State Timber Harvest Data

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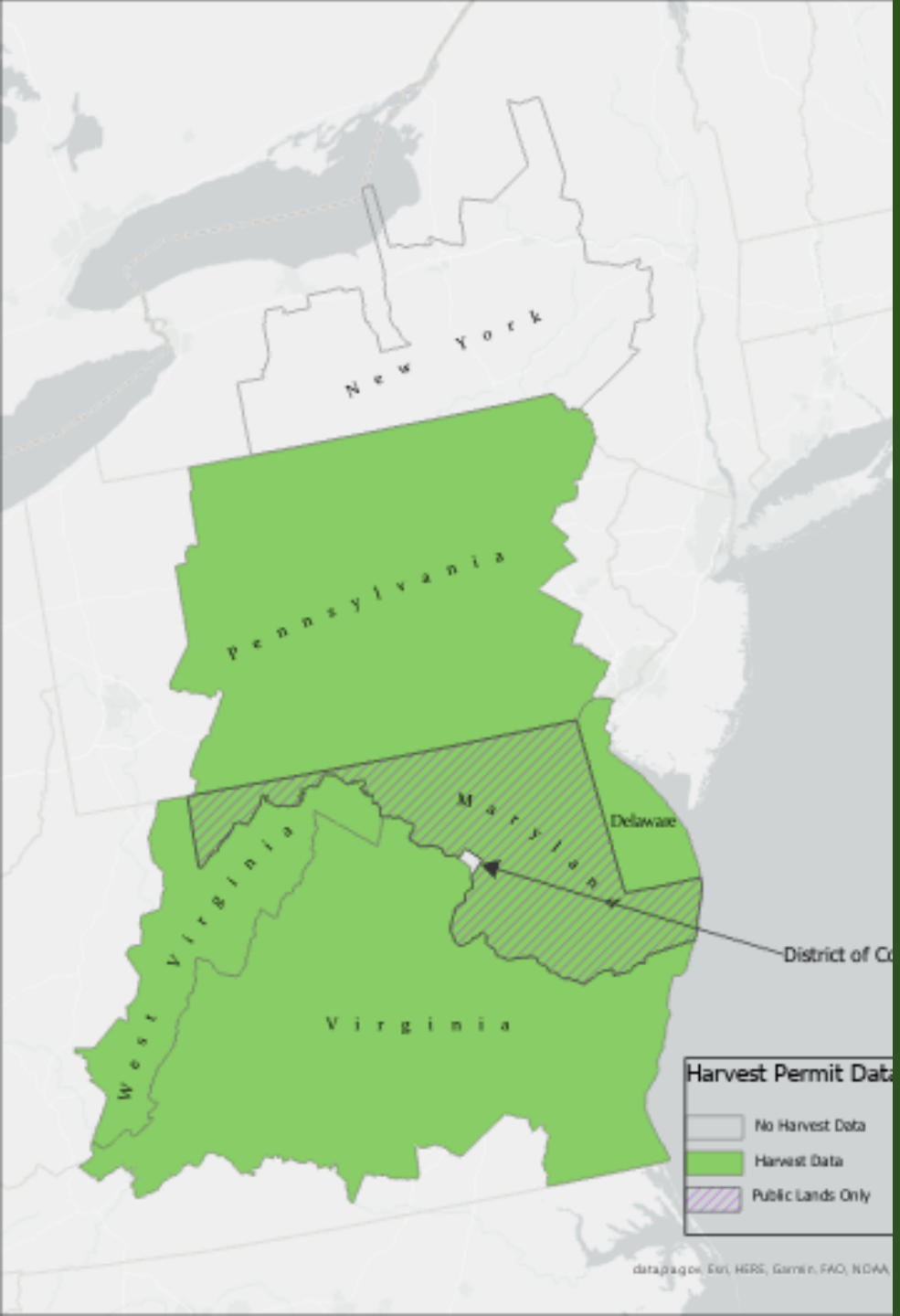


Harvest Data – Why is it important?

- Timber harvest pollutant loads are 3x higher than forest for phosphorus, 7x higher for nitrogen, and 10x higher for sediment.
- Clear cut timber harvests are easily confused with natural succession, pasture, and cropland, making them challenging to map.
- Selective timber harvests are very difficult to identify and map from aerial imagery.

Harvest Data – what did we have for 2022 Ed. (data released in June 2022)?

Jurisdiction	Geometry Type	Date Attribute	Harvest Type Attribute	Date Range
District of Columbia	N/A	N/A	N/A	N/A
Delaware	Polygon	N/A	N/A	unknown
Maryland	Polygon (state forests only)	Year	Yes	2013-2019
New York	N/A	N/A	N/A	N/A
Pennsylvania	Polygon	N/A	N/A	unknown
Virginia*	Point	Month/Day/Year (start and end)	Yes	2012-2018
West Virginia	Polygon	Month/Day/Year (start and end)	Yes	2013-2018

Regionally: Rotational Tree Canopy patterns from 1985-2021 detected from Land Change Monitoring, Assessment, and Projection (LCMAP) data was used.

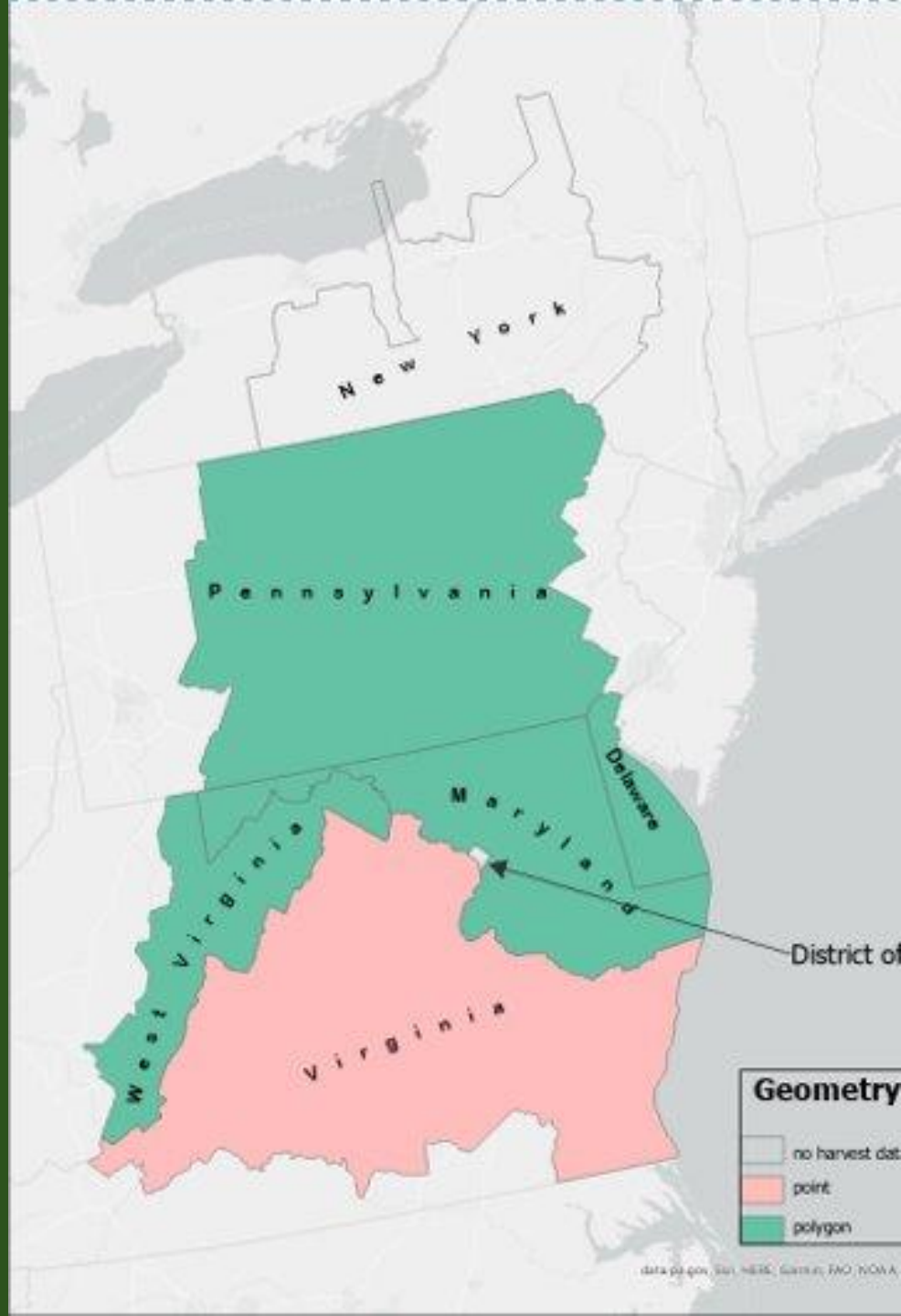
* Virginia has provided updated harvest data, described on next slide

Harvest Data – what have we received for 2024 Ed. (data to be released in June 2024)?

Jurisdiction	Geometry Type	Date Attribute	Harvest Type Attribute	Date Range
District of Columbia	N/A	N/A	N/A	N/A
Delaware	N/A	N/A	N/A	N/A
Maryland	N/A	N/A	N/A	N/A
New York	N/A	N/A	N/A	N/A
Pennsylvania	N/A	N/A	N/A	N/A
Virginia	Polygon	Month/Day/Year (start and end)	Yes	May 2010 – July 2022
West Virginia	N/A	N/A	N/A	N/A

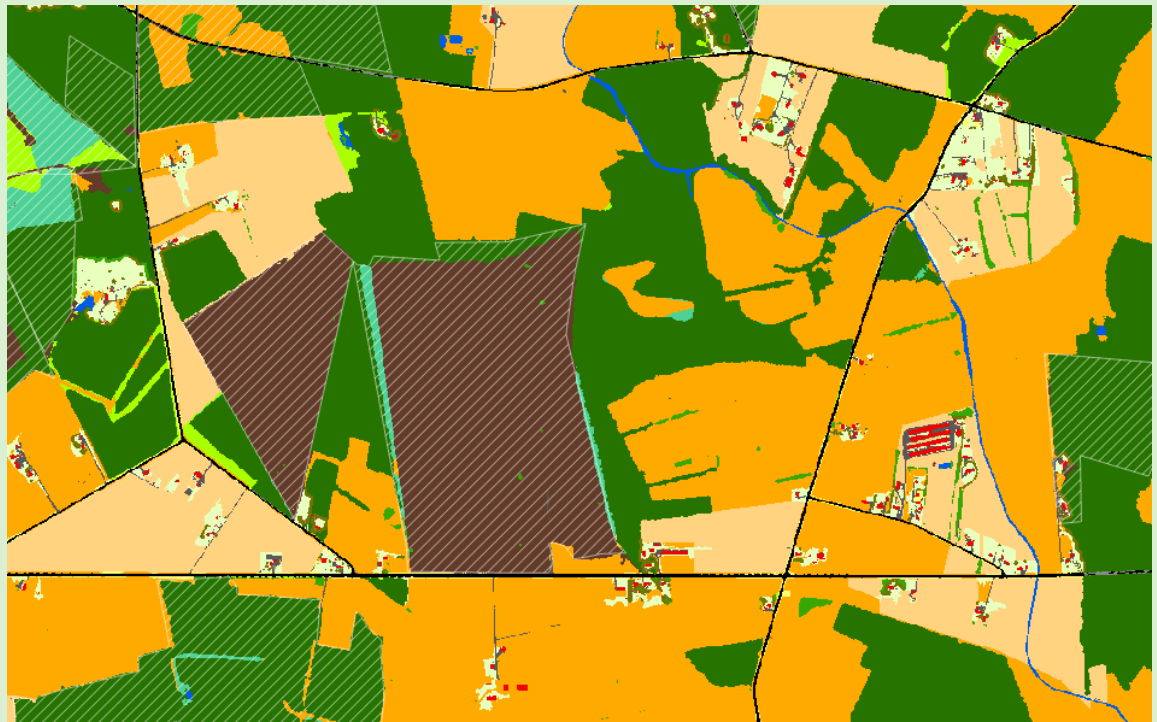
Harvest Data – What do we need?

1. Polygons of harvested area
2. Harvest date (or date range) from 2010 to 2021/22
   - 2021: DE, MD
   - 2022: NY, PA, VA, WV (2022)
   - Month/Year format preferable
   - Harvest data prior to 2010 is also helpful!
3. Harvest type (clear cut, thinning, selective, etc.)
4. Metadata describing attributes and their meanings



Permit Data Polygons

- Polygon data representing the harvested area improves our ability to:
  - map the harvested plot accurately
  - differentiate agriculture from harvested forests



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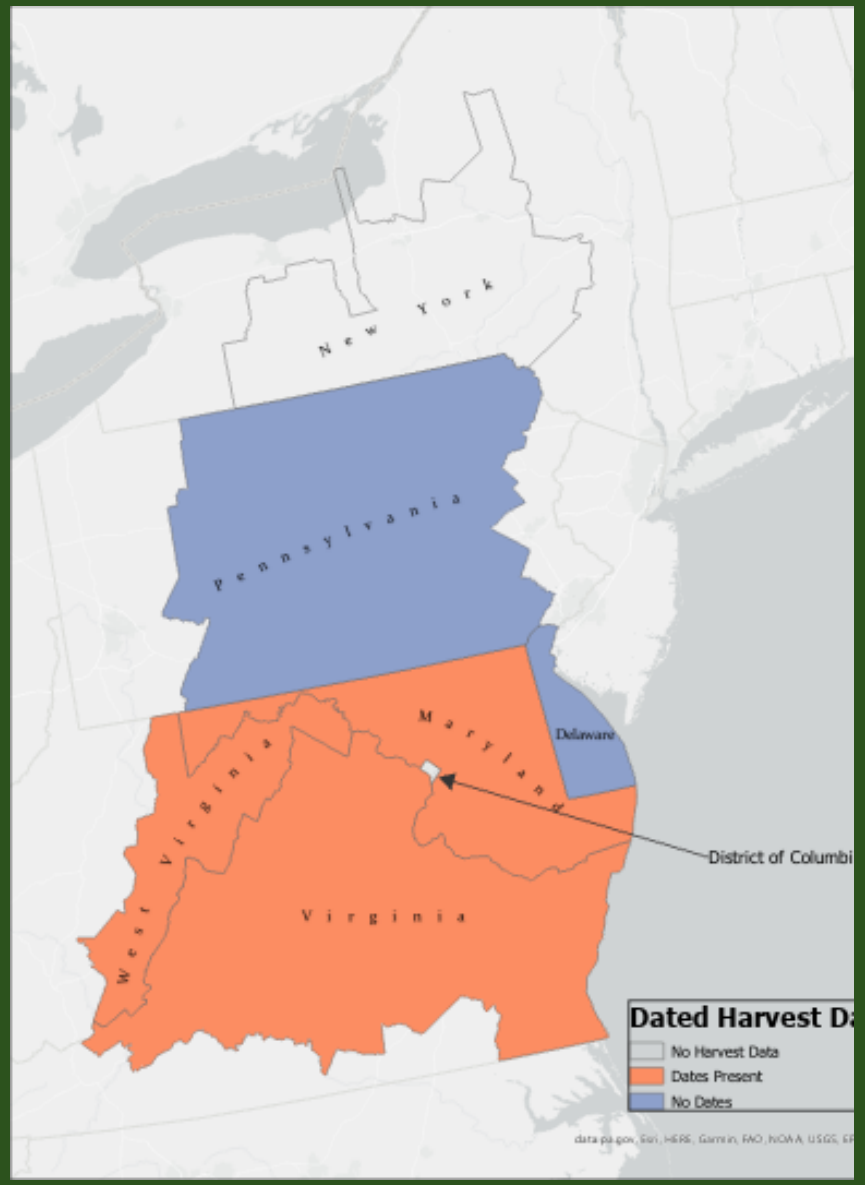
Point vs Polygon Data

- Our mapping segmentation is very fine scale
  - Many segments exist within a single harvested plot
- Timber harvest permit point data only identify a fraction of the total harvested area
- Polygon data are needed to accurately identify the entire area harvested.

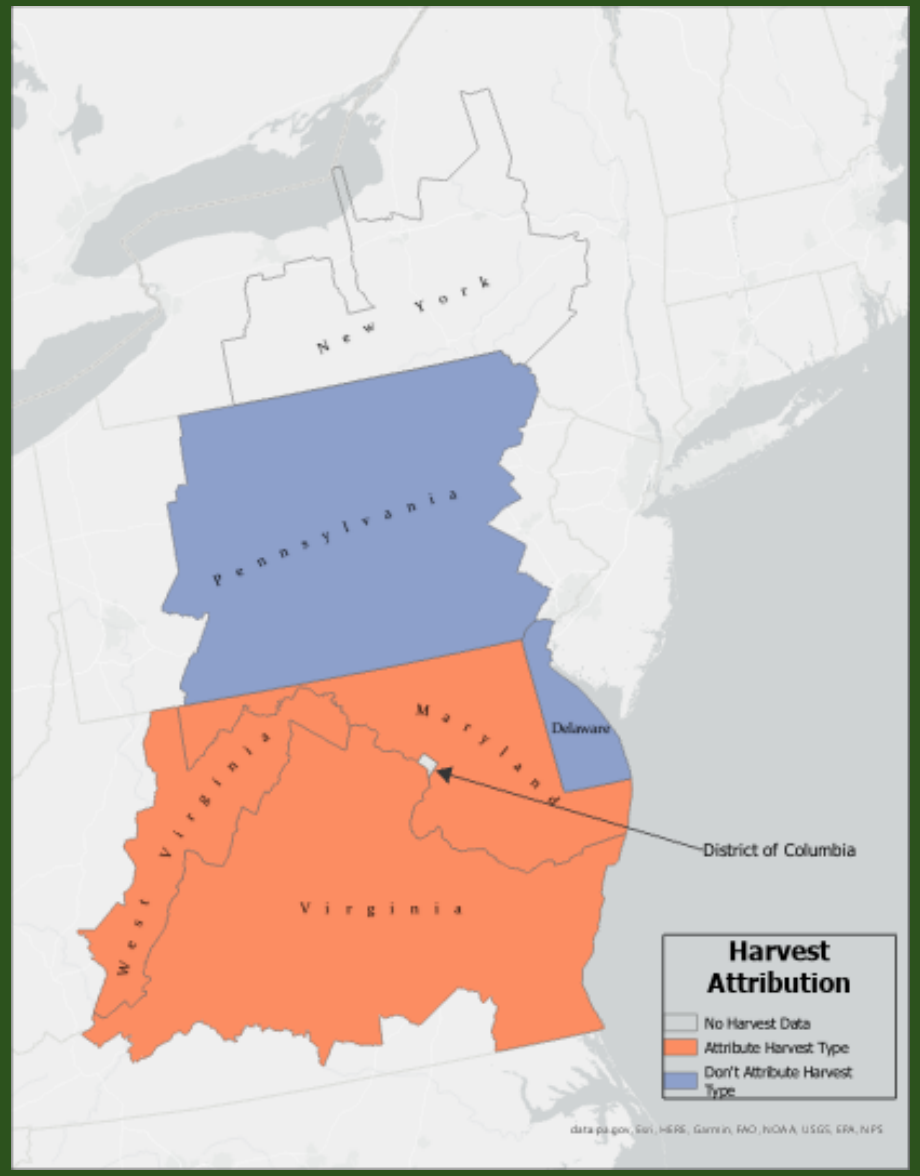


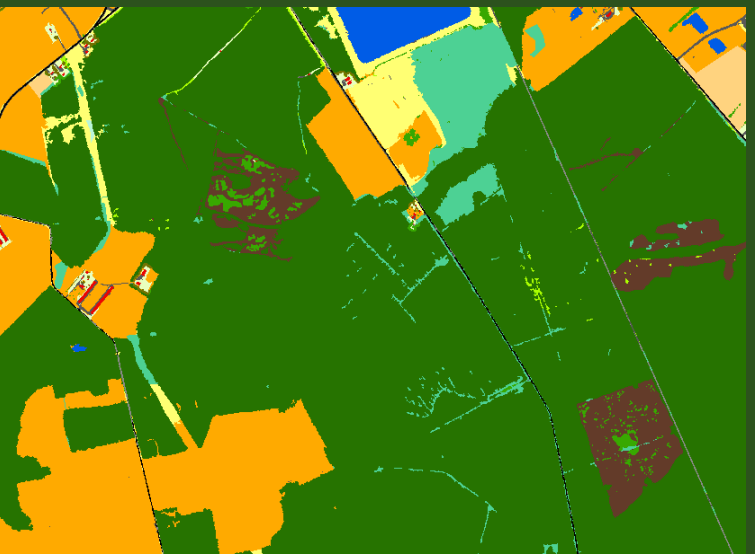
Why Are Harvest Years Important?

- Dates improve our ability to distinguish harvest events for a given time frame from other land uses, e.g., agriculture and turf grass
  - Ex: harvest data in 2022 should not affect LULC in 2013
- CAST requires annual estimates harvested acres. Where not reported, CAST assumes 1.5% of all forested land in a county is harvested in any given year.

Why is Harvest Type Important?

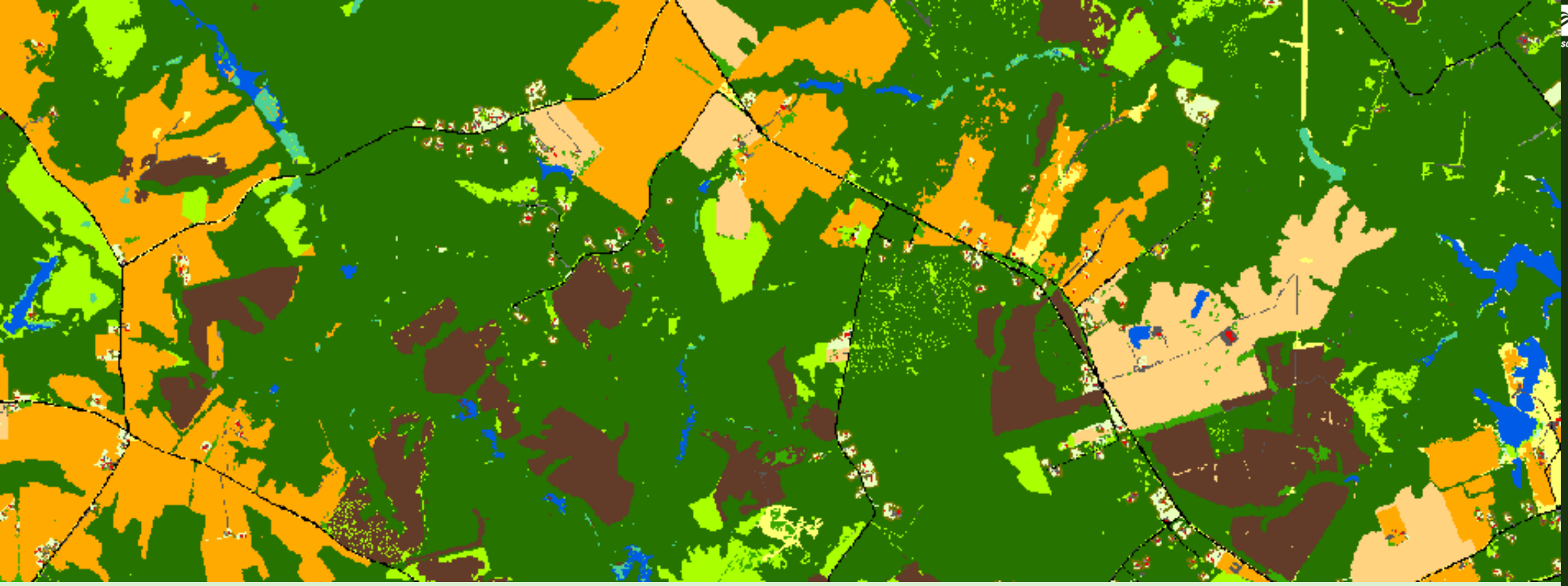
- The LULC project aims to map all harvesting clear cuts, not thinning and selective cuts
    - LULC data cannot consistently detect small changes in Tree Canopy across the region





How did we use Spatial Harvest Data in 2022 Ed.?

- Low vegetation and barren land cover segments were intersected with parcels and spatial harvest data.
  - Virginia's point data was buffered by 60-meters to facilitate intersection.
  - DE, MD, PA, and WV polygon data were intersected as is



How do we Want to Use Harvest Data in the 2024 Ed.?

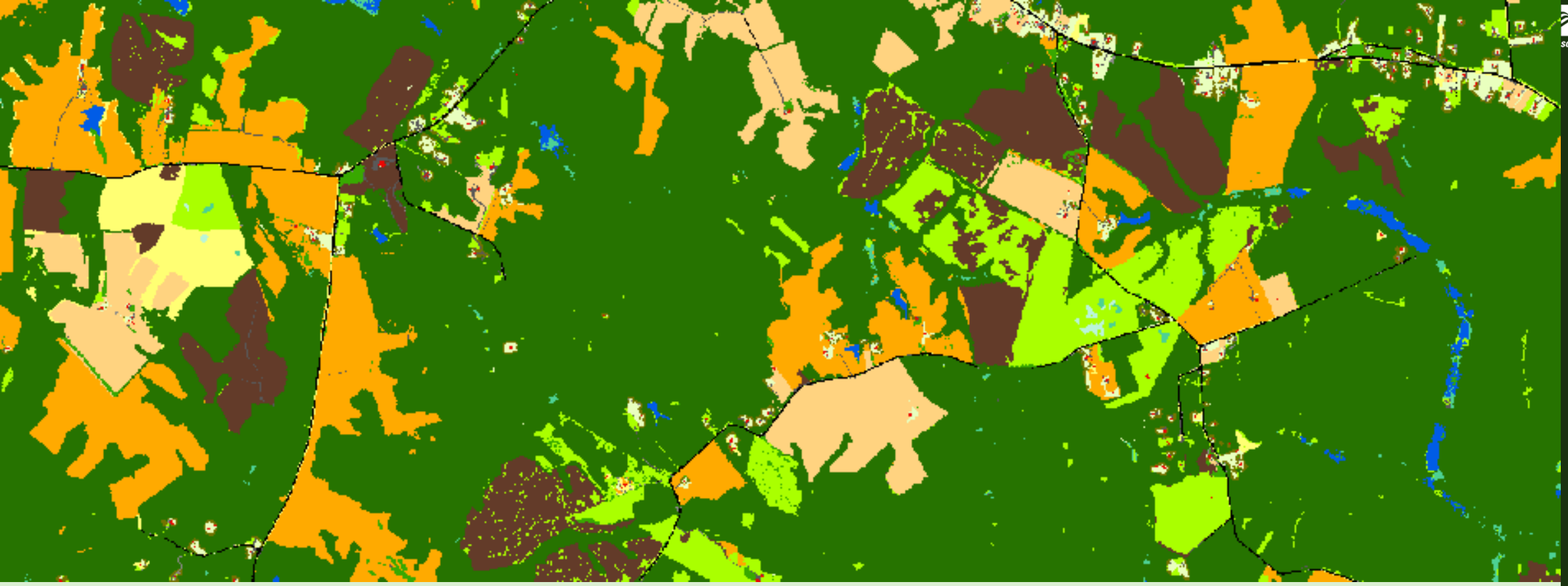
- Spatially intersect modelling segmentation with spatial harvest data (no change)
  - For each of the 3-time frames (2013/14, 2017/18, 2021/22), select clear cuts before current mapping date that is after the prior mapping date
    - 2013/14: clear cuts from 2010-2013/14
    - 2017/18: clear cuts from 2013/14-2017/18
    - 2021/22: clear cuts from 2017/18-2021/22
- Experimenting with new metrics to distinguish harvesting from agriculture, etc. (NDVI, image texture, image brightness)

Discussion Questions

How valuable is it to replace clear cuts reported to CAST with LULC harvested acres?

CAST treats clear cuts, thinning, and selective cuts equally in terms of loading

What would you need to support replacing reported acres with LULC harvested acres?



Timber Harvest Task Force: Desired Products by December 2023

1. Determine how many years after a clear cut a plot should be mapped as natural succession
2. Deliver requested timber harvest data

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