Tracking Forest Regrowth Using LCMAP

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Forestry Work Group Call
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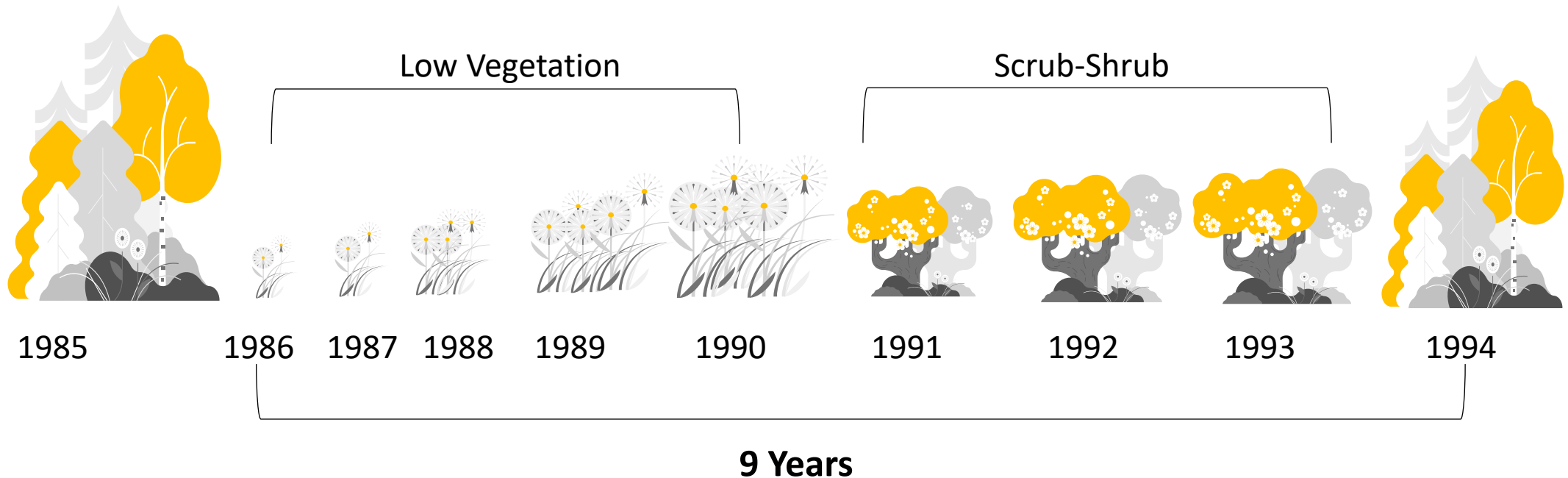
What is LCMAP?

- Land Cover Monitoring, Assessment and Projection data produced by EROS Center, USGS

- Annual 30m land cover products from 1985-2019

- Derived from Landsat ARD satellite imagery

Learn more here: https://www.usgs.gov/core-science-systems/eros/lcmap

How to Detect Forest Regrowth using LCMAP
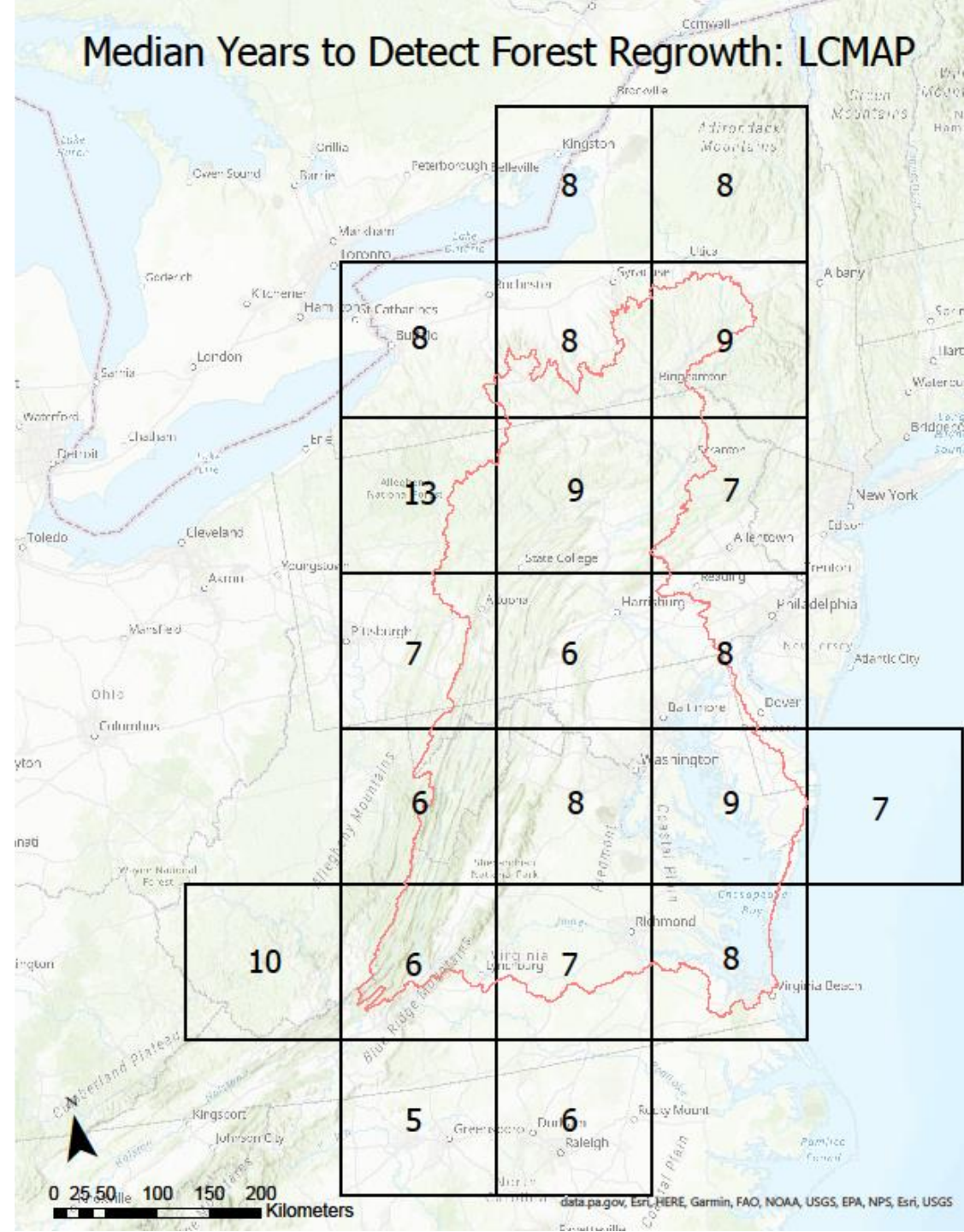
- Detect patterns of Forest -> non-forested natural classes -> Forest
- Record the number of years it takes for forest to regrow at a 30m pixel scale

Low Vegetation

Scrub-Shrub

1985   1986   1987   1988   1989   1990   1991   1992   1993   1994

9 Years

Mean Years to Detect Forest Regrowth: LCMAP

	9.8	9.3
9.3	9.5	9.6
13.8	11.7	8.8
8.9	8.2	9.7
7.9	8.8	9.3	8.4
11.9	7	6.9	8.4
6.1	6.3	

Median Years to Detect Forest Regrowth: LCMAP

	8	8
8	8	9
13	9	7
7	6	8
6	8	9	7
10	6	7	8
5	6	
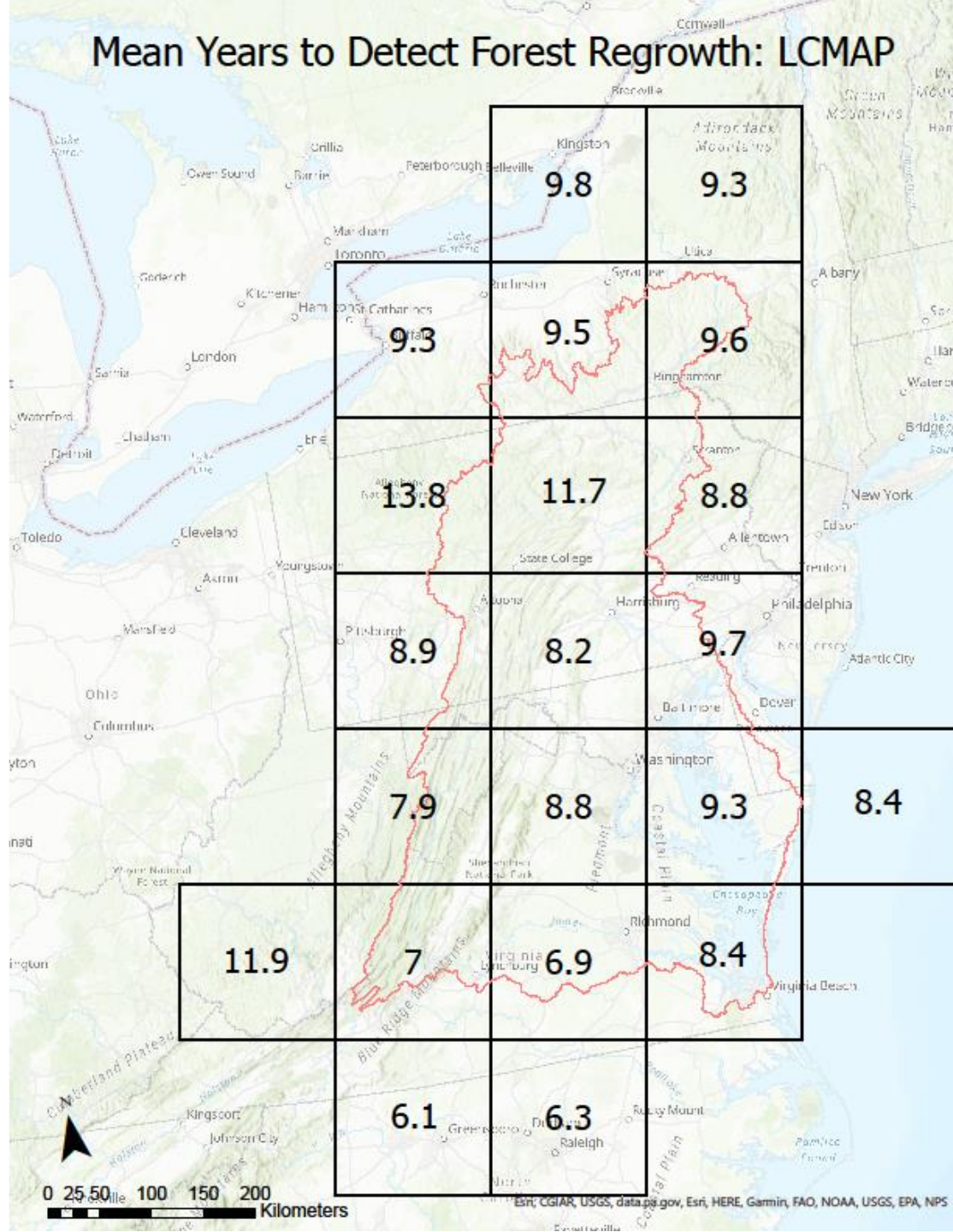
Percent Sample Area per ~5.6 Million Acre Tile
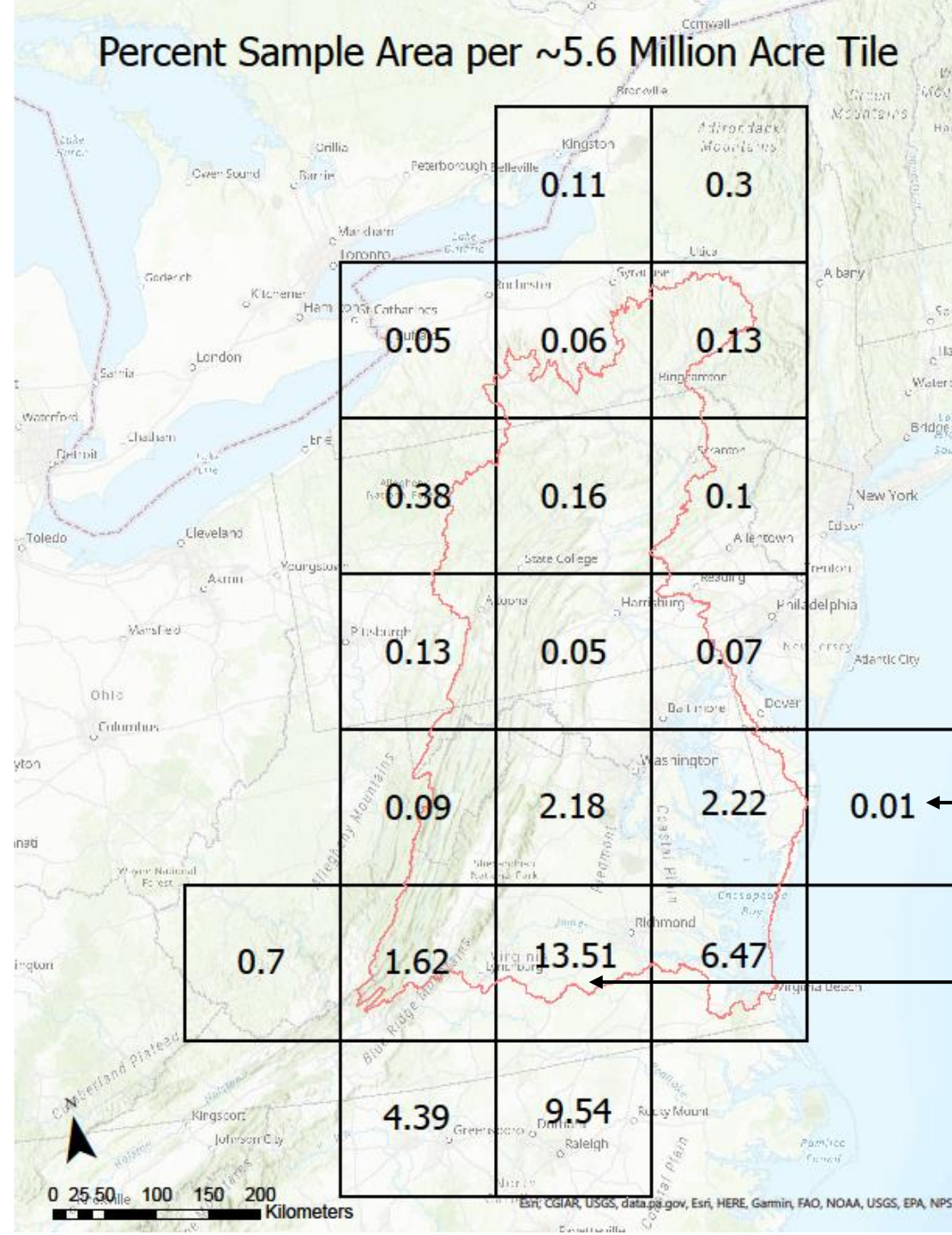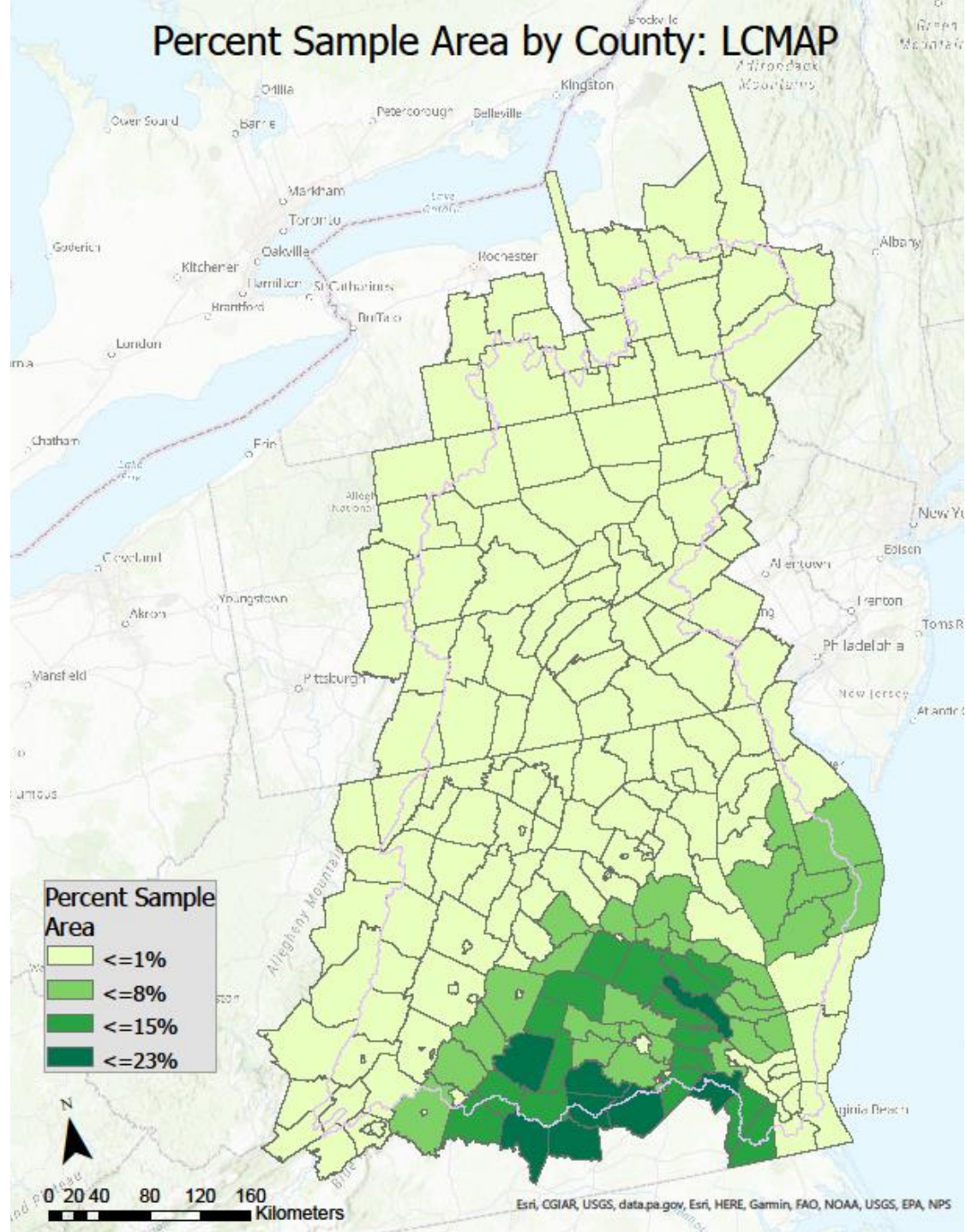
		0.11	0.3	
0.05	0.06	0.13		
0.38	0.16	0.1		
0.13	0.05	0.07		
0.09	2.18	2.22	0.01	← ~556 acres
0.7	1.62	13.51	6.47	← ~751,150 acres
	4.39	9.54		

Mean Years to Detect Forest Regrowth by County: LCMAP

Median Years to Detect Forest Regrowth by County: LCMAP

Years to Detect Regrowth

- ≤0
- ≤10
- ≤15
- ≤18

N

0 20 40   80   120   160
Kilometers

Esri, CGIAR, USGS, data.pa.gov, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

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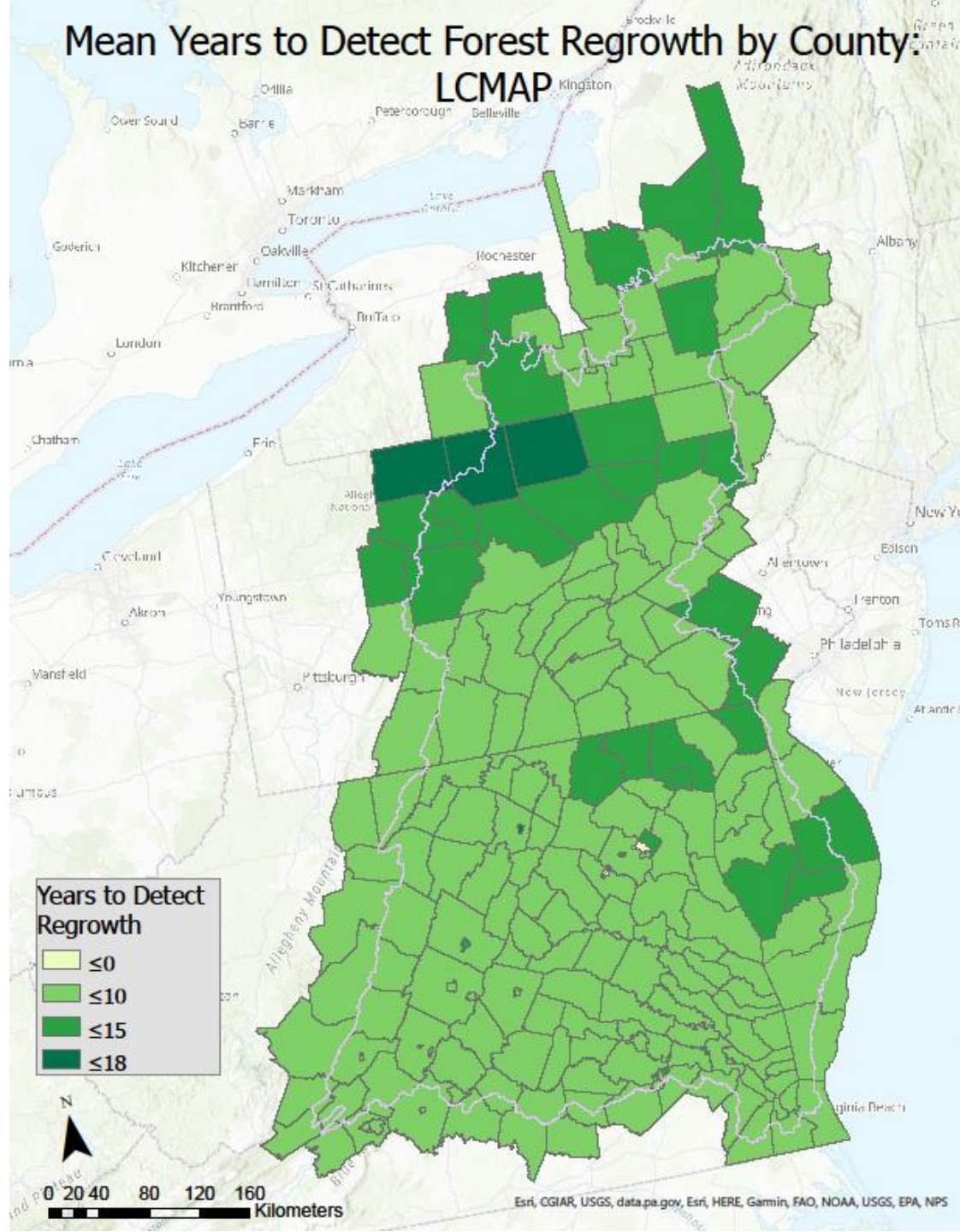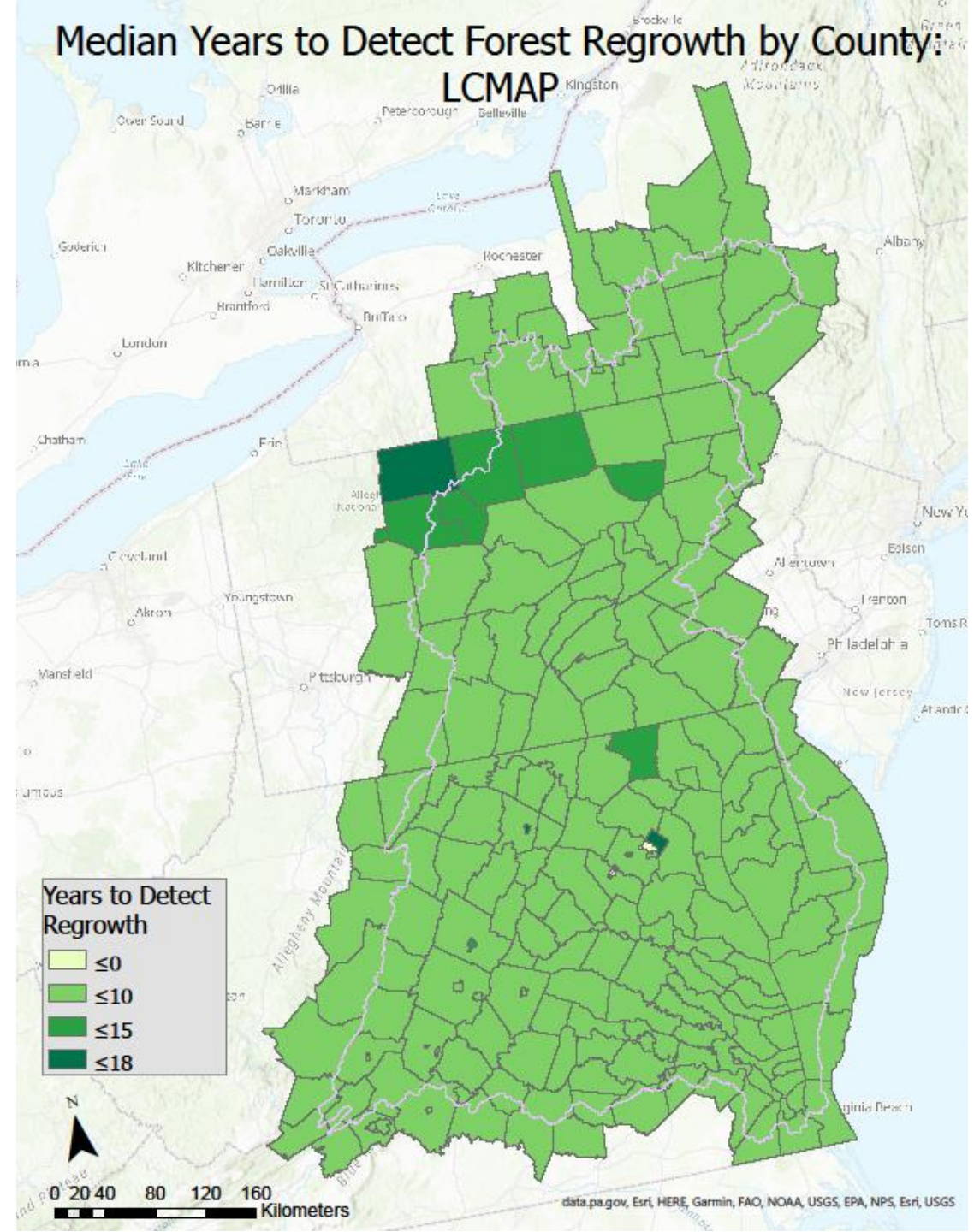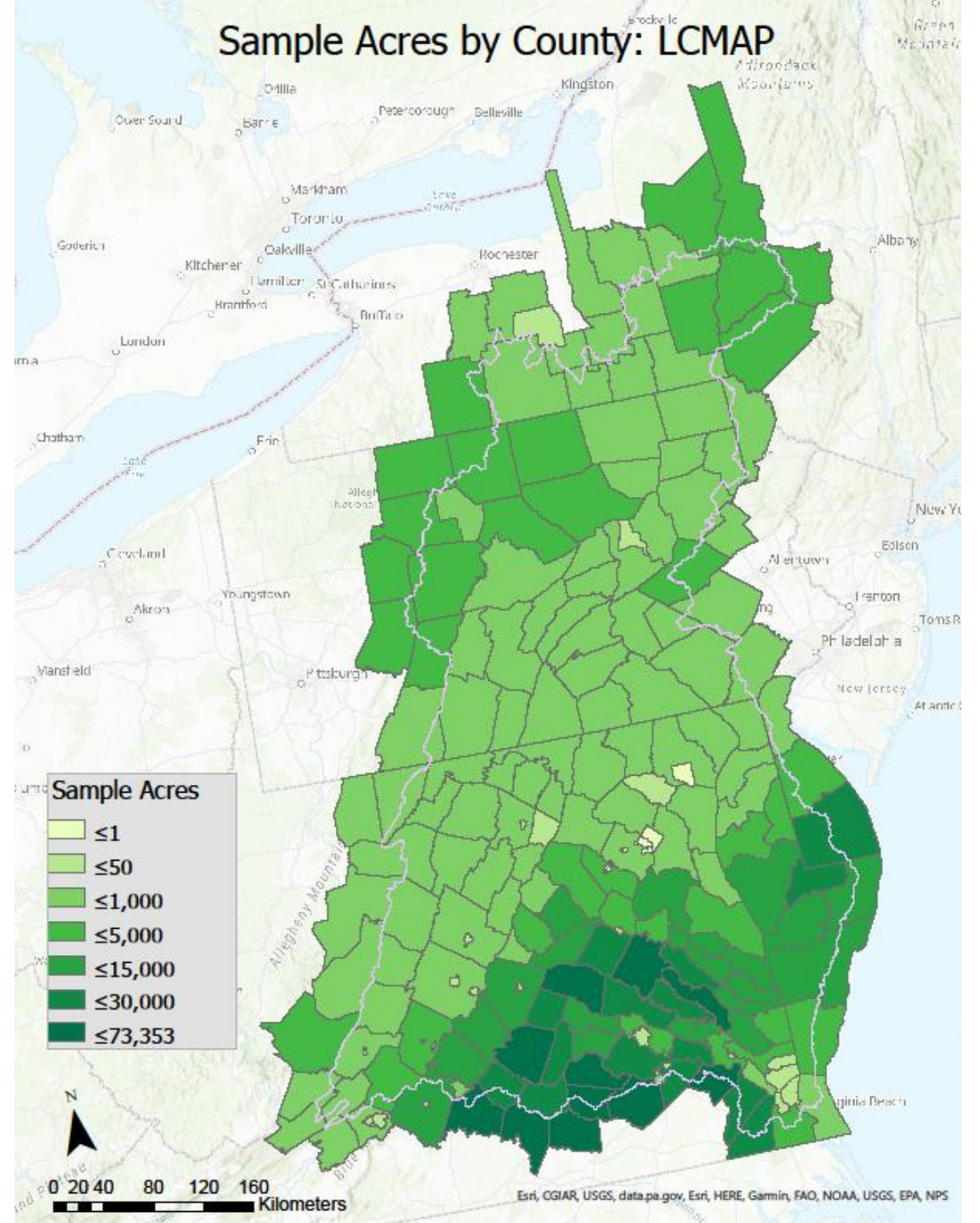
Percent Sample Area by County: LCMAP

Sample Acres by County: LCMAP

Percent Sample Area
- <=1%
- <=8%
- <=15%
- <=23%

Sample Acres
- ≤1
- ≤50
- ≤1,000
- ≤5,000
- ≤15,000
- ≤30,000
- ≤73,353

N

0 20 40   80   120   160
Kilometers

Esri, CGIAR, USGS, data.pa.gov, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

N

0 20 40   80   120   160
Kilometers

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Conclusions

- The number of years it takes for Landsat derived LCMAP data to detect forest regrowth varies across the Chesapeake Bay Watershed
  - Max of ~13 years and a min of ~6 years

- Causes of variation?
  - climate?
  - differences in harvesting practices?
    - Planting, natural succession/seed-dispersal, etc.
  - Limitation to Landsat imagery?
  - Sample size?

USGS

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