

Applications of GIS for Chesapeake Bay Program needs

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CHESAPEAKE RESEARCH CONSORTIUM

STAR MEETING – FEBRUARY 22, 2018



Chesapeake Bay Program
A Watershed Partnership

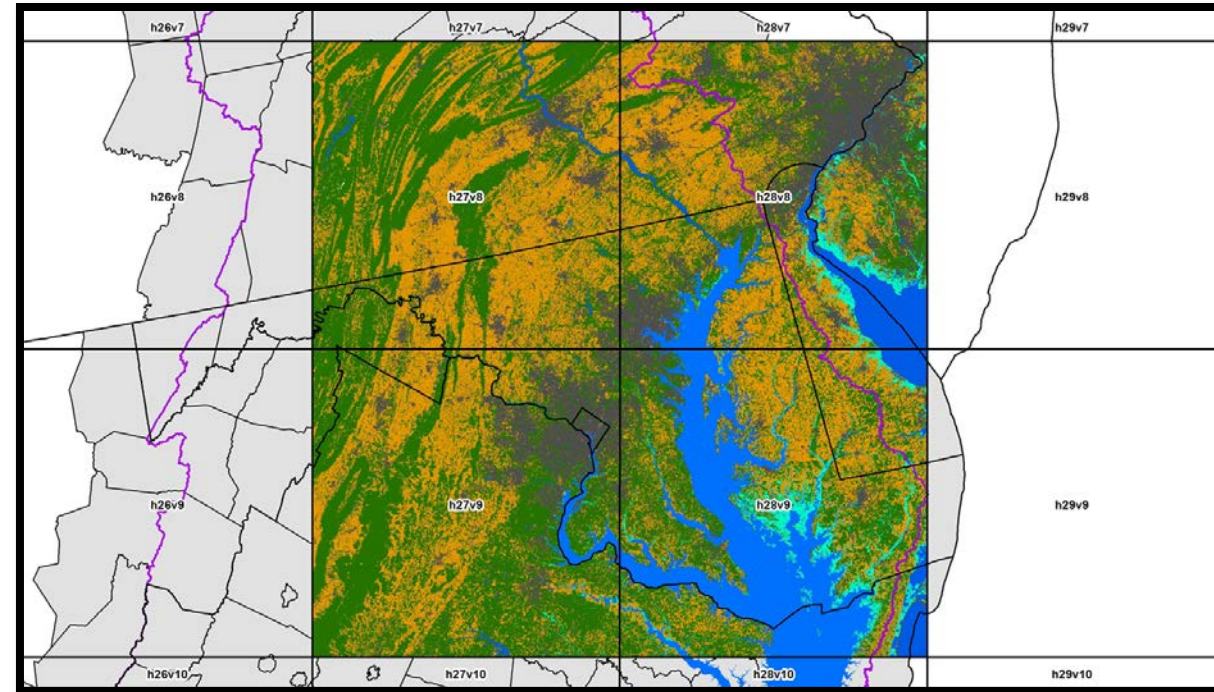


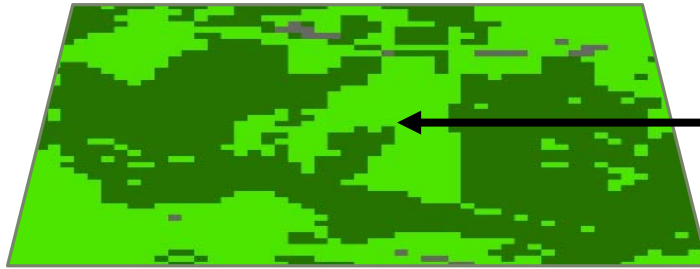
Deconstructing Developed and Forested Areas in the Chesapeake Bay Watershed

Purpose: Interpolate land cover data annually through historical time period (1984-2013) in order to detect rates of change in forest and developed land

- CBP Phase 6 Land Use Data
- Chesapeake Bay Land Cover Data Series
- Newly developed USGS Land Change Monitoring, Assessment, and Projection (LCMAP) Continuous Change Detection and Classification (CCDC) Data

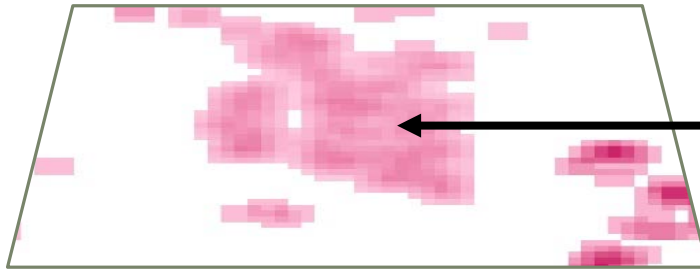
Model scripted using Python for ArcGIS





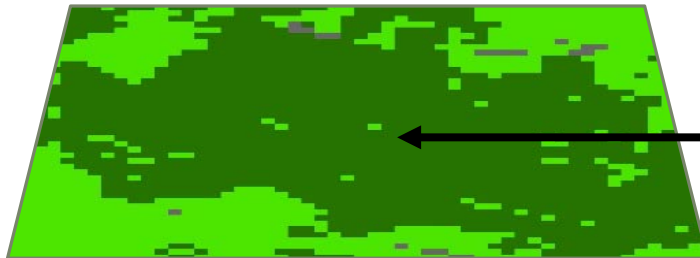
Herbaceous in 2013

2013 Land Cover (High-res resampled)



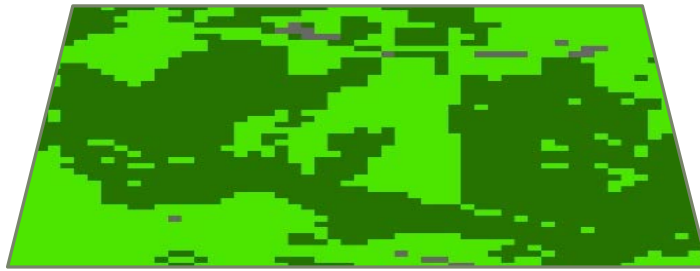
Change in 2012

2012 LCMAP Change Magnitude



Forest in 2006

2006 Chesapeake Bay Land Cover Data Series



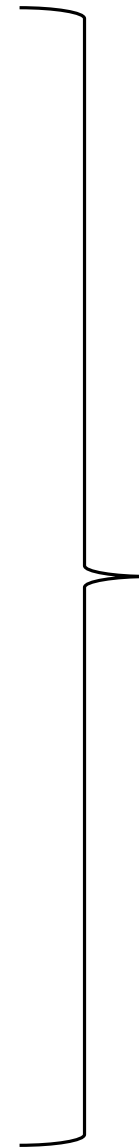
2013 Land Cover (High-res resampled)



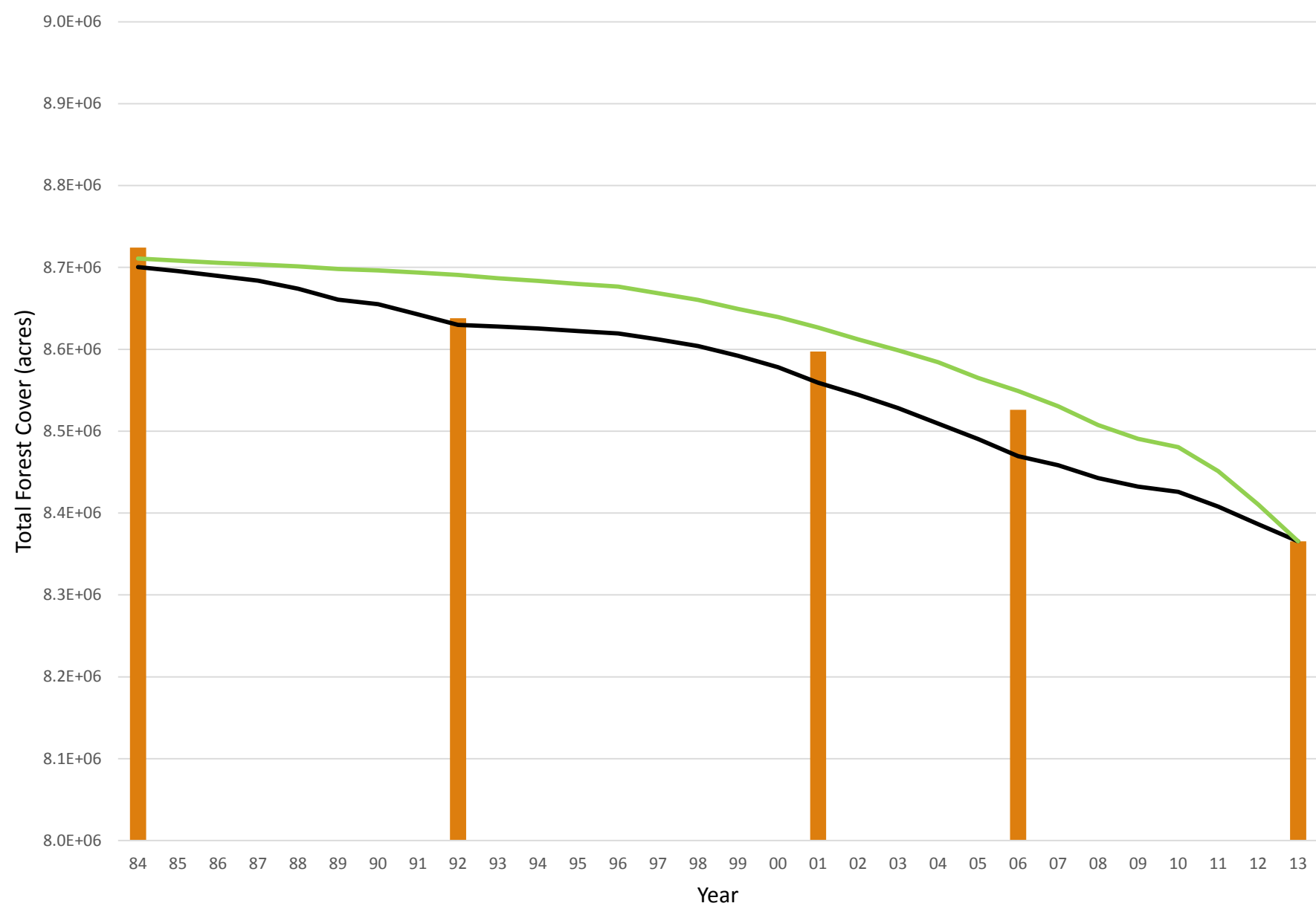
2012 LCMAP Change Magnitude



2006 Chesapeake Bay Land Cover Data Series



2012 "Interpolated" Land Cover



Interim Breakpoint Forest Cover 1984-2013 w/ Interim Breakpoints 1984 - 2013 No Interim Breakpoints

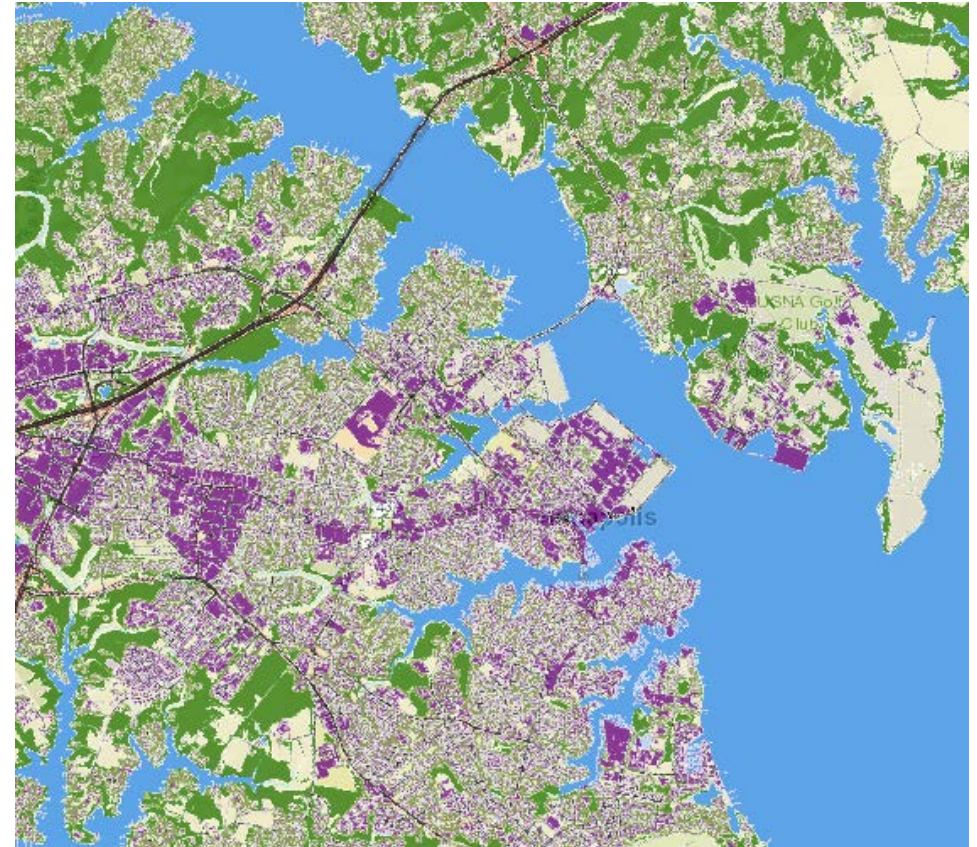
Taking a closer look at riparian areas in the Chesapeake Bay Watershed

Purpose: Estimate land area available for riparian buffer implementation by land use

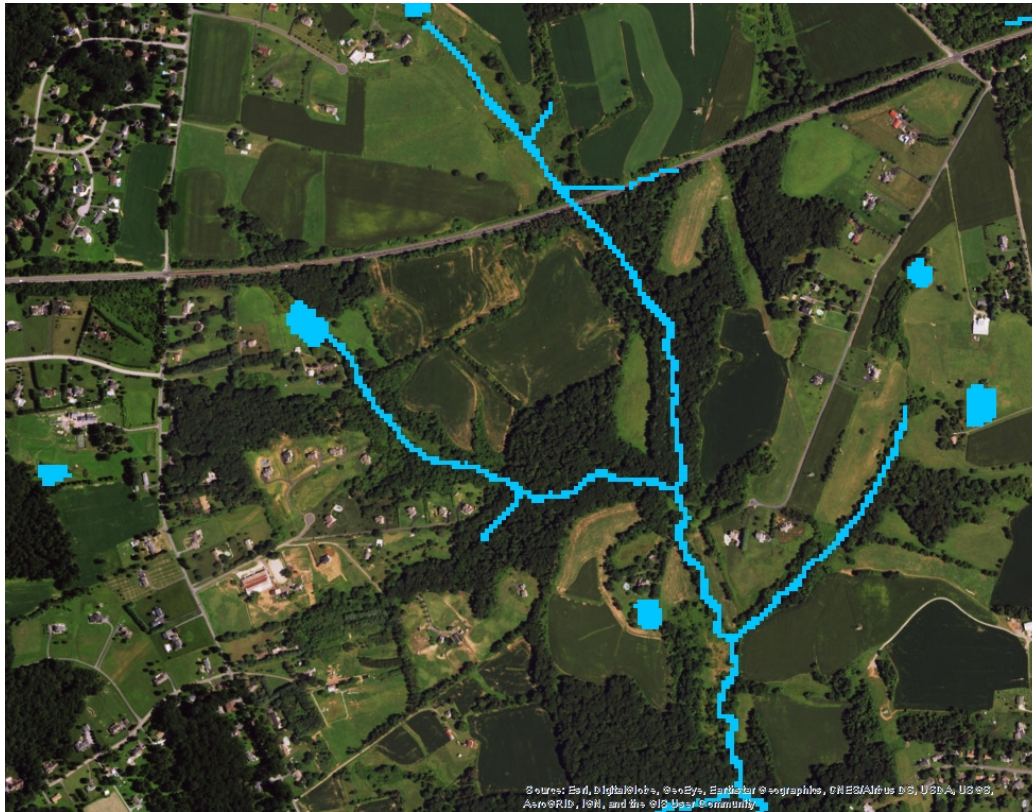
➤ CBP Phase 6 Land Use Data

Model scripted using Python for ArcGIS

Methods: Generated 30-meter 'buffer zone' around all mapped rivers, streams, ponds, lakes, shoreline and tabulated land use acres within this zone



Generating the 'Buffer Zone' (30 m)



Orange = Crop &
Pasture land uses
in buffer zone

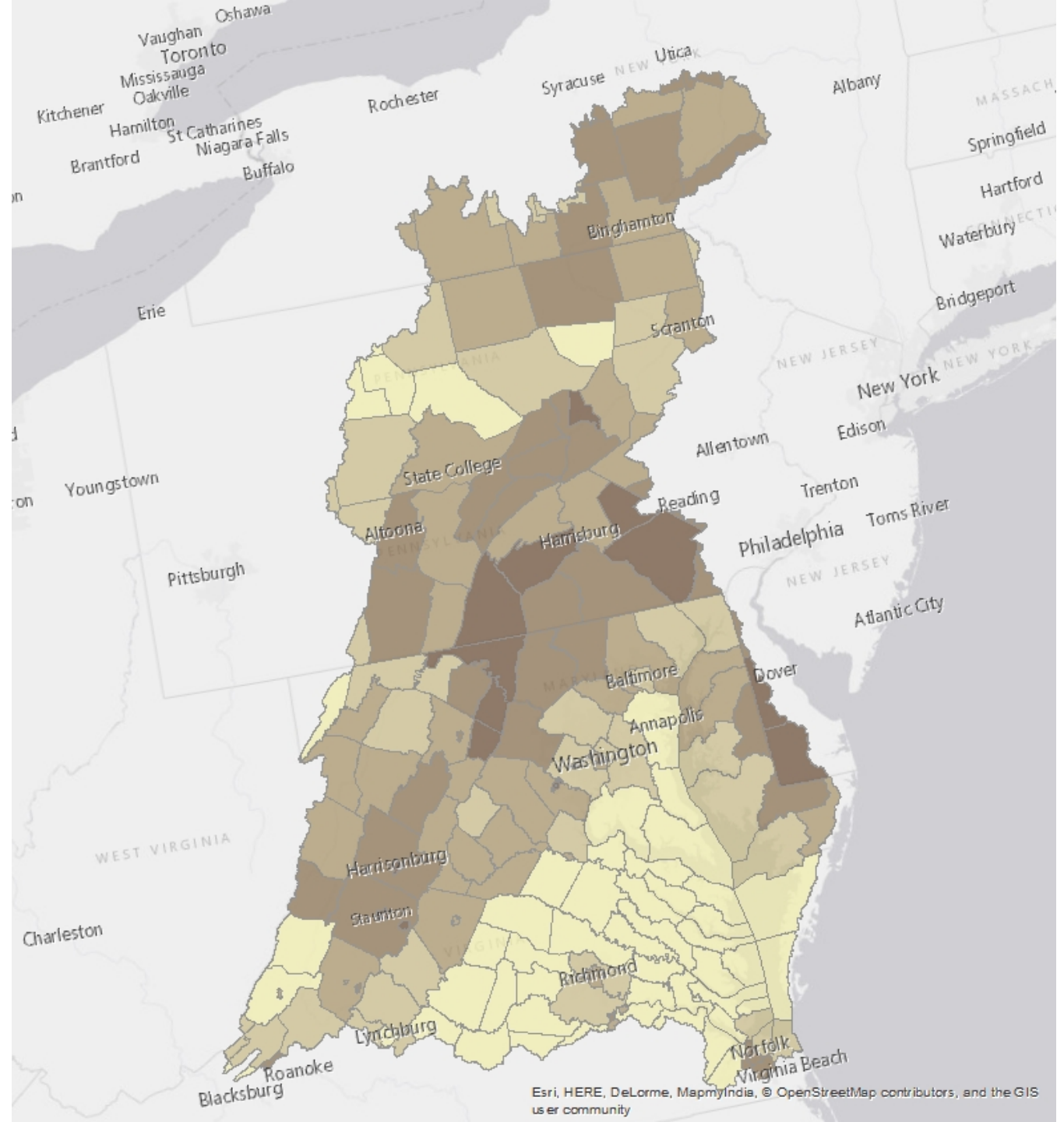
Green = Forest
land use in buffer
zone

Brown = Mixed
Open land use in
buffer zone



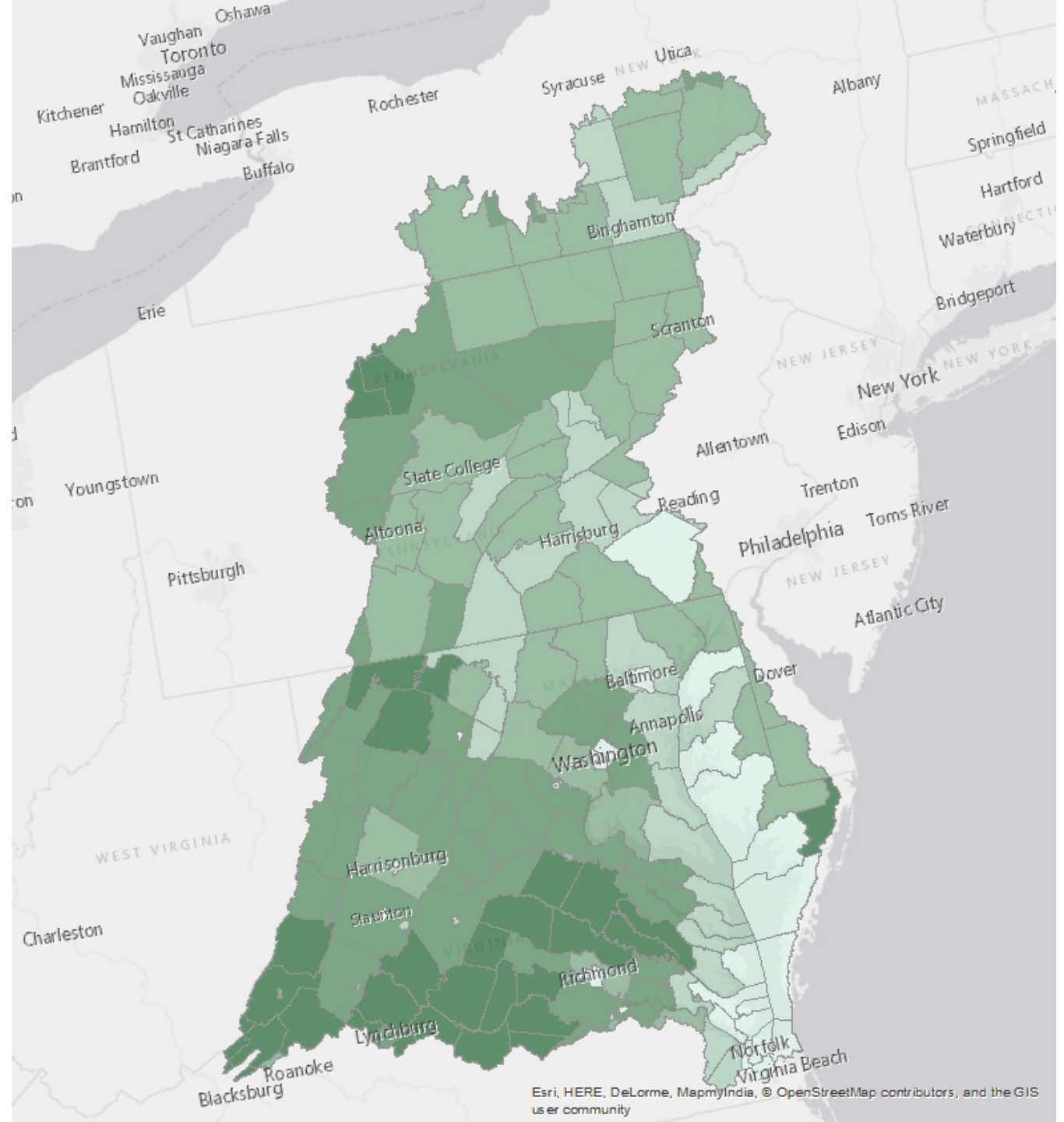
Herbaceous land
use in 30-meter
buffer zone,
normalized by
total county
acreage

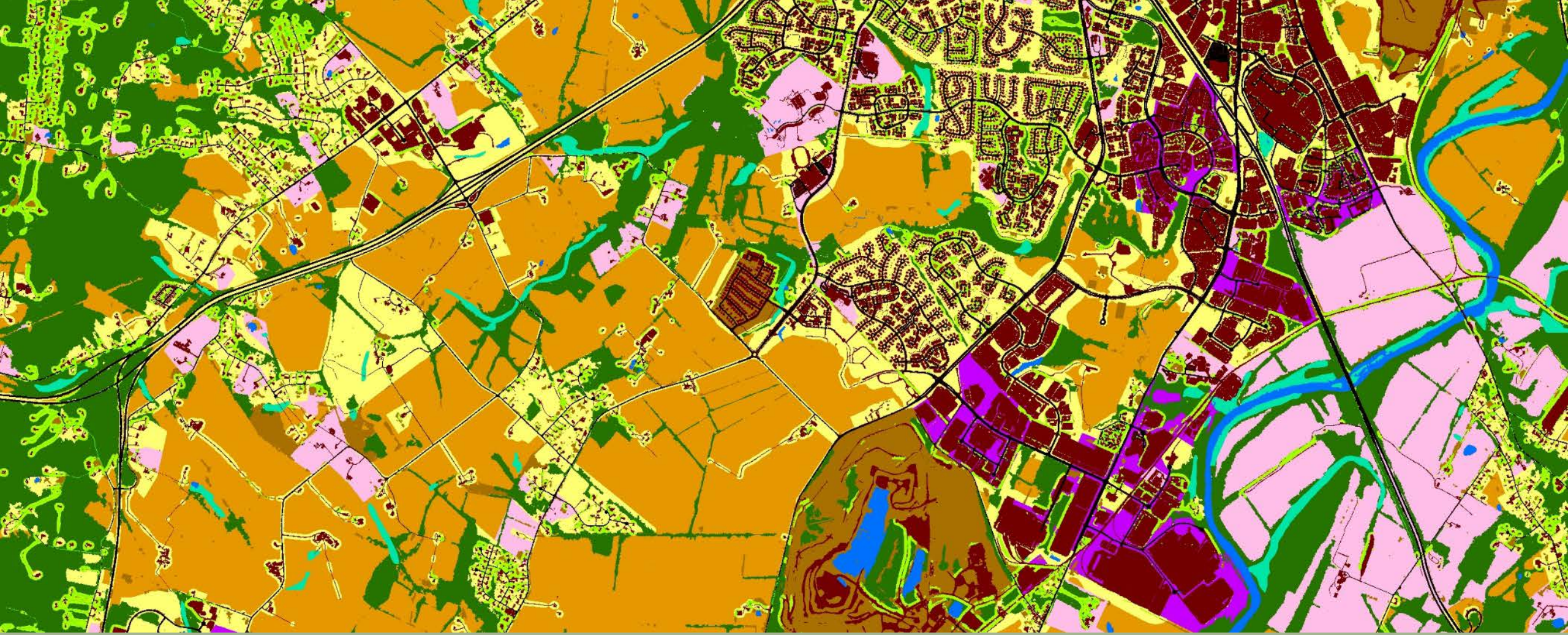
(Includes crop, pasture,
turf grass, mixed open
land uses)



Natural land use in
30-meter buffer
zone, normalized
by total county
acreage

(Includes forest, tree
canopy, and wetland land
uses)





Thank you! Questions?

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