Tree Canopy Indicator Update

Climate Resiliency Workgroup 3/18/19
Julie Mawhorter, US Forest Service, Tree Canopy Outcome Coordinator/Forestry Workgroup
jmawhorter@fs.fed.us

Through the Chesapeake Bay Watershed Agreement*, the Chesapeake Bay Program has committed to…*

Vital Habitats Goal

Tree Canopy Outcome: Continually increase urban tree canopy capacity to provide air quality, water quality and habitat benefits throughout the watershed. **Expand urban tree canopy by 2,400 acres by 2025.**

State Targets set in Management Strategy

Jurisdiction	Annual Target (New Acres)	2025 Target (New Acres)
Delaware	5	60
DC	40	480
Maryland	45	540
New York	5	60
Pennsylvania	60	720
Virginia	40	480
West Virginia	10	120
TOTAL	**205**	**2460**

Outcome set based on targets provided by jurisdictions when Watershed Agreement was drafted

Defining & Measuring Tree Canopy

"In this Management Strategy, we use a broad definition of "urban" tree canopy that includes all sizes of communities. It is important to note that this goal is intended to reflect a *net gain* in acreage of tree canopy, after accounting for canopy losses due to various factors such as development, storms, pests/diseases, and natural mortality. Meeting the goal requires protecting as much of our existing tree canopy as possible and planting enough to both mitigate losses and expand the tree canopy cover by 2,400 acres."

Defining & Measuring Tree Canopy

- New quantitative outcome in CB Watershed Agreement – no baseline/indicator or tracking systems in place
- Management Strategy proposed to track progress using combination of 1) annual tree planting BMP data, and 2) high resolution land cover dataset, under development at the time
- Over 2018, we formalized and refined a Tree Canopy Indicator proposal, building on these two data sources; has been approved by Forestry Workgroup, WQGIT, and Status & Trends Workgroup

Tree Canopy Indicator- Measuring Progress 1) Reported Tree Plantings

- Track and total 3 Urban Tree BMPs reported to NEIEN
  - Urban Tree Planting
  - Urban Forest Planting
  - Urban Forest Buffer

- Report on annual progress, 2010 – present
- Due to past incomplete data in NEIEN, begin reporting Indicator progress with 2018 progress/history data (available May 2019)

Note: BMPs "expire" in model accounting after 10 years, when they are expected to be picked up in land cover data

Tree Canopy Indicator Baseline & Progress 2) Land Cover Data

- CBP High Resolution Land Cover data provides best tracking of Tree Canopy gains and losses over time
- 2013 – Our Baseline Estimate
- Updates expected:
  - 2021 release, based on 2018-2019 imagery
  - 2025 release, based on 2023-2024 imagery

These updates will provide the best opportunities to evaluate progress and adapt our management strategies as needed.

Tree Canopy Indicator Baseline & Progress 2) Land Cover Data

What land classes we include as “Community Tree Canopy”

- Tree Canopy over Turf
- Tree Canopy over Impervious
- Urban Forest – only Forest that falls within Census Urban Areas & Clusters

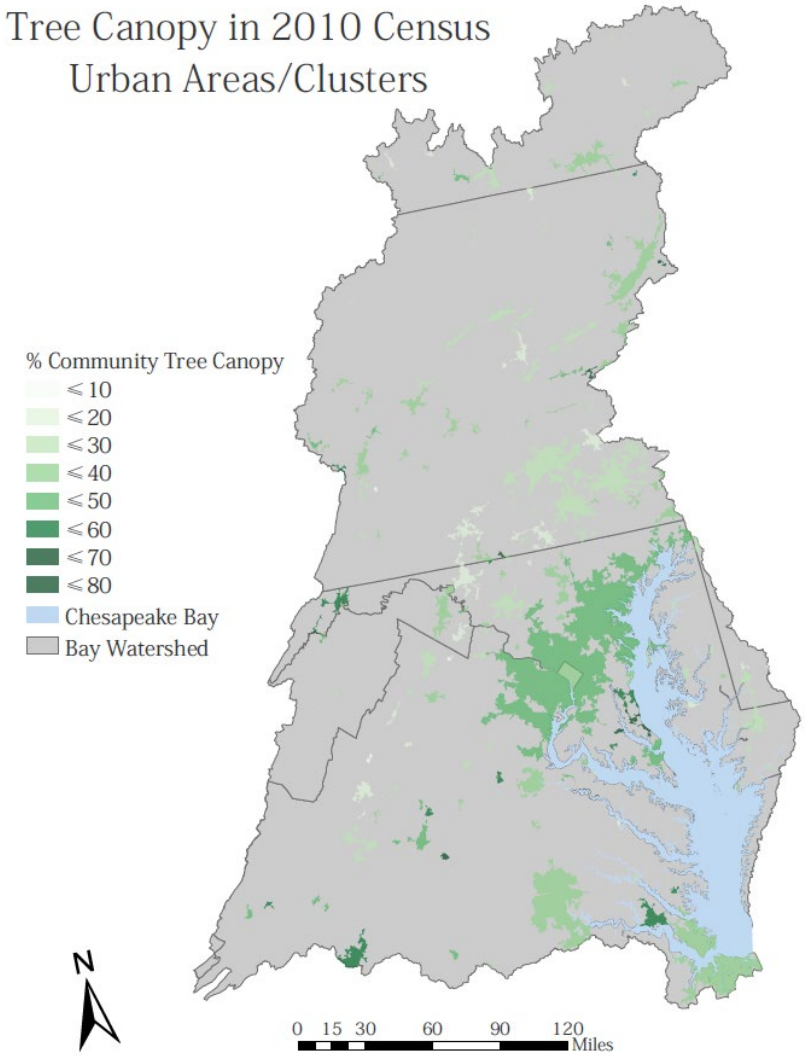
What isn’t included:

- Trees on agricultural land
- Forest outside of Census Urban Areas & Clusters

Along the way, we considered…

- Limiting scope to Census Urban Areas & Clusters

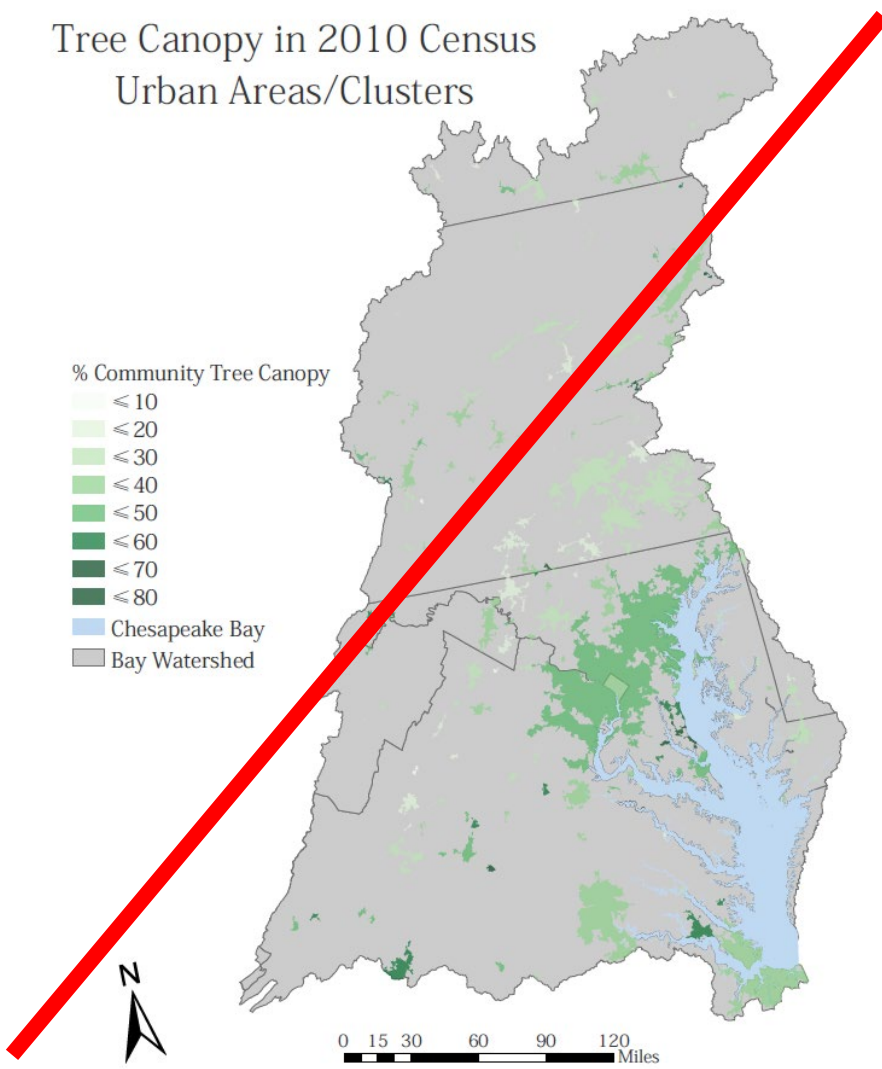
But…excludes many smaller communities that are working on tree canopy goals in less developed parts of the watershed



Along the way, we considered…

Therefore, we decided to use

- Tree canopy land classes <u>everywhere</u> (over turf + impervious)
- Urban forest = Forest land class occurring within Census Urban Areas & Clusters



Proposed Tree Canopy Baseline (2013)

Jurisdictions	Total Tree Canopy (acres)	Forest in Urban Areas & Clusters (acres)	Tree Canopy + Urban Forest
Delaware	6,320	3,414	9,734
District of Columbia	8,073	4,477	12,550
Maryland	317,076	331,308	648,384
New York	50,840	22,058	72,898
Pennsylvania	293,821	148,724	442,545
Virginia	407,940	303,375	711,315
West Virginia	46,069	15,481	61,549
Watershed	1,130,139	828,837	**1,958,976**

Tree Canopy = Tree Canopy over Turf Grass and Tree Canopy over Impervious (both from Phase 6 land use)
Forest = Forest as defined in Phase 6 model land use, exclusive of tree canopy;
filtered to only 2010 Census Urban Areas and Urban Clusters

Tree Canopy Indicator Baseline & Progress 2) Land Cover Data

When land cover is updated:

- All newly emergent “tree canopy over turf grass” and “tree canopy over impervious surfaces” that fall outside areas classed as forest in 2013/14 will be added to the total tree canopy
- Lands previously classed as Forest but now appearing as Tree Canopy (ie through development) will not count towards tree canopy expansion
- Tree canopy on land that converts from agriculture to developed will be counted as community tree canopy

Next Steps

- Review 2018 urban tree BMP progress and history data this spring to see if it is sufficient for Indicator reporting
- Work with states on tree tracking tool to support reporting from local governments and NGOs
- Advise on and review tree canopy data in land cover update and adapt approach if needed

Wish list item to consider…

- Interest in overlay of tree canopy and urban heat island data to demonstrate priority areas to plant and conserve trees for public health

Questions/Discussion