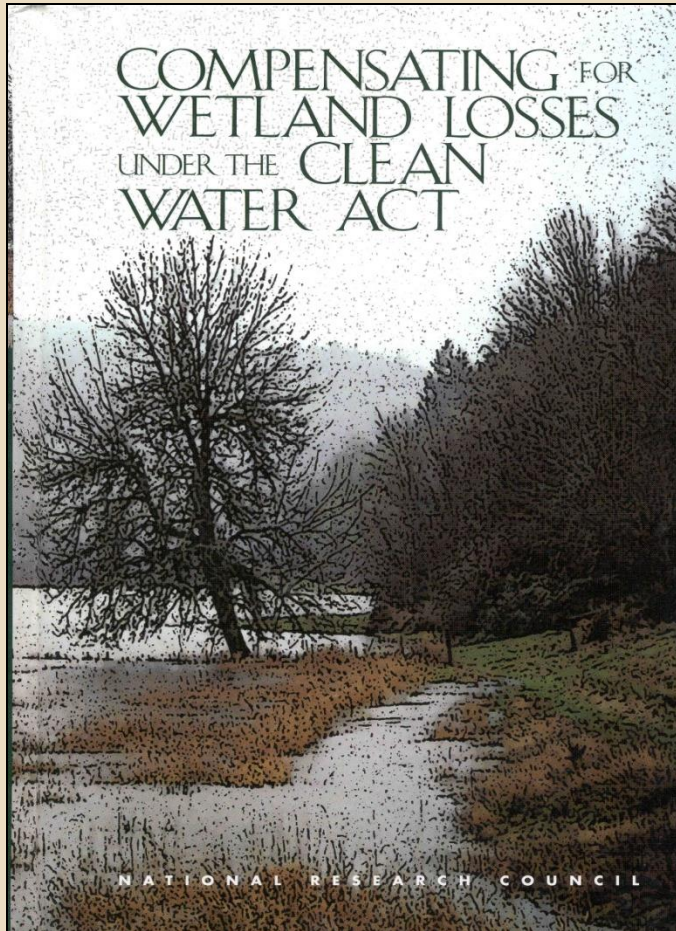




THINKING LIKE A WATERSHED

Project Overview: The Watershed Approach to Compensatory Mitigation



Site selection should “follow from an analytically based assessment of the wetland needs in the watershed”

National Research Council
Committee on Mitigating Wetland Losses
2001

Project Overview: The Watershed Approach to Compensatory Mitigation



Federal Register

Thursday,
April 10, 2008

Part II

**Department of
Defense**

Department of the Army, Corps of
Engineers
33 CFR Parts 325 and 332

**Environmental
Protection Agency**

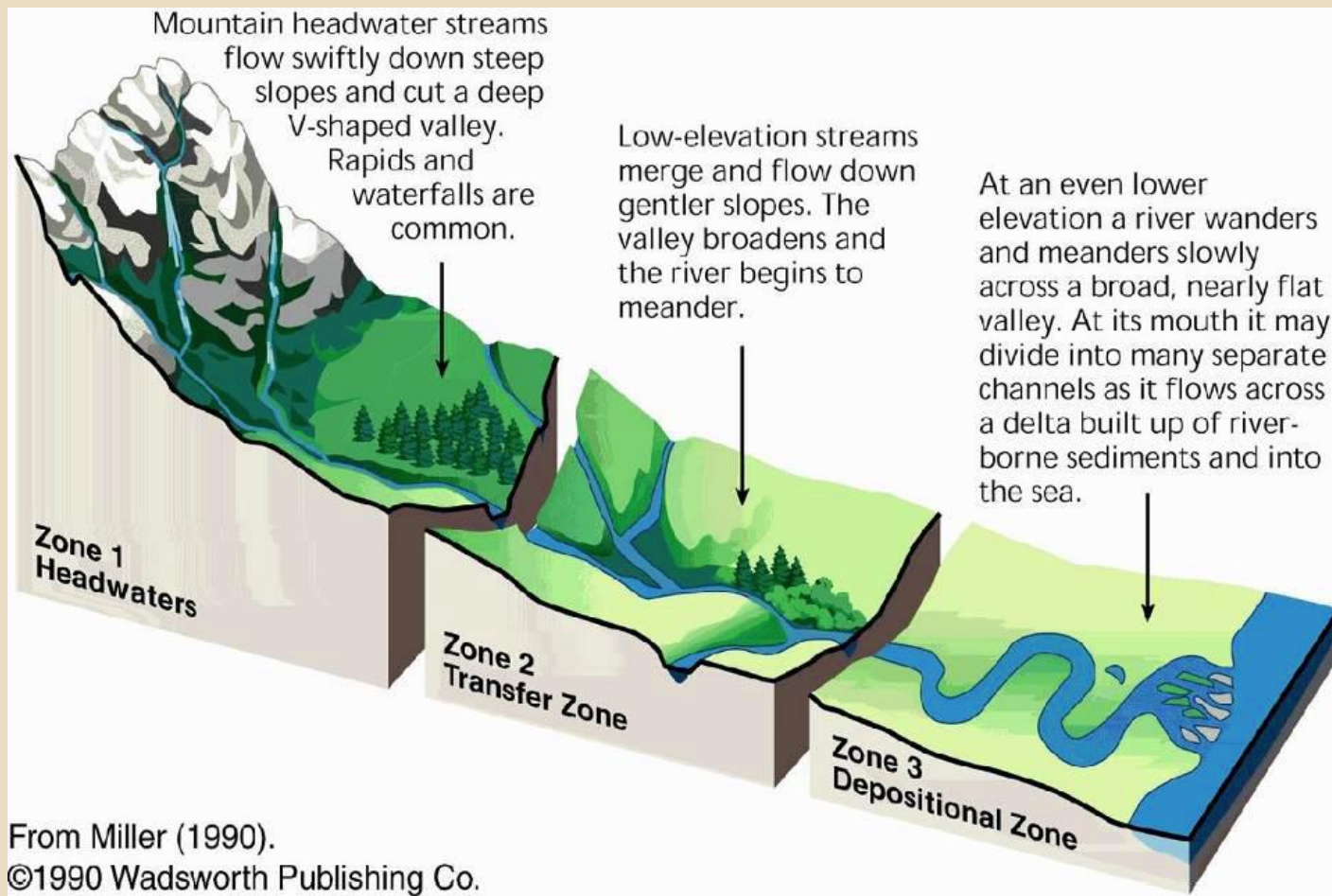
40 CFR Part 230
Compensatory Mitigation for Losses of
Aquatic Resources; Final Rule

“use a watershed approach to establish compensatory mitigation requirements”

Why a Watershed Approach?

- Over 41,000 water bodies impaired.
 - 6,900 are impaired due to excess nutrients,
 - over 6,100 are impaired for excess sediment, and
 - over 3,100 are impaired by temperature.
- 1,437 federally listed plants and animals
 - 592 distinct active recovery plans to protect and restore these species.
- In 2011 over 33 million individuals spent one or more day fishing
 - recreational fishing generated almost \$42 billion in economic activity

Why a Watershed?



Watershed Approach Handbook



Old Channel



New Channel

Bluewildlife Stream, Virginia

Goal

The goal of the handbook is to advance the use of a “watershed approach” for the identification of the **types and locations of wetland and stream restoration and protection projects** that can best support the sustainability and improvement of aquatic resources in a watershed.

Benefits

- The North Carolina Department of Environment and Natural Resource's Ecosystem Enhancement Program (EEP)
 - ▣ Since 2003 there have been no delays in transportation projects due to the need to identify compensatory mitigation projects.
 - ▣ Program has facilitated over \$14 billion in project implementation.

Benefits

MICHIGAN

- Mitigation costs in the state dropped from about \$75,000-150,000 per acre on average to about \$25,000-30,000 per acre.
- Dramatically improved the rate of compensatory mitigation project approval.

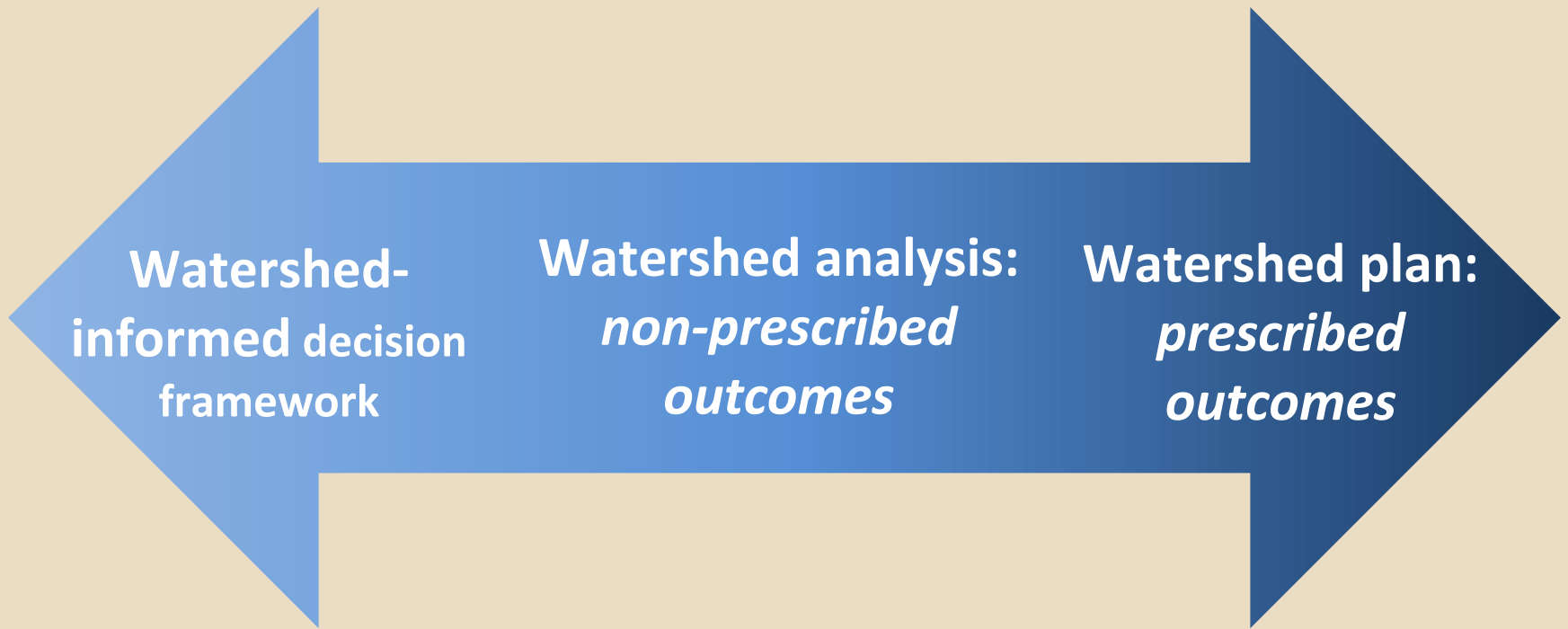
Watershed Approach Steps

1. *Identify watershed needs*
2. *Identify watershed desired outcomes*
3. *Identify potential project sites*
4. *Assess potential of sites to meet watershed needs*
5. *Prioritize sites, areas, and desired outcomes*
 - relative ability to sustain wetland characteristics,
 - address watershed needs,
 - meet watershed goals, and
 - support achievement of desired watershed outcomes.

Watershed Approach Elements

- **Watershed needs** are attributes of the *watershed* needing restoration or protection and for which a future desired condition can be identified.
 - *problems or impairments*
 - *threats to aquatic resources*
 - *opportunities to improve or sustain aquatic resources*
- **Site suitability** is the ability of wetlands and streams to develop and persist in a particular location.
- **Connecting ecosystem functions to watershed needs** is the ability of the wetlands and streams being restored or protected to meet watershed needs. These functions include:
 - habitat values,
 - water quality functions,
 - flood storage.
- **Prioritize sites** based on ability to meet watershed goals and address watershed needs.

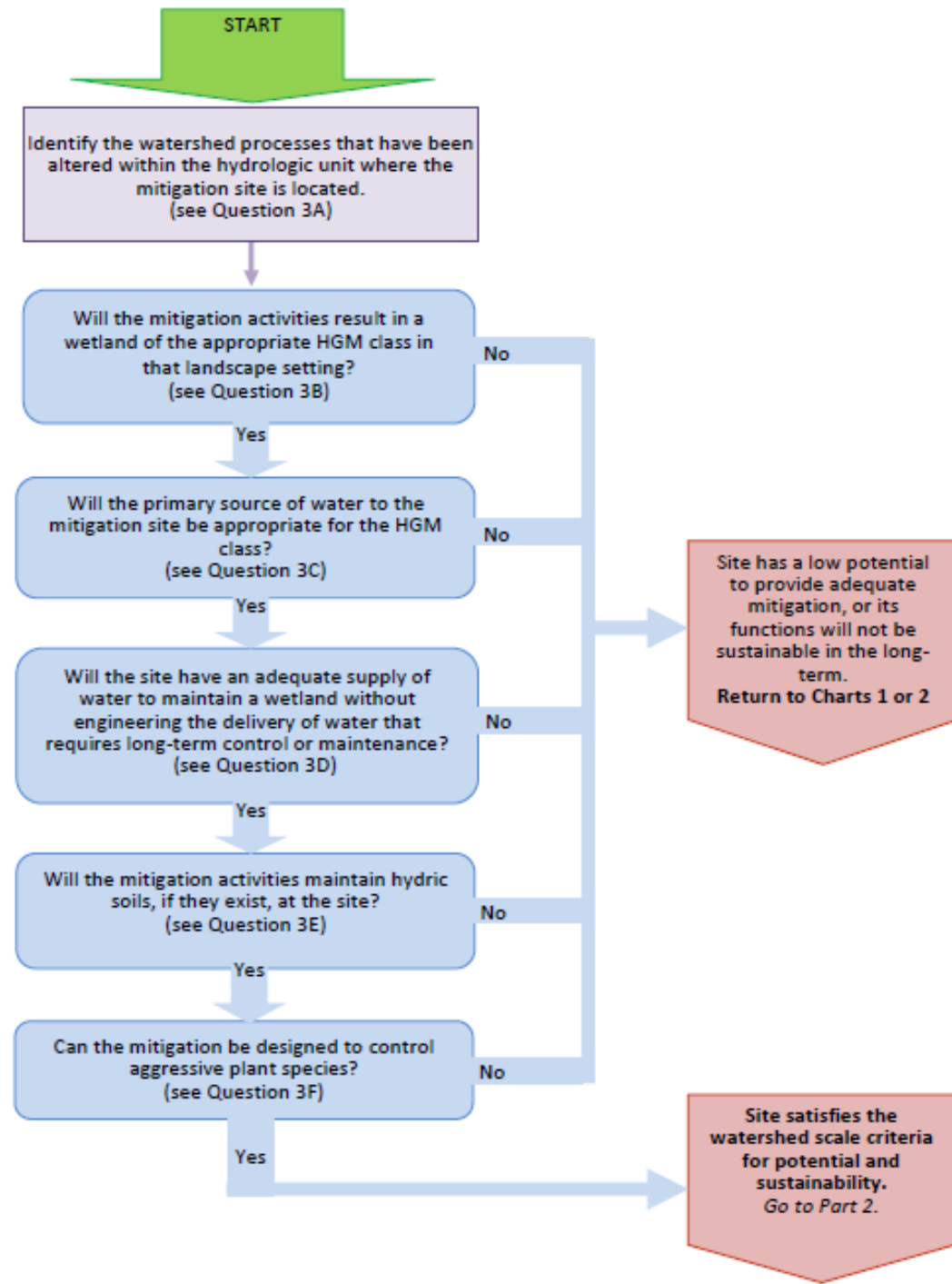
Spectrum of Watershed Approaches



Decision Framework

Washington Dept. of Ecology flow charts:

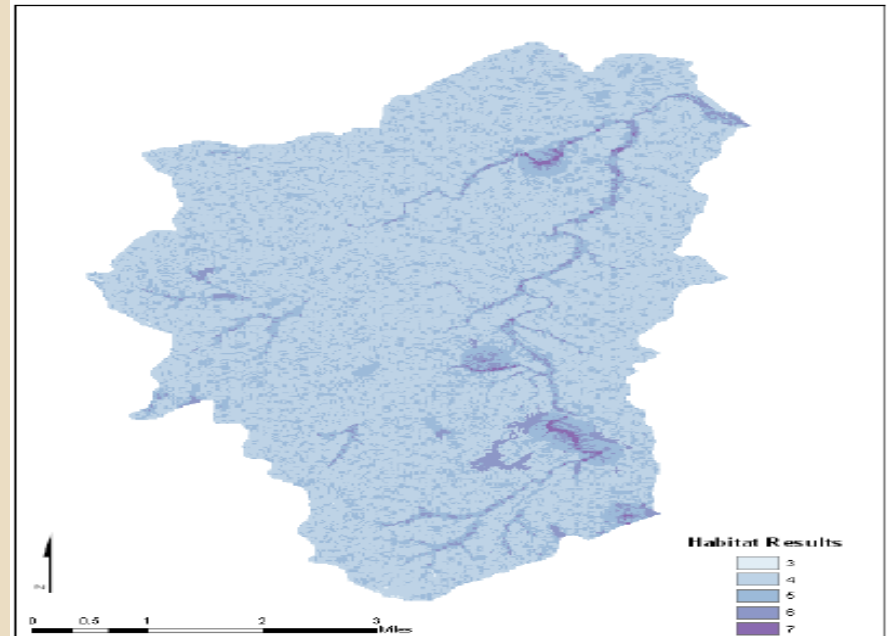
- Series of questions, instructions, and recommendations that guide selection and evaluation of wetland mitigation sites in a watershed context



Watershed Analysis

Missouri DNR Wetland Potential Screening Tool

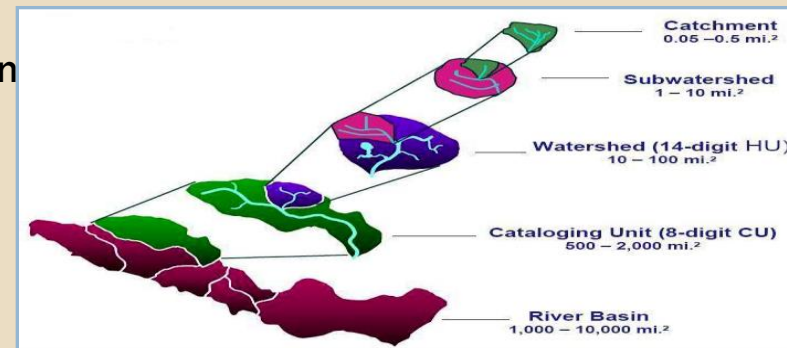
- Watershed-scale wetland restoration/creation site suitability comparison
- Identifies very general watershed needs: water quality improvement, provide habitat for wetland species
- Evaluates site suitability for:
 - Wetland persistence (restoration, creation)
 - Wetland functions
- Does not set desired outcomes for restoration/creation



Watershed Plan

North Carolina Ecosystem Enhancement Program Local Watershed Plans (LWP)

- First, select high priority HUC-14 watersheds based on screening criteria (problems, assets, opportunities)
- LWPs developed for some of these HUC-14s
- Generally, four-step process determines watershed needs, evaluates potential projects, and sets desired outcomes
 - ▣ Characterization of current watershed conditions
 - ▣ Detailed watershed assessment
 - ▣ Development of watershed management plan
 - ▣ Implementation of watershed management plan and project atlas





Achieving Results

Southern Watershed Management Program

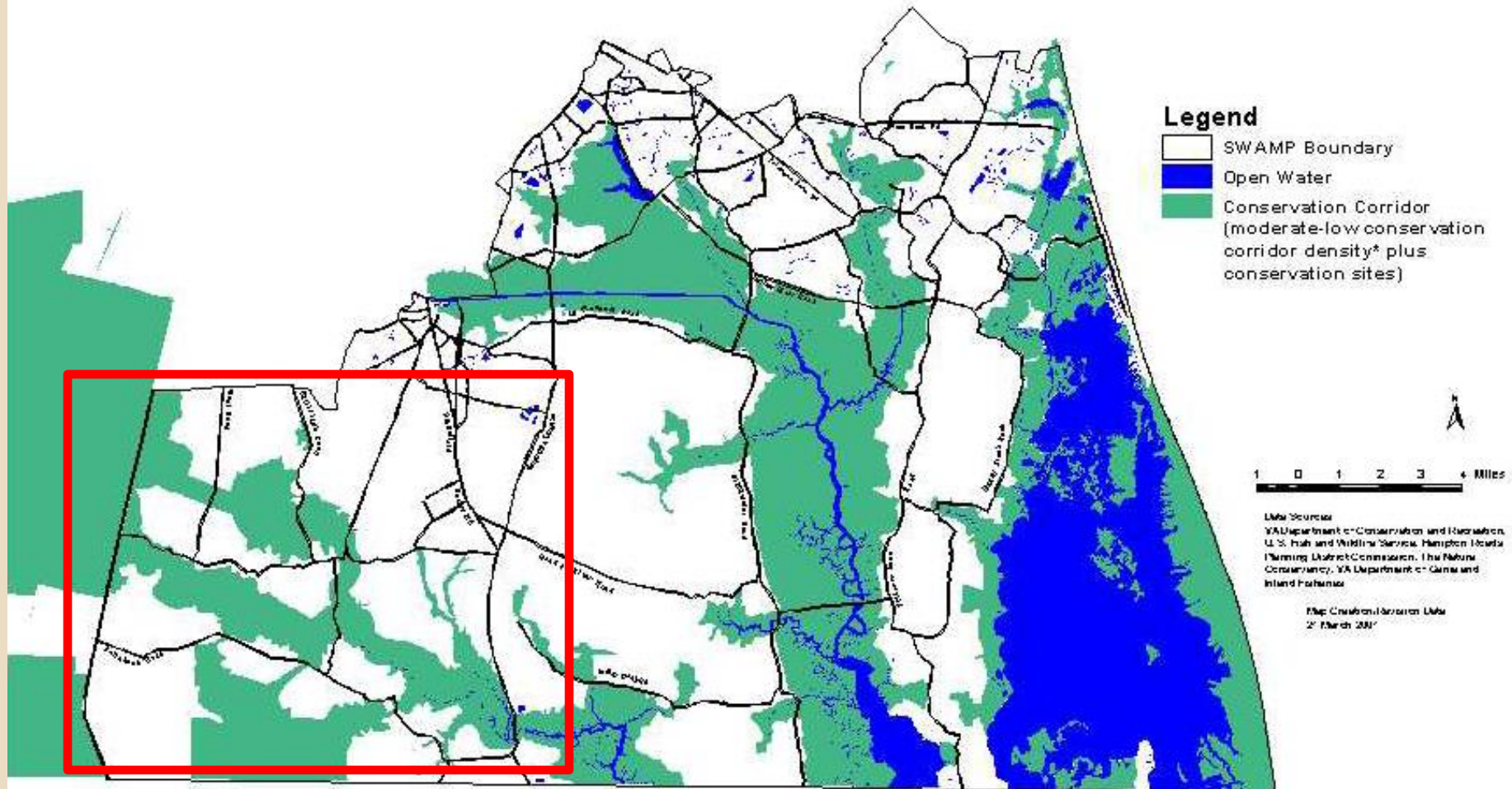


Southern Watershed Management Program

- “Scattered, unconnected natural areas representing remnants of once-continuous natural habitats have limited potential to provide diverse ecosystem services.
- One alternative that allows growing human communities and natural systems to coexist is to provide connections between remnant patches of habitat by means of a system of linear open spaces called conservation corridors.

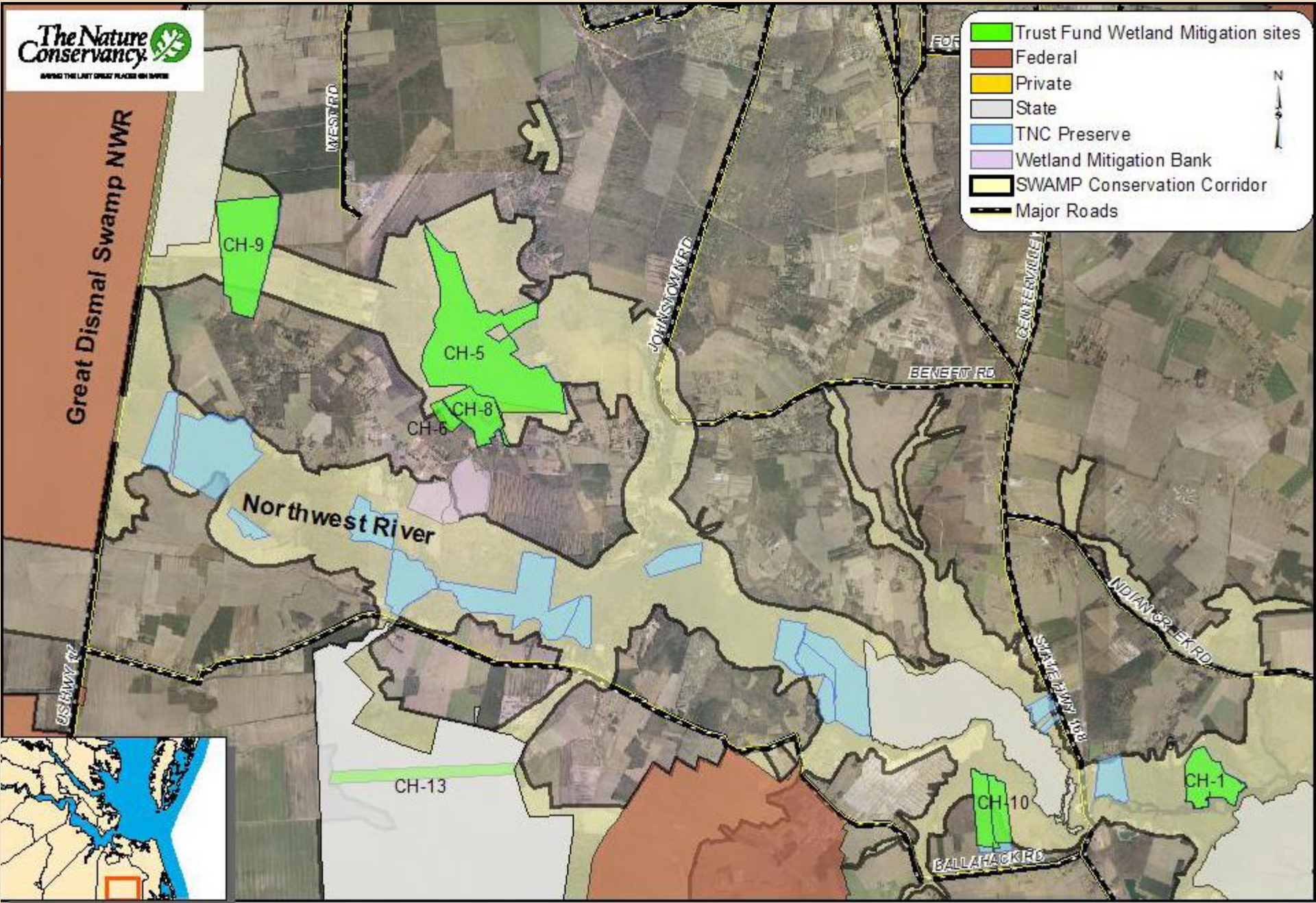
Southern Watershed Management Program

Figure 8. Medium conservation corridor density



* moderate-low conservation corridor density = existing protected lands plus connecting corridors less than or equal to 0.5 miles wide and NWR approved legitimate boundaries for acquisition

- Trust Fund Wetland Mitigation sites
- Federal
- Private
- State
- TNC Preserve
- Wetland Mitigation Bank
- SWAMP Conservation Corridor
- Major Roads



Great Dismal Swamp NWR

Northwest River

CH-9

CH-5

CH-8

CH-6

CH-13

CH-10

CH-1

WEST RD

JOHNSTOWN RD

BENERT RD

CENTER VALLEY RD

SWATE HWY

INDIAN CR. RD

BALLAHACK RD



Achieving Outcomes

Southern Watershed Area Management Plan Results				
			Preservation	Restoration
Northwest River	15,888		11,487	4,401
North Landing	24,847		24,647	206
Total acres:	40,746		36,128	4,607
Acres by Funding Sources				
State:	31%		MITIGATION:	15%
TNC:	23%		Other Fed:	6%
USFWS:	22%		Local:	3%



THINKING LIKE A WATERSHED

Watershed-informed decision framework

- Decision-tree or questions to guide consideration of watershed factors.
- Includes the consideration of watershed need(s).
- Potential of site to develop and persist is determined through individual site assessments.
- No assessment of the potential of sites to meet watershed needs.
- No comparison of the relative ability of sites to sustain desired characteristics and to address watershed needs.

Watershed analysis: non-prescribed outcomes

- Identifies watershed need(s).
- No or little translation of watershed need(s) into specific desired watershed outcome(s).
- Includes analysis of the potential of sites to develop and persist in a particular location.
- Assesses the potential of sites to meet watershed needs.
- Compares sites to evaluate their relative ability to sustain desired characteristics and to address watershed needs.

Watershed plan: prescribed outcomes

- Identifies watershed need(s).
- Describes specific, measurable desired watershed outcomes.
- Includes analysis of the potential of sites to develop and persist in a particular location.
- Assesses the potential of sites to meet watershed needs.
- Compares sites to evaluate their relative ability to sustain desired characteristics and to address watershed needs.