Forest Conservation for the Chesapeake Bay: The Goal-Setting Process in Maryland

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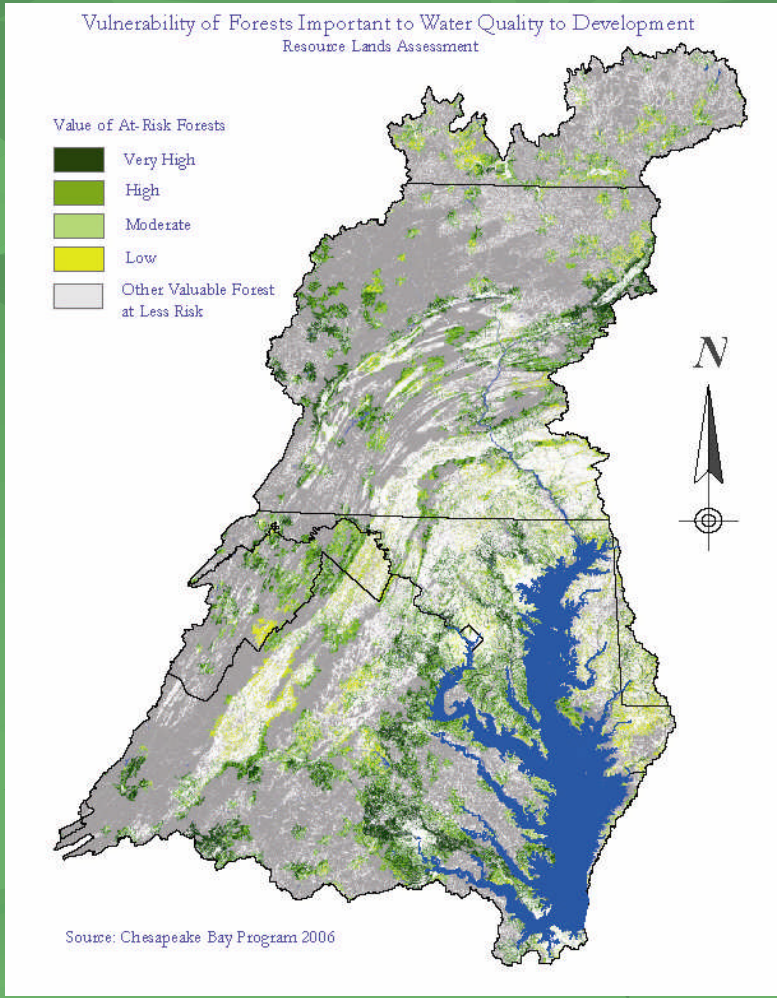
Forests and Water Quality

- Forests give clean water
  - 58% of Chesapeake basin
  - But only
    - 15% of N
    - 2% of P
- Conversion is costly, and continuing
  - 20 ac/day in MD (1986-99)
  - Conversion of 10% of forest could increase N loads by 40%
- Forests for sustainable development patterns and maintaining nutrient caps



Prior Forestry Goals for the Chesapeake

- 1996- Riparian Forest Buffer Initiative
  - Protect all streams and shorelines with forested or other buffer to the extent feasible;
  - Conserve existing forests on all streams/shorelines;
  - Restore 2010 miles of riparian forest buffers by 2010 (*met*).
- 2000- Chesapeake 2000 Agreement
  - Set a new RFB goal by 2003
    - 10,000 miles by 2010- 50% progress
    - 70% of streams buffered long-term
    - Urban Canopy goal in 5 jurisdictions/state

2006 Forest Conservation Directive

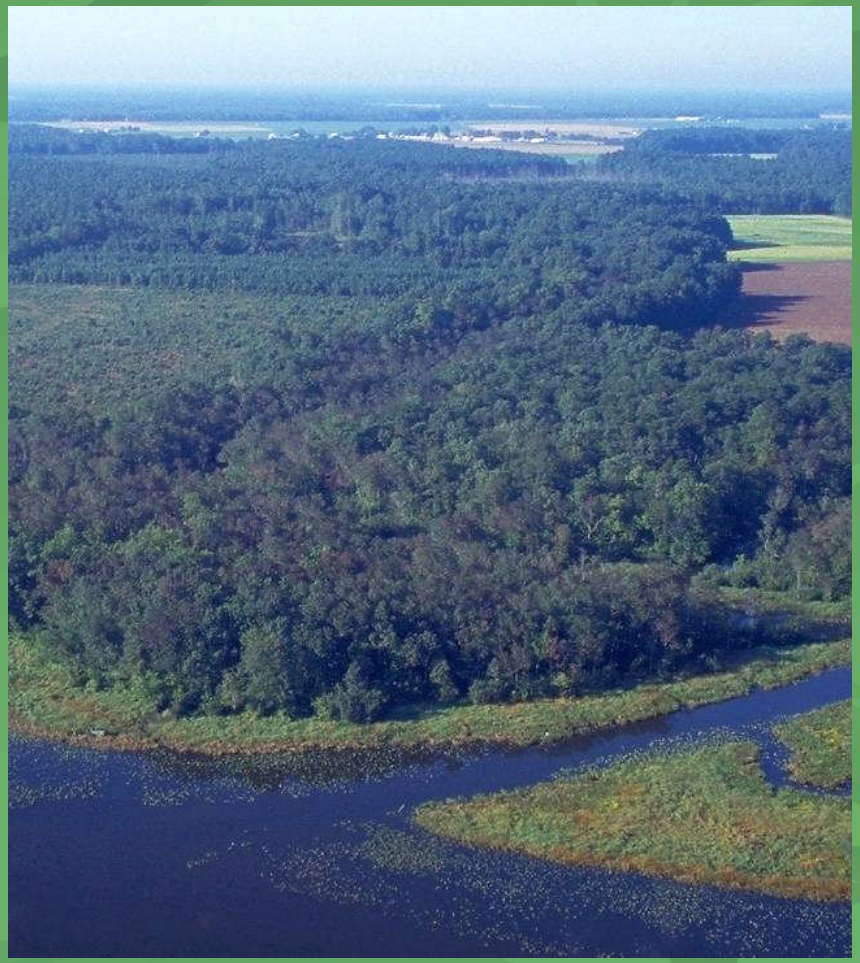
- ID key areas for retaining or expanding forests to protect water quality
- ID strategies for protection, slowing loss, and stewardship
- Expand connection of forests and buffers to stormwater management and land use regulations
- Goal, Framework, Milestones by April 30, 2007
- Collaboration with partners

Forest Directive:
http://www.chesapeakebay.net/info/pressreleases/ec2006/Directive%2006-1%20Forests%20color.pdf

State of the Chesapeake Forest: http://www.chesapeakebay.net/stateoftheforests.htm

2006 Forest Conservation Directive

- 1. Identify key areas to retain and expand forest for water quality
  - Riparian and wetland forests
  - Headwater forests
  - Steep slopes
  - Large contiguous forest blocks
  - Sustainably managed working forests



Conserving Forests in Maryland
A Strong Foundation

- Forest Conservation Act
- Chesapeake Bay Critical Area Law
- Rural Legacy and Program Open Space
- Donated Easements- Land Trusts
- MD Agricultural Land Preservation Foundation
- Forest Legacy

~27% of forest protected from development

Conserving Forests in Maryland
A Land Planning Framework

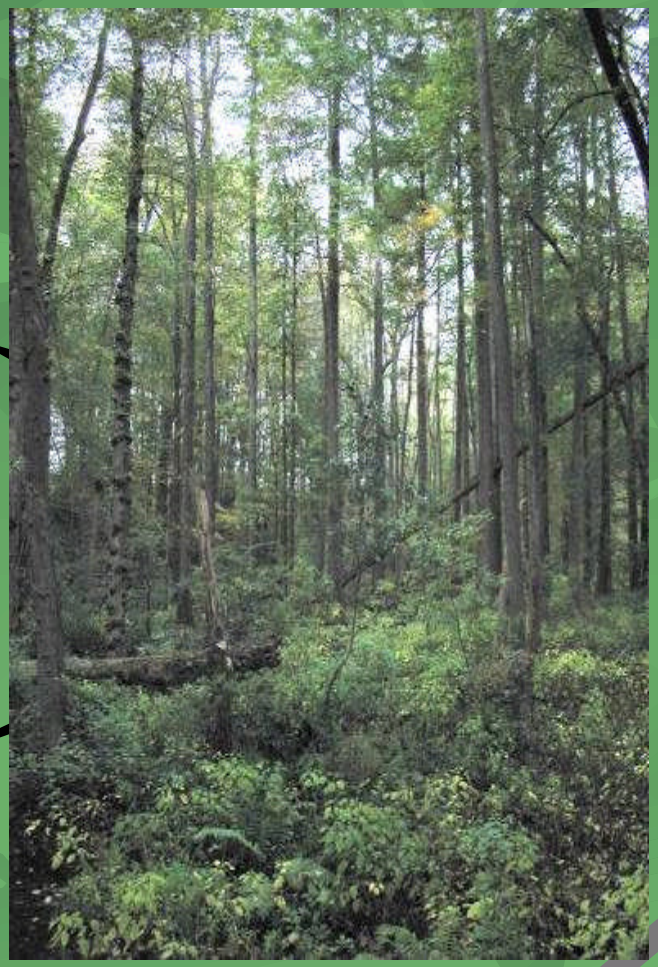
- Comprehensive Plans
  - Sensitive Areas Elements
  - Water Resources Element to be added
    - Source Water Protection
    - Infiltration to maintain groundwater
  - Land Preservation, Park, and Recreation Plans
- Zoning
  - Rural resource lands
- Agriculture Certification Program

Approach in Maryland

- ***Statewide***
- ***Sustainable Forests***
  - Biological Diversity
  - Productive Capacity
  - Ecosystem Health
  - Soil and Water
  - Global Carbon Cycles
  - Socioeconomic Needs
  - Institutional Framework

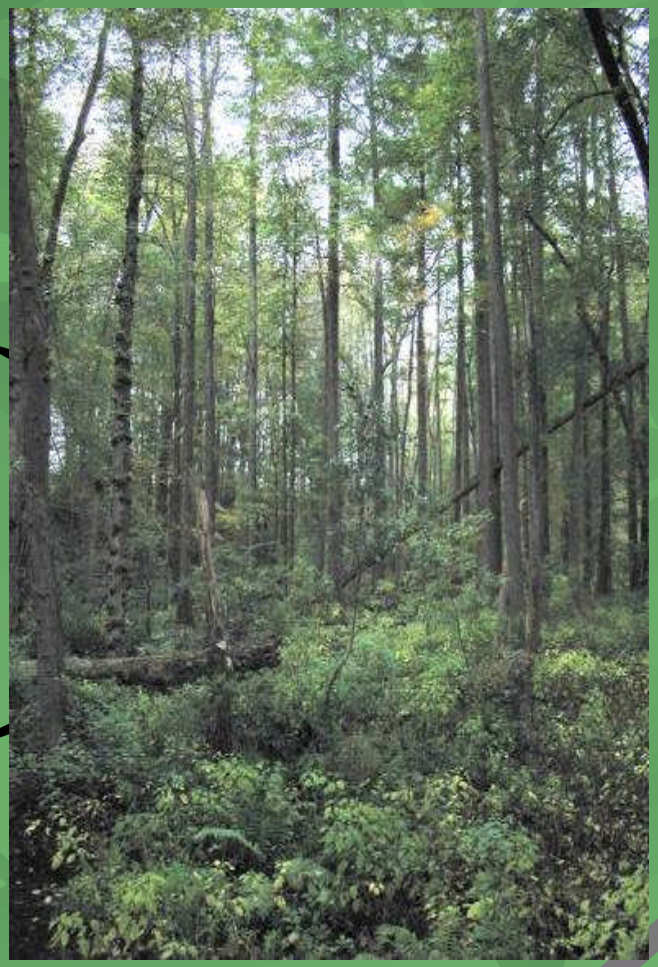
Forest Conservation Goals in Maryland- Long-term

1) ***Extent Matters***- Retain 41% forest cover in MD, including working forest
2) ***Location Matters***-Protect 20% of MD, conserving high-water-quality-value areas in forest (e.g., buffers, steep slopes, wetlands)
3) ***Streams Matter***- Protect/restore 70% of streams and shorelines with forest buffers
4) ***Context Matters***- Develop guidelines to retain 65-70% of watersheds in rural land uses, based on landscape characteristics like stream density, wetlands, steep slopes, growth areas, prime ag soils
5) ***Communities Matter***- Set urban tree canopy goals, focusing on areas developed before stormwater regulations



Forest Conservation Goals in Maryland- By 2020

1) **Retain 41% forest cover** in MD, including working forest (2.6. million acres)
2) **Protect 20% of MD-** Protect an additional 250,000 acres of sensitive areas by 2020. 700,000 acres are already protected towards the 1.25 million acre goal,
3) **Protect/restore 70% streams with forest buffers-** Restore an additional 25,000 acres (2063 miles) by 2020, outside prime ag land
4) **Guidelines for 65-70% rural land use-** By 2008 for use in revised comprehensive plan elements
5) **Set urban tree canopy goals-** Have canopy goals for 50% of areas developed before stormwater regulations by 2020.



Priority Actions

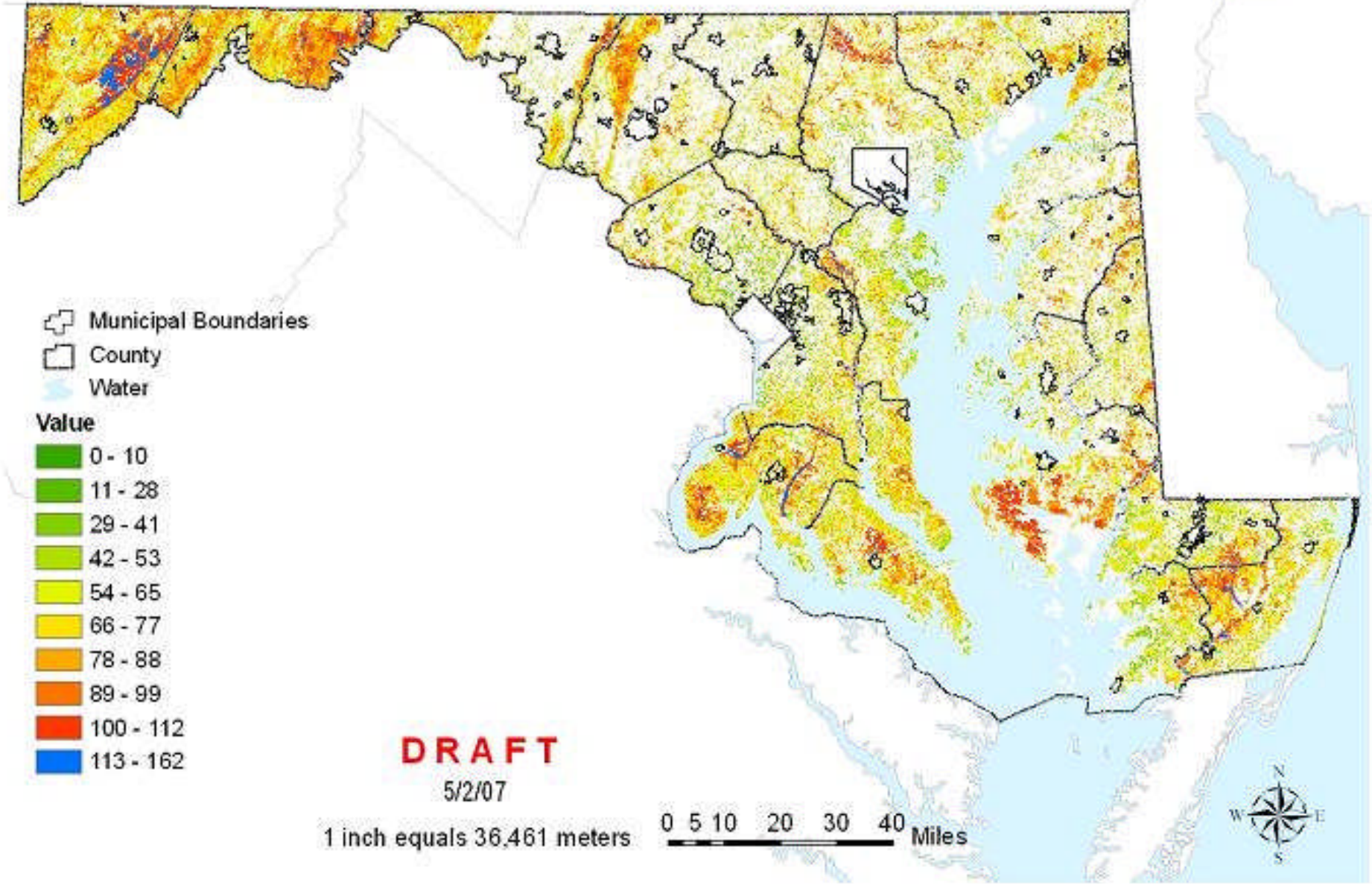
- ***Ecosystem Markets for incentives to retain forest***
  - Bay Bank under development to link landowners with services and potential markets- Carbon, water quality/supply, wetland, habitat…
- ***Sustainable Forestry Policy*** to guide adoption of:
  - Revised tax incentives
  - Effective and equitable harvesting regulations
  - Forest Health Reserve Fund,
  - Revolving loan fund for forest retention
- ***Land Conservation Program funding***
  - Add Transferable or refundable tax credit for donated easements
- ***Integrate forests in local Comprehensive Plan elements***
  - Include Transferable and Purchase of Development Rights programs
- ***Watershed improvement benefit district***
  - Support forest conservation and restoration

Targeting Forests for Water Quality

- Important Forest Resources
  - Buffers, Floodplains, Wetlands, ranked % of watershed forested
  - Slopes over 25%
  - Green Infrastructure and headwaters in interior forests
  - Forest blocks that protect the greatest length of shore/streambank
- Water Quality Protection
  - Priority Drinking Water- surface and subsurface
  - SPARROW model N loading
  - N & P removal efficiency by hydrogeomorphic region
  - Atmospheric Deposition
  - Impervious surfaces
- Contiguous Forest and Aquatic Habitat Quality
  - MBSS Stronghold watersheds and unique stream types
  - Rare species habitat and forest blocks
  - TNC Forest Matrices

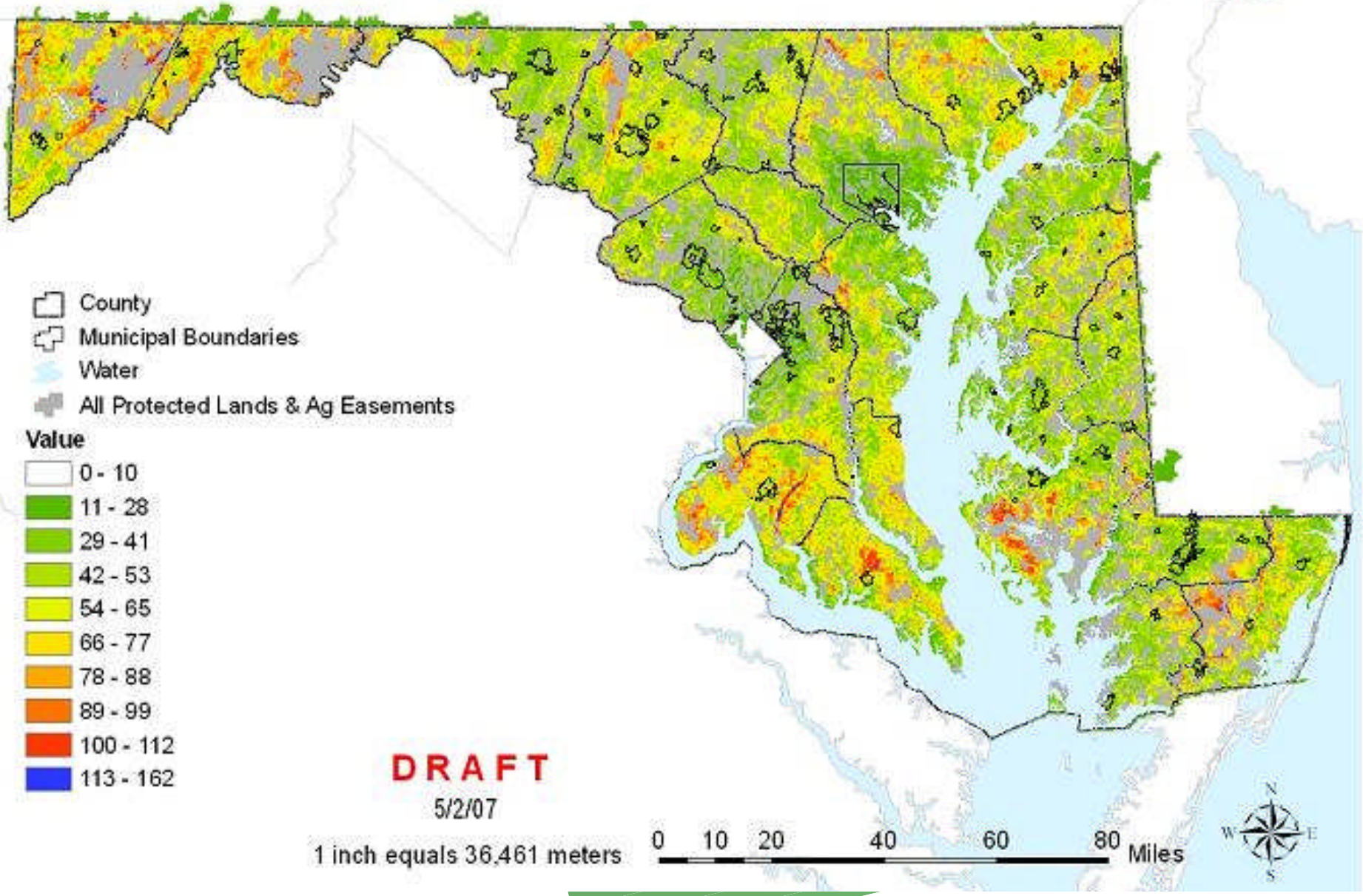
Forested Areas Targeted for Conservation Based on Potential Value to Water Quality

Currently protected areas are darkened and include agricultural areas protected under MALPF easements



Areas Targeted for Forest Conservation Based on Potential Value to Water Quality

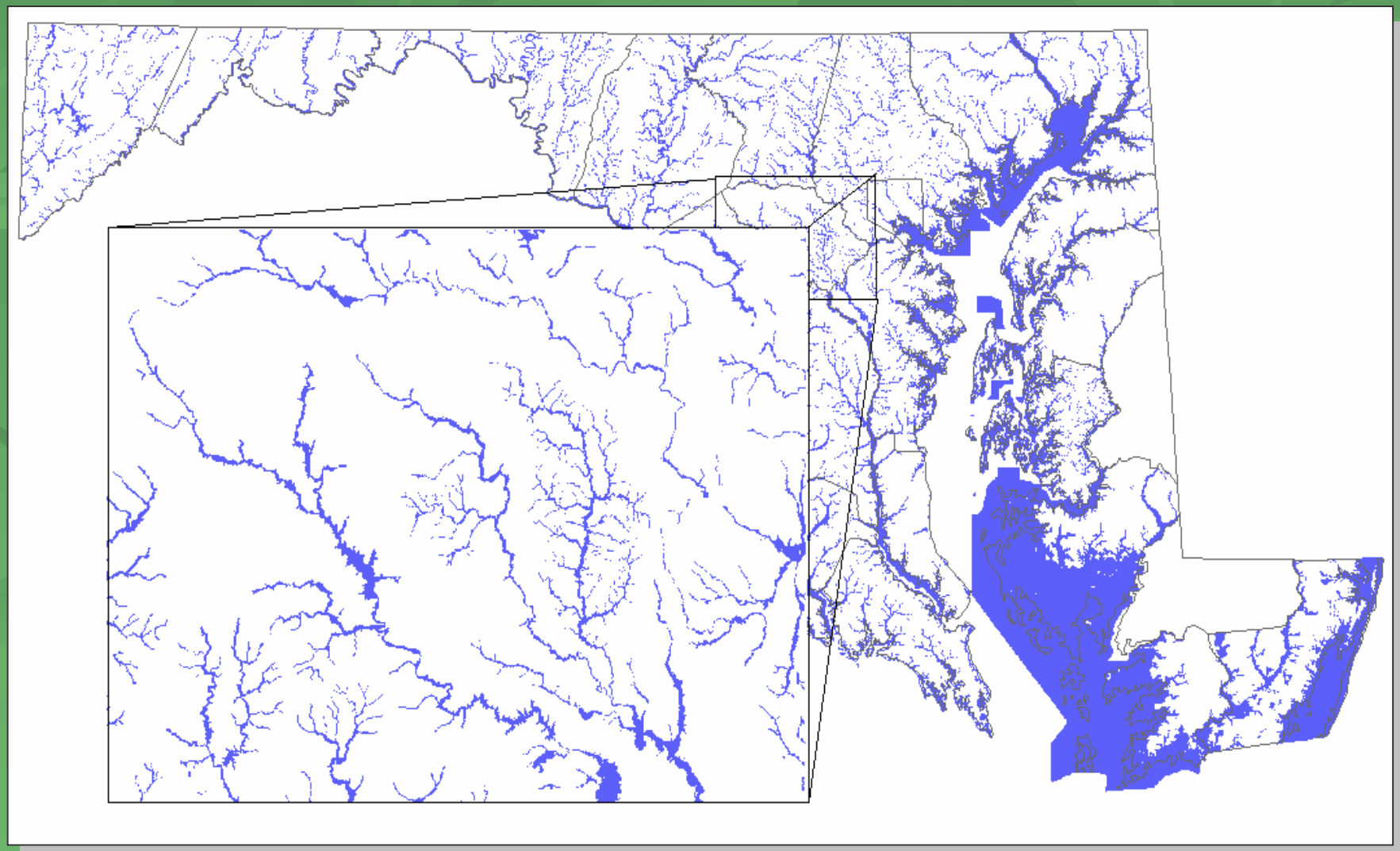
Currently protected areas are darkened and include agricultural areas protected under MALPF easements



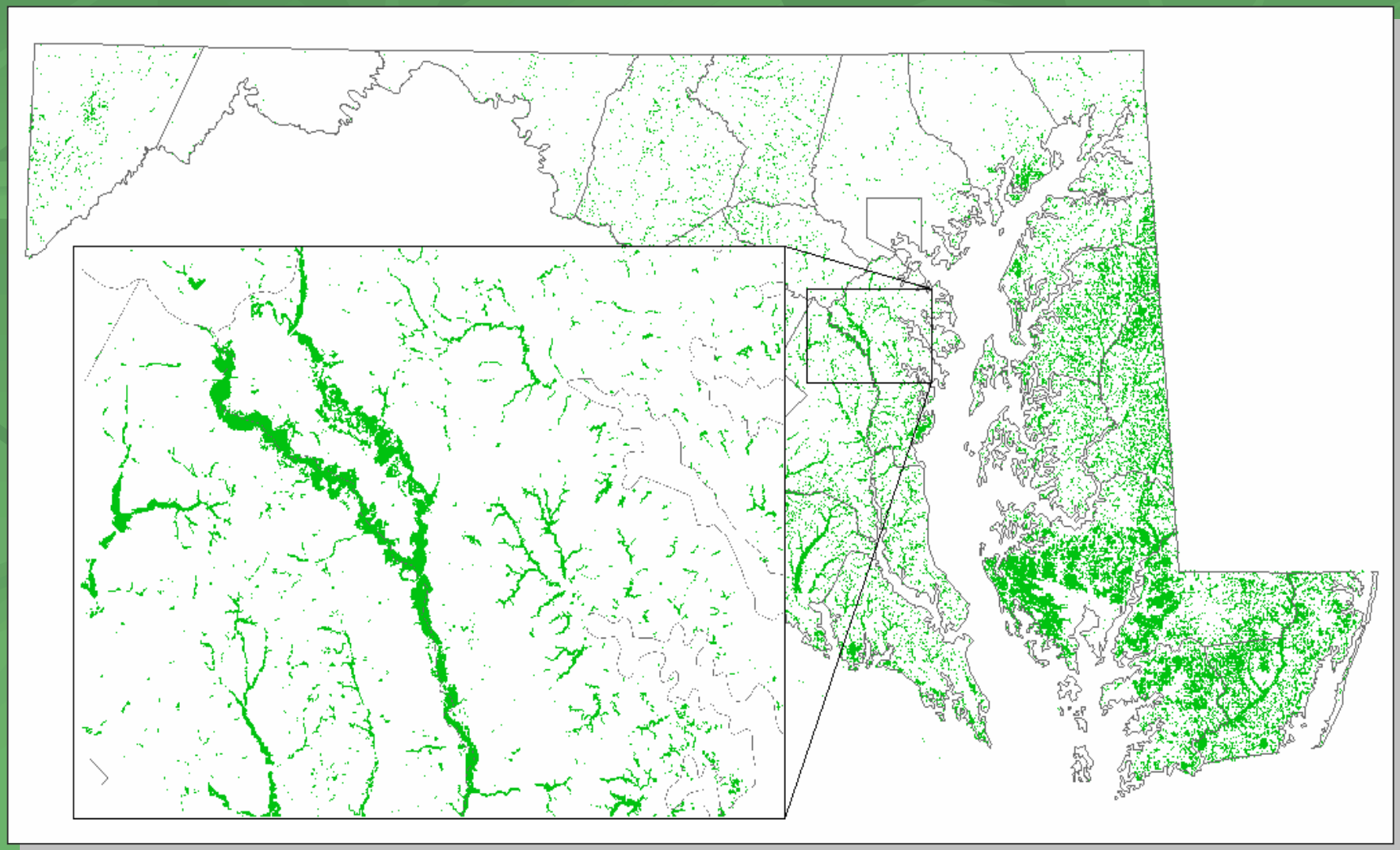
Next steps

- Forestry Work Group meeting June 12
  - Merge with VA, DC, federal agency proposals, and forthcoming PA proposal
- Approvals through
  - Nutrient Subcommittee
  - Principal Staff Committee
  - Implementation Committee
  - Executive Council- Fall 2007

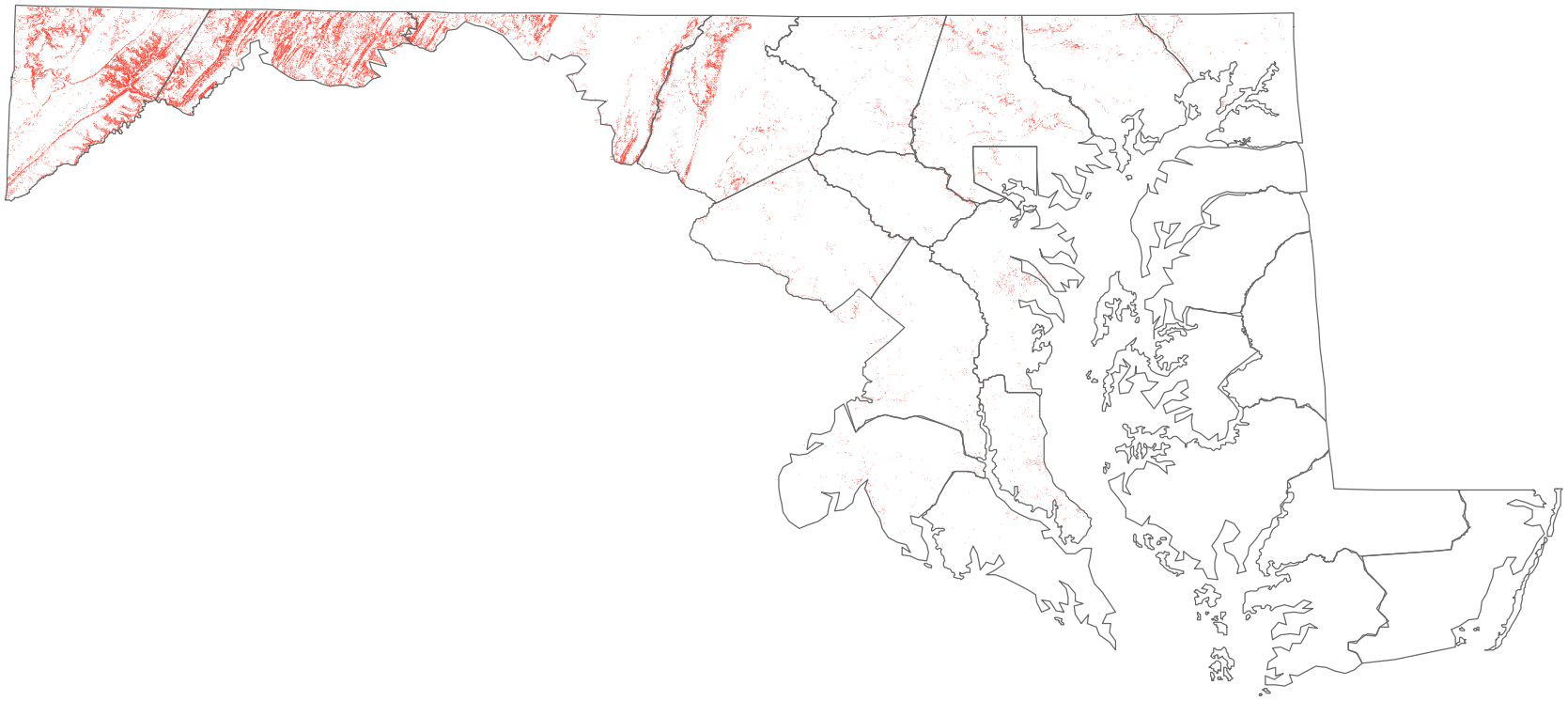
Buffers and Floodplains



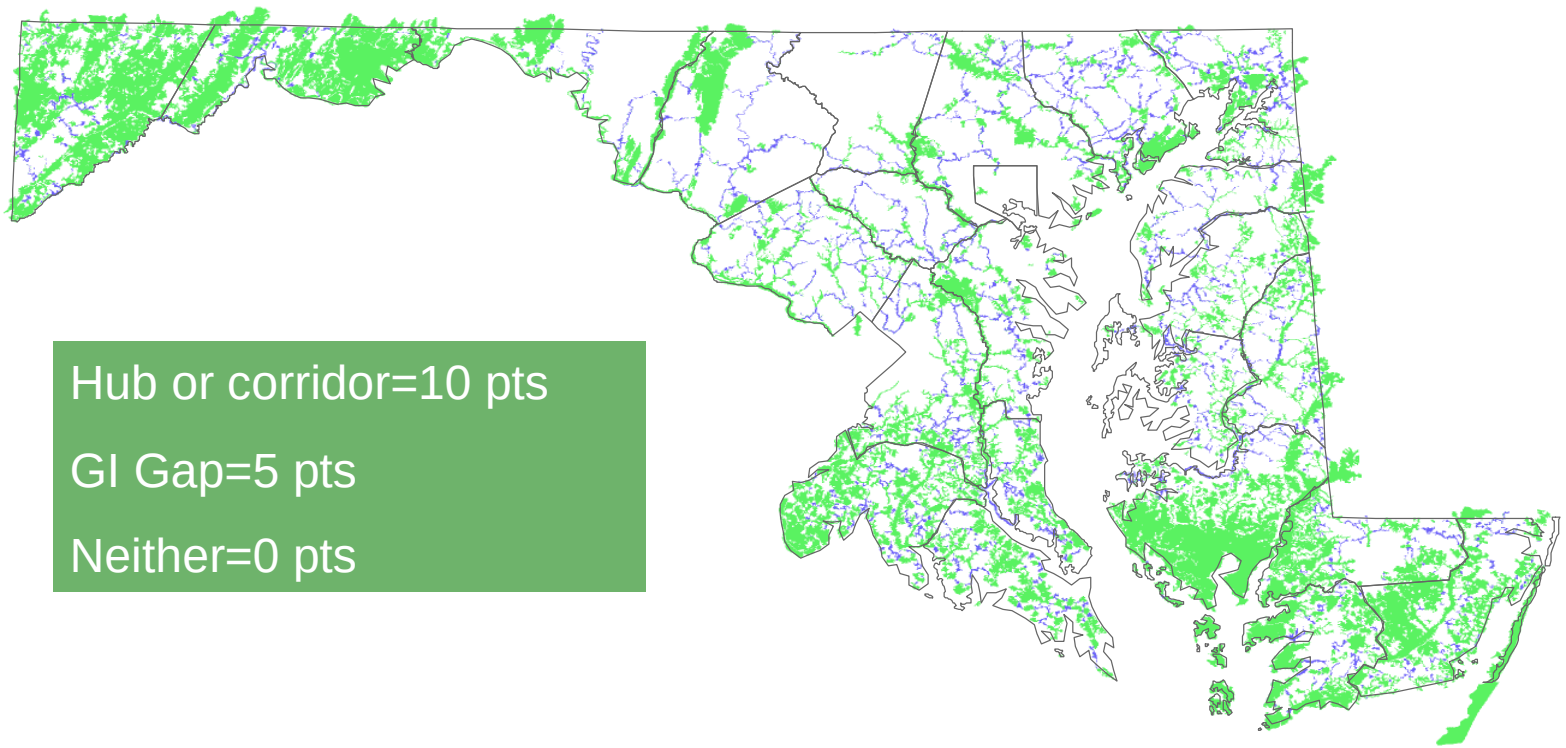
Forested Wetlands



Slopes over 25%



Green Infrastructure Hubs and Corridors

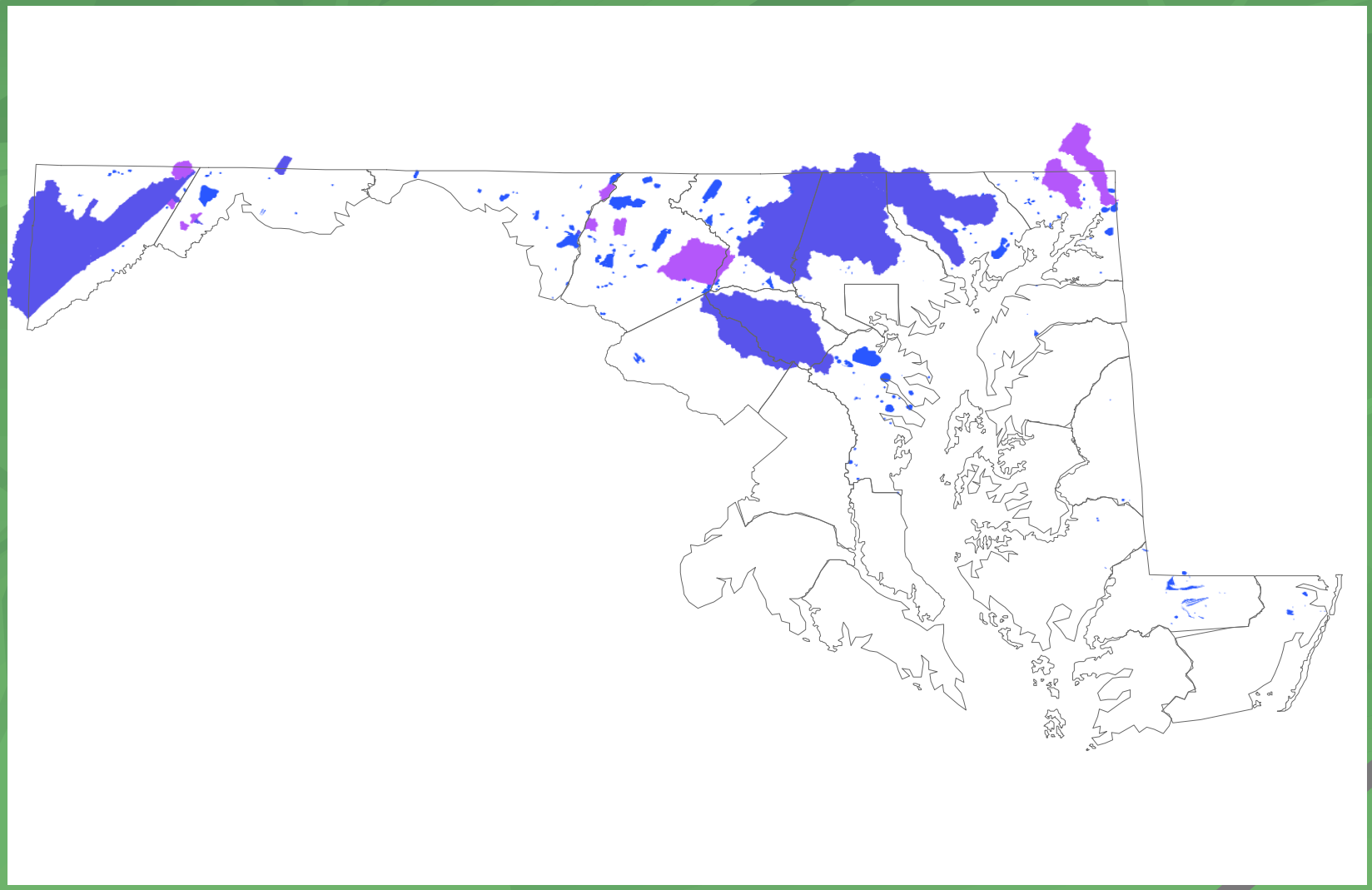


Hub or corridor=10 pts

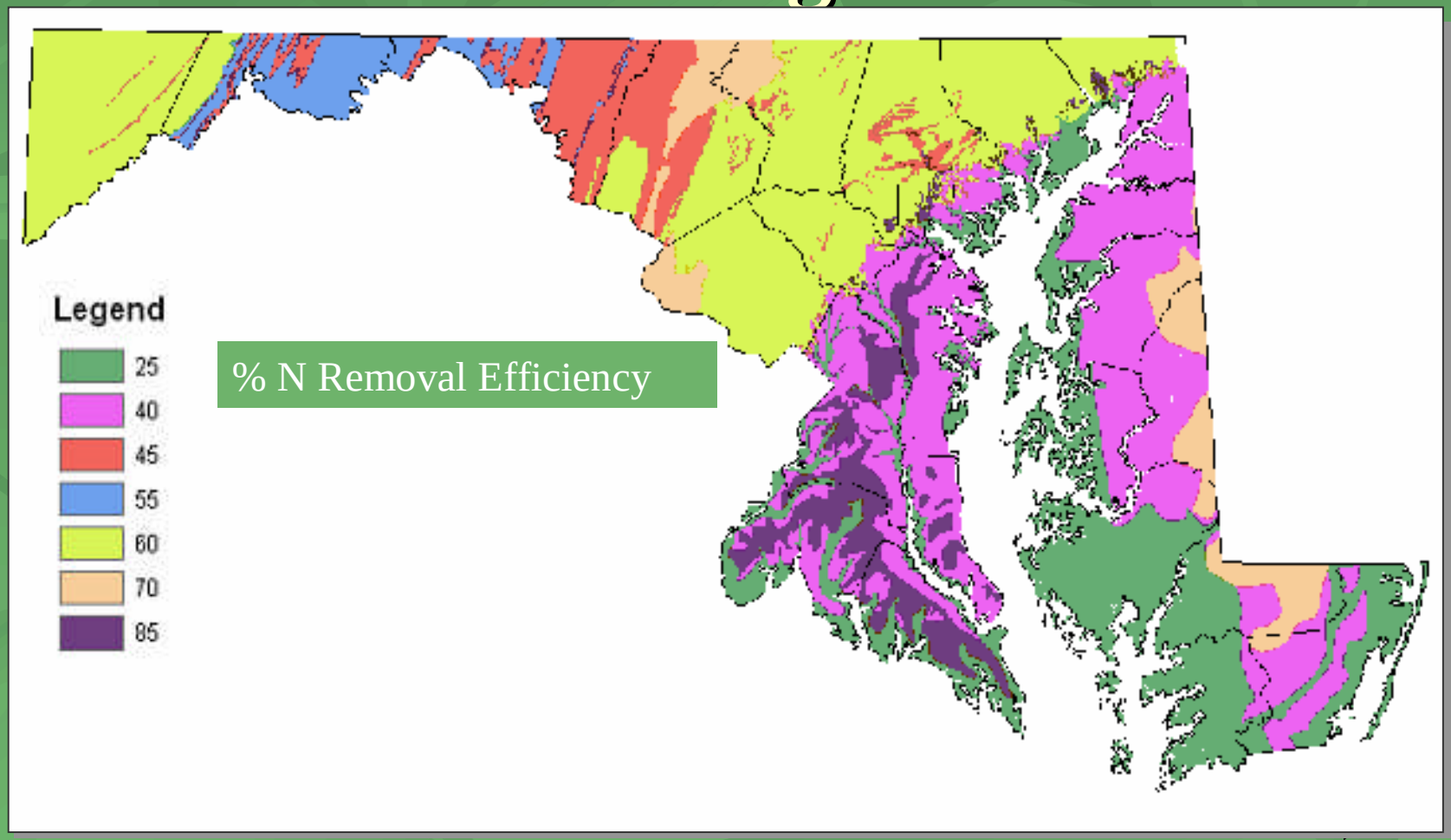
GI Gap=5 pts

Neither=0 pts

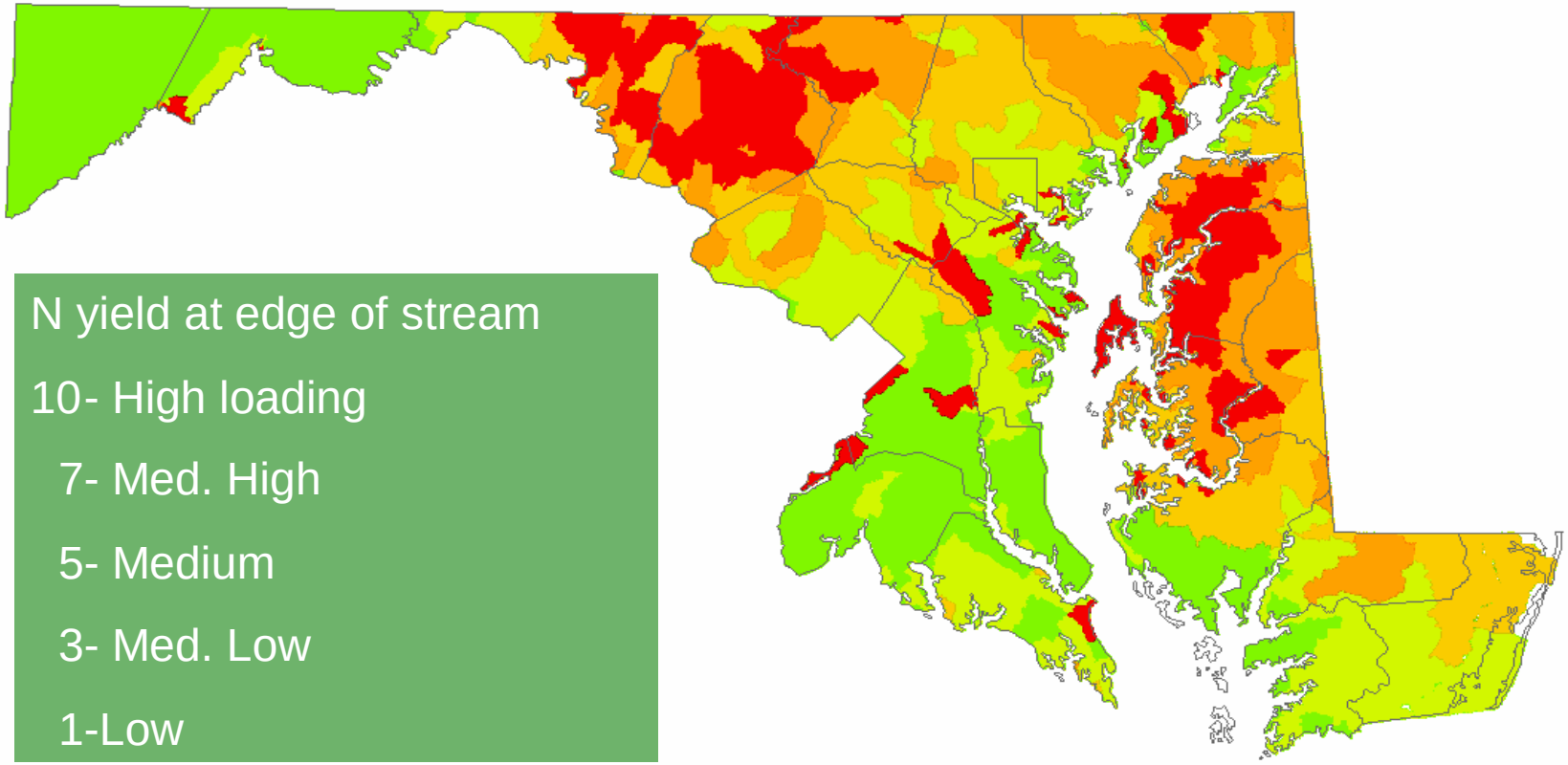
Drinking Water Protection
Surface, groundwater, & wellhead



Hydrogeomorphic Region – Potential nitrogen removal



SPARROW Nitrogen loading



N yield at edge of stream

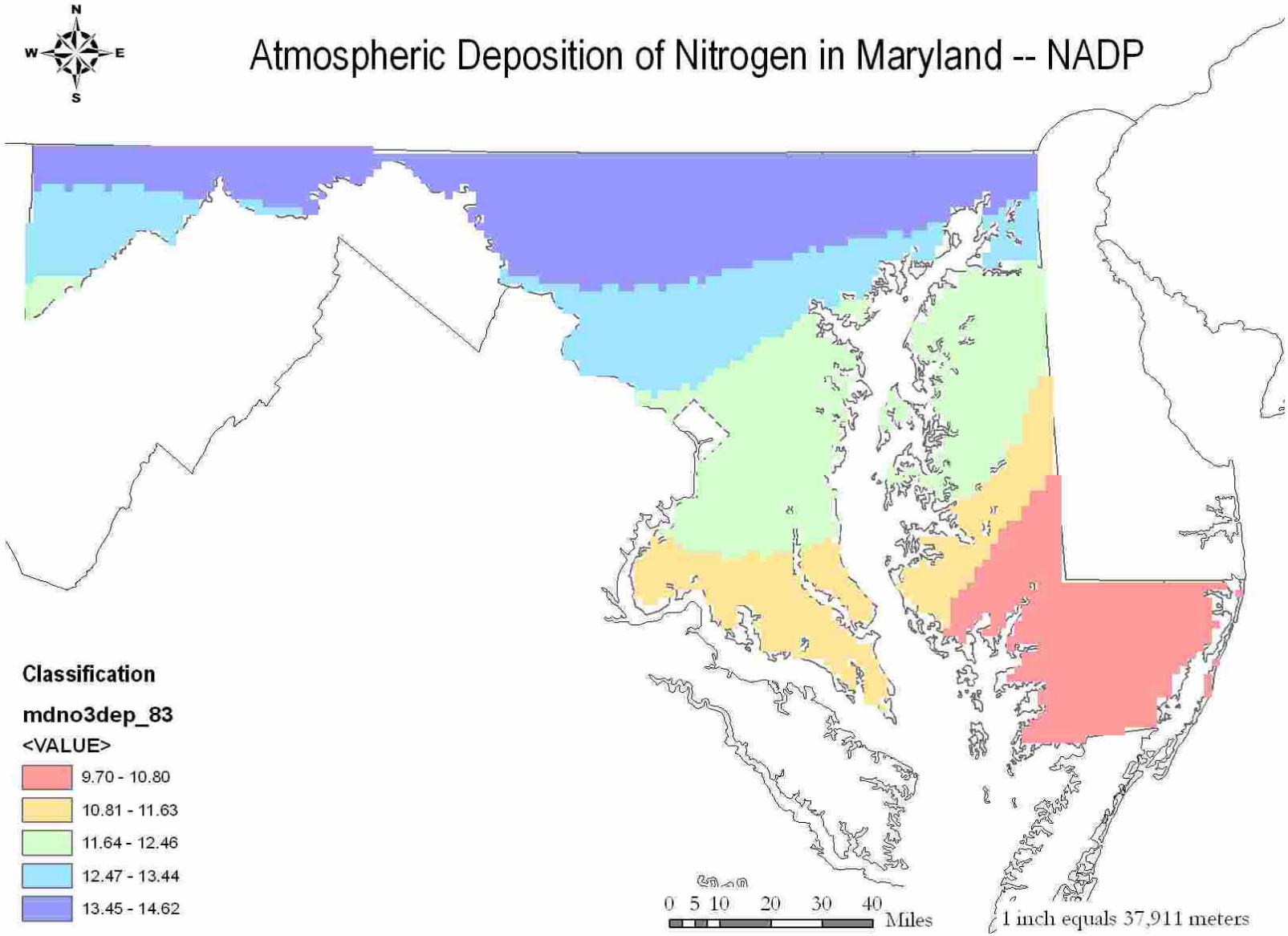
10- High loading

7- Med. High

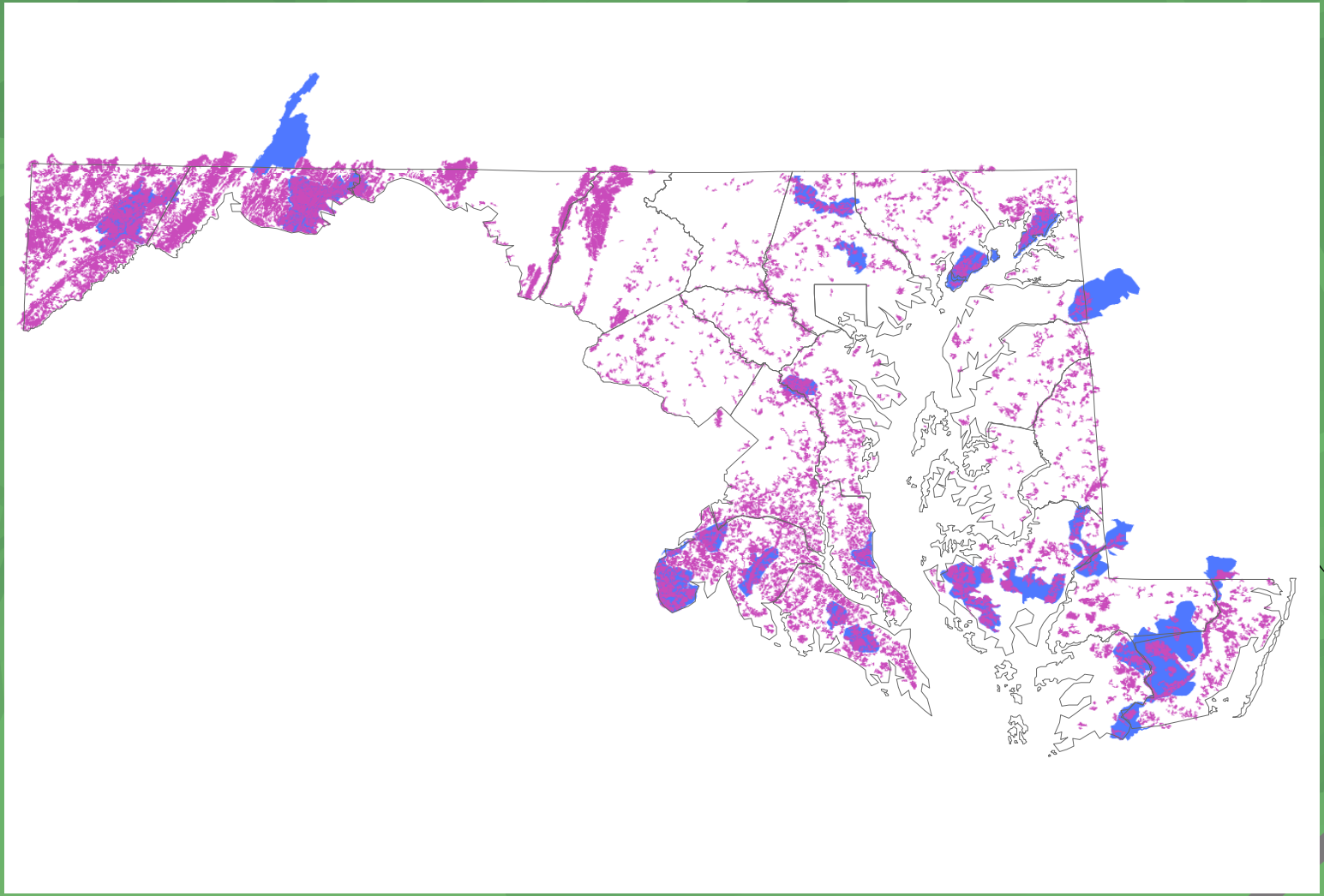
5- Medium

3- Med. Low

1-Low

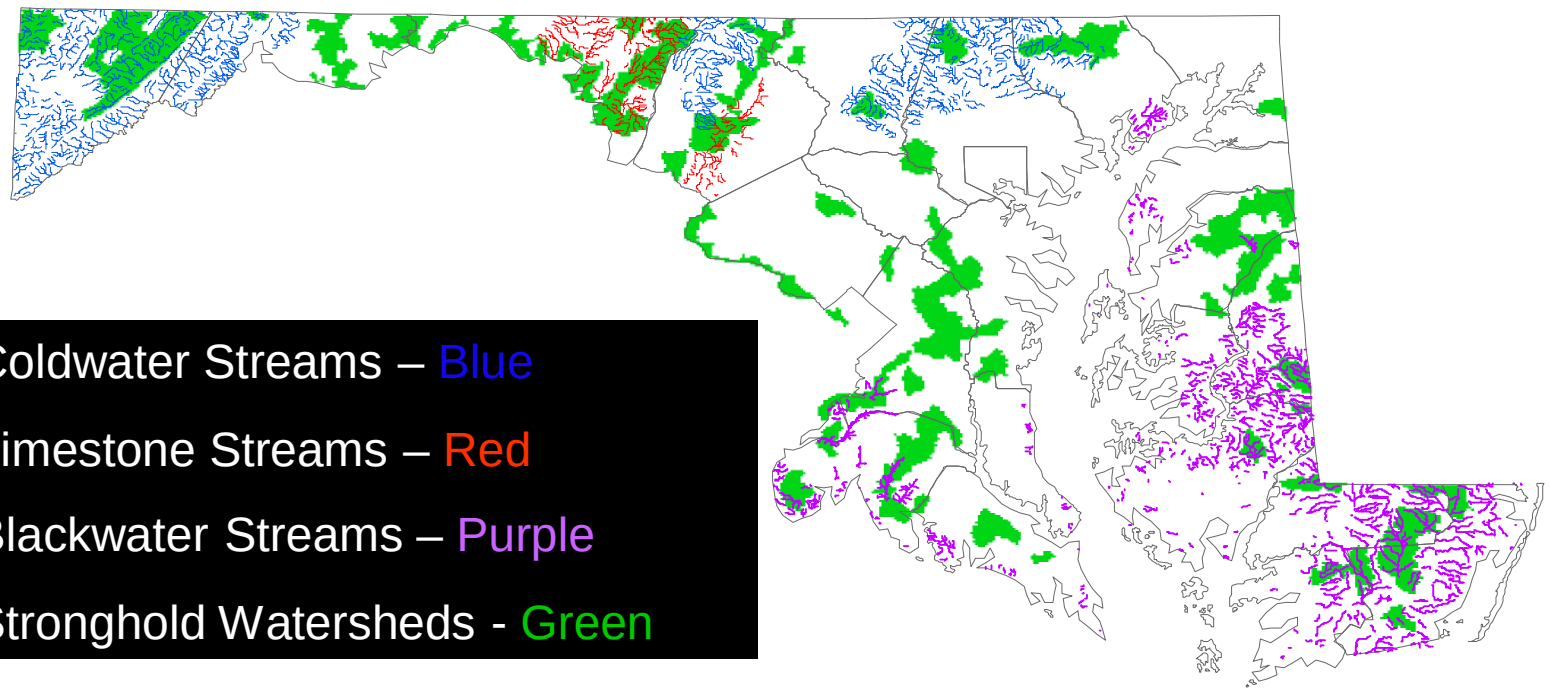

N
W
E
S
Atmospheric Deposition of Nitrogen in Maryland -- NADP
Classification
mdno3dep_83
<VALUE>
9.70 - 10.80
10.81 - 11.63
11.64 - 12.46
12.47 - 13.44
13.45 - 14.62
0 5 10 20 30 40
Miles
1 inch equals 37,911 meters

TNC Forest Matrices and High Quality Forest Interior Dwelling Bird Habitat



Forest Protection Model

MBSS Stronghold Watersheds and High Quality Streams – MDP & DNR



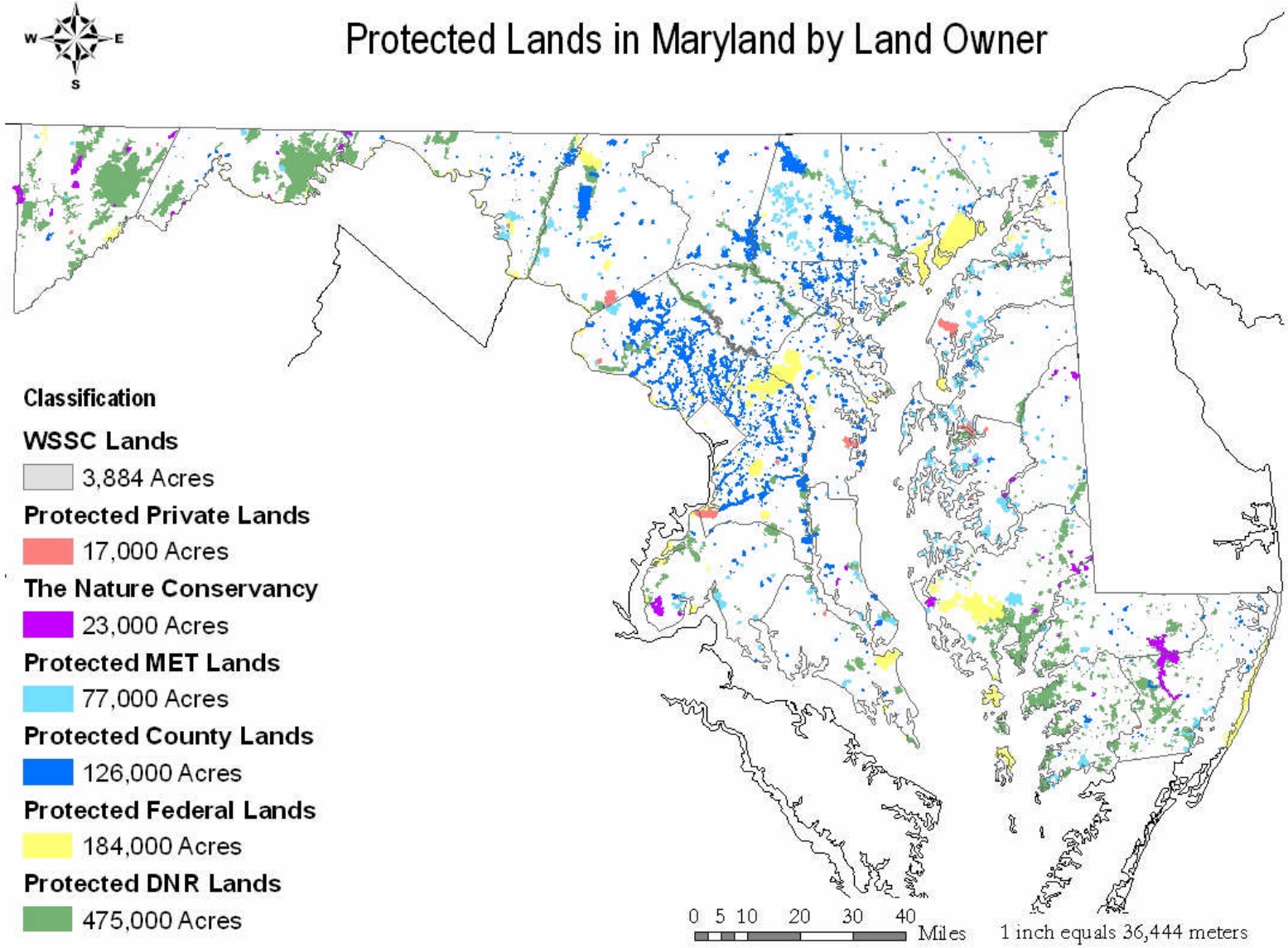
Coldwater Streams – Blue

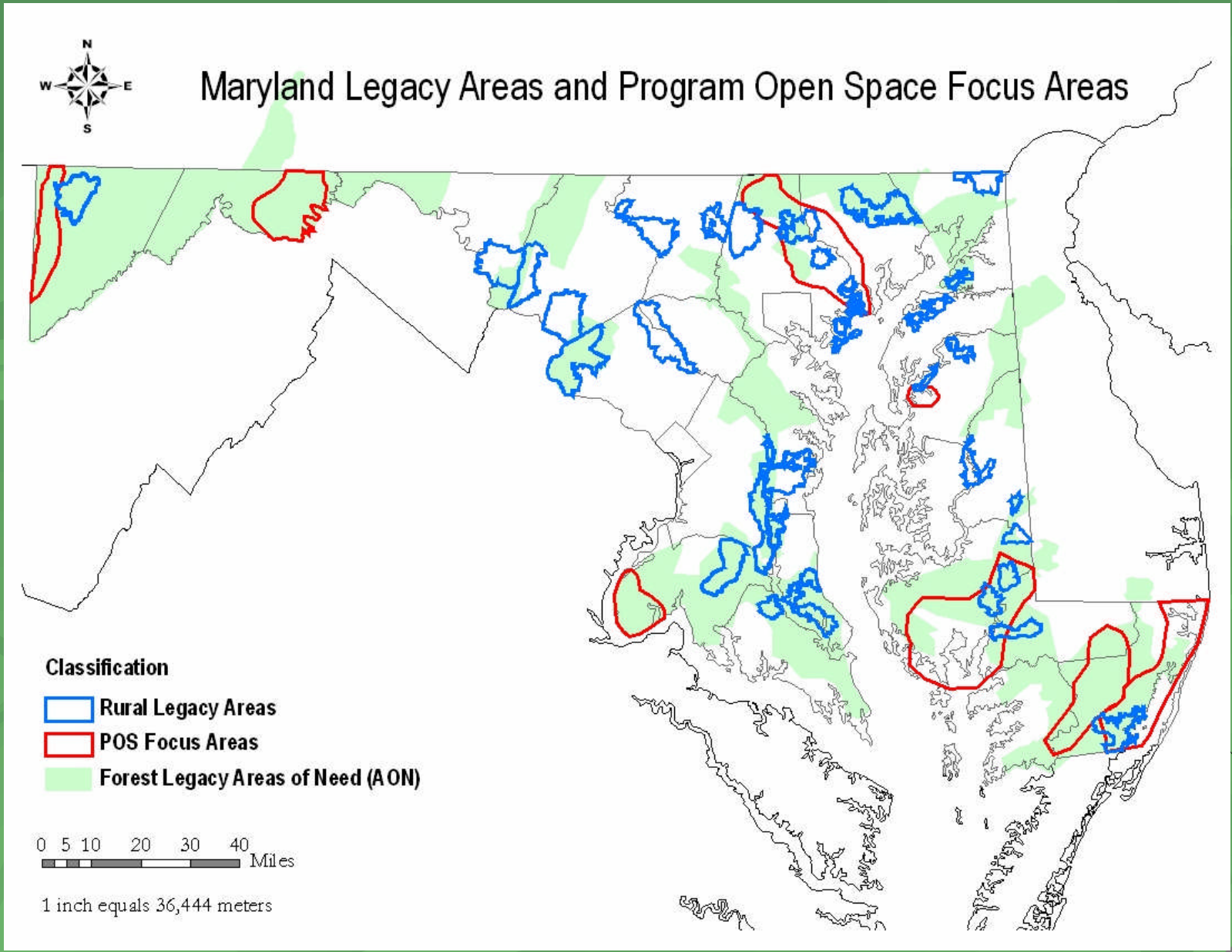
Limestone Streams – Red

Blackwater Streams – Purple

Stronghold Watersheds - Green

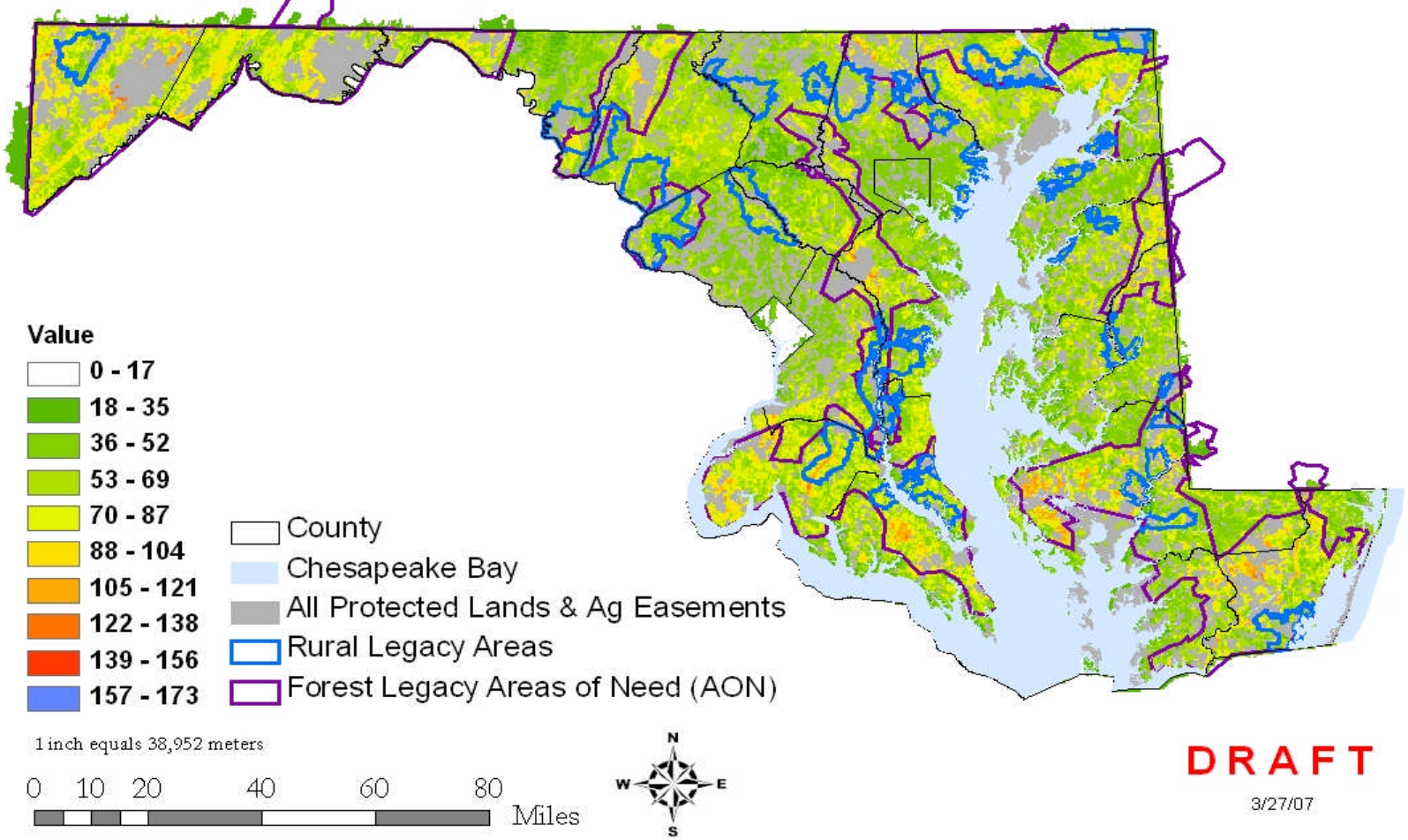
Protected Lands in Maryland by Land Owner




Maryland Legacy Areas and Program Open Space Focus Areas
N
W
E
S
Classification
Rural Legacy Areas
POS Focus Areas
Forest Legacy Areas of Need (AON)
0 5 10 20 30 40
Miles
1 inch equals 36,444 meters

Forested Areas Targeted for Conservation Based on Potential Value to Water Quality

Protected Lands are darkened and include agricultural lands protected by MALPF.



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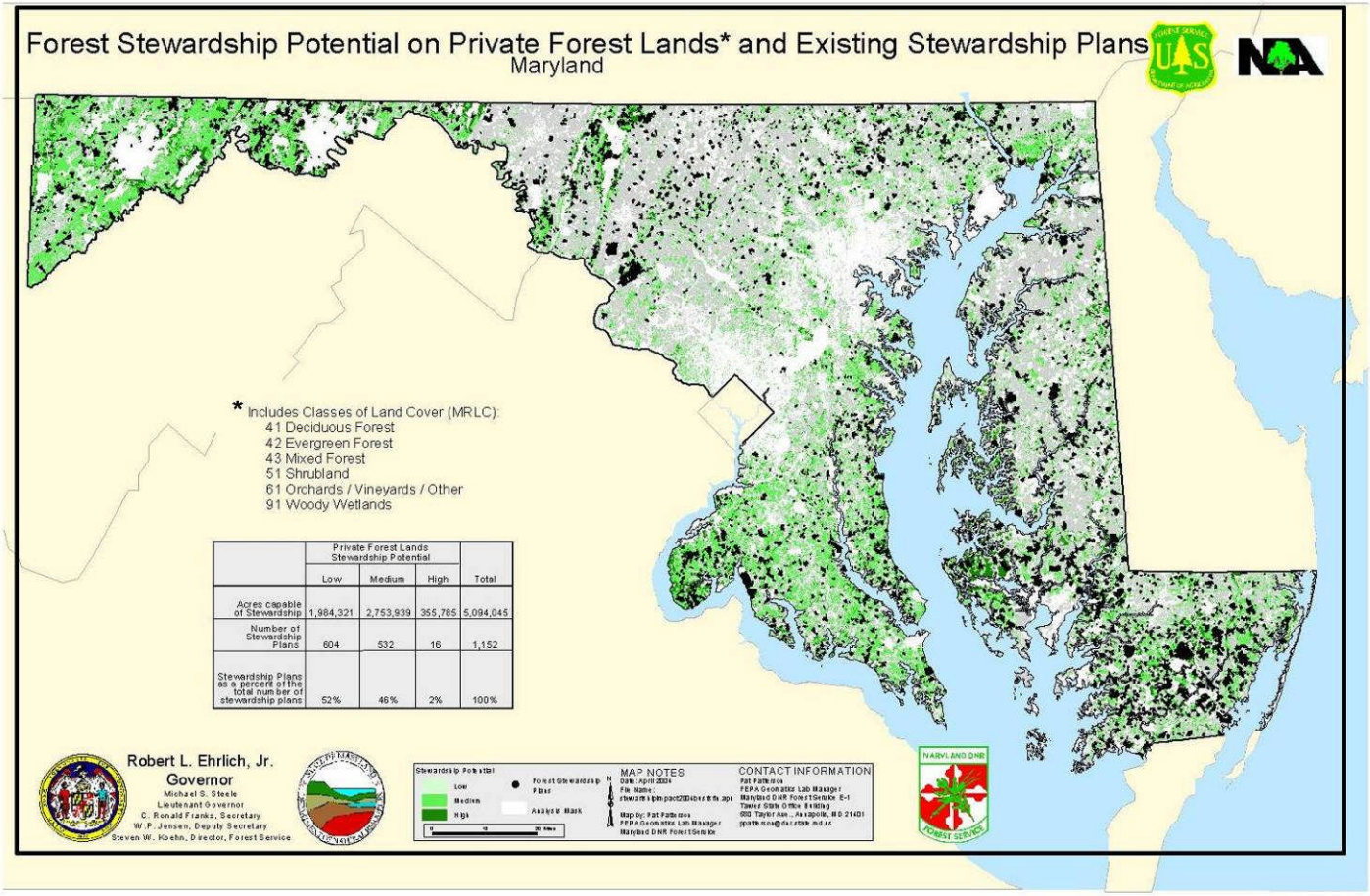

	Private Forest Lands Stewardship Potential			
	Low	Medium	High	Total
Acres capable of Stewardship	1,984,321	2,753,939	355,785	5,094,045
Number of Stewardship Plans	604	532	16	1,152
Stewardship Plans as a percent of the total number of stewardship plans	52%	46%	2%	100%