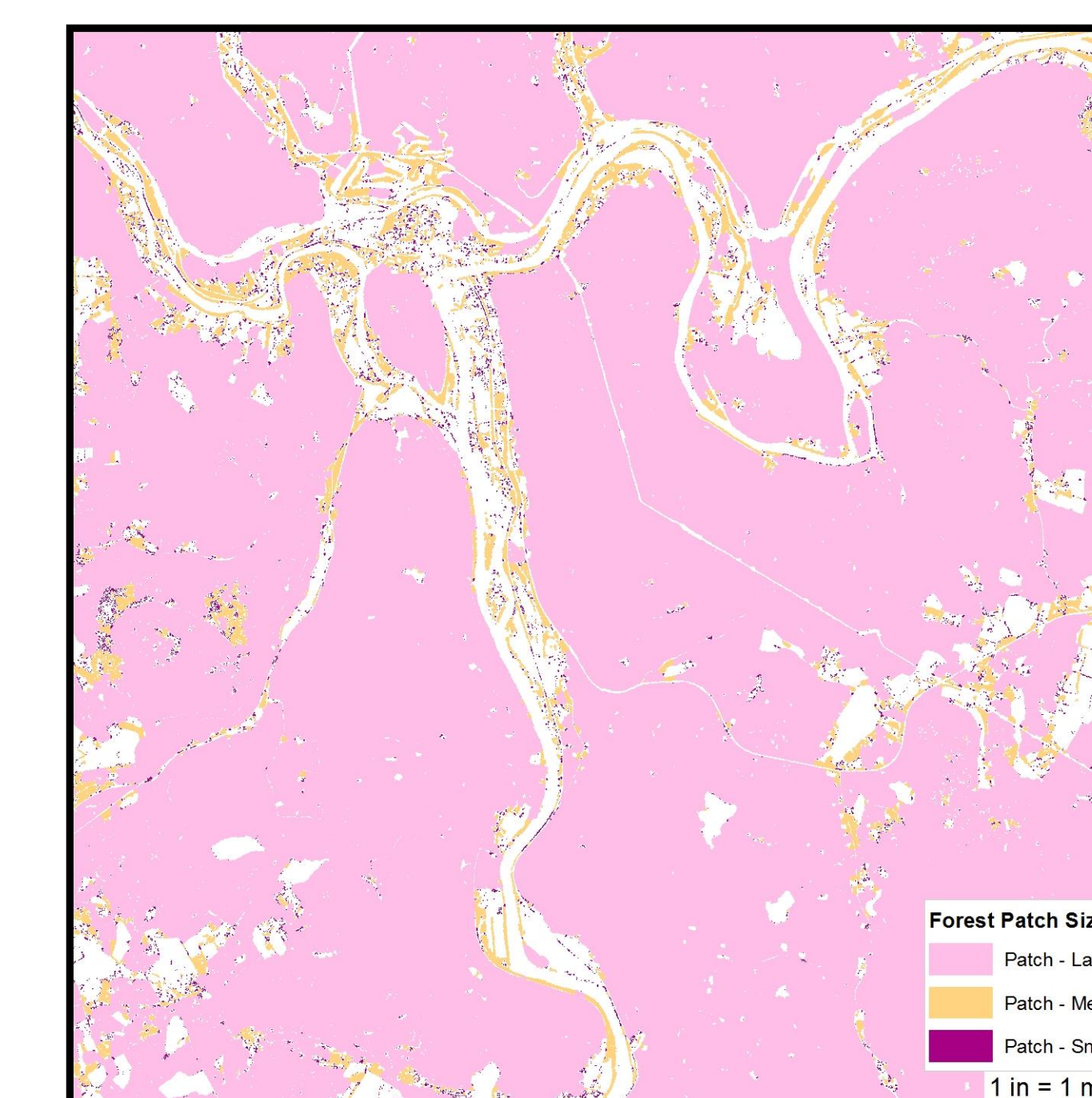
High Resolution Tree Canopy



Forest Species Type



Forest Patch Size



High Resolution Tree Canopy was integrated with the USDA Forest Service National Forest Type Dataset. The tree canopy was then divided into homogenous polygons and then assigned the dominant forest type from the National Forest Type Dataset.

High Resolution Tree Canopy was divided into 3 classes based on size, edge to perimeter ratio, length, & width. Small patches are single trees or rows, medium patches represent clumps of trees (suburban or agricultural areas), and large patches are forested stands that have a duff layer.