# State of the Forests 2.0

**Goals:**

- Characterize the current "state of the forests" based on new high-res data
- Characterize forest/TC change 2013-2017
- Evaluate the implications of the current state of the forests and forest change for water quality and other ecosystem services
- Discuss what we might expect for forests in the future and identify potential management and policy implications

**Target audience**

- An environmentally-focused, non-forestry audience of CBP partners and other workgroups (habitat, etc.) who want to understand the role of forests in the Chesapeake Bay Watershed
- Local governments, managers, policy-makers, planners

**Format**

- Storymap would likely be the primary product, but also create a separate PDF report
- Could have short "at a glance" status/change document for the Watershed and each state
- Could also consider more topical fact sheets



**Preliminary Outline (highlighted items are higher-priority for Phase 1):**

- **Characterize the current "state of the forests" based on new high-res data**
    - How much
        - Overall amount of TC coverage across classes (% by county)
            - Pop-ups where you select a county and then see the breakdown of TC classes
        - Another map showing where in the watershed has tree cover (or could provide guidance on using the viewer)
            - Select a few key classes to display or map trees vs. not trees
        - Breakdown of total land and % land in different TC classes (by entire watershed and state)- summary statistics in a table
        - Riparian buffer coverage- what % of riparian areas are buffered and how much space is left to be buffered?
            - County map showing % buffered (with tree cover) in each county
            - Another map showing where in the watershed is buffered with trees and the surrounding land covers (or the LU within the buffer areas)
            - Another county map showing % "bufferable" acres, based on where there is a natural land cover that is not currently treed
                - Could also look at compiling other classes to quantify "plantable" space, including turf

        - Could conduct a parcel-level analysis to identify unbuffered private land parcels suitable for follow-up following this example
    - Renee is developing a new riparian mask for MD for the HWA
        - Would need to expand this to the rest of the watershed for this effort and for the LUMM indicators
    - Hyper-res data will likely be available late summer 2022- do we need 24K density (high-res) or 2K density (hyper-density) for calculating bufferable acres?
- Put in maps of how much of forest/TC is permanently conserved (from protected lands database if/when data is available- estimated May 2022)
    - Show type of land ownership
- Distribution
- Urban overlay (this would apply to current status and change)- take all forest/TC within census urban areas and clusters and add in TC land uses that fall outside of that
    - Map urban footprint, then summarize TC levels in urban areas
- Overlays with equity layers
    - Potential interface with Chesapeake EJ Dashboard
    - Provide some information on the tree equity score
- Overlay with protected lands
- Forest condition
- Successional classes/ age classes
    - CBP land use classes: Harvested forest (barren, herbaceous), natural succession (barren, herbaceous, shrub/scrub), forest
    - Could look at pulling in FIA data
        - 2018 Forest Stand size class data (large, medium, small diameter) https://usfs.maps.arcgis.com/home/item.html?id=65ba9448834e47ac88cb6eb02ba988a7
        - Stand age, stocking and Lorey's Height: https://usfs.maps.arcgis.com/home/item.html?id=73b9ca41aa5e4b05b9f45cd3875f65c9
- If we provide data on forest health conditions (insect infestations, etc.), CBPO team could look at how these are getting picked up in the imagery
    - Matt Baker/Michelle Kotaski looking to see if we can use lidar to make inferences about forest health from forest structure info
- What benefits are forests providing (i-Tree stats) – and who is benefiting?
- Map could be a repeat of the county % TC map, but the pop-ups would show the i-Tree benefits
- Fragmentation
- There could be a side group with Peter, Miranda Mockrin (patch size/WUI), maybe someone else from USFS/Fragstats
    - Traditional fragmentation metrics aren't as good for high-res data

        - Forest -> Trees over turf could be an interesting metric
    - Could also look at parcelization

- **Characterize forest/TC change 2013-2017**
    - How much have we lost and gained across various TC classes?
        - Maps showing net loss and gain by county
            - Zoom-ins that highlight places that are hotspots of loss and gain, showing the imagery and how the land use has changed in those places (3 panel image)
        - Maps showing the net gain and loss in forest
            - Important to highlight loss
            - Look at how much riparian tree cover we have lost/gained – how to account for acres that are planted but haven't been detected in the imagery yet (imagery biased towards loss)
        - How is TC moving between classes (forest transitions)? What is the story in terms of sustainable forest management (esp. dealing with timber harvest data)
            - How are these changes occurring in different landscapes (natural vs. ag vs. developed)
            - From Peter: any assessment of timber harvest based on our data should include our forest to cropland transition in parentheses as a possible addition
    - What are the drivers of forest/TC loss and gain?
        - Include local level stories of places that are experiencing large amounts of tree canopy gain or loss to illustrate why are we are losing/gaining forests (i.e. to solar fields or warehousing)
        - How is climate change impacting forests?
    - Where are we losing and gaining forest/TC?
        - Urban overlay
        - Overlay with equity layers
        - Overlay with protected lands
    - How have these losses and gains impacted forest fragmentation?
    - What are the implications of this change for water quality and other ecosystem services (i-Tree)?
        - State and watershed scale summary numbers for i-Tree
        - Work with Olivia to derive water quality implications from CAST
- Based on the changes we've seen, what might we expect to happen in the future?
    - What are some management/policy implications?