

Urban Tree Canopy Assessment: Using Remotely-Sensed Data for Tree Planting Decisions

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Introduction

- Urban Tree Canopy Assessment (UTC)
- What is LIDar and remote sensing?
- Why canopy and what can urban tree canopy assessments tell us about our landscape?
- How can these data be used?

First, a caveat...



Urban Tree Canopy (UTC)

The USFS UTC product is derived from:



Buildings



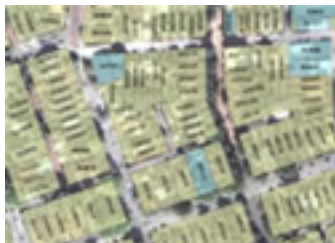
Roads



ROW



Imagery



Parcels



Geographies



Lidar

What does Lidar give us?

Lidar (light radar)

Depth: 2.5D imagery

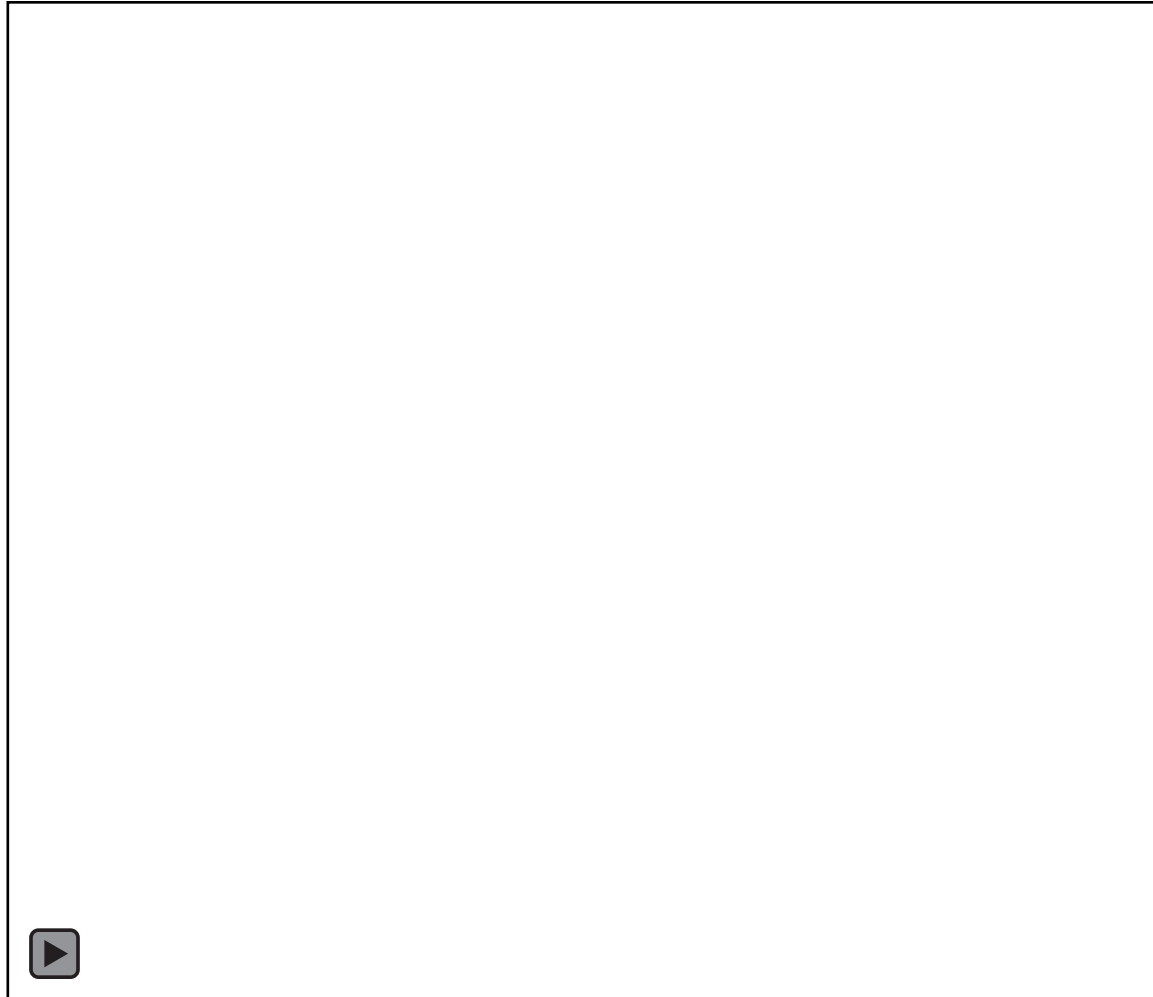
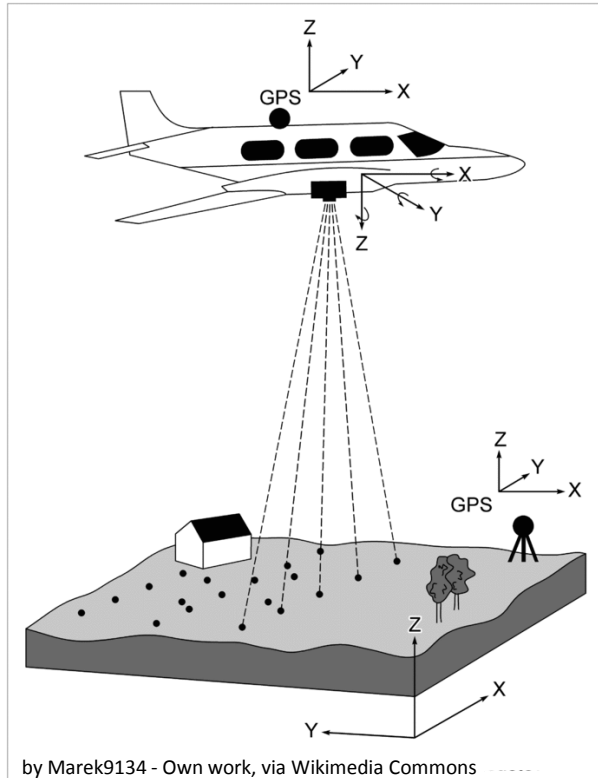
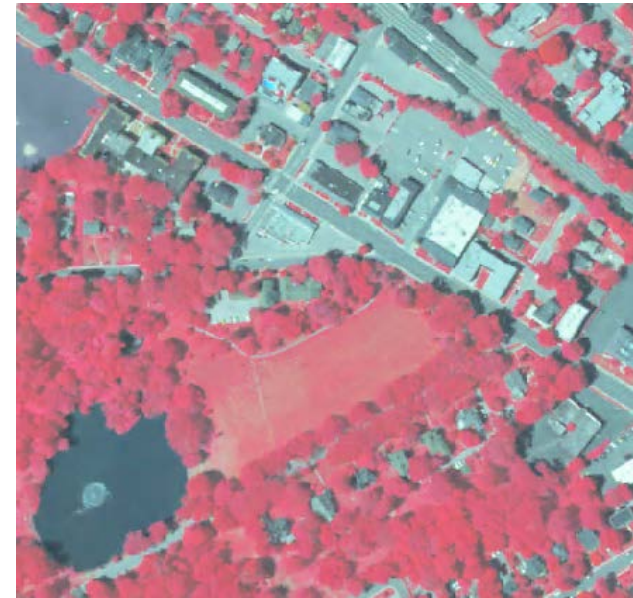


Image: Jason Henning

Height – makes discerning individual trees much easier



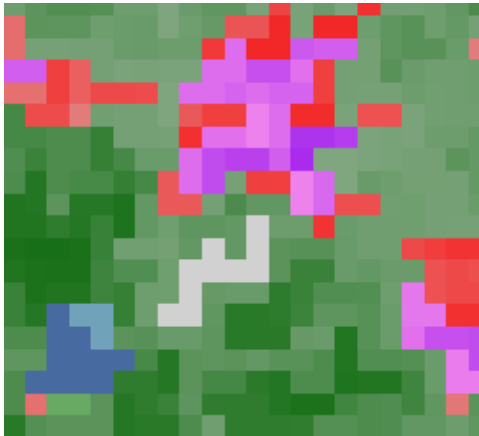
Aerial photography and NAIP (National Agriculture Imagery Program)



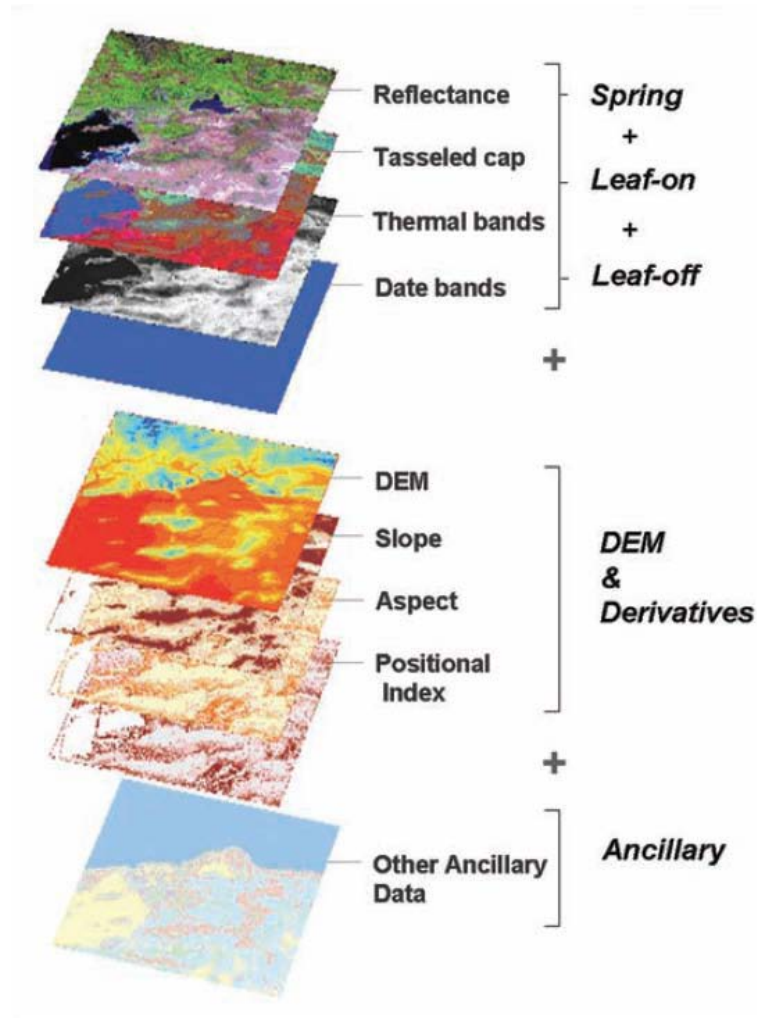
Satellite and derived layers

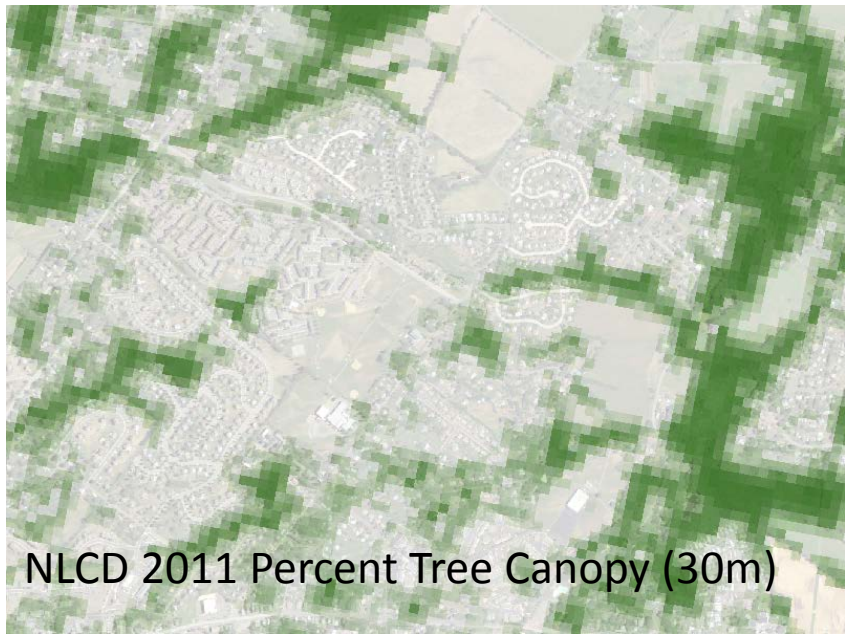


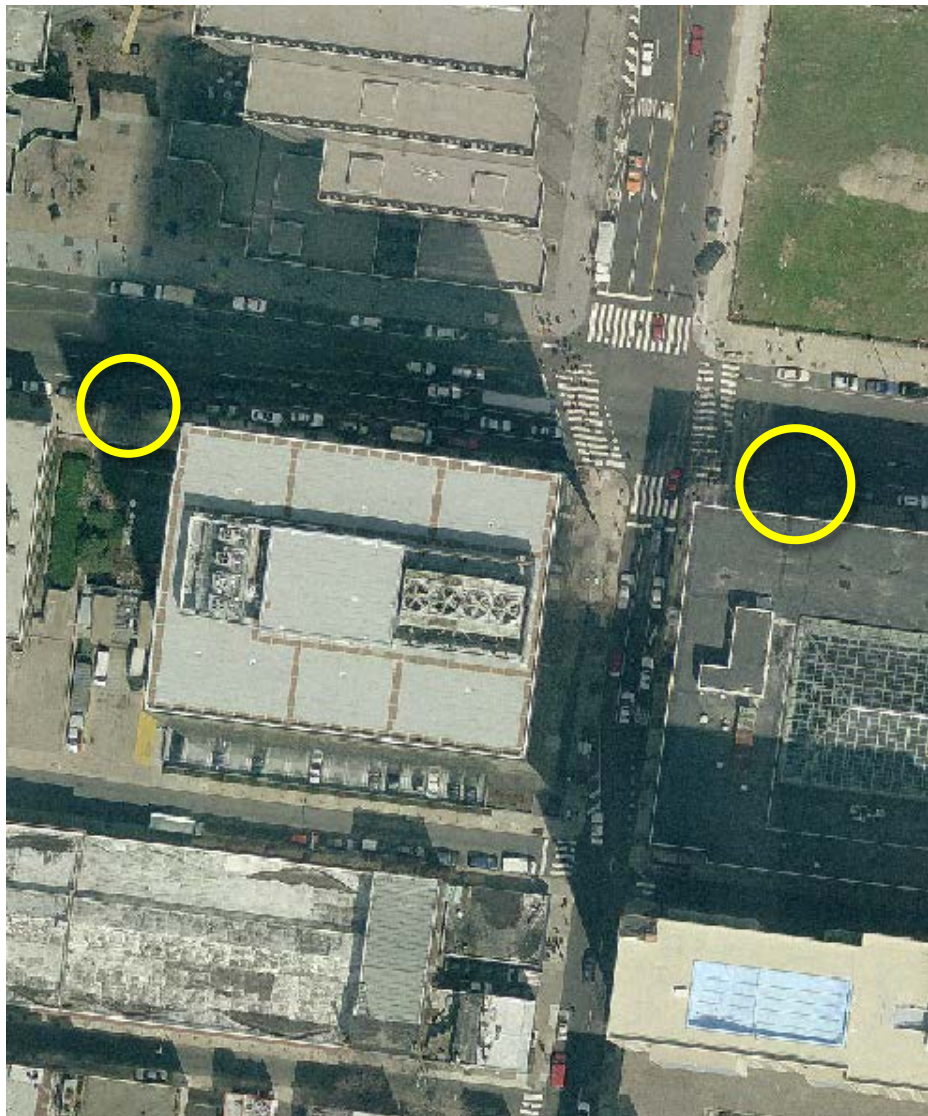
LandSat

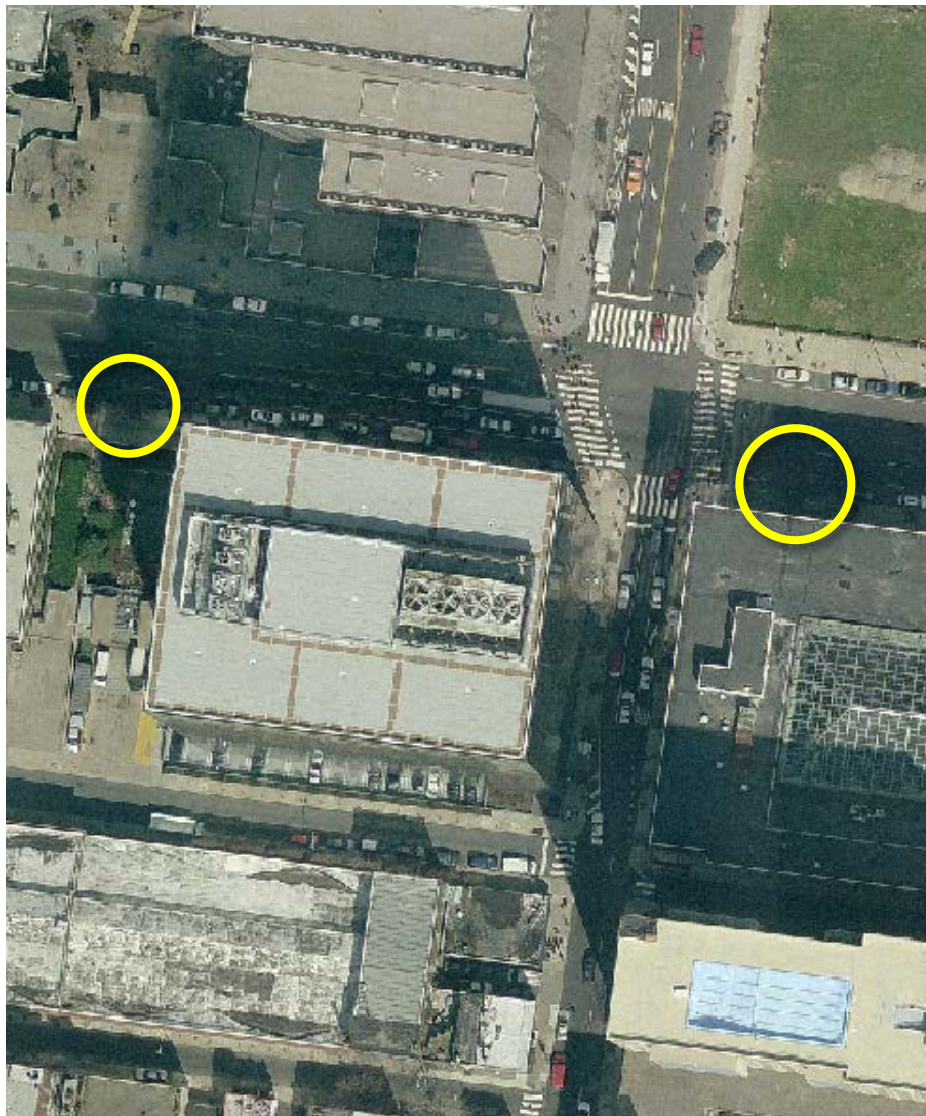


2011 NLCD



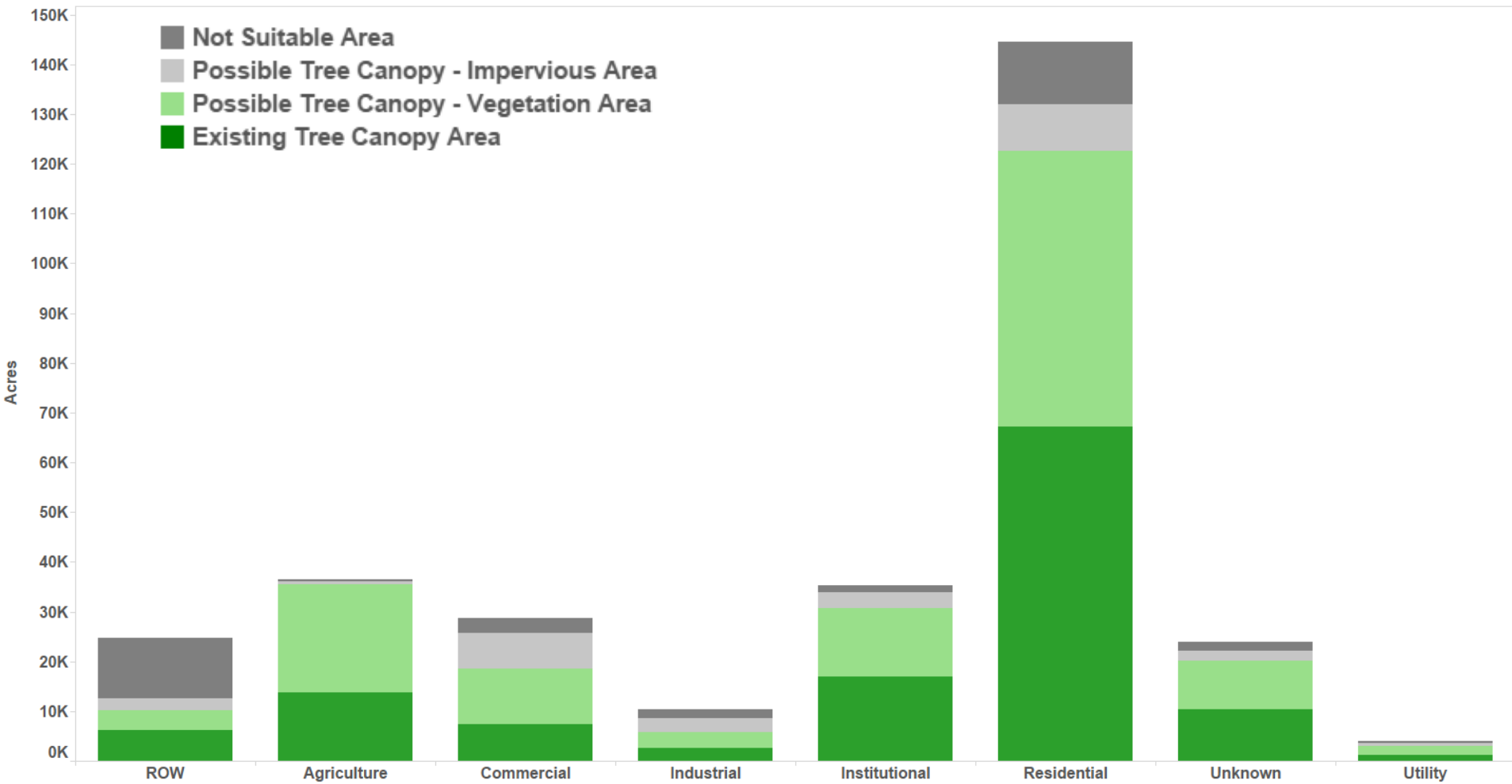






Analyze by Land Cover



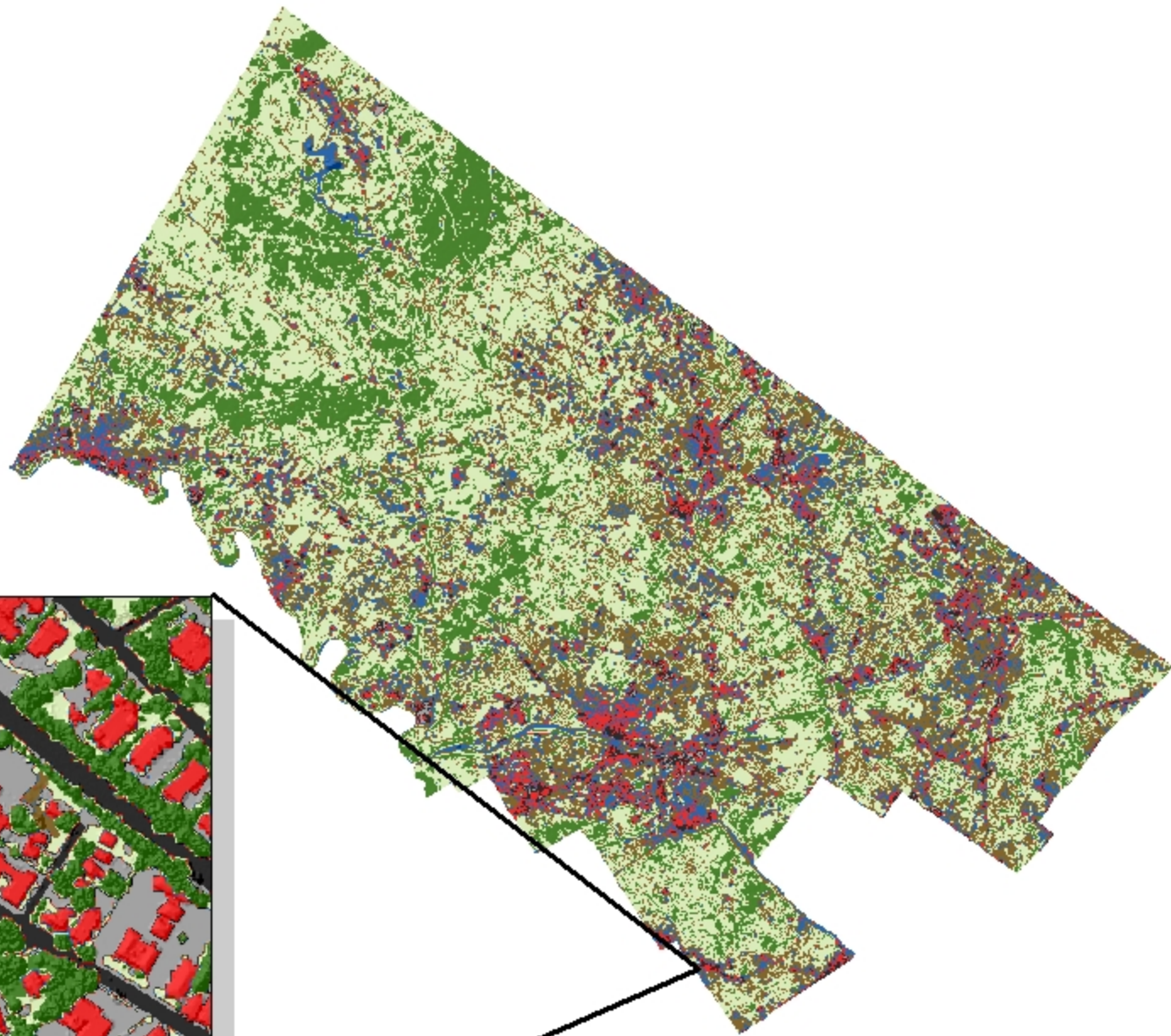


Scan for Regional Patterns



Landcover

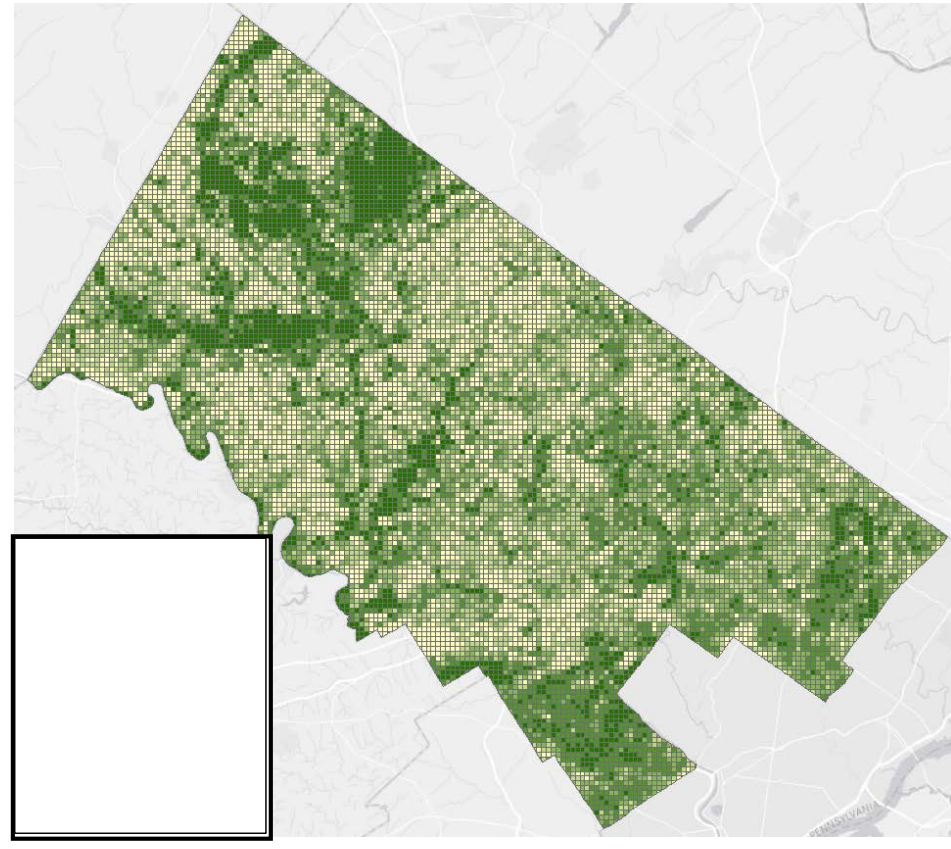
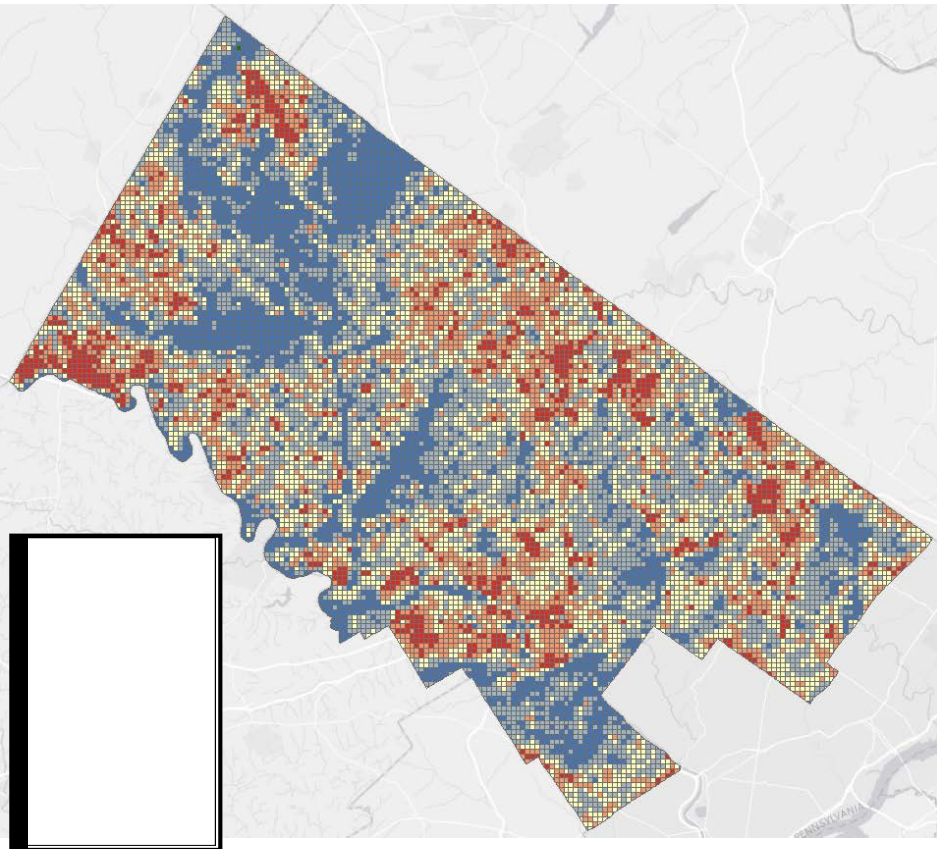
-  Tree Canopy
-  Grass/Shrub
-  Bare Soil
-  Water
-  Buildings
-  Roads/Railroads
-  Other Paved



Target Tree Plantings to Reduce Heat Exposure



Heat Island

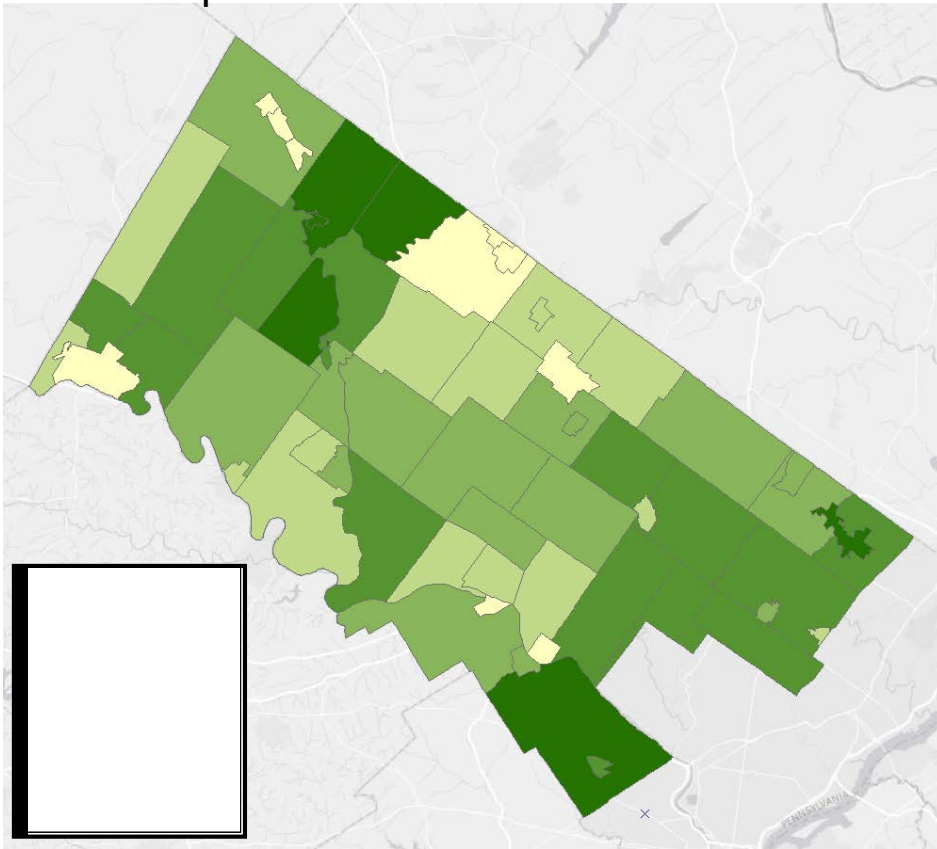


Identify Municipalities or Watersheds for Conservation Efforts and for Tree Planting Efforts

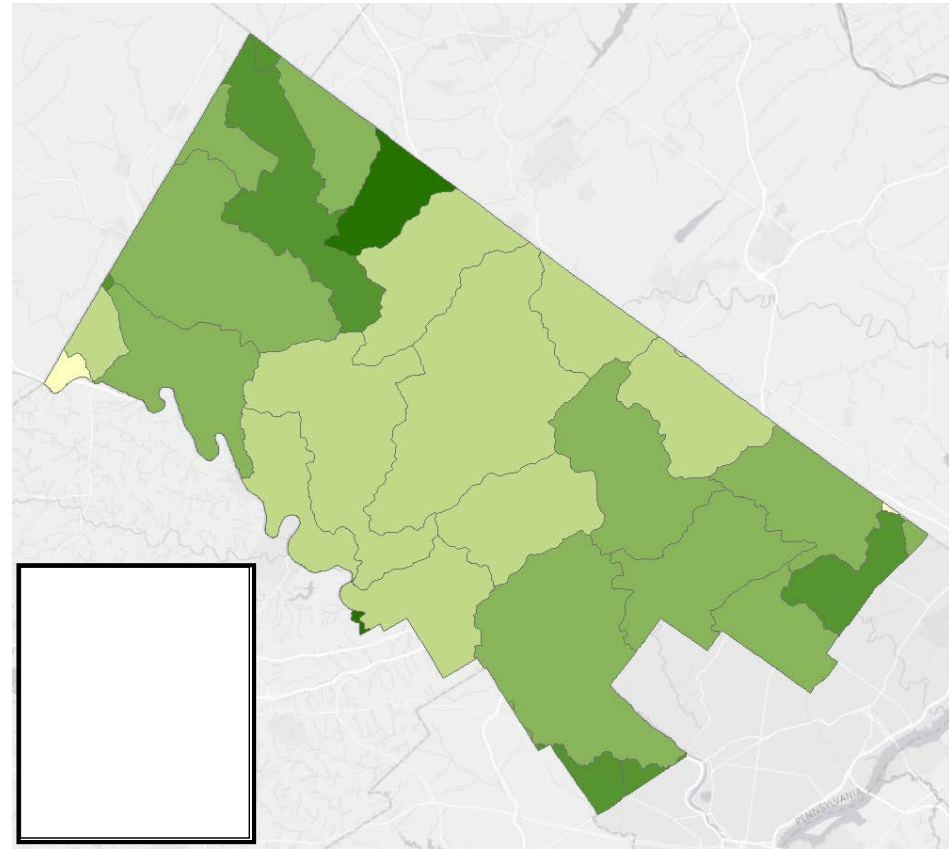


Landscape Scale

Municipalities



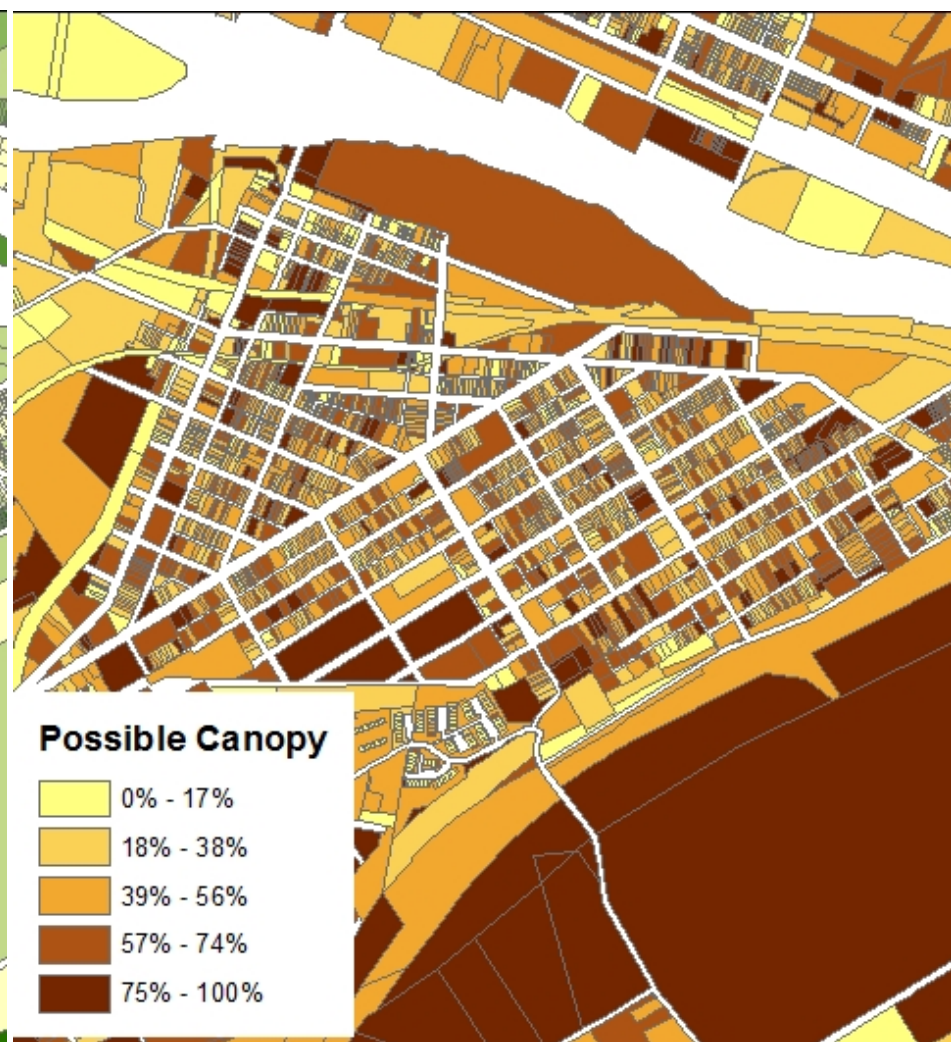
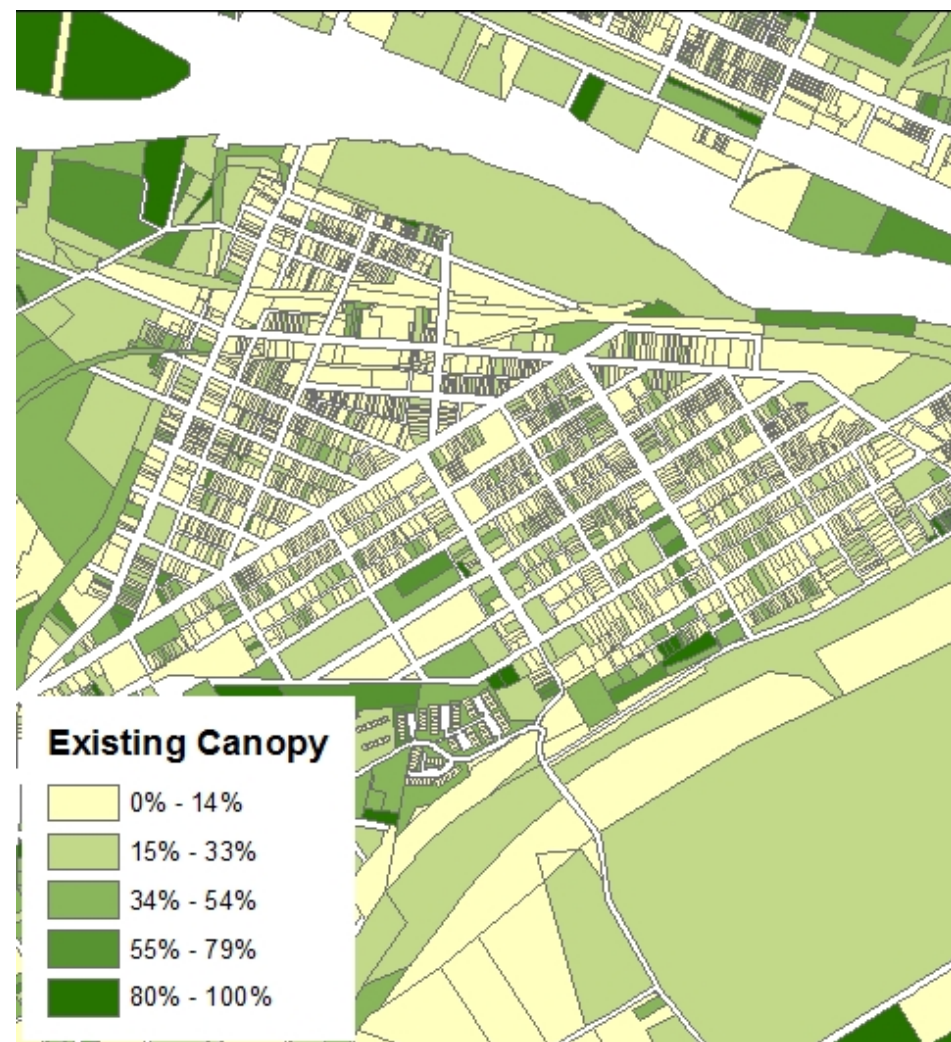
Watersheds



Prioritize Inspections and Planting Priorities by Parcel

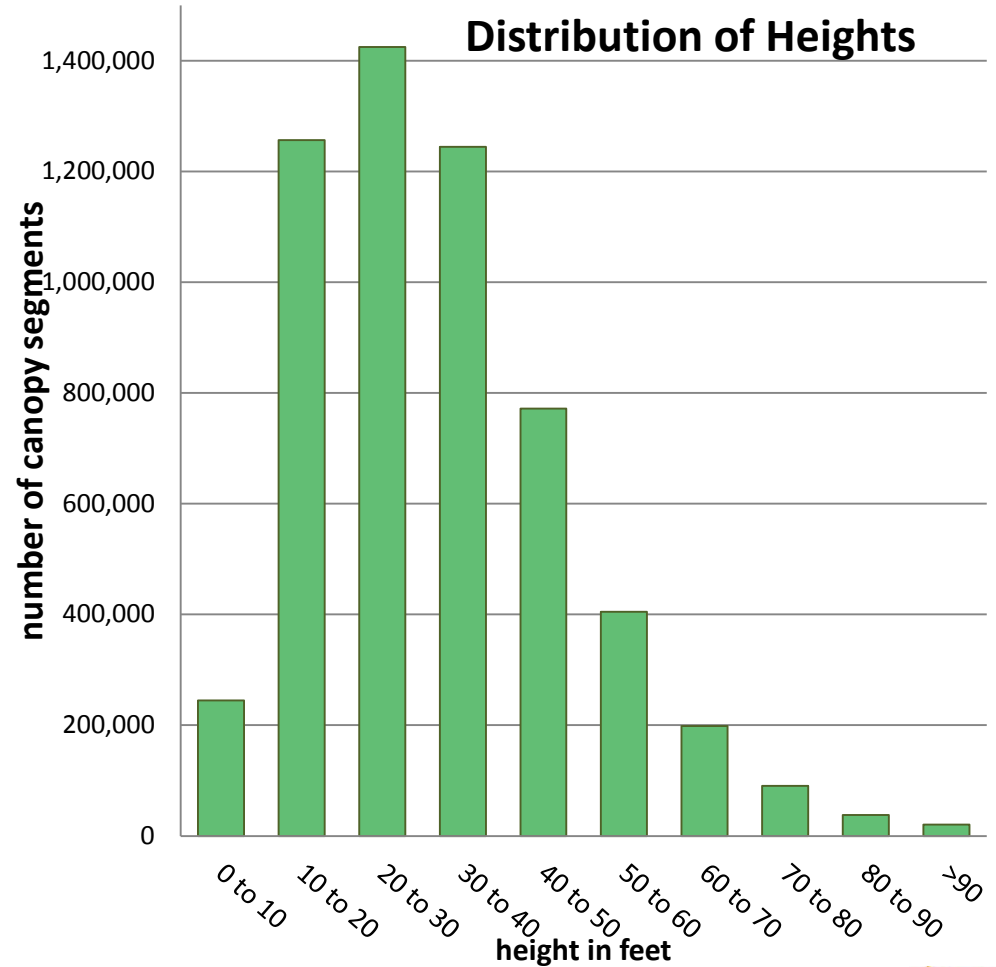
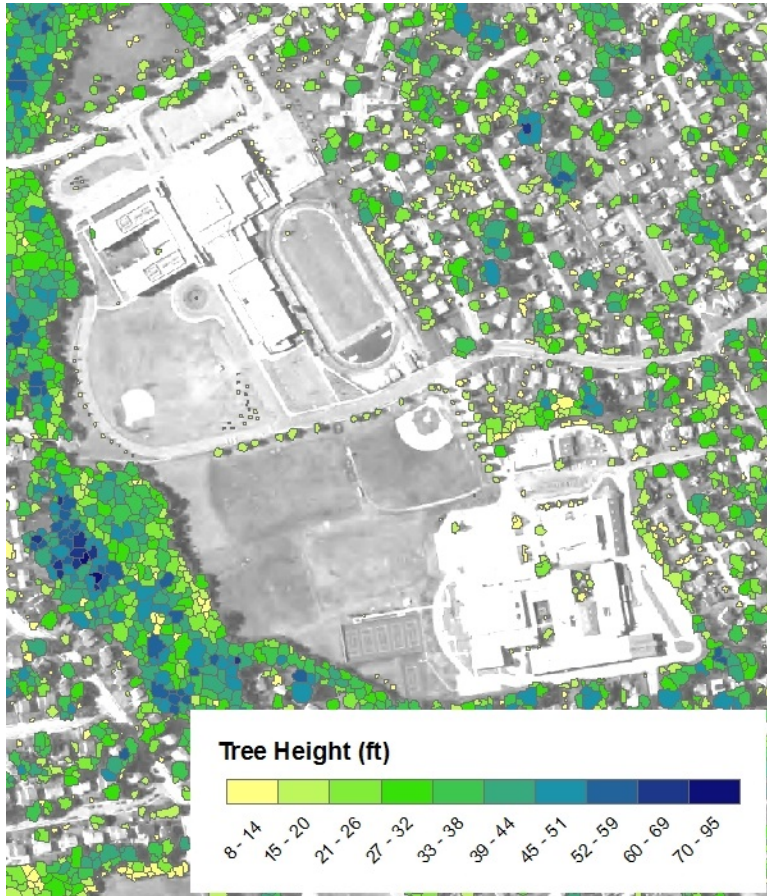


Parcel Scale

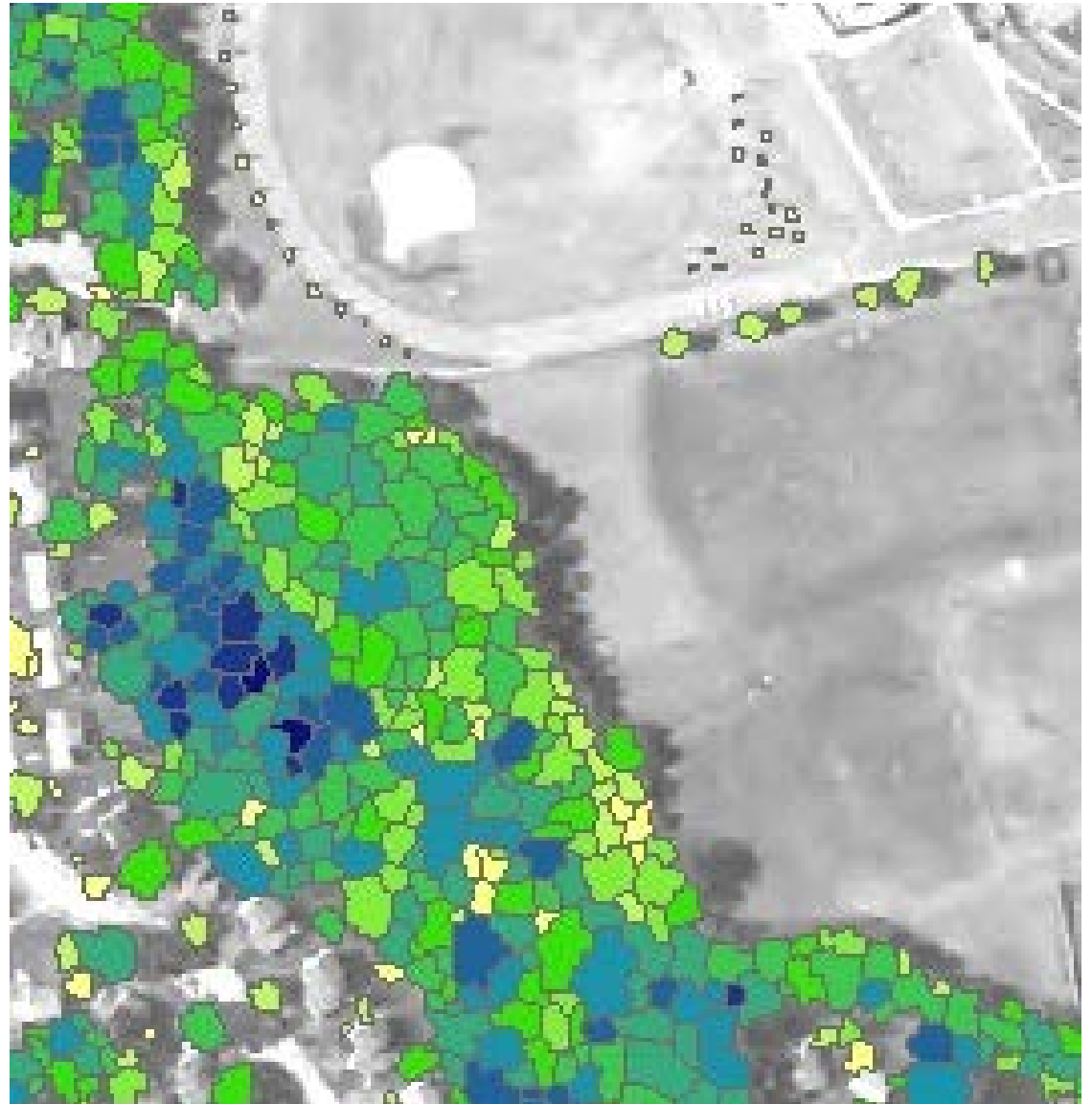


Identify Tall Trees and Look for Forest Stands with Structural Diversity

Tree Heights



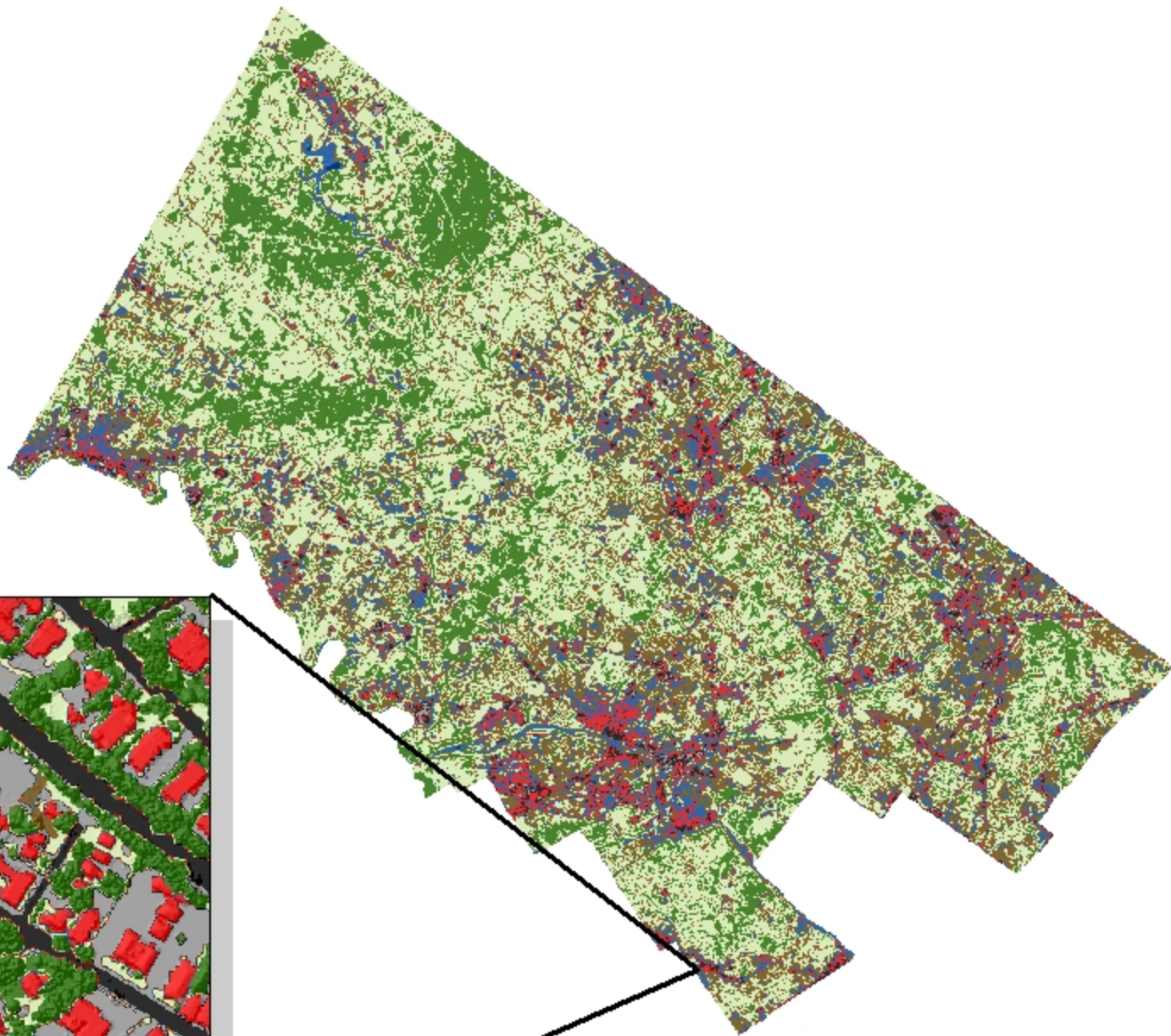
Tree Heights



Just scratching the surface...



Landcover

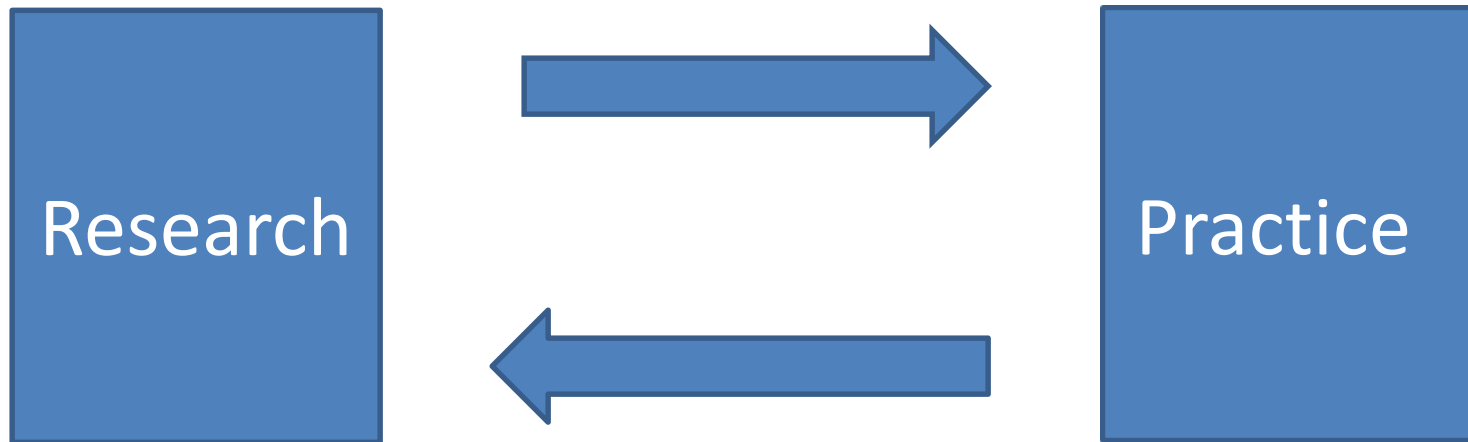


Allows us to look at individual trees and our urban forest as part of a larger forest landscape.

What is a forest?



Creating a Feedback Loop



How can you access these data?





PASDA

PENNSYLVANIA SPATIAL DATA ACCESS

The Pennsylvania Geospatial Data Clearinghouse

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Data Summary

Allegheny County - Urban Tree Canopy

2010 - Allegheny County

[Metadata](#) | [Download](#) | [Preview](#) | [KMZ \(GoogleEarth\)](#) | [Add to ArcMap](#) **IMAGE**

API

REST: <http://imagery.pasda.psu.edu/ArcGIS/rest/services/pasda/AlleghenyCountyUrbanTreeCanopy2010/MapServer>

WMS: <http://imagery.pasda.psu.edu/arcgis/services/pasda/AlleghenyCountyUrbanTreeCanopy2010/MapServer/WMServer?SERVICE=WMS&request=getcapabilities>

ADDITIONAL RESOURCES

Data Archive: [Download historic versions of this dataset](#)

ABSTRACT

Allegheny County Urban Tree Canopy. High resolution land cover dataset for Allegheny County, Pennsylvania.



- Chesapeake Bay Watershed, the State of DE, and a couple counties in MD on PASDA
<http://www.pasda.psu.edu/uci/SearchResults.aspx?originator=University+of+Vermont+Spatial+Analysis+Laboratory>
- PA statewide -
<http://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=3170>
- Delaware river basin -
<http://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=3166>
- And the newest combined State of PA, Chesapeake Bay watershed, and Delaware River Basin
<http://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=3193>

“Just show a picture of skidders and big trees and you will be fine.”



*Not a product endorsement

Acknowledgements

- Jason Henning, Davey Institute and USFS Philadelphia Field Station
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- Many unknown photographers who contributed plant photos to the public domain via the web.

Questions?



Contact

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