

Land Prioritization Mapping for Protecting Drinking Water Quality

2022 MARYLAND LAND CONSERVATION CONFERENCE
JUNE 1, 2022



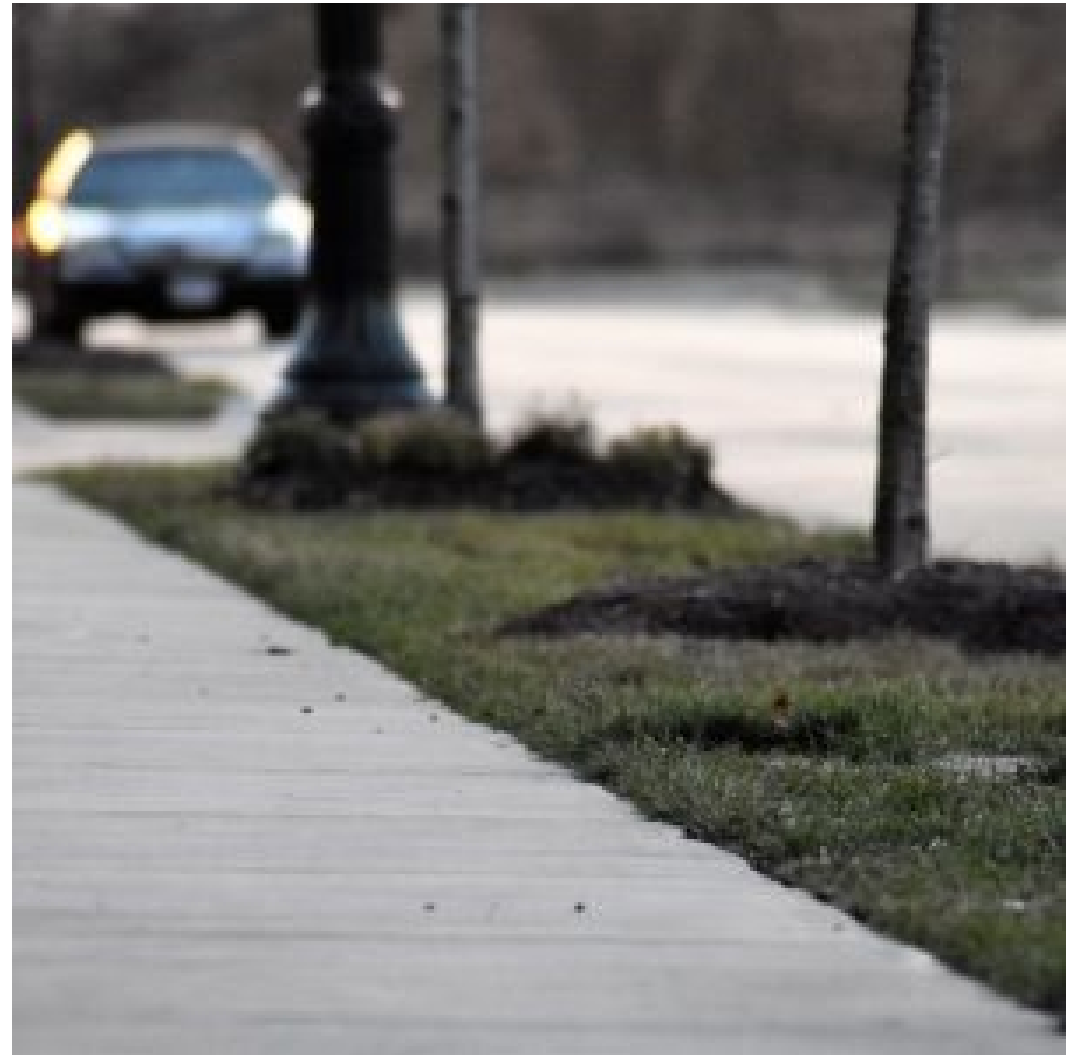
Interstate Commission
on the
Potomac River Basin



Little Seneca Lake, Maryland. Photo by R. Bourassa.

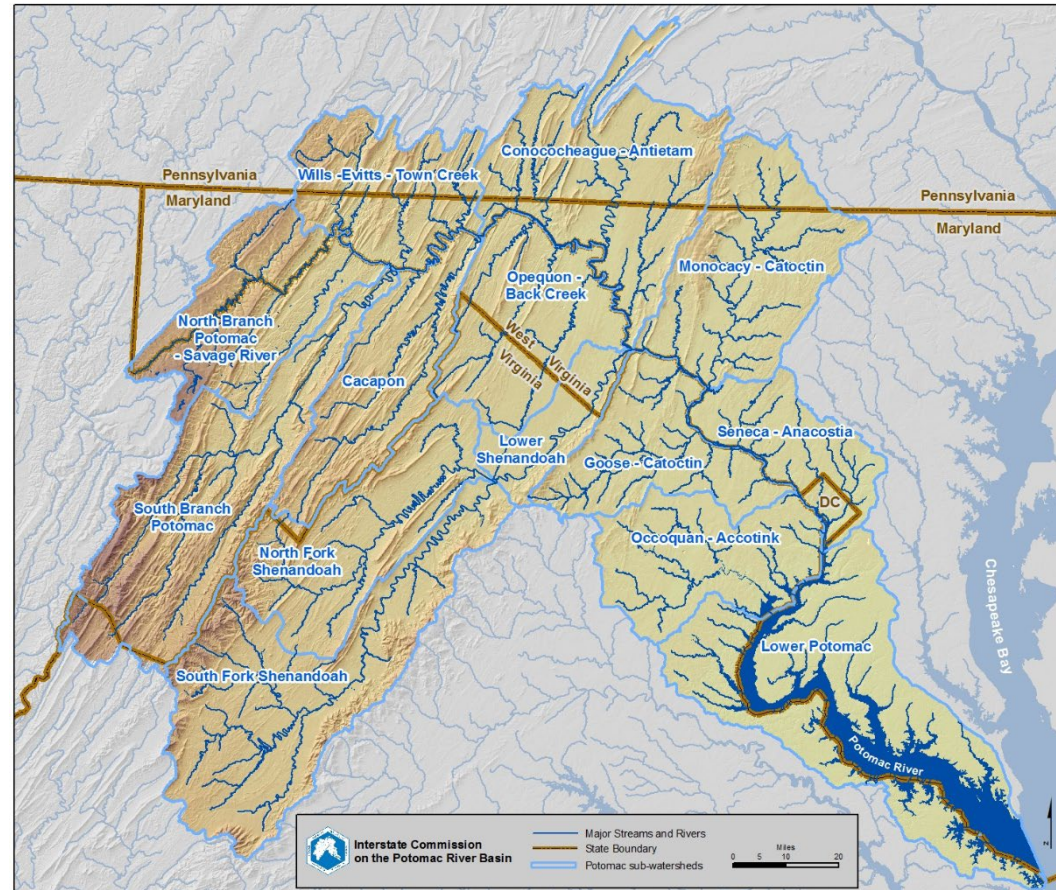
Outline

- ICPRB Overview
- Background
- Opportunity Areas
- Metrics
- Cumulative Prioritization
- Implementation
- Conclusion



Impervious cover in Clarksburg, Maryland. Photo by Renee Bourassa.

INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN OVERVIEW



INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN OVERVIEW

- Approved by Congress in 1940 as an Interstate Compact for “the purpose of regulating, controlling, preventing, or otherwise rendering unobjectionable and harmless the pollution of the waters of said Potomac drainage area by sewage and industrial and other wastes.”
- Signatory Jurisdictions: Maryland, Virginia, West Virginia, Pennsylvania, and the District of Columbia but not the United States



INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN OVERVIEW

The five jurisdictions and the federal government appoint three Commissioners each

The Compact establishes the Commission as an agency of each signatory jurisdiction

No regulatory authority

INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN OVERVIEW

SECTION FOR COOPERATIVE WATER SUPPLY OPERATIONS ON THE POTOMAC RIVER (CO-OP)

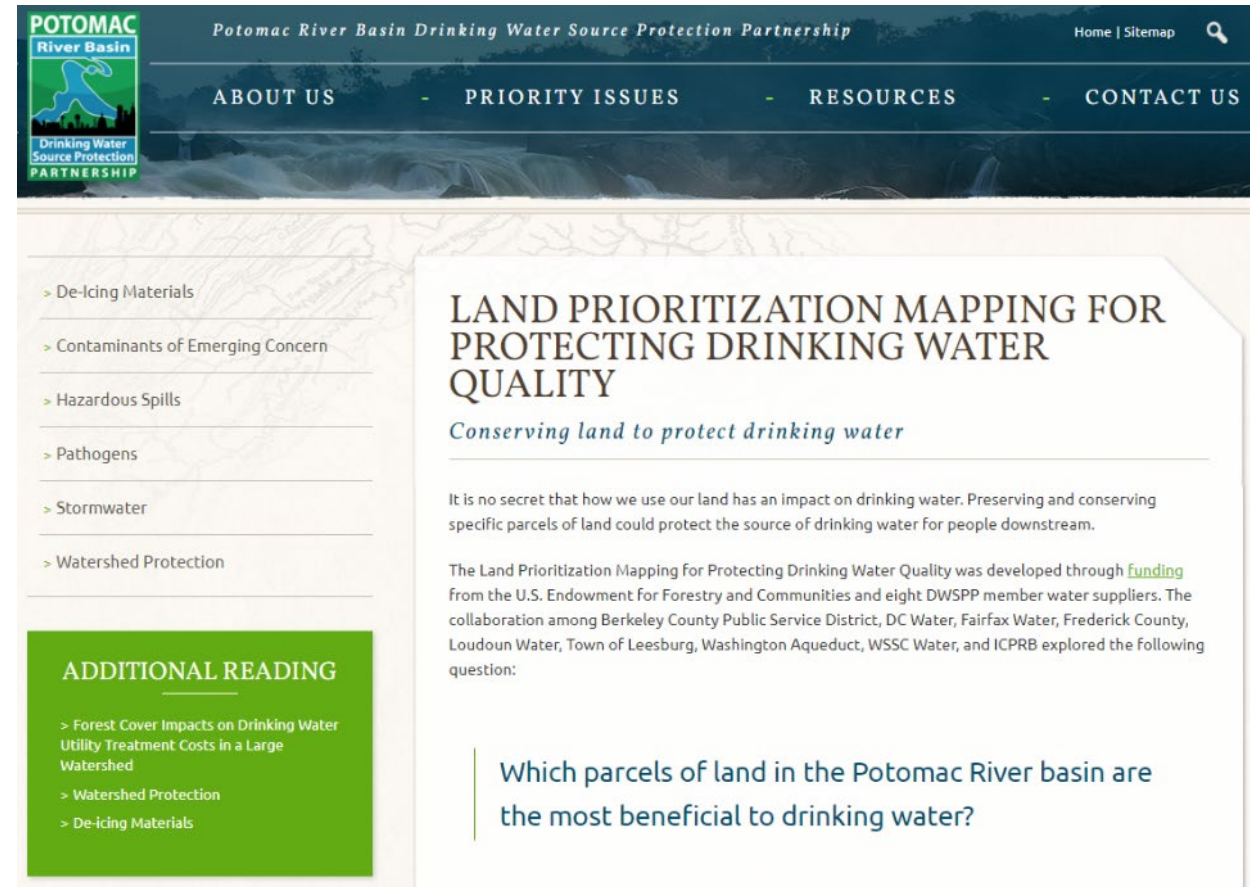
- After the serious Potomac River drought in 1966, ICPRB created the Section for Co-operative Water Supply Operations on the Potomac River to focus on the quantity of drinking water from the Potomac River.
- CO-OP works with the water suppliers to ensure the region has adequate raw water supplies from the Potomac, even in the face of growing demands.

DRINKING WATER SOURCE PROTECTION PARTNERSHIP (DWSPP)

- In order to safeguard the quality of drinking water from the Potomac River, ICPRB staffs the Drinking Water Source Protection Partnership.
- DWSPP is a voluntary association of almost two dozen water suppliers and government agencies focused on protecting sources of drinking water in the Potomac River basin.

Background

- Objective: Ranking parcels to protect drinking water quality and their potential to degrade long-term water quality
- Products: GIS files, project flyer, project memo



The screenshot shows the website for the Potomac River Basin Drinking Water Source Protection Partnership. The header includes the organization's name and navigation links: ABOUT US, PRIORITY ISSUES, RESOURCES, and CONTACT US. The main content area features a sidebar with a list of priority issues: De-Icing Materials, Contaminants of Emerging Concern, Hazardous Spills, Pathogens, Stormwater, and Watershed Protection. The main article is titled "LAND PRIORITIZATION MAPPING FOR PROTECTING DRINKING WATER QUALITY" with the subtitle "Conserving land to protect drinking water". The article text states: "It is no secret that how we use our land has an impact on drinking water. Preserving and conserving specific parcels of land could protect the source of drinking water for people downstream. The Land Prioritization Mapping for Protecting Drinking Water Quality was developed through funding from the U.S. Endowment for Forestry and Communities and eight DWSPP member water suppliers. The collaboration among Berkeley County Public Service District, DC Water, Fairfax Water, Frederick County, Loudoun Water, Town of Leesburg, Washington Aqueduct, WSSC Water, and ICRPB explored the following question: Which parcels of land in the Potomac River basin are the most beneficial to drinking water?"

Background



- Eight drinking water suppliers, all members of DWSPP, collaborated to rank land parcels to protect drinking water quality. The project area encompassed the non-tidal Potomac basin above the DC metro drinking water supply intakes, an area of approximately 7.5 million acres. The parcels are ranked from high priority for conservation to low priority for conservation. There are a total of 621 parcels comprising 3,737 acres of high-priority land in the project area. The Interstate Commission on the Potomac River Basin completed the technical work.

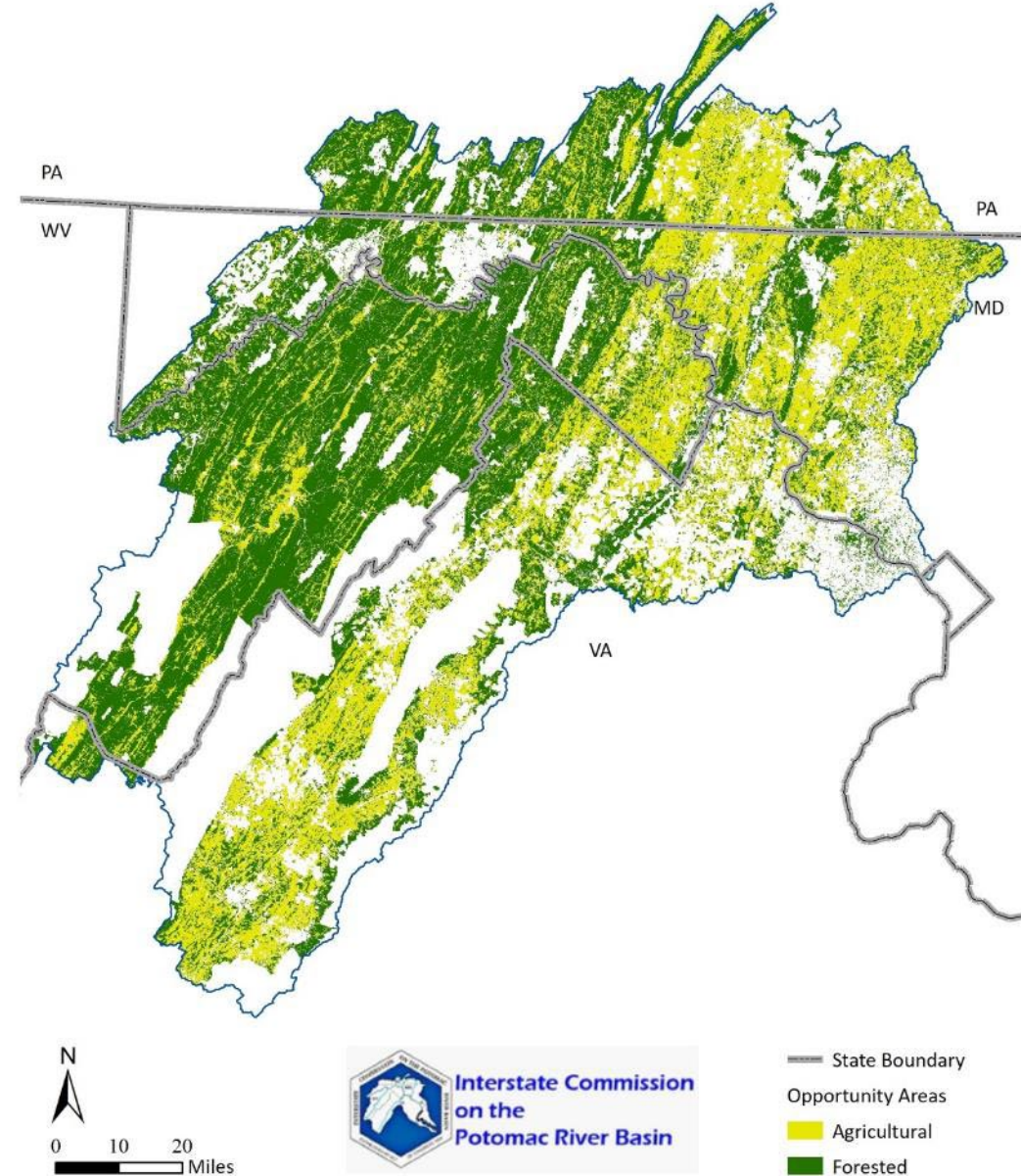
Background



- Within the project area, agricultural and forested lands, as well as riparian areas protected by county ordinance, were considered “opportunity areas” for prioritization. Land parcels were prioritized using seven metrics. Six metrics were equally weighted, while the seventh metric, karst transmissivity, received half the weight of the other metrics.

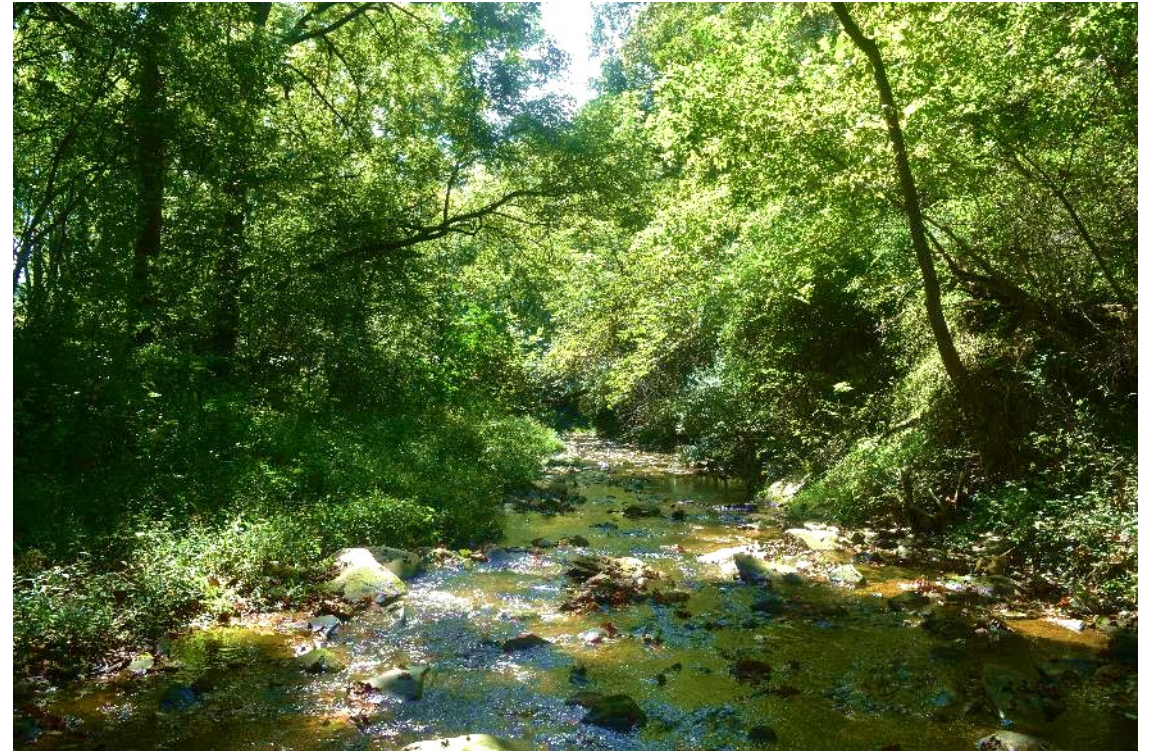
Opportunity Areas

Opportunity areas include privately owned agricultural and forested lands, not including land under easement.



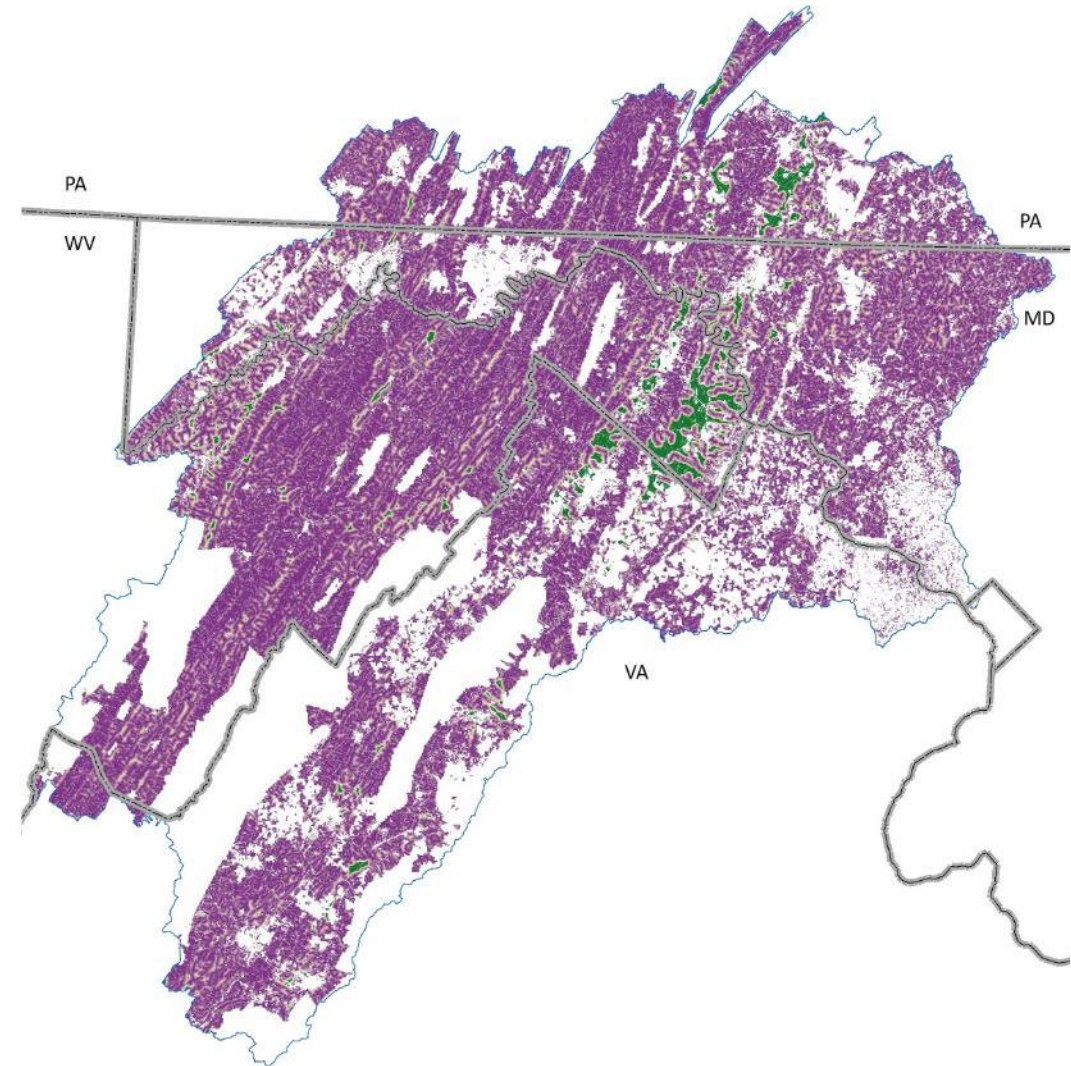
Prioritization Metrics

- Distance from waterway
- Distance from surface water intake weighted by 24-hour travel time
- Distance from urban areas
- Karst transmissivity
- Future land use (year 2025)
- Preserving existing high-quality streams
- Buffer regulations

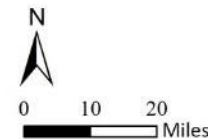


Frederick County, Maryland. Photo by R. Bourassa.

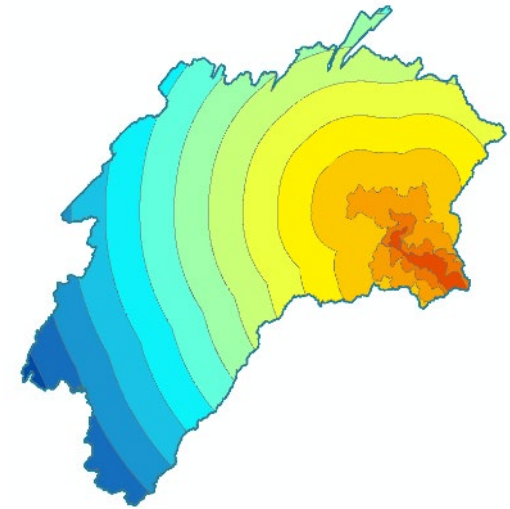
Distance from Waterway



Shorter distance from waterway is higher priority for conservation.

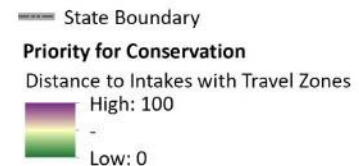
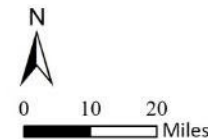
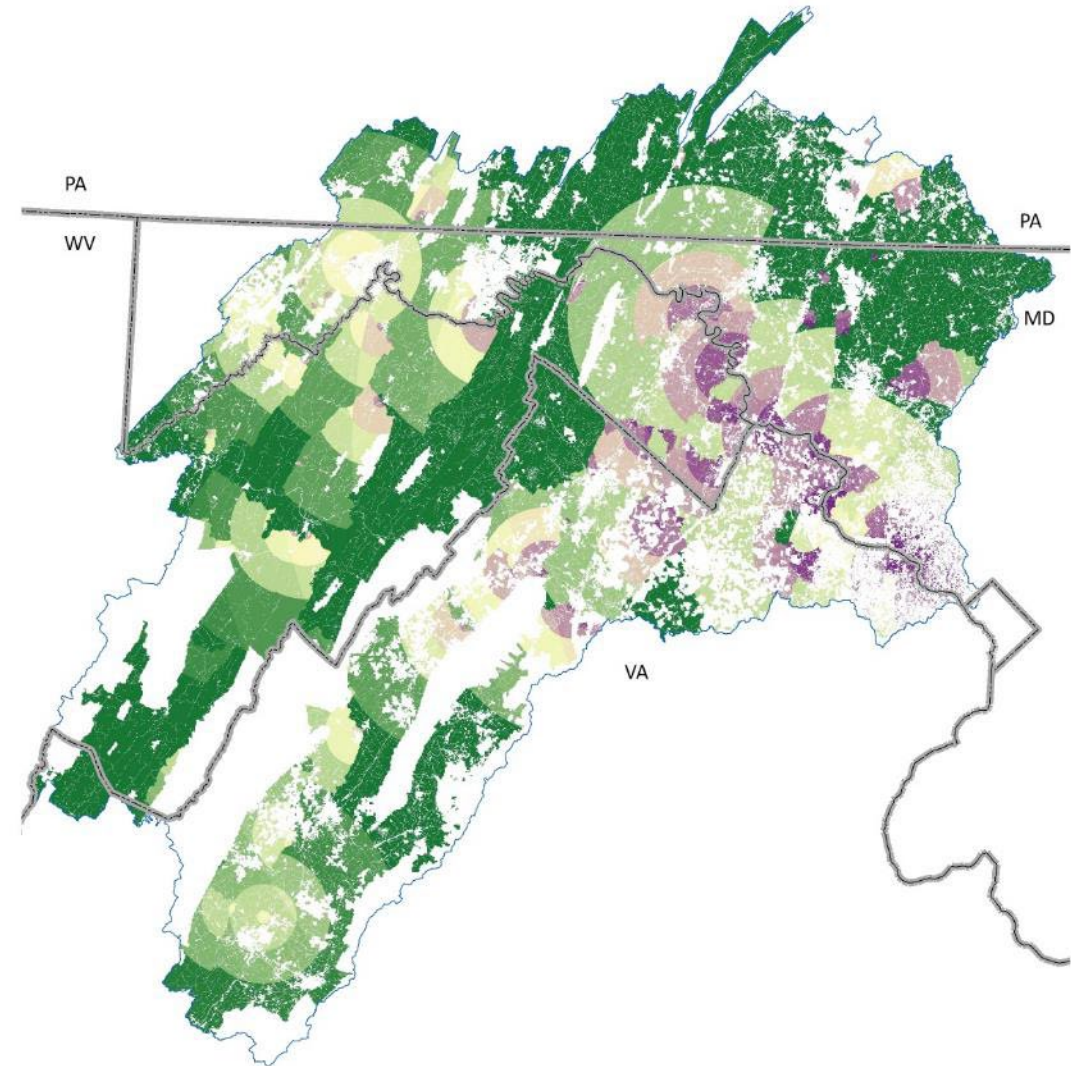


Distance from Surface Water Intake Weighted by 24-Hour Travel Time

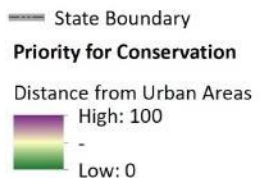
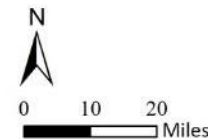
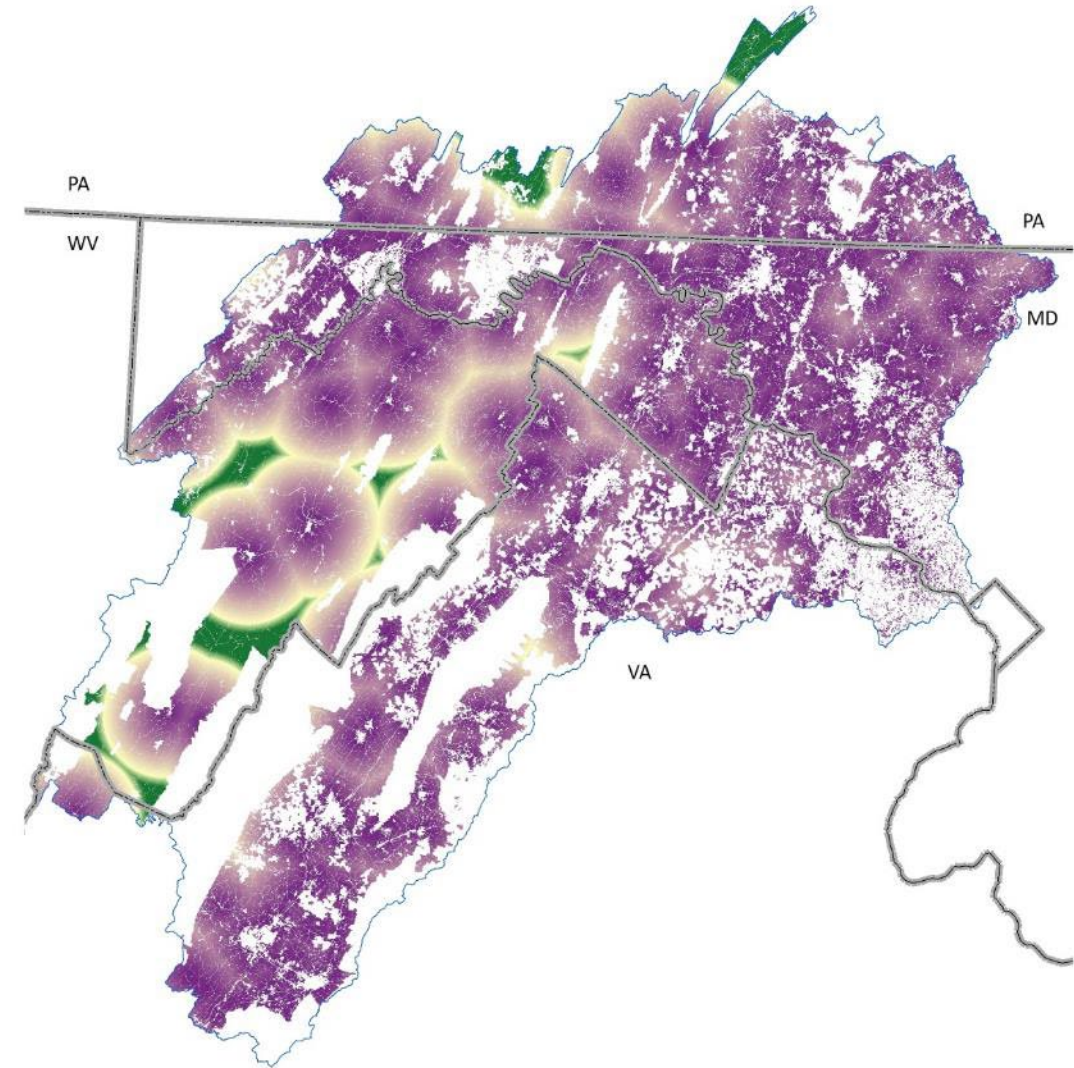


Approx 24 hour travel time zones.

Shorter distance from downstream surface water intake is higher priority for conservation.

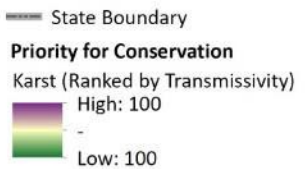
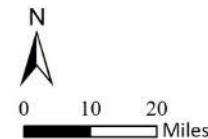
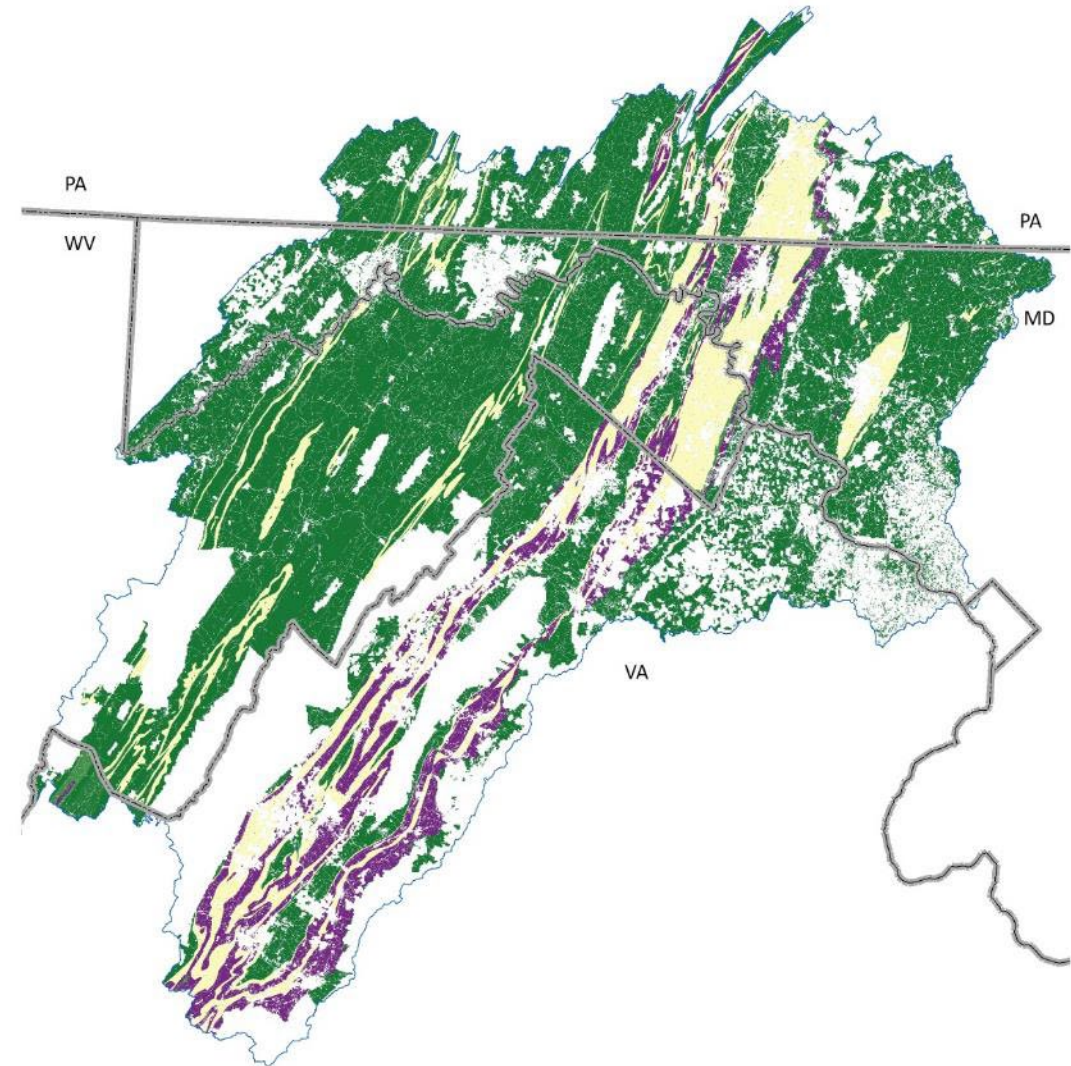


Distance from Urban Areas



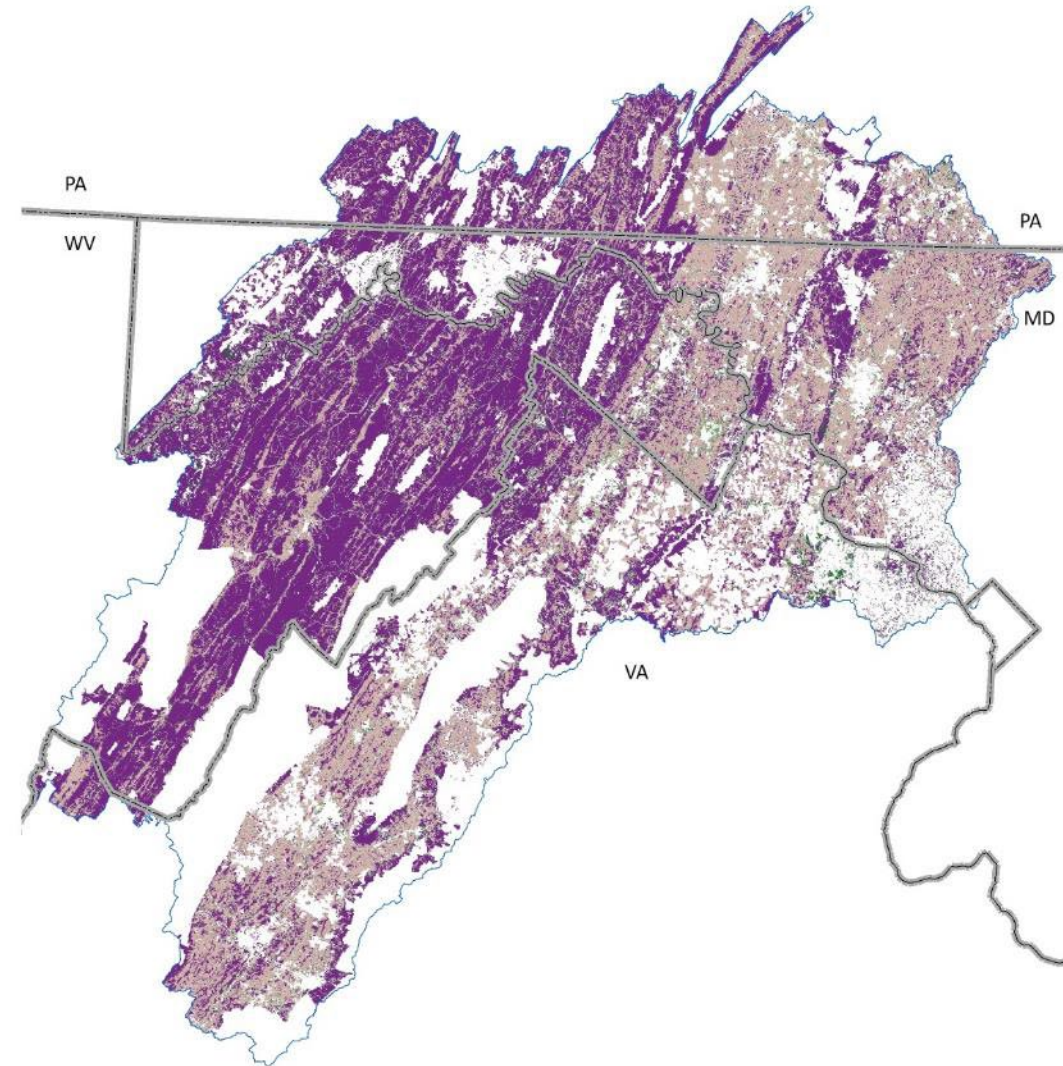
Shorter distance from urban areas is higher priority for conservation.

Karst Transmissivity

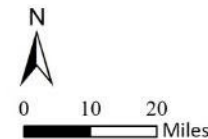


Higher karst transmissivity is higher priority for conservation.

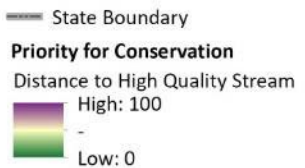
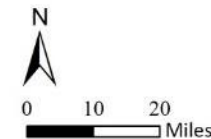
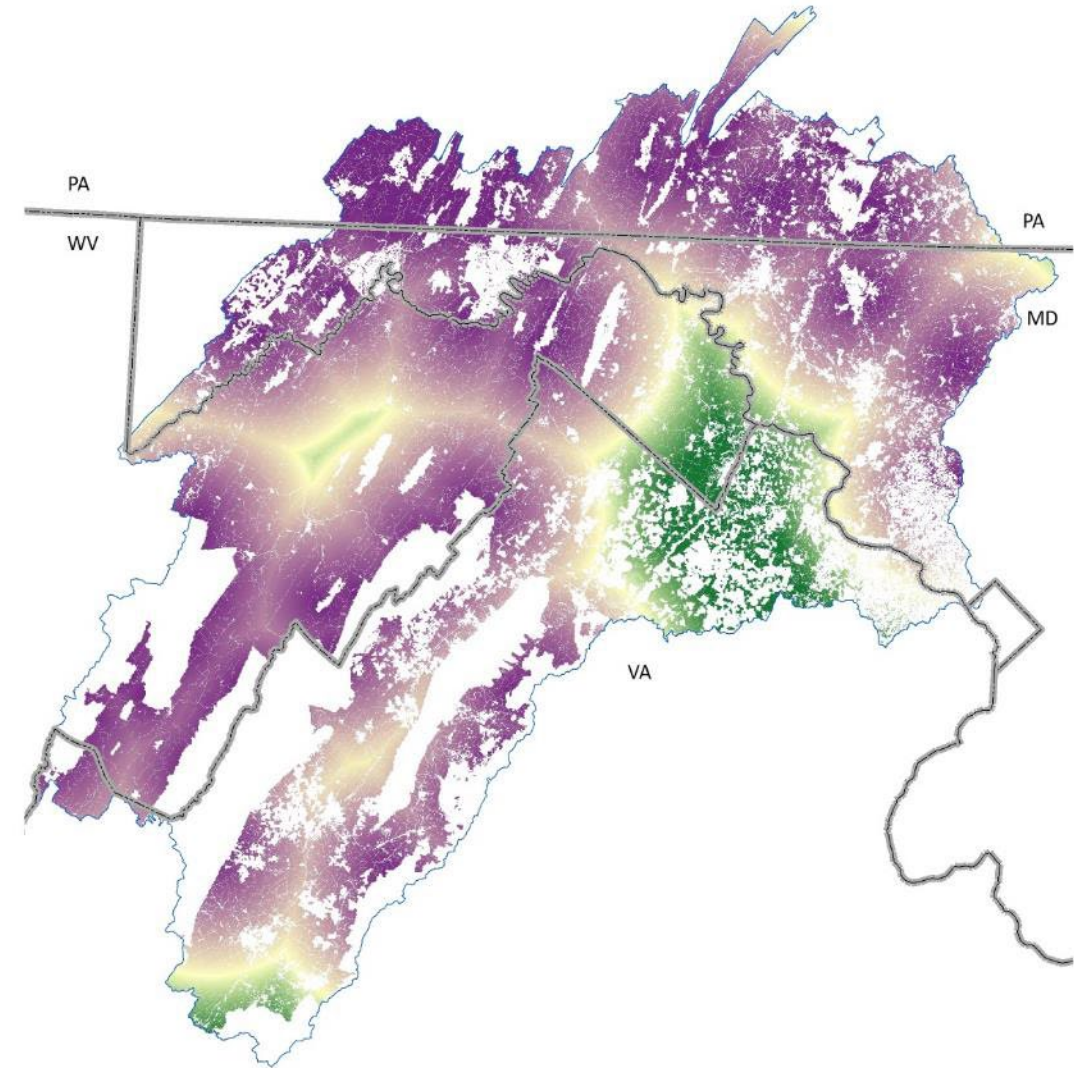
Future Land Use



Future forest is highest priority for conservation followed by agriculture, urban, and then other.



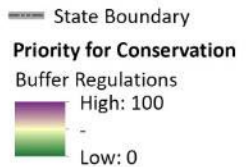
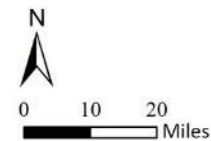
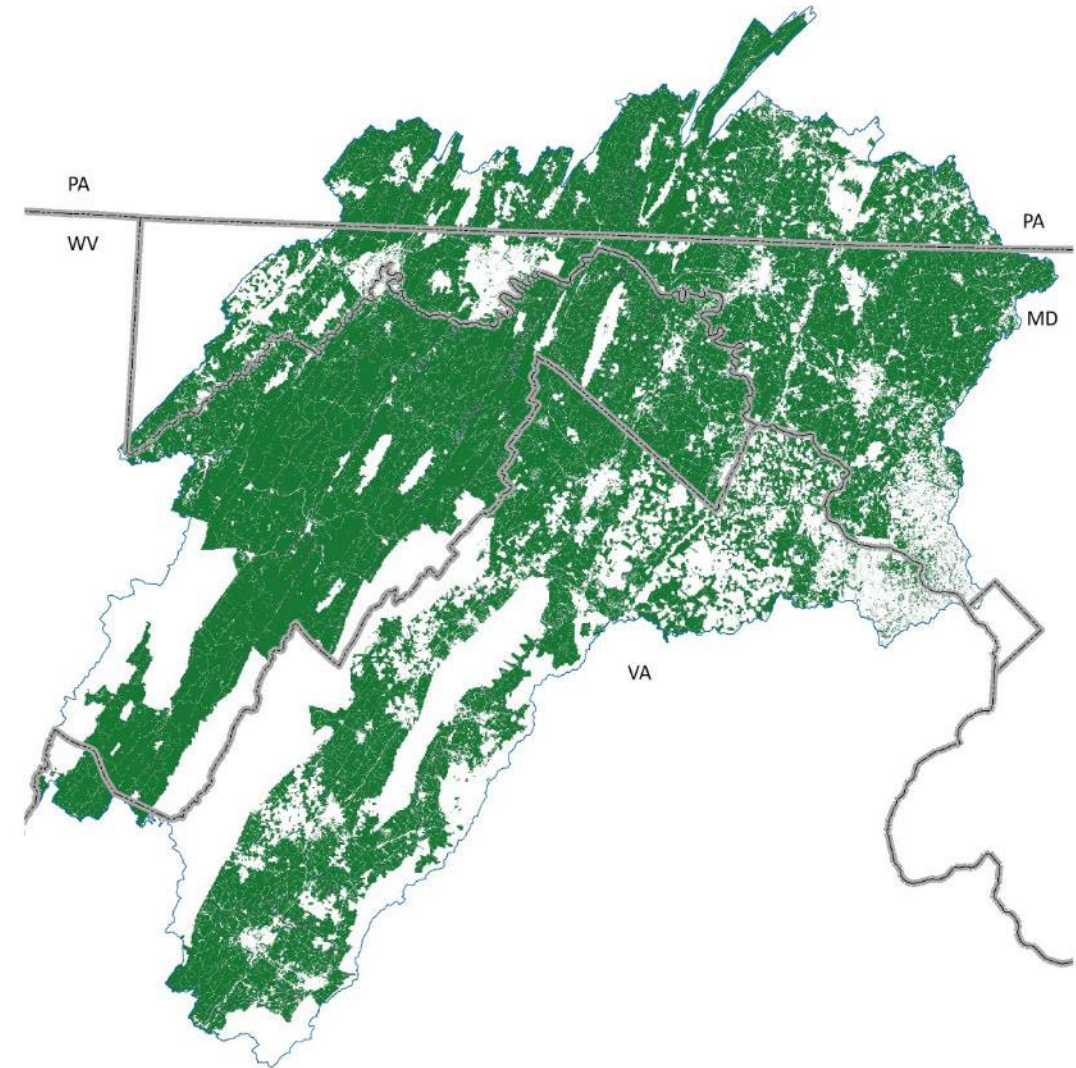
High Quality Streams



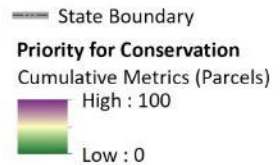
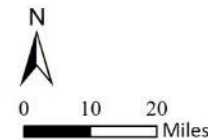
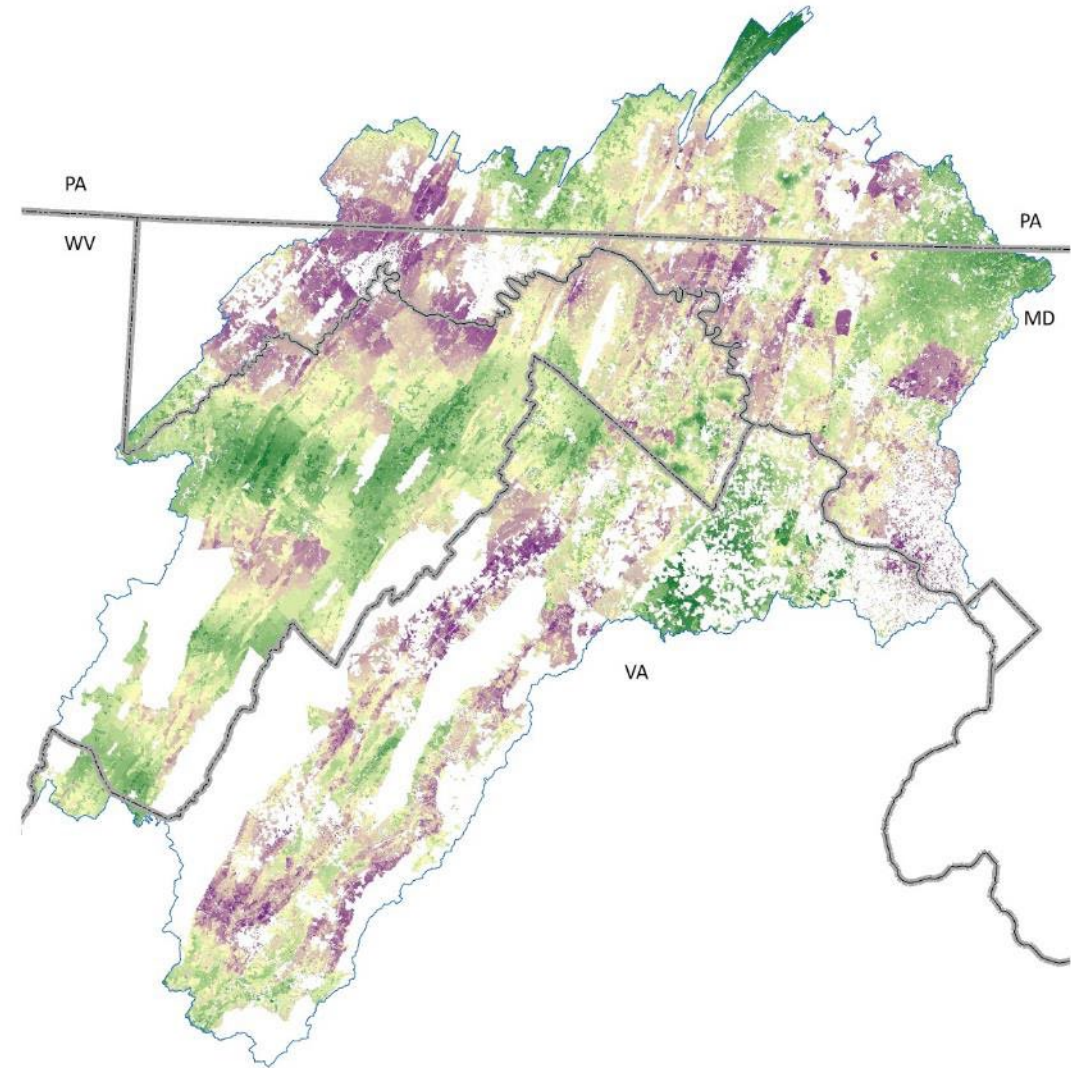
Shorter distance to high quality streams is higher priority for conservation.

Buffer Regulations

Riparian areas in counties without buffer regulations are higher priority for conservation.



Cumulative Prioritization Overall, Parcels



Land conservation
groups

Government agencies

Implementation

Local jurisdictions

Utility-specific
stakeholders

Conclusion

For More Information:

- Information available on-line at:
<https://storymaps.arcgis.com/collections/113557b493a74130bdcda28463408e73?item=2>
- The Geodatabase GIS Mapping file is available by contacting ICPRB.

Funding Provided By:



Interstate Commission on the Potomac River Basin

Thank You!

2008 ICPRB River Ramble. Photo by ICPRB.

