Riparian Indicator Development: What Should the Bay Program Monitor in the Riparian Zone?

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Forestry Work Group
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Introduction

- A new 100-foot (30-meter) riparian layer has been developed and is in the process of publication.
- Riparian data, combined with 1-meter Land Use/Land Cover (LULC), provides new opportunities for monitoring.
- Goal:
  - Identify new riparian indicators under the Land Use Methods and Metrics Outcome

Chesapeake Bay Land Use/Cover Classification (2022 Edition – 54 Classes)

1. Water (11)

- 1.1 Estuarine / Marine
- 1.2 Lentic (fresh)
  - 1.2.1. Lakes and reservoirs
  - 1.2.2 Riverine ponds
  - 1.2.3 Terrene ponds
- 1.3 Lotic (fresh)
  - 1.3.1 Channels

2. Developed (12)

- 2.1 Impervious
  - 2.1.1 Roads
  - 2.1.2 Structures
  - 2.1.3 Other Impervious
  - 2.1.4 Tree Canopy (TC) over Impervious
    - 2.1.4.1 TC over Roads
    - 2.1.4.2 TC over Structures
    - 2.1.4.3 TC over Other Impervious
- 2.2 Pervious
  - 2.2.1 Turf Grass
  - 2.2.2 Transitional- barren
  - 2.2.3 Suspended Succession
    - 2.2.3.1 Barren
    - 2.2.3.2 Herbaceous
    - 2.2.3.3 Scrub-shrub
  - 2.2.4 Tree Canopy over Turf Grass

3. Forested (7)

- 3.1 Forest (>= 1 acre, 240-ft width)
- 3.2 Other Tree Canopy
- 3.3 Harvested Forest (<= 3 years)
  - 3.3.1 Barren
  - 3.3.2 Herbaceous
- 3.4 Natural Succession (> 3 years)
  - 3.4.1 Barren
  - 3.4.2 Herbaceous
  - 3.4.3 Scrub-shrub

4. Production (17)

- 4.1 Agriculture
  - 4.1.1 Cropland
    - 4.1.1.1 Barren
    - 4.1.1.2 Herbaceous
  - 4.1.2 Pasture/Hay
    - 4.1.2.1 Barren
    - 4.1.2.2 Herbaceous
    - 4.1.2.3 Scrub-shrub
  - 4.1.3 Orchard/vineyard
    - 4.1.3.1 Barren
    - 4.1.3.2 Herbaceous
    - 4.1.3.3 Scrub-shrub
- 4.2 Solar fields
  - 4.2.1 Impervious
  - 4.2.2 Pervious
    - 4.2.2.1 Barren
    - 4.2.2.2 Herbaceous
    - 4.2.2.3 Scrub-shrub
- 4.3 Extractive (active mines)
  - 4.3.1 Barren
  - 4.3.2 Impervious

5. Wetlands and Water Margins (16)

- 5.1 Tidal
  - 5.1.1 Barren
  - 5.1.2 Herbaceous
  - 5.1.3 Scrub-shrub
  - 5.1.4 Other Tree Canopy
  - 5.1.5 Forest
- 5.2 Riverine (Non-tidal)
  - 5.2.1. Barren
  - 5.2.2 Herbaceous
  - 5.2.3 Scrub-shrub
  - 5.2.4 Other Tree Canopy
  - 5.2.5 Forest
- 5.3 Terrene/Isolated (Non-tidal)
  - 5.3.1 Barren
  - 5.3.2 Herbaceous
  - 5.3.3 Scrub-shrub
  - 5.3.4 Other Tree Canopy
  - 5.3.5 Forest
- 5.4 Bare shore


USGS
science for a changing world
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Kilometers
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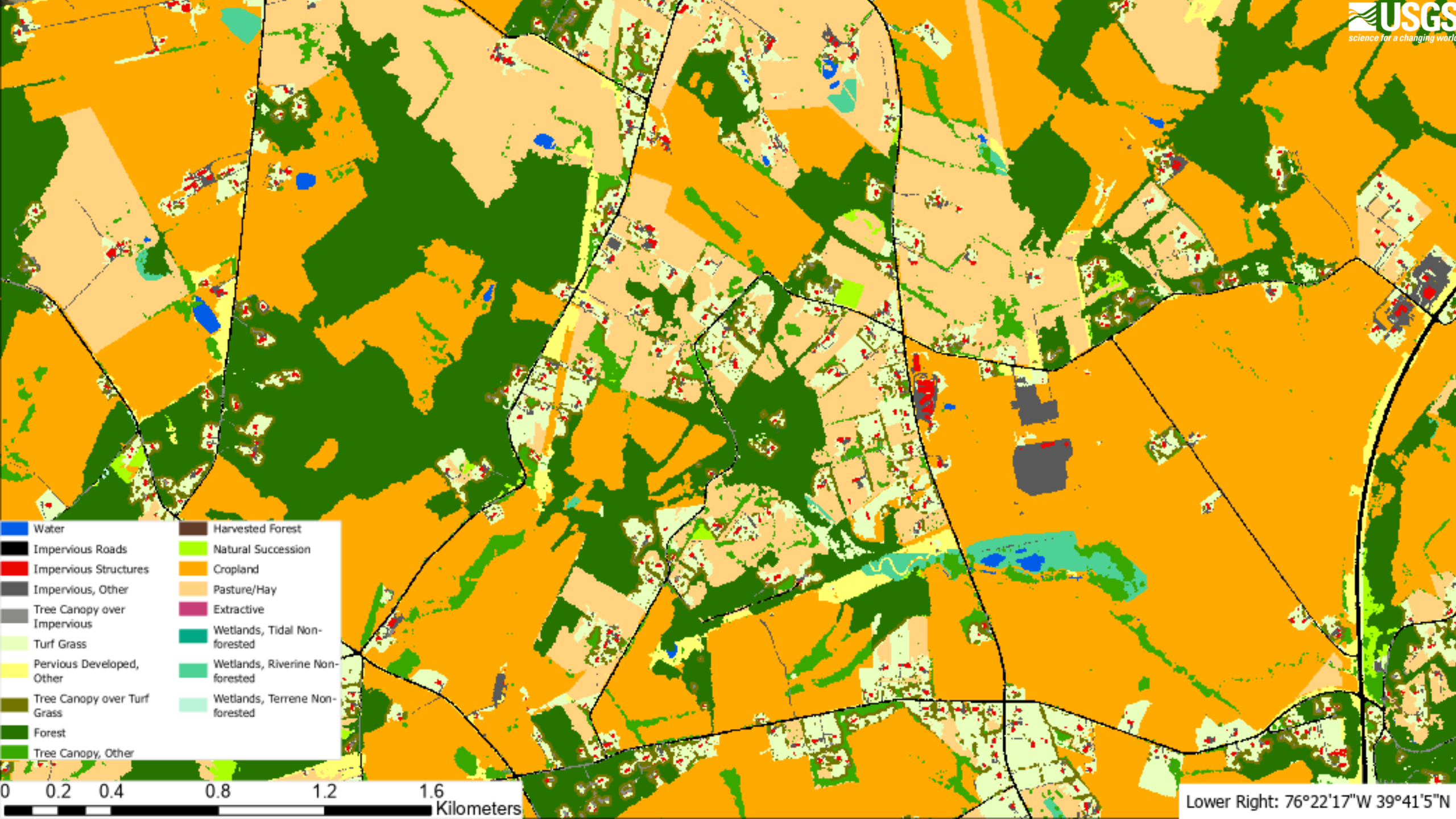
USGS
science for a changing world
Water
Impervious Roads
Impervious Structures
Impervious, Other
Tree Canopy over Impervious
Turf Grass
Pervious Developed, Other
Tree Canopy over Turf Grass
Forest
Tree Canopy, Other
Harvested Forest
Natural Succession
Cropland
Pasture/Hay
Extractive
Wetlands, Tidal Non-forested
Wetlands, Riverine Non-forested
Wetlands, Terrene Non-forested
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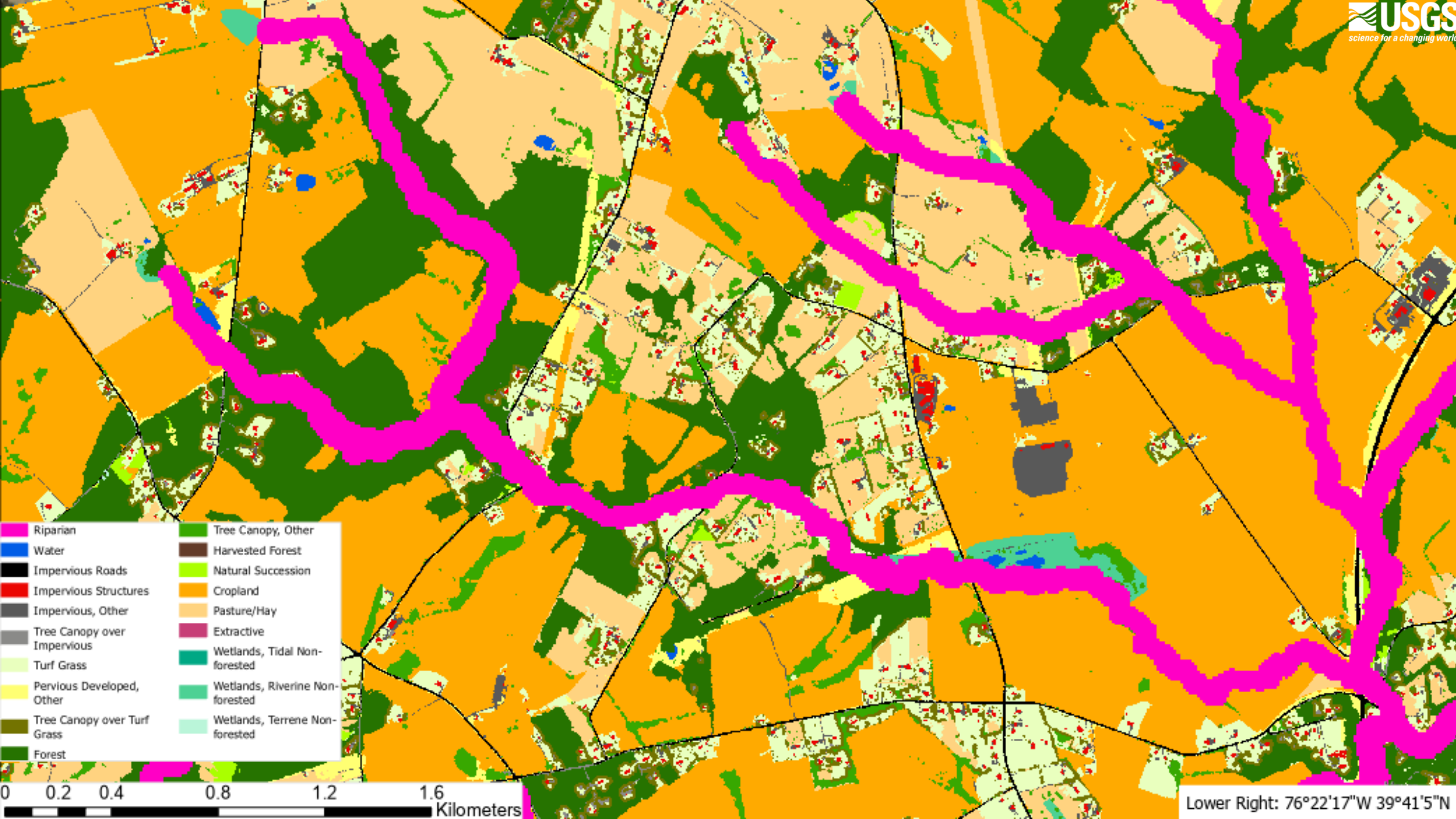
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Tree Cover:
Forest
Tree Canopy, Other
Tree Canopy over Turf
Tree Canopy over Impervious
Pervious:
Turf Grass
Pervious Developed, Other
Natural Succession
Harvested Forest
Cropland
Pasture/Hay
Wetlands (Tidal, Riverine, and Terrene)
Water
Impervious Roads
Impervious Structures
Impervious, Other
Tree Canopy over Impervious
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Pervious Developed, Other
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Forest
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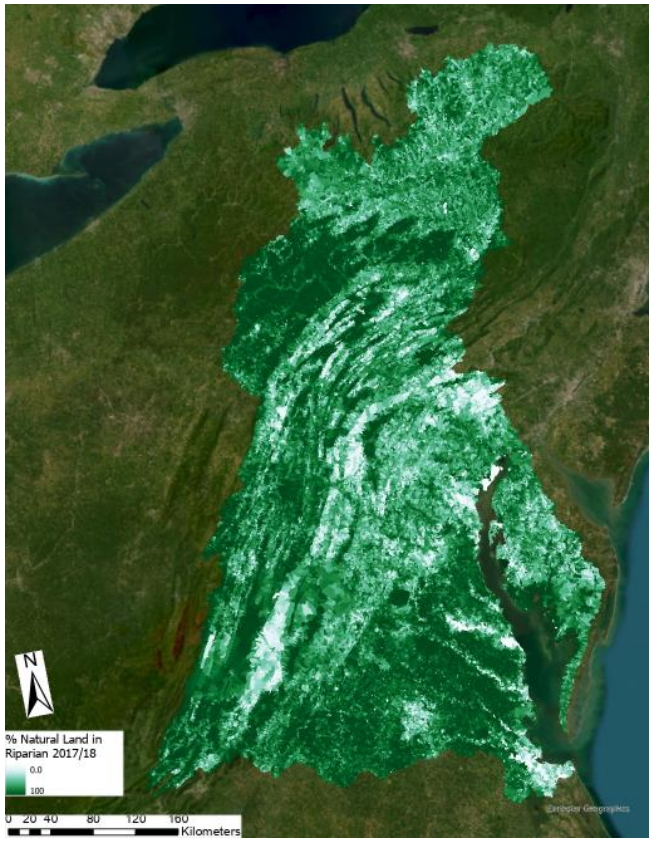
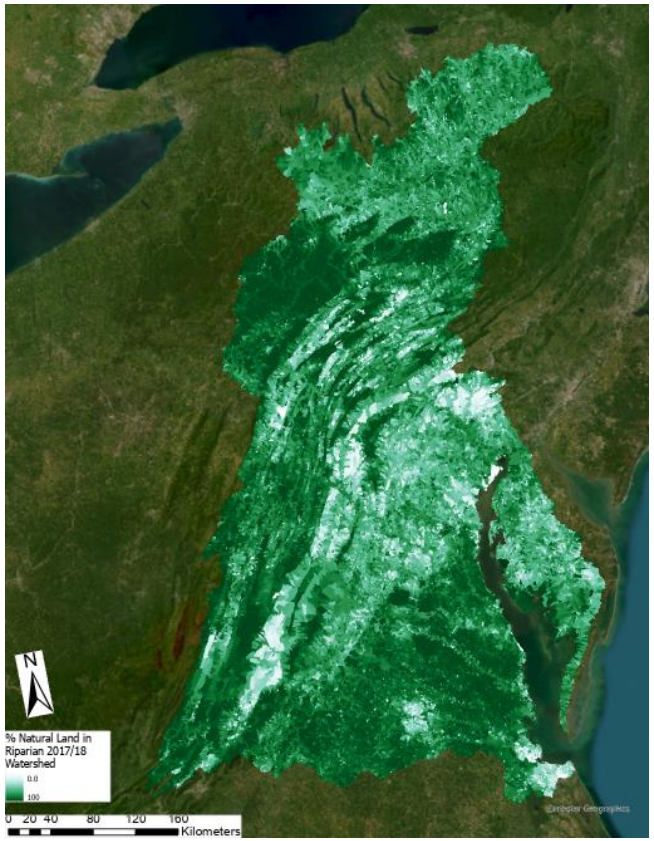
Local catchment

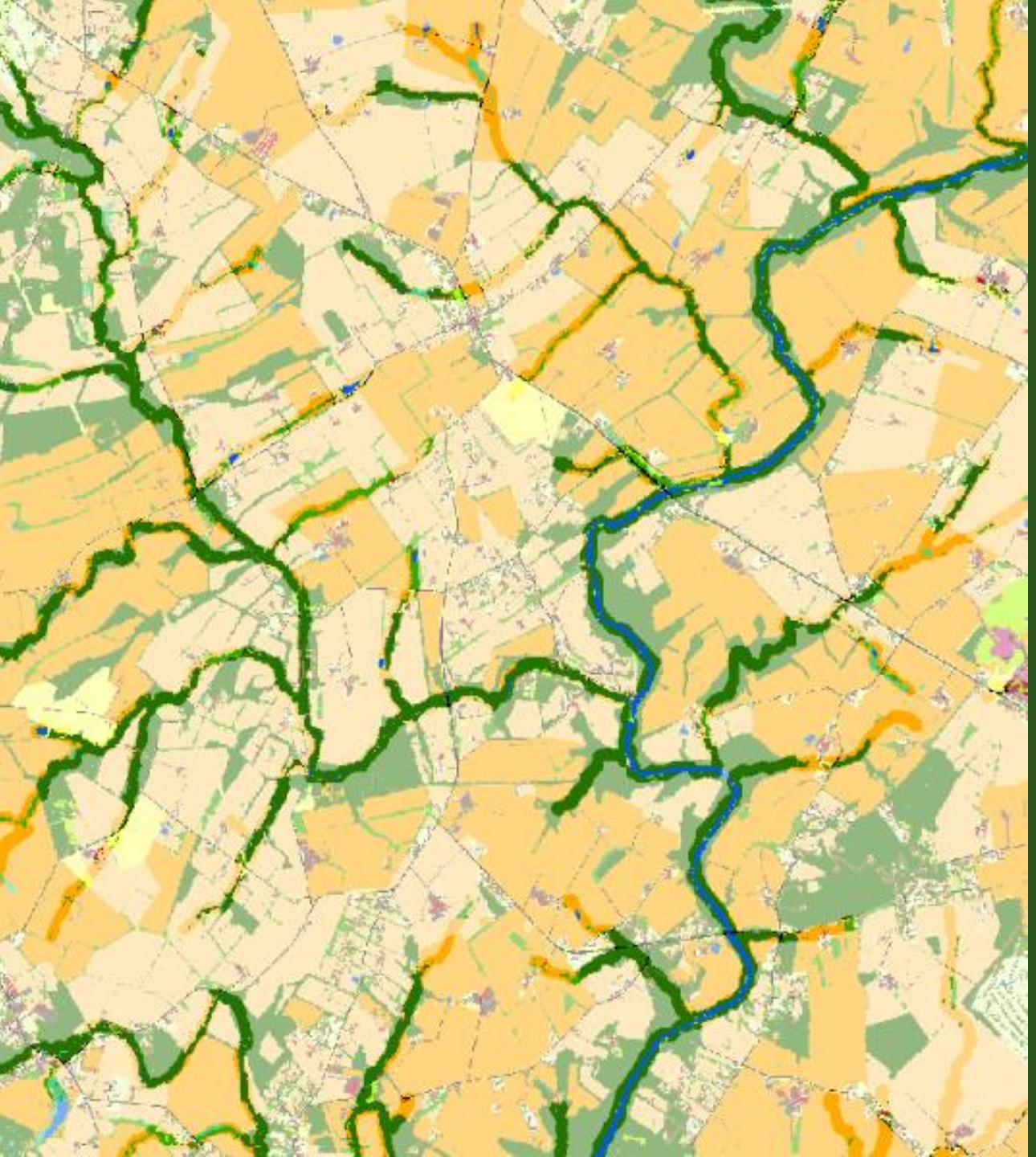


Upstream Watershed



Example Riparian Indicator: Natural Lands by NHDv2.1 1:100k Catchments

- Riparian Natural Lands 2017/18 and Riparian Natural Lands Change 2013/14-2017/18 are proposed for FY' 2024
- Natural Lands = Tree Cover and Wetlands, excluding TC over Impervious



Discussion Questions

- What applications/decisions will the riparian data support?
  - E.g., tree planting opportunities
- Does proximity to streams within the 100' buffer matter when reporting land use change? E.g., land conversion immediately adjacent to streams vs on the periphery of the buffer area?
- What land uses within the riparian zone should the Bay Program monitor as an indicator?
  - What aggregations are valuable (Development? Impervious versus pervious development?)?
- What scales should we monitor riparian indicators?
  - Catchments? HUCs? Jurisdictions? Etc.

Contact

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