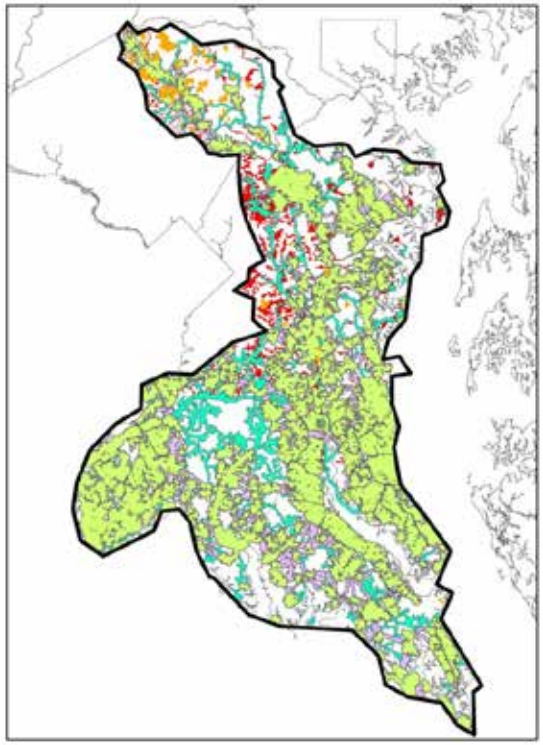
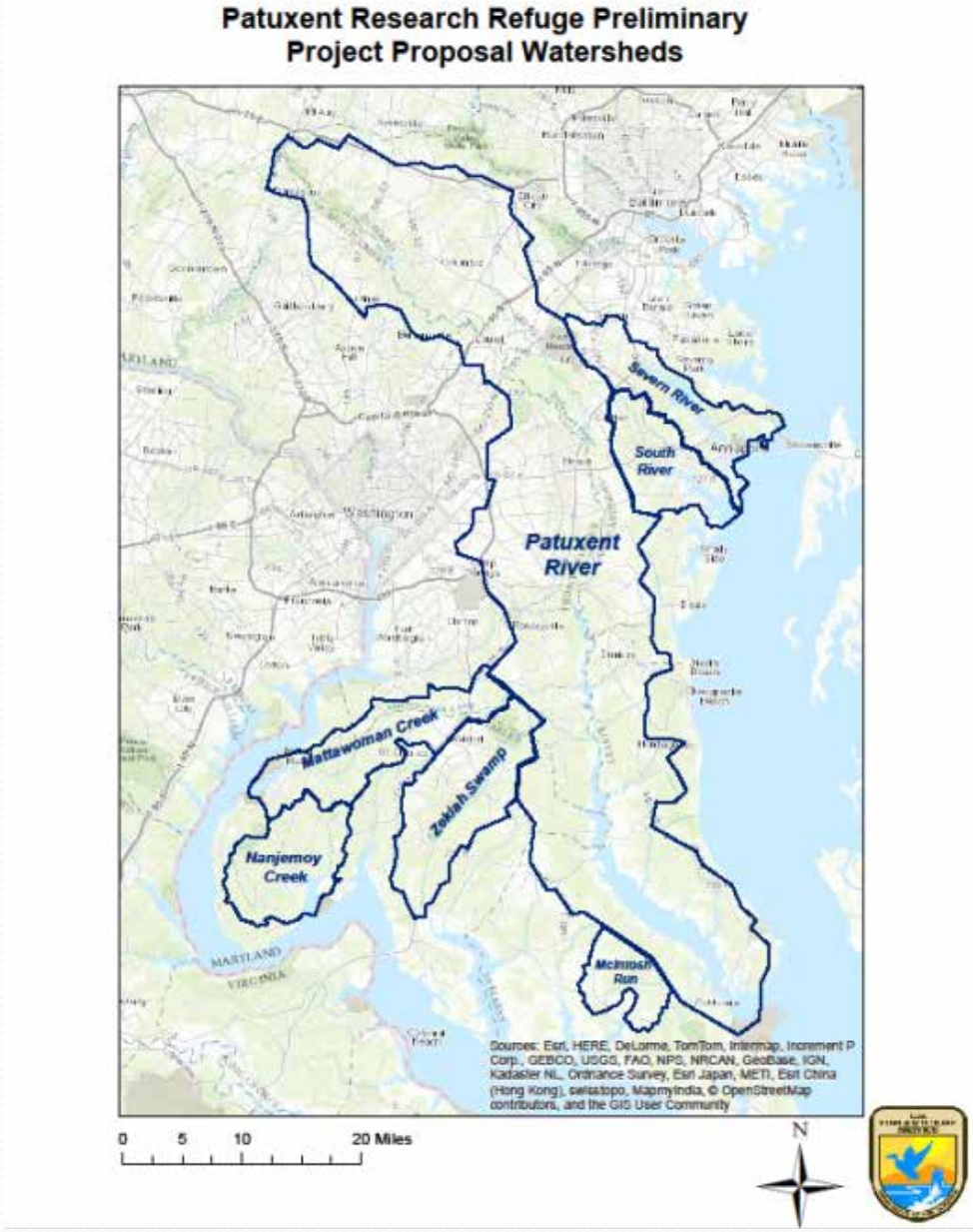
Patuxent Waters Conservation Area Conservation Design

Presentation to the Chesapeake Bay Program
Healthy Watersheds GIT



U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

Coastal Program



USFWS Refuge System Approval Process

- **Preliminary Project Proposal**
  2011 Focus Area Selection:
  - FWS Trust Resources
  - Treasured Landscapes
  - Partner Priorities
  - 2011 PPP Lands Targeted for Protection within Focus Areas
    - Targeted Ecological Areas
    - IBAs
    - Lands of Conservation Interest to Partners
    - Corridors
- **Conservation Design**
- **Land Protection Plan**




Landscape Conservation Design in the Connecticut River Watershed: A Pilot Project

www.connecttheconnecticut.org

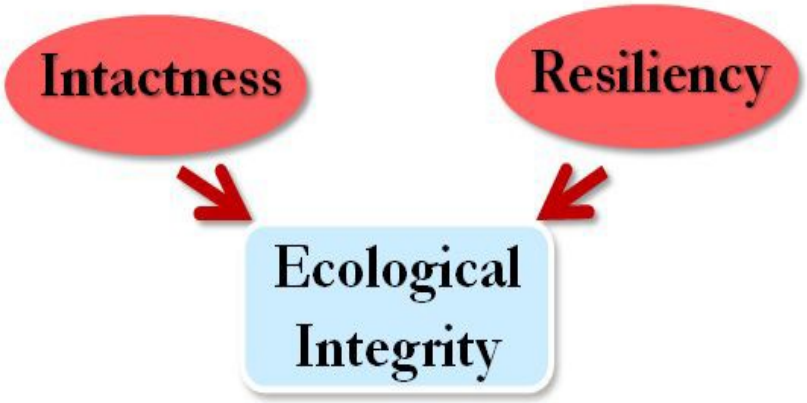
LANDSCAPE CONSERVATION COOPERATIVES

Integrating the Elements

Landscape Conservation Design

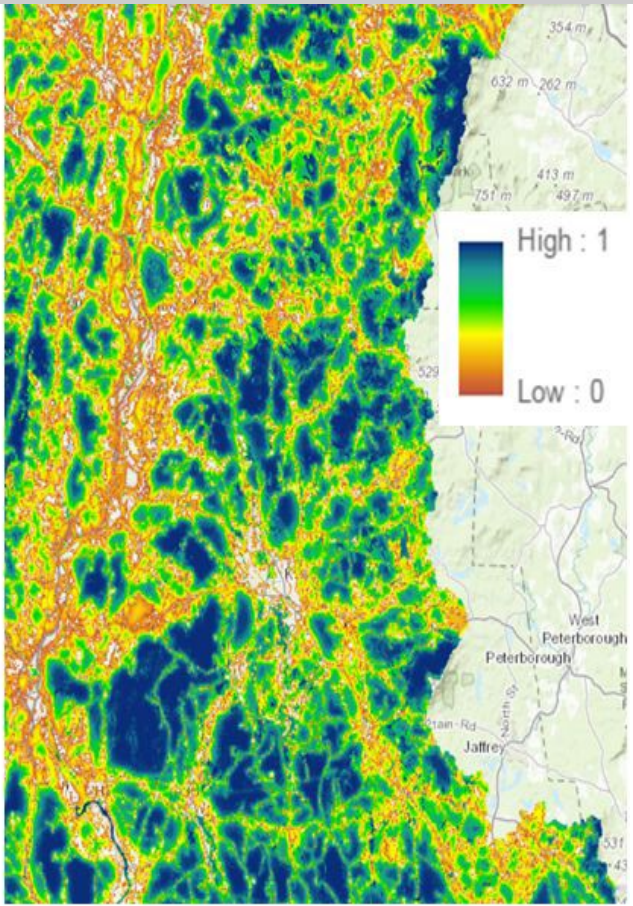
1) Index of Ecological Integrity

UMass Designing Sustainable Landscapes project



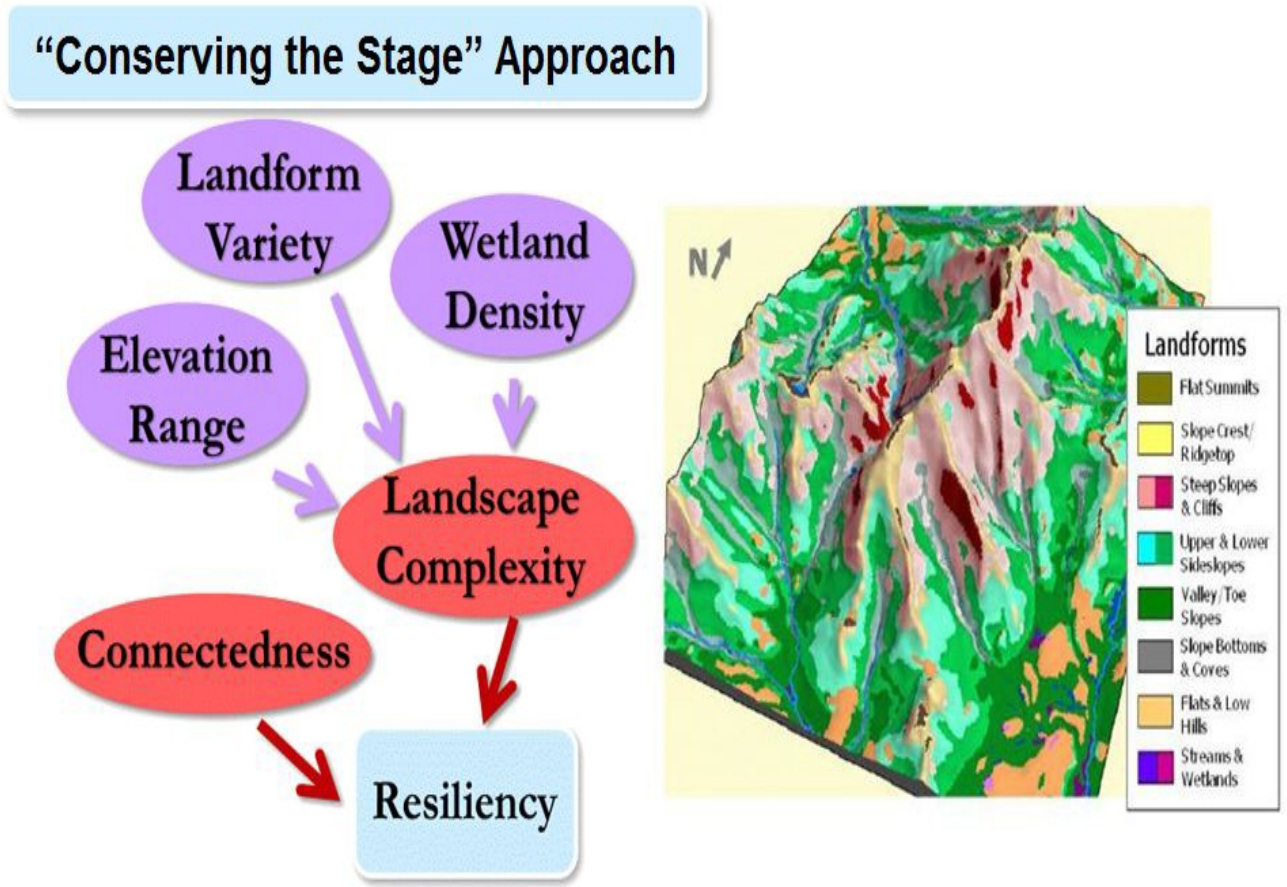
- ***Intactness***…freedom from human impairment (anthropogenic stressors)
- ***Resiliency***…capacity to recover from or adapt to disturbance and stress

Applied to TNC/Natureserve Northeast Habitat Classification



2) Terrestrial Resilience

The Nature Conservancy



3) Landscape Capability Models For Representative Species

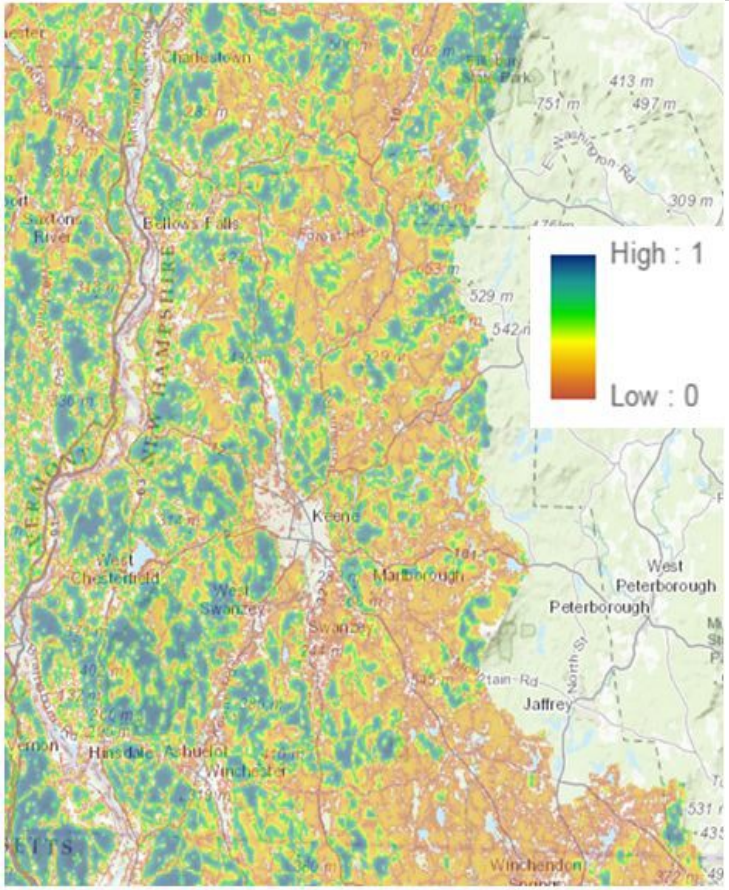
UMass Designing Sustainable Landscapes project

Habitat capability models based on:

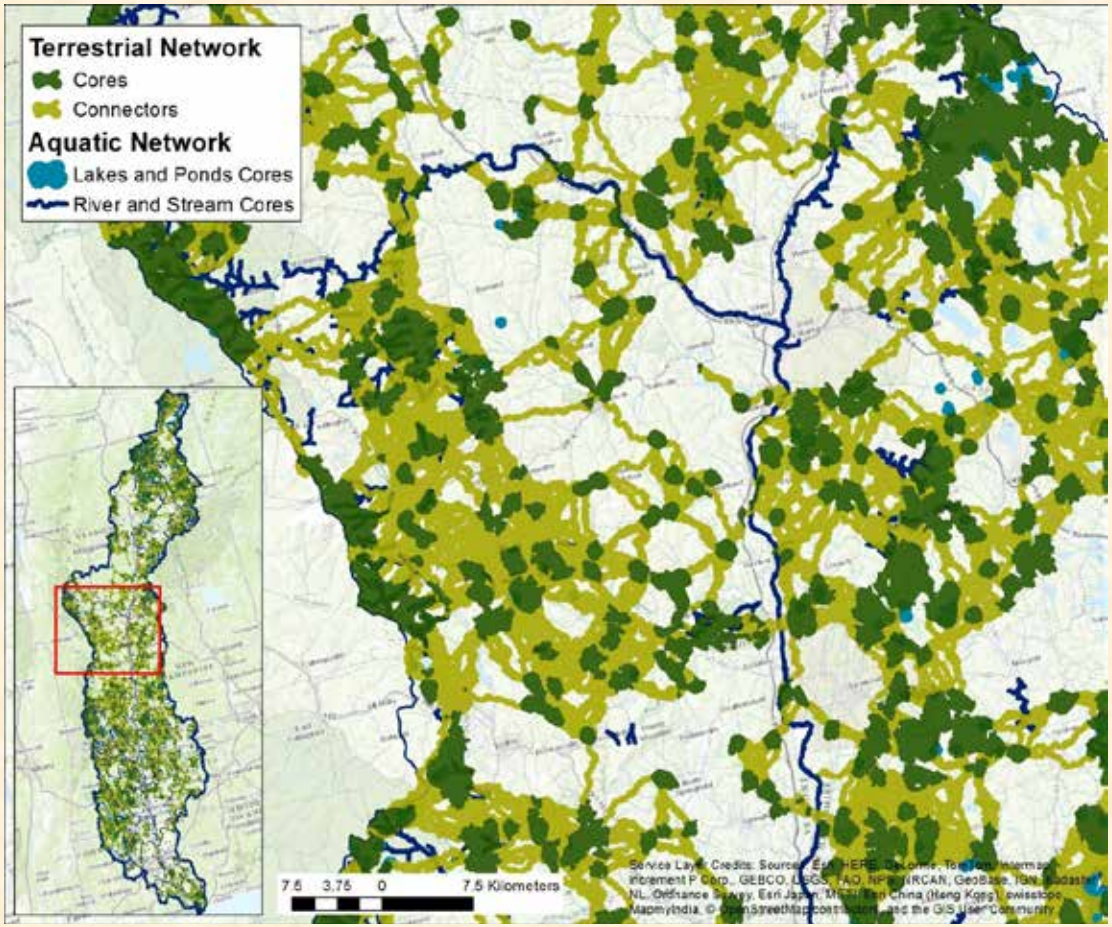
- Known habitat associations and effects of stressors

+

- Actual field data (e.g., Breeding Bird Survey routes) where available



Suggestions for Using the Products: Core Area Network

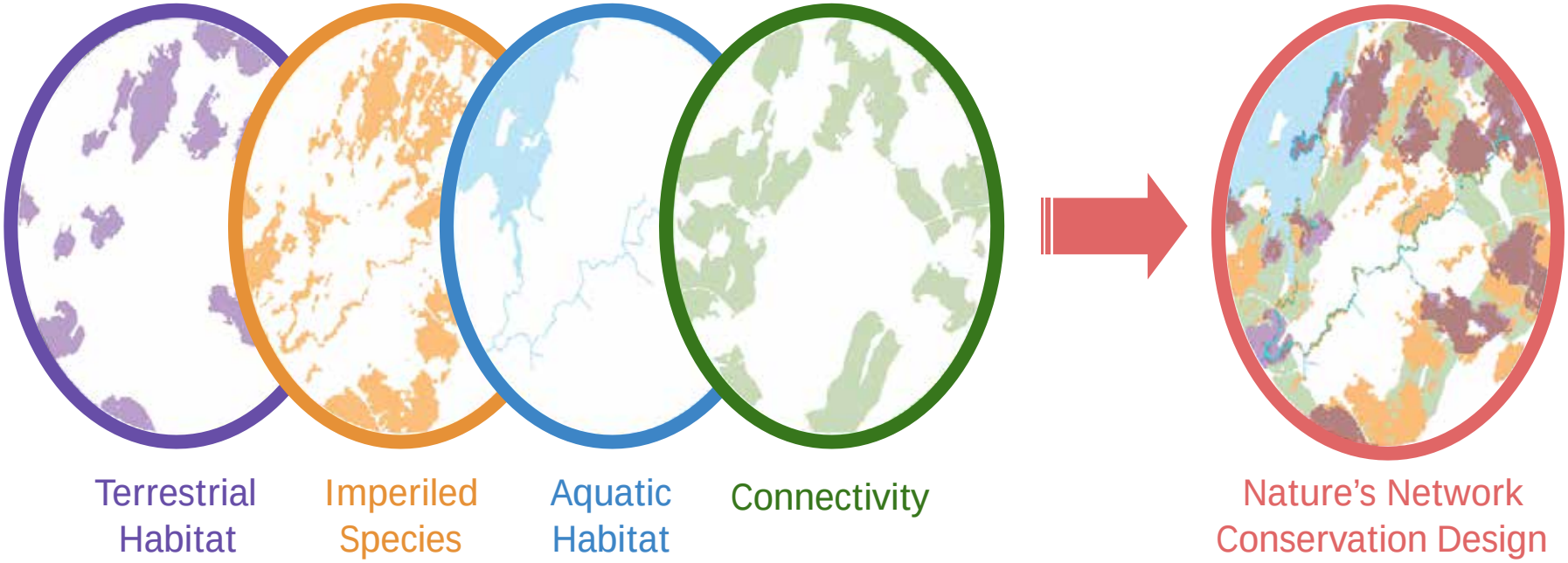


Strategic starting point for land conservation and stewardship

Compare to priorities identified at other scales to further rank areas for protection.

www.naturesnetwork.org

The conservation design



The key features of each of the four components are **integrated in one map** for Nature's Network Conservation Design, but many complementary data layers are available to support conservation planning.

Core areas stratification

By Watershed (HUC 6)

- *To ensure a well-connected and well-distributed network of core areas*

Patuxent Waters Conservation Area
Conservation Design Roles & Responsibilities

- Core Team
  - Participate in Monthly Meetings/Conference Calls
- Extended Team
  - Kept apprised of Project Progress

Patuxent Waters Conservation Area Conservation Design Roles & Responsibilities (49 Individuals from 33 Organizations)

- **Core Team**
  - USFWS Patuxent Research Refuge
  - USFWS Chesapeake Bay Field Office
  - USFWS Chesapeake Coordination Office
  - American Forests
  - MD DNR
  - The Conservation Fund
  - Scenic Rivers Land Trust
  - National Fish and Wildlife Foundation

Jug Bay – Jug Bay.org; Al Luchenbach

- **Extended Team**
  - MD Ag. Preservation Foundation
  - The Nature Conservancy
  - U.S. Navy
  - Center for Chesapeake Communities
  - Chesapeake Conservancy
  - Audubon MD-DC
  - Patuxent Tidewater Land Trust
  - Ducks Unlimited
  - MD Commission on Indian Affairs
  - USGS Chesapeake Bay Program
  - Montgomery County Office of Agriculture
  - Anne Arundel County Planning and Zoning
  - Bourne Environmental
  - Critical Area Commission
  - The Trust for Public Lands
  - Critical Area Commission
  - Maryland Environmental Trust
  - Anne Arundel County Planning and Zoning
  - Howard County Planning and Zoning
  - Conservancy for Charles County

Patuxent Waters Conservation Area
Conservation Design – Proposed Schedule

- **March 2016 –** Hold meeting with extended partner group and introduce Conservation Design and Expanded Refuge Boundary Concept

- **April 2016 -** Core Team membership finalized – Core Team meets monthly to come to consensus on:
  - Goals & Objectives
  - Surrogate Species
  - Rare Habitats
  - Rare Species & other species of importance
  - Additional existing local data sources regarding the above

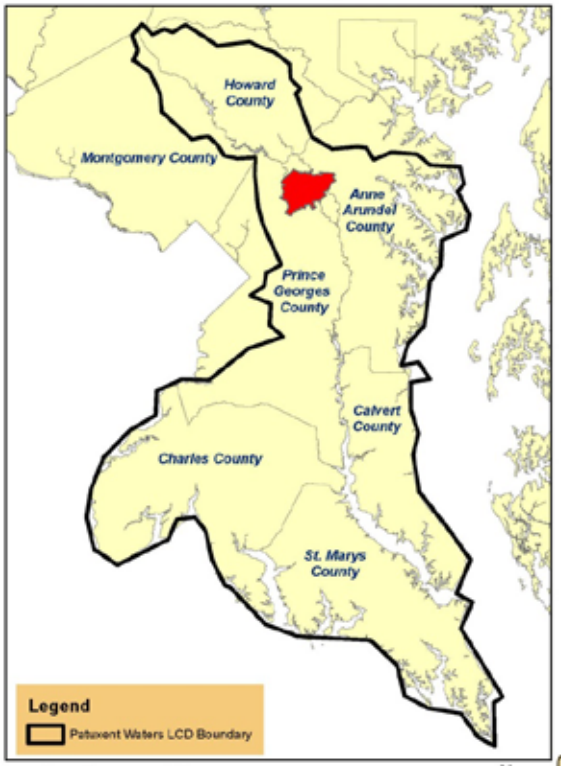
- **July 2016 -** North Atlantic LCC Releases Region-wide Version of Designing Sustainable Landscapes (DSL) AKA Nature's Network

- **September 2016 -** Core Team combines local information with DSL results for the area within the Refuge expansion boundary to create the Conservation Design & prepares report on findings

- **November 2016 –** Conservation Design report shared with Extended Team for review and comment

- **January 2017 –** Conservation Design Complete - Land Protection Plan development begins

Patuxent Waters Conservation Area Conservation Design



Map 2. Existing Patuxent Research Refuge (Red) and Conservation Design Counties

Patuxent Waters Conservation Area Conservation Design

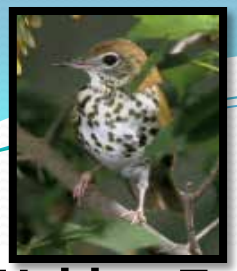
- Vision
  - Patuxent Waters Conservation Area is a connected system of natural areas and working lands sustaining healthy and diverse populations of fish, wildlife, and plants that provide clean water and air, flood protection, recreation, and quality of life.

Patuxent Waters Conservation Area Conservation Design

- **Goals**
  - **Intact -** Ensure the persistence of healthy, diverse, and enduring habitats that encompass a full range of biodiversity and ecosystem functions and services, especially storm-water management, soil conservation, ground water recharge, and air quality.
  - **Resilient -** Natural areas and working lands are of a size and condition, and situated in a landscape context that maximizes their restoration, habitat, and ecosystem function potential, and preserves their long-term ability to withstand or recover from stress.
  - **Connected -** Maintain ecosystems in a well-distributed, interconnected network that facilitates short-term movements and long-term range shifts of a diversity of both aquatic and terrestrial species.

Patuxent Waters Conservation Area Conservation Design

- **Objectives**
  - **Conservation Design:** By January 2017 and in cooperation with partners, prepare a Conservation Design that identifies and depicts areas of the highest priority that can be considered the most important locations for achieving the goals (best or most urgent places to start such as but not limited to, stream corridors and headwaters, and large block forests). The Conservation Design will also depict additional tiers of priority, including connectors or corridors between core areas, and identify priorities for management and restoration that over time can enhance ecological value and improve natural processes that link ecosystems.
  - **Design Boundary:** Beginning in January 2017, use the Conservation Design as the foundation of a land protection plan for an expanded Patuxent Research Refuge Acquisition Boundary within which partnerships will be leveraged to enhance funding opportunities for conservation.
  - **Protection:** Within 25 years, through partnerships, permanently protect approximately 280,000 acres of priority conservation lands through fee simple acquisition, purchase of conservation easements, zoning, and other methods within the expanded refuge acquisition boundary.
  - **Restoration and Management:** Within this conservation landscape, develop and implement management and restoration plans in order to enhance and maintain the health of those conserved lands.



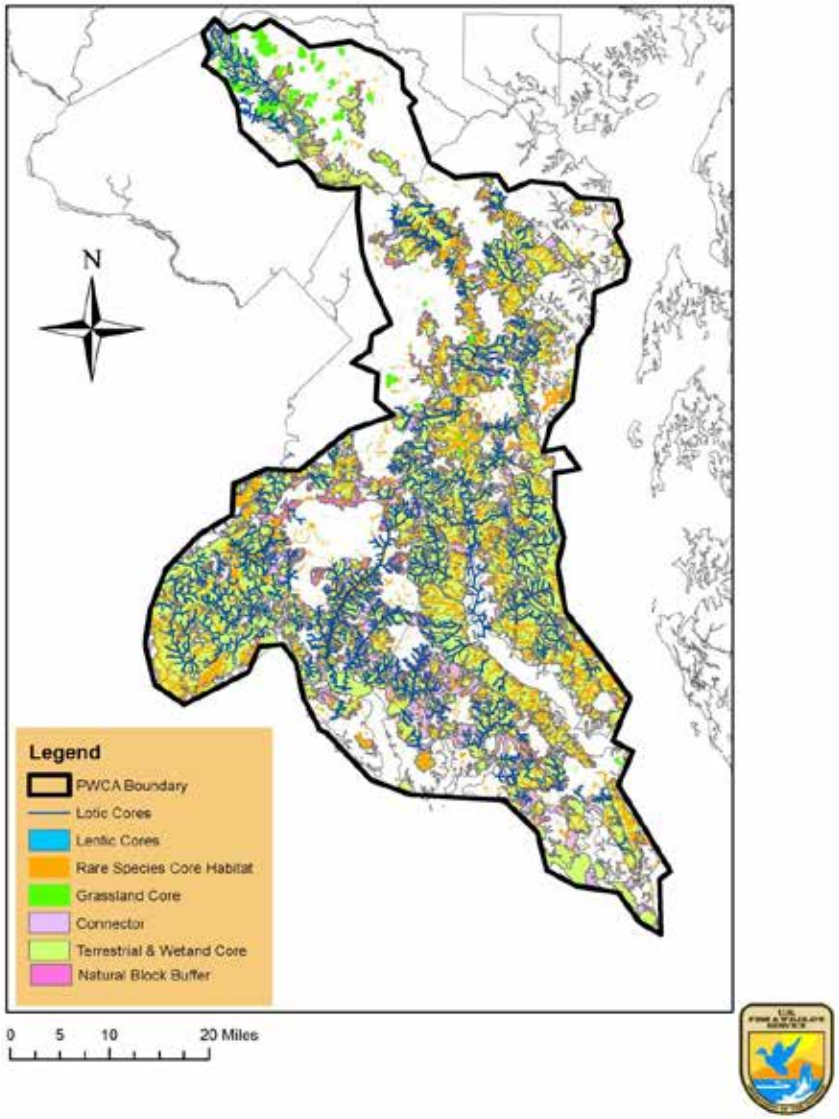
Representative Species Models for Patuxent Waters Conservation Area Conservation Design

Habitat Types	Initial Representative Species
Upland Mixed Deciduous Forest	Wood Thrush, Ovenbird, Eastern Box Turtle, FIDS layer
Early Succession Forests	American Woodcock, Prairie Warbler
Floodplain and Riparian Forests	Louisiana Waterthrush, Wood Duck, Spotted Turtle
Managed pasture/hayfield/grasslands	Eastern Meadowlark
Oldfield/meadow/shrubland	Prairie Warbler, American Woodcock, Northern Bobwhite
Freshwater/brackish marshes and shrub swamps	Diamond-backed Terrapin, American Black Duck, Virginia Rail, Marsh Wren
Vernal pools, springs, seeps, depressions	Spotted Salamander, Wood Frog, Eastern Spadefoot Toad
Streams and Rivers	River Herring, Mussels (dwarf wedge, triangle floater)
Coastal bluffs and beaches	Diamond-backed Terrapin, Northeast Beach Tiger Beetle

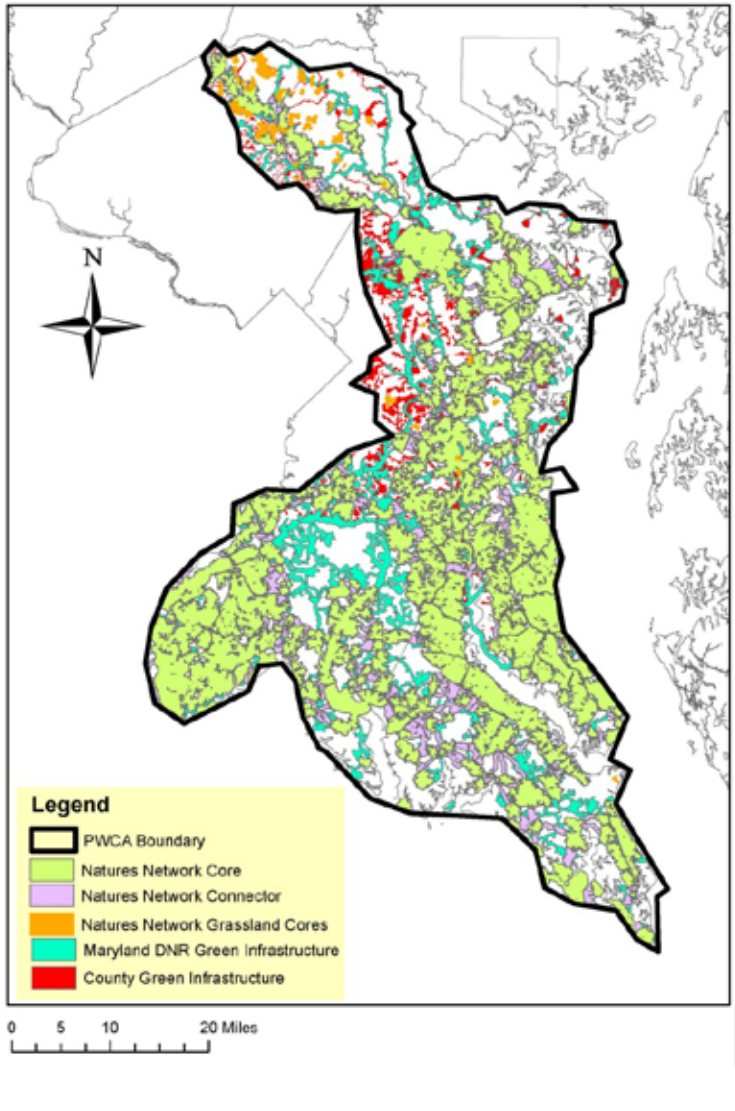
Patuxent Waters Conservation Area Conservation Design Approach

- **Additional Sources of Information -** Total of 95 State, Local, and NGO Datasets
  - MD DNR Green Infrastructure
  - State Wildlife Action Plan
  - Targeted Ecological Areas
  - Natural Heritage Data (S1, S2, S3)
  - MD DNR BioNet Tiers
  - Audubon Important Bird Areas
  - TNC Matrix Forest Blocks
  - MD DNR Forest legacy Priorities
  - Indigenous Cultural Landscapes

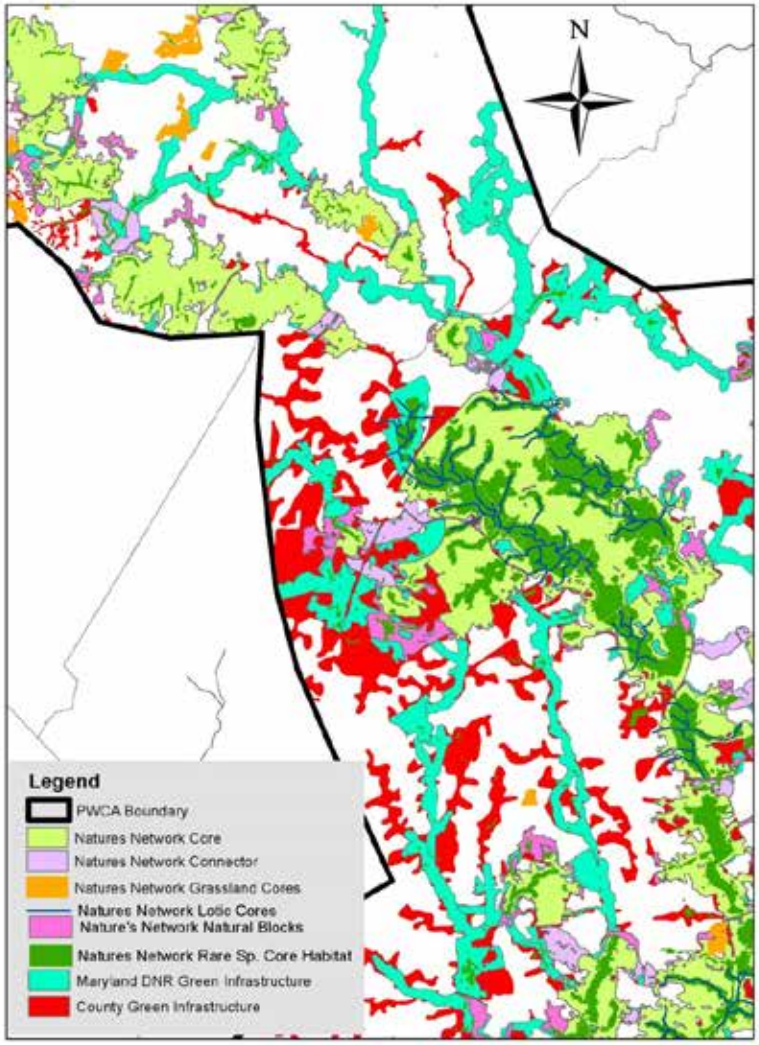
Map 6. Patuxent Waters Conservation Area Conservation Design Nature's Network Cores



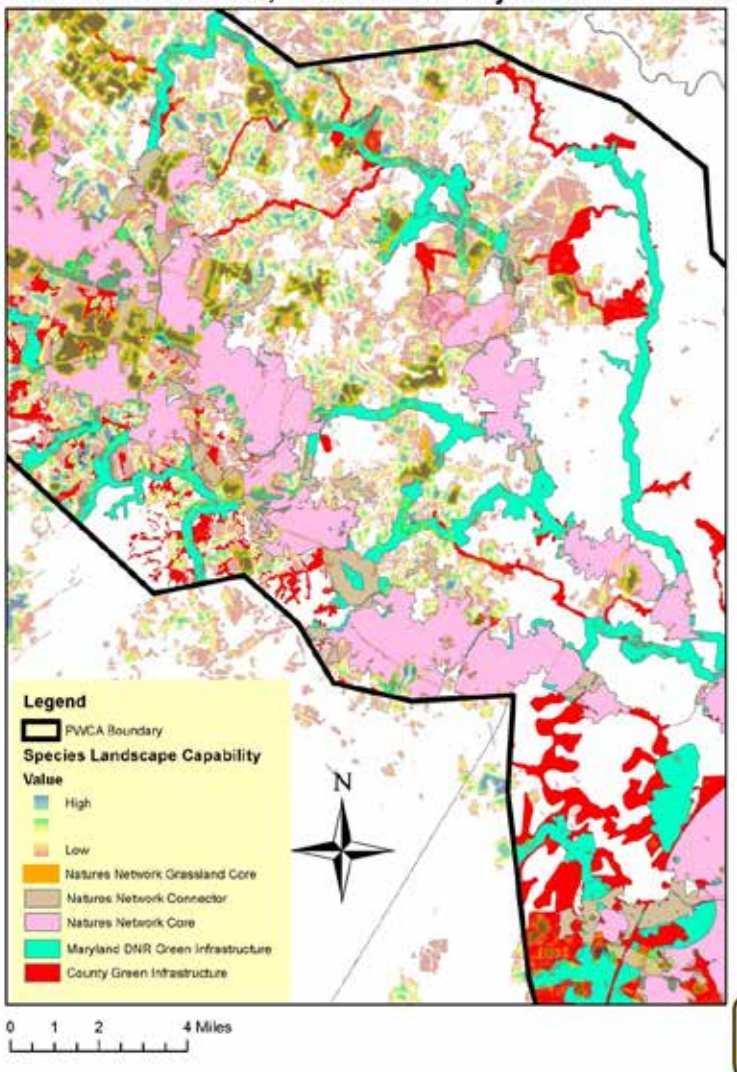
Map 7. Patuxent Waters Conservation Area Conservation Design Nature's Network Cores with State and County Green Infrastructure



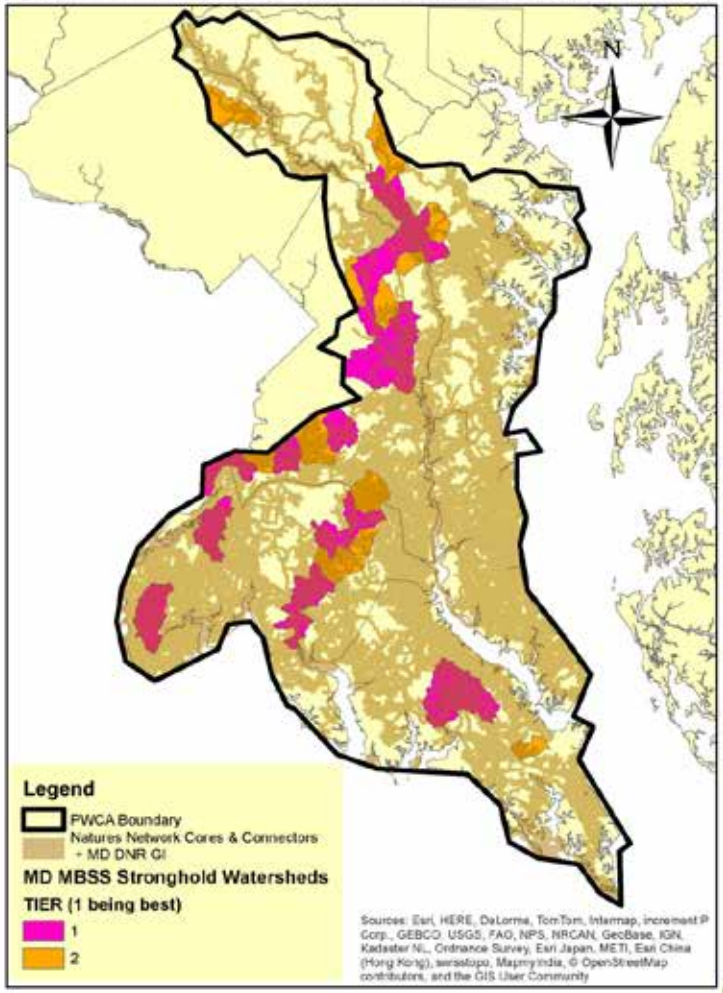
Map 8. Patuxent Waters Conservation Area Conservation Design
Nature's Network Cores, State GI & County GI Zoomed



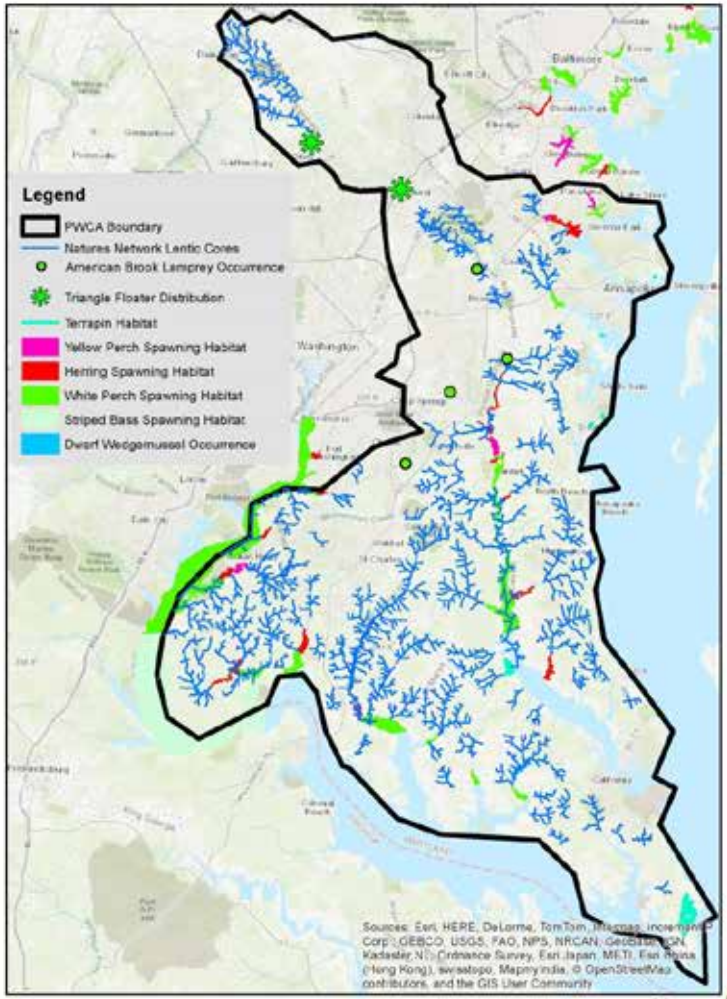
Map 10. PWCA Conservation Design
Eastern Meadowlark Landscape Capability Overlaying
Nature's Network Cores, & State & County Green Infrastructure



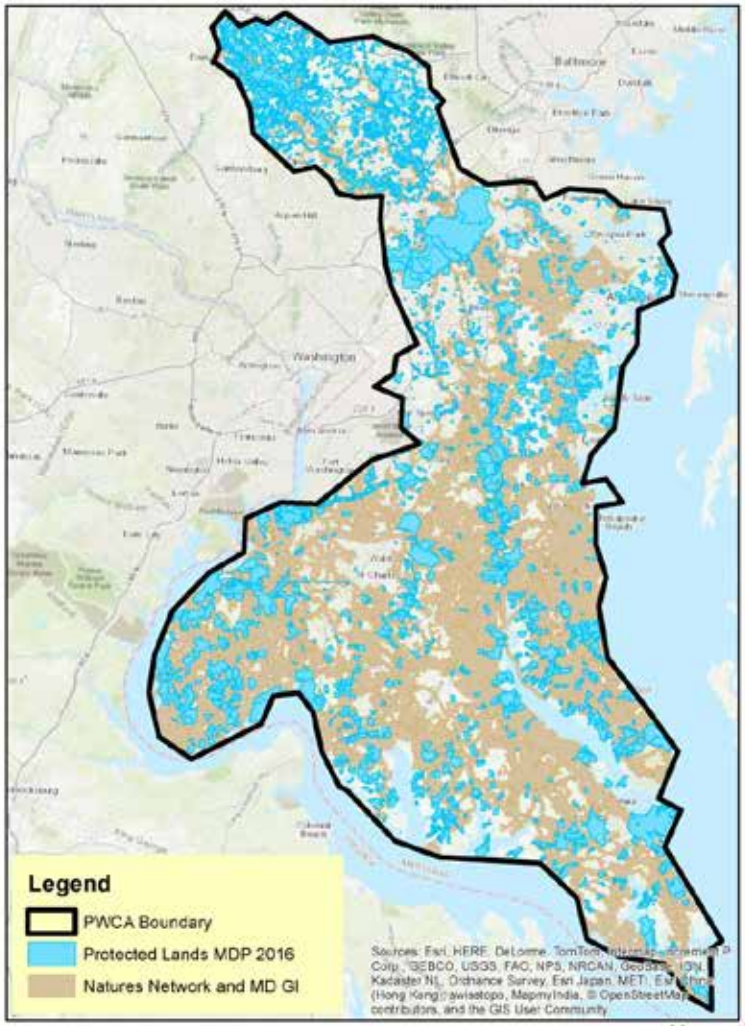
Map 12. PWCA Conservation Design Nature's Network Cores & Connectors MD DNR GI Overlaying Biological Stream Survey Stronghold Watersheds for the Protection of Aquatic Biodiversity



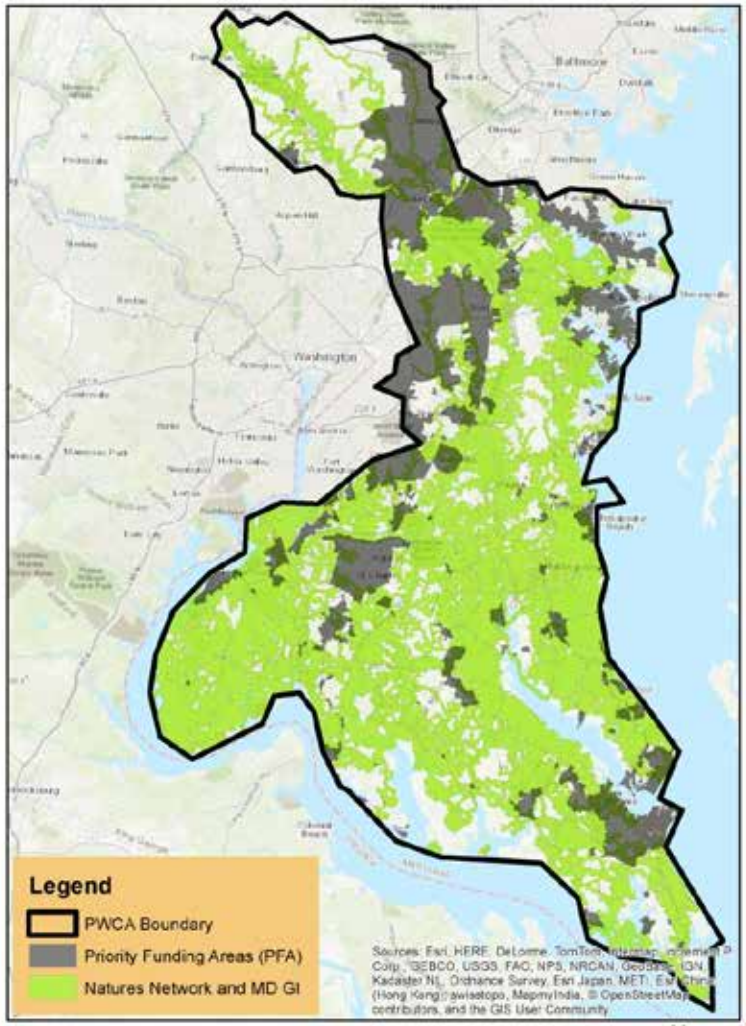
Map 13. Aquatic Species of Concern Habitat



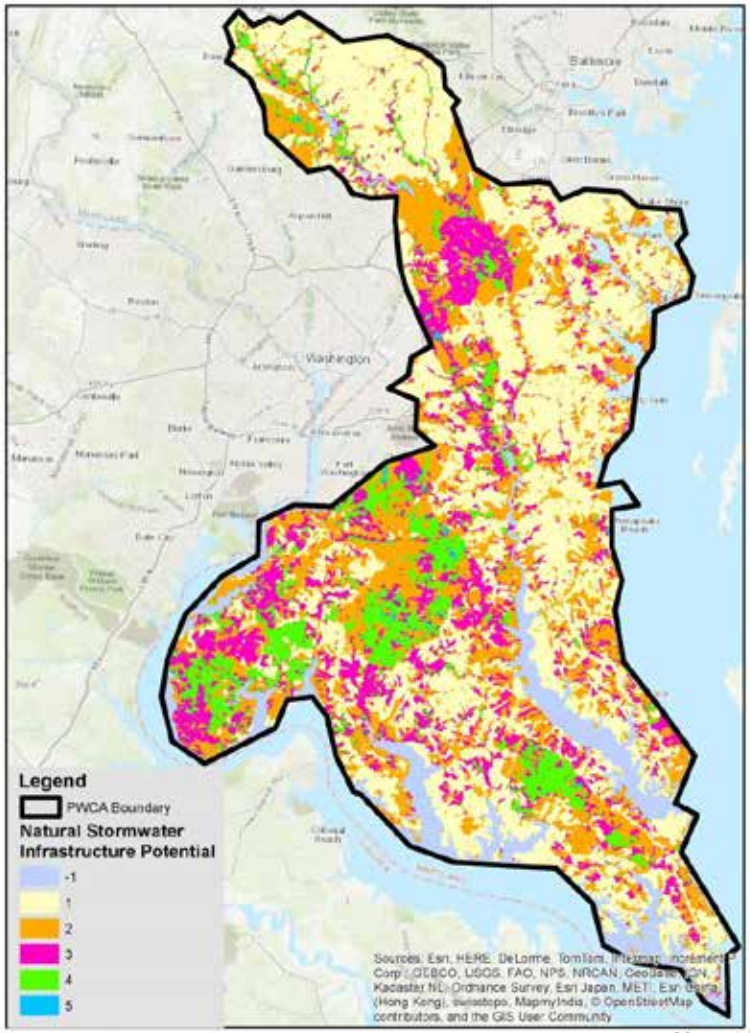
Map 16. MD Department of Planning Protected Lands Overlaying Nature's Network Cores & Connectors + MD DNR GI



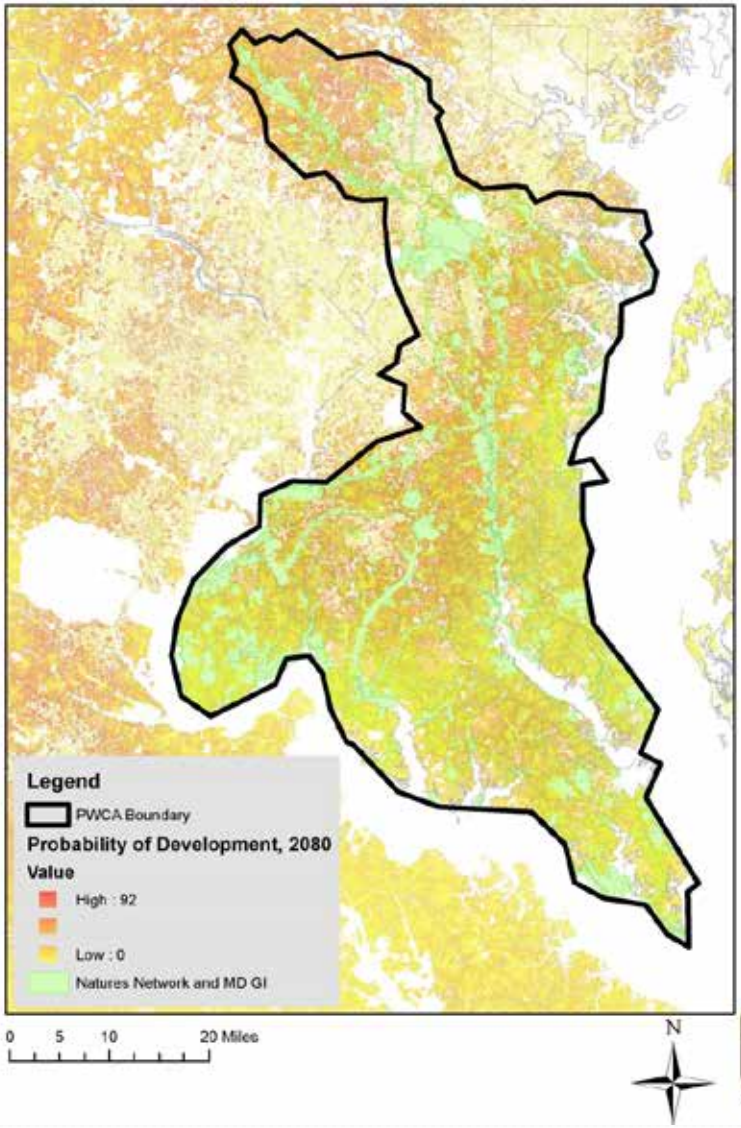
Map 18. Priority Funding Areas (Where Counties Direct Development) Overlaying Nature's Network Cores & Connectors + MD DNR GI

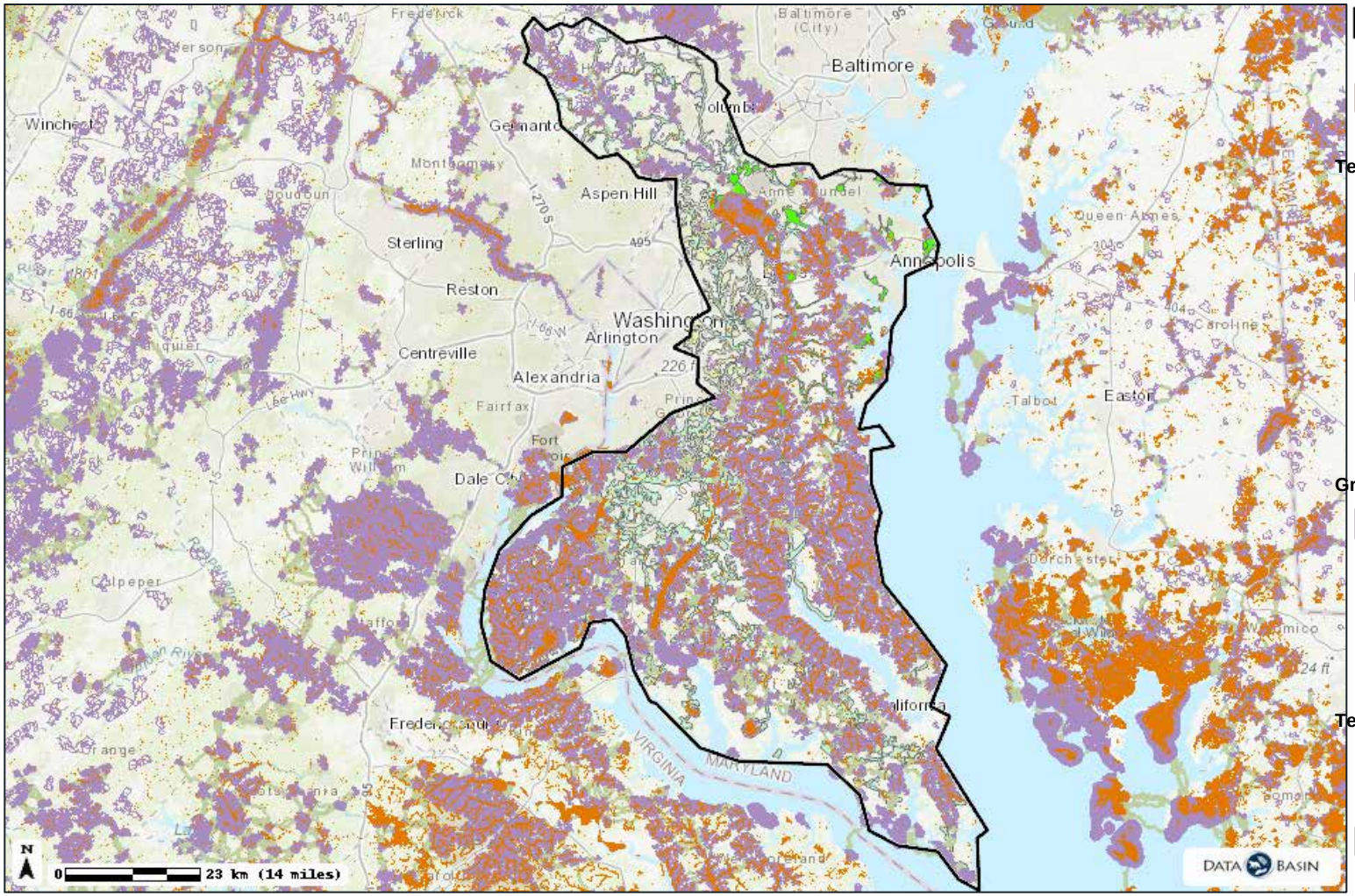


Map 21. Locations for the Preservation of Natural Stormwater Infrastructure Score of 5 has Greatest Potential



Map 22. Probability of Development by 2080 Overlaying Nature's Network Cores & Connectors + MD DNR GI





Legend

Patuxent Waters LCD Boundary

Core Habitat for Imperiled Species, Northeast U.S

Terrestrial Cores

Displaying: **the "type" field - scroll over for more information**

High priority core areas identified because they contain important or unique natural features. Add Grassland bird cores for full terrestrial core network.

Grassland Bird Cores

A special category of terrestrial core areas directed at the conservation of birds that depend upon hayfields, pastures, and other grasslands.

Terrestrial Core Connectors

Displaying: **Displaying the "type" field - scroll over for more information**

The best places for plants and animals to move across the landscape between terrestrial cores

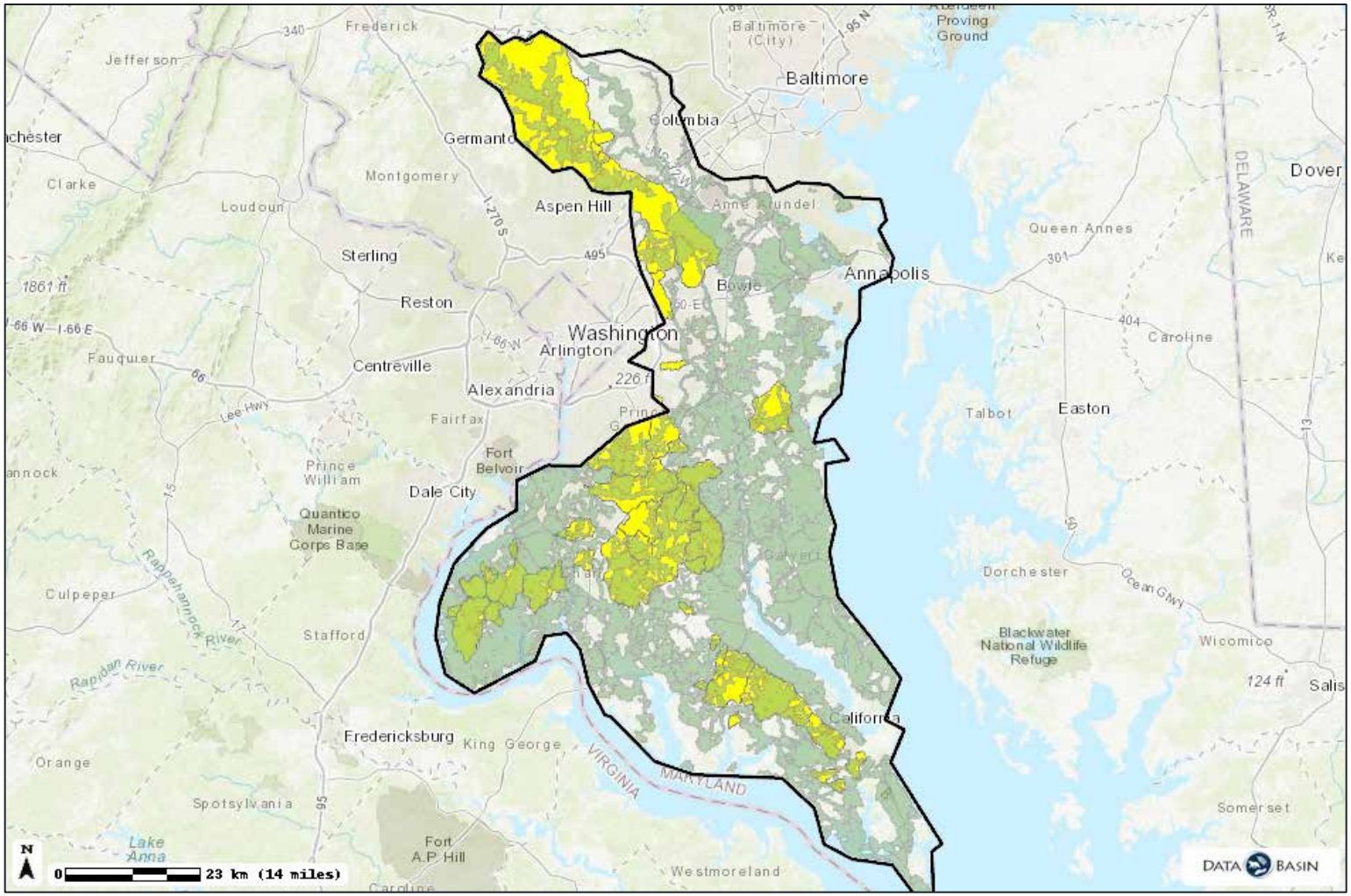
Anne Arundel County Greenways

Maryland DNR Green Infrastructure

MD DNR Green Infrastructure

https://nalcc.databasin.org

Document generated by Daniel Murphy on Jan. 24, 2018



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Patuxent Waters Conservation Area Conservation Design

- **Refuge Purposes - Strategic Growth Policy**

A. ***Recovery of Threatened and Endangered Species.***

B. ***Implementing the North American Waterfowl Management Plan.***

C. ***Conserving migratory birds of conservation concern.***
   1. ***United States Shorebird Conservation Plan***
   2. ***North American Waterbird Conservation Plan***
   3. ***Associated Step-Down Management Plans***
   4. ***Partners in Flight North American Landbird Conservation Plan***

Patuxent Waters Conservation Area Conservation Design – USFWS Birds of Conservation Concern (19)

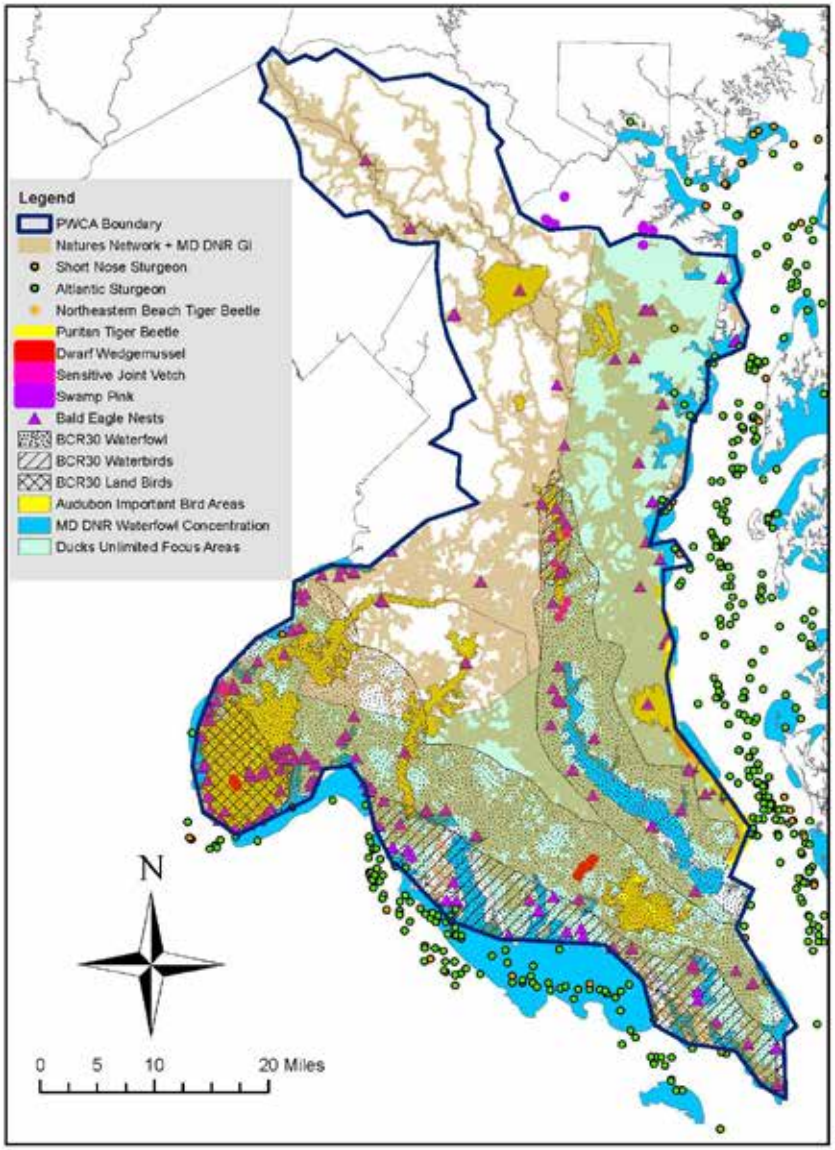
Patuxent Waters Conservation Area LCD – USFWS Birds of Conservation Concern (19)

Horned Grebe (*Podiceps auritus)*	Wintering/Migrating
Pied-billed Grebe (*Podilymbus podiceps)*	Year-round
American Bittern (*Botaurus lentiginosus)*	Year-round
Least Bittern (*Ixobrychus exilis)*	Year-round
Snowy Egret (*Egretta thula)*	Breeding
Least Tern (*Sterna antillarum)*	Breeding
Lesser Yellowlegs (*Tringa flavipes)*	Wintering/Migrating
Semipalmated Sandpiper (*Calidris pusilla*)	Migrating
Prairie Warbler (*Dendroica discolor)*	Breeding
Kentucky Warbler (*Oporornis formosus)*	Breeding
Worm Eating Warbler (*Helmitheros vermivorum)*	Breeding
Wood Thrush (*Hylocichla mustelina)*	Breeding
Saltmarsh Sparrow (*Ammodramus caudacutus)*	Year-round
Sedge Wren (*Cistothorus platensis*)	Year-round
Red-headed Woodpecker (*Melanerpes erythrocephalus)*	Year-round
Whip-poor-will (*Caprimulgus vociferous*)	Breeding
Bald Eagle (*Haliaeetus leucocephalus)*	Year-round
Peregrine Falcon (*Falco peregrinus)*	Wintering/Migrating
Short-eared Owl (*Asio flammeus)*	Wintering

Patuxent Waters Conservation Area
Conservation Design Federally-Listed Species

- Federally-listed Species
  - Dwarf wedgemussel – Endangered
  - Sensitive Joint-vetch – Threatened
  - Swamp Pink – Threatened
  - Northeastern Beach Tiger Beetle – Threatened
  - Puritan Tiger Beetle – Threatened
  - Atlantic Sturgeon – Endangered
  - Shortnose Sturgeon – Endangered
  - Long-eared Bat - Threatened

Map 23. PWCA Conservation Design and USFWS Refuges Strategic Growth Characteristics



Jug Bay – UMD Center for Environmental Science

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