Mapping Conservation Opportunities for Areas with Development Vulnerability

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Development Vulnerability in the Chesapeake Bay Watershed

The Chesapeake Bay Watershed is currently home to over 18 million residents. With projected growth expected to reach about 20 million by 2030 (Chesapeake Bay Program, 2021), this region provides an opportunity to analyze the means to incorporate population growth alongside land protection goals. By raising conservation urgency for regions with high development vulnerability, land protection can mitigate conversion of critical ecosystems to developed areas. Such direction enables ecosystem protection to coexist with infrastructure development.


Credit: Will Parson / Chesapeake Bay Program

The Role of Conservation in Addressing Development Vulnerability

Land conservation provides the means to actively prevent ecosystem destruction from development, enabling a more intentional pathway for expansion. Infrastructure development and land use changes are major threats to ecosystem protection (Dinerstein et al. 2019). These provide helpful data to address the time-specific big-picture goals to conserve 30% of the Chesapeake Bay Watershed by 2030.

2030 Predictions

Development Vulnerability
- 0
- 0.5 or 1
- 1.5 or 2
- 2.5 or 3
- 3.5 or 4
- 4.5 or 5
- 5.5 or 6

0 5 10   20 Miles
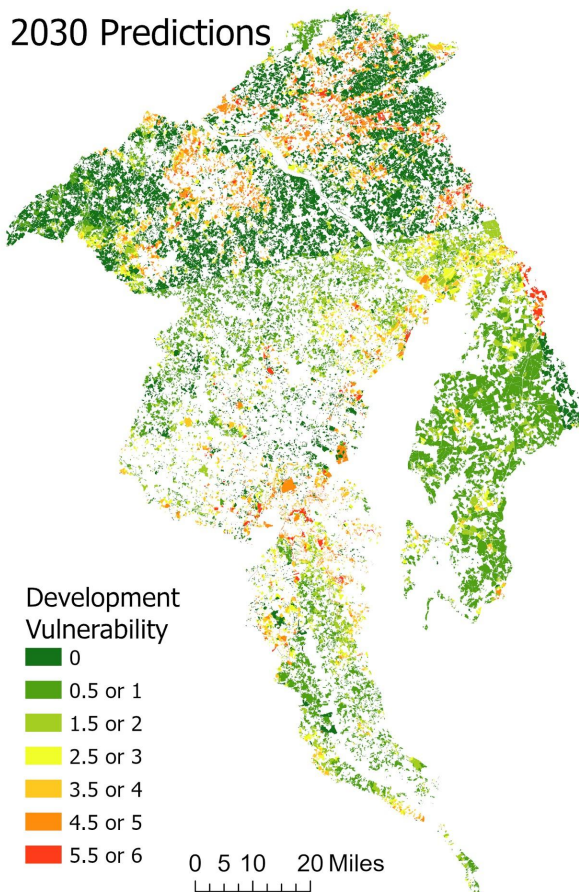
Spatial Analysis to Support Conservation of Areas with Development Vulnerability

The Conservation Innovation Center calculated development vulnerabilities ranked 0-6 across the watershed using the Chesapeake Bay Land Change Model (CBLCM). Areas ranked 6 indicated high development vulnerability and areas ranked 0 indicated localities that cannot be developed. Using the 2025 and 2035 current zoning projections, we calculated 2030 development vulnerability values by parcel. The scores were converted to a scale from zero to one. Parcels ranked 0 cannot be developed, and those ranked 1 have very high development vulnerability, corresponding with the 0-6 scale.

References

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