

Delaware's Restoration and Protection in a Watershed Context



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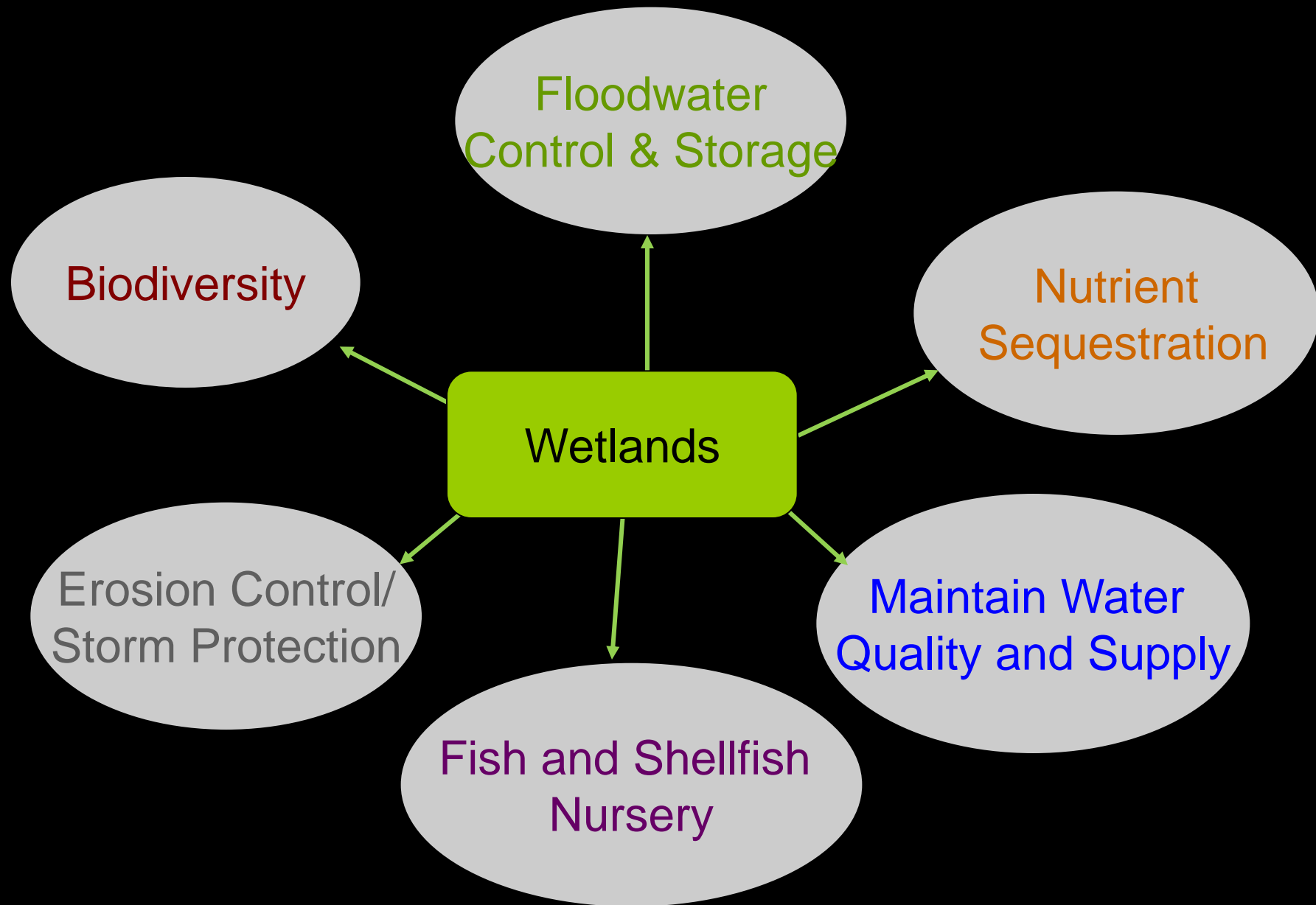


N 38° 46.922' W 075° 17.889'

928 ft

06/21/2007

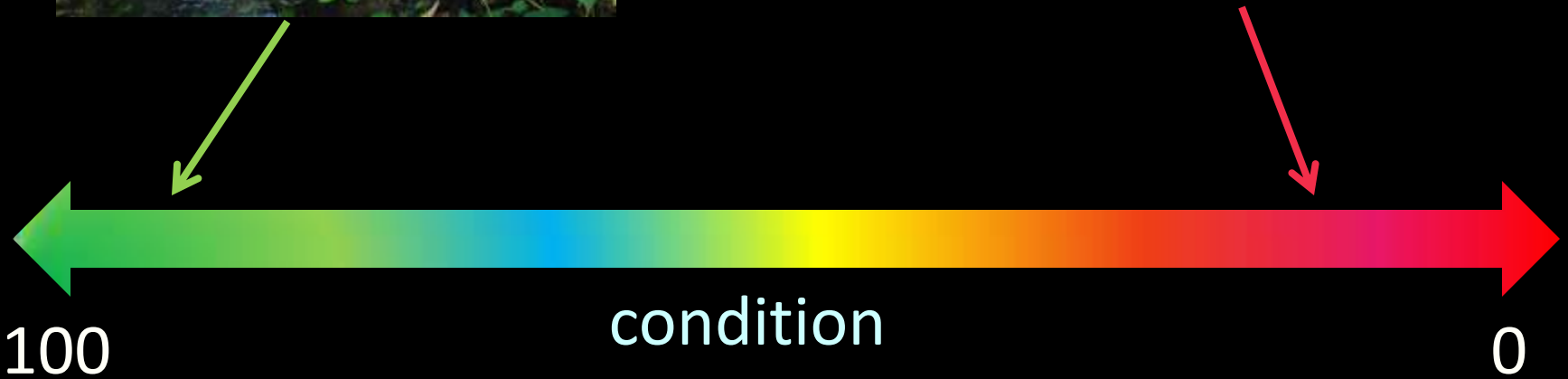






Reference

Degraded

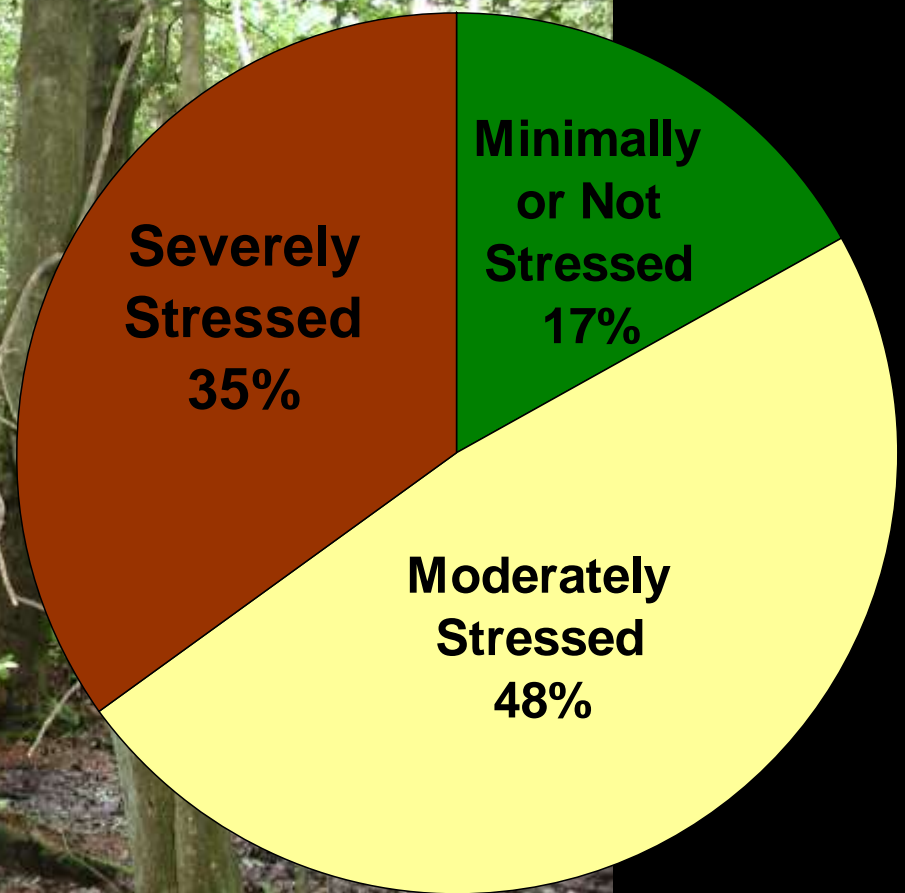
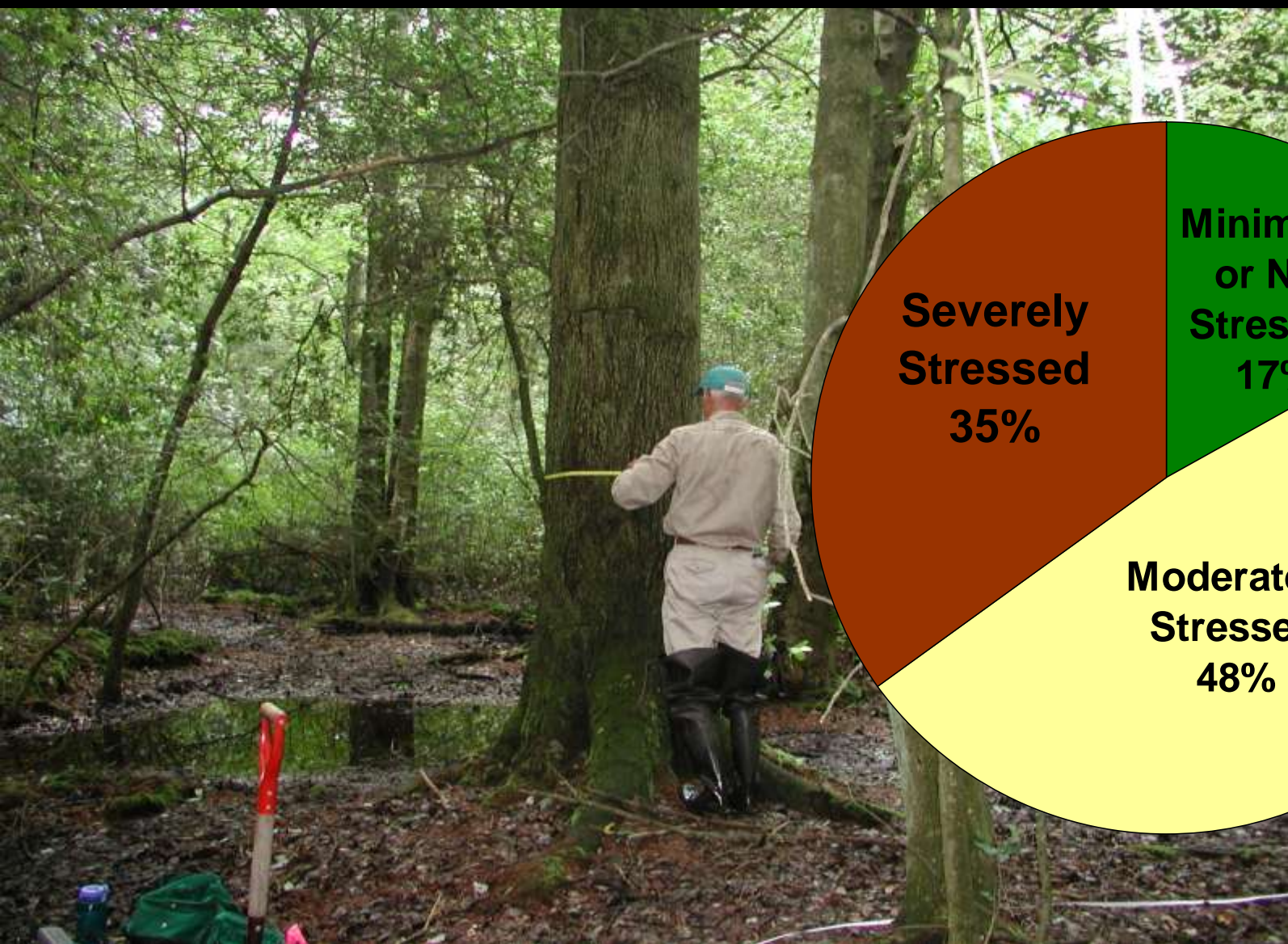


100

condition

0

Condition of Nontidal Wetlands in the Nanticoke River Watershed





80% of natural streams have been channelized

57% had filling



75% of flats has forestry activity within 50 years
27% converted to pine plantation



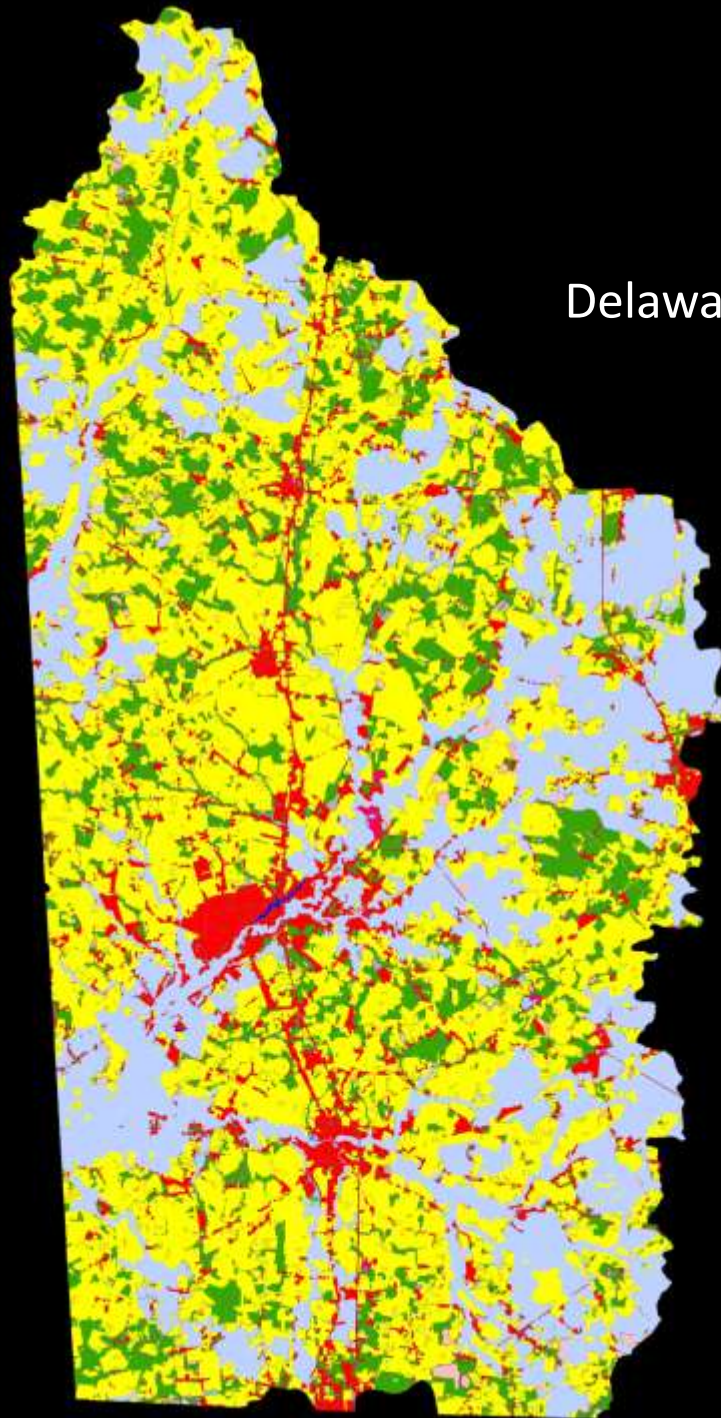
Stakeholders



Center for the Inland Bays
PROTECTING AND PRESERVING DELAWARE'S INLAND BAYS

Goal

Focus restoration activities in the watershed to improve and maintain the ecological integrity of species and habitats and the functions and services that they provide

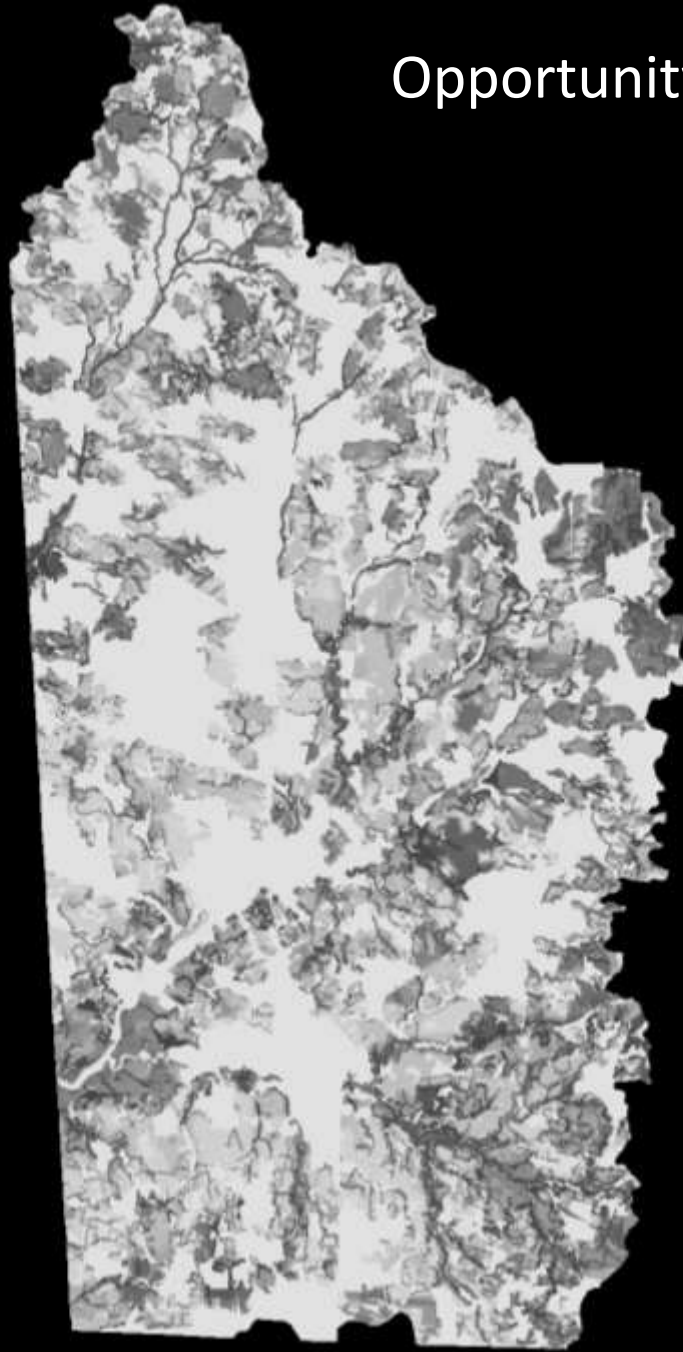


Delaware Ecological Network

Conservation Targets

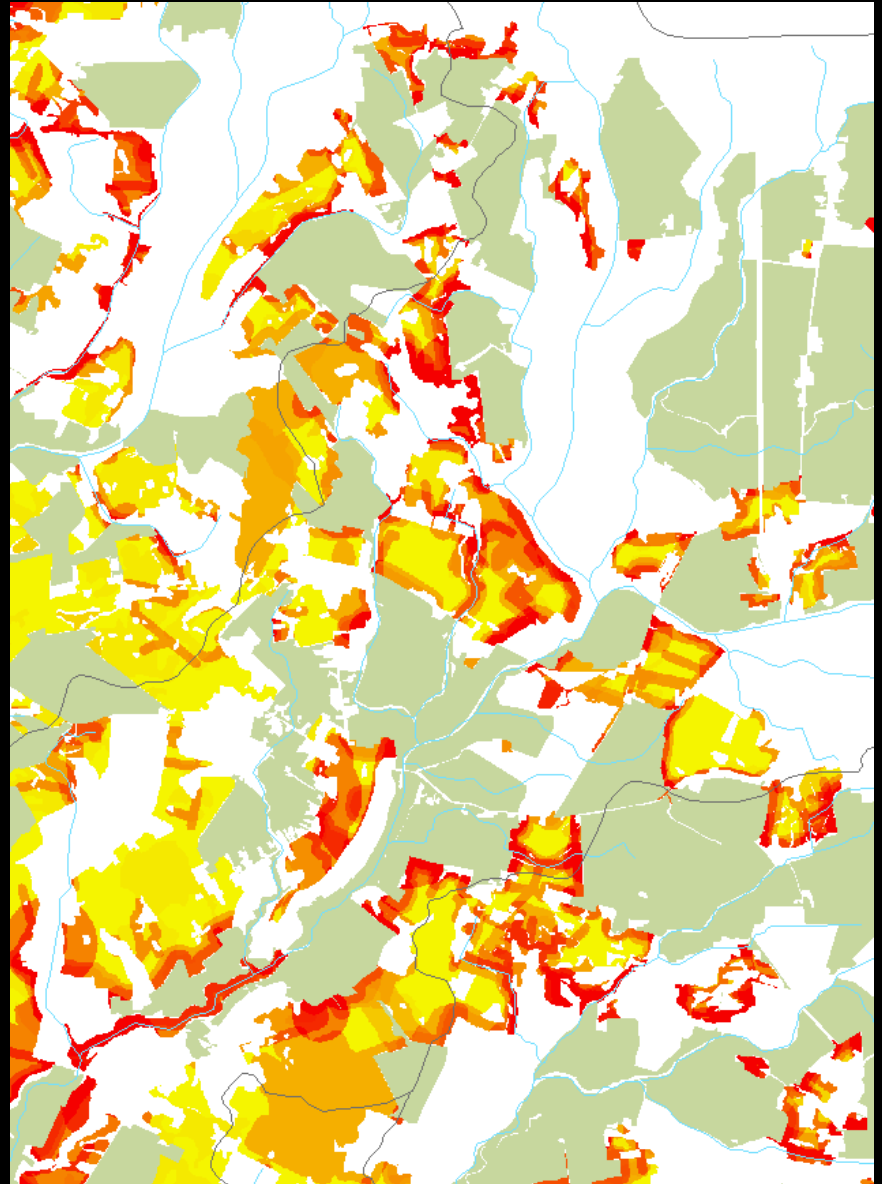
1. Enhance and Enlarge Headwater forests
2. Restore channelized streams
3. Establish riparian and tidal wetland buffers

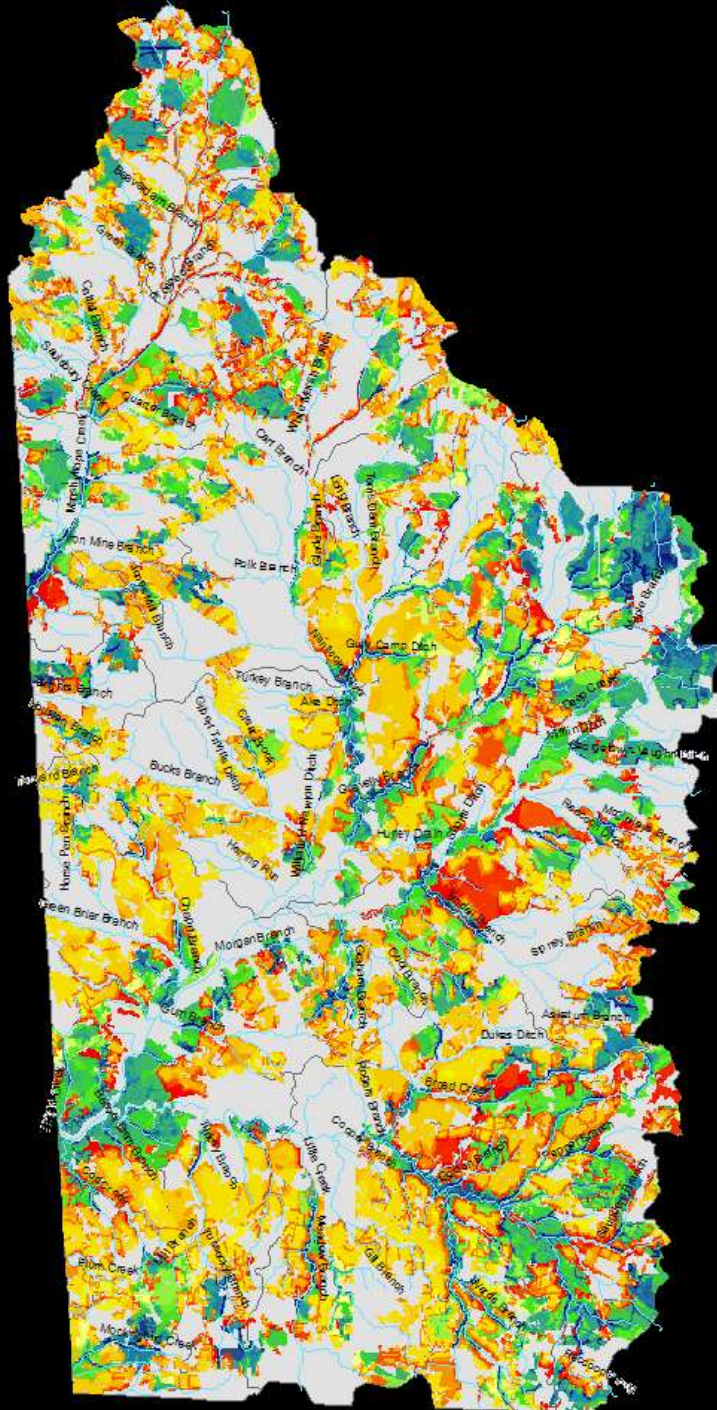
Opportunity Areas



Prioritizing Data Layers

- Delaware Ecological Network
- Wildlife Action Plan
- Heritage Information
- Ground Water Sources
- Gap Analysis
- Soils
- Flood Zones
- Impaired Waters
- Wetland Condition





Legend

— Nanticoke Streams

Enhancement Forest Blocks WQ2 Value

High : 61

Low : 2

Re-establishment Forest Blocks WQ2 Value

High : 50

Low : 0

Nanticoke Watershed

Nanticoke Watershed Restoration Plan

Nanticoke River Watershed Restoration Plan



Developed by:
The Nanticoke Restoration Work Group

May 19, 2009

Restoration and Protection Funding Opportunities for Landowners in the

Restoration Targets



Top Nanticoke Conservation Targets

Expand and enhance large forest blocks

Expand forested areas to 250 acres in size by reforesting adjacent lands.

Restore channelized streams

Re-connect channelized streams to their floodplains and adjacent wetlands.

Expand buffers

Plant native vegetation around streams, ditches, and wetlands to create a 50 meter buffer.

restore wildlife habitat, water quality, and your own quality of life.

Financial Assistance

The Delaware Division of Watershed Stewardship, Delaware Division of Fish and Wildlife Private Lands Program, Natural Resource Conservation Service, U.S. Fish and Wildlife Service, Nature Conservancy, and Farm Service Agency are eager to work with you to enhance or restore wildlife habitat and water quality on your property by providing you with technical and financial assistance.

Depending on the program and conservation practice, payments may include:

- 75-100% cost-share for wetland restoration and reforestation (\$500-\$2,850/acre depending on wetland restoration practice and up to \$400/acre for reforestation).
- Also, rental payments between \$70 and \$150 per acre, per year, for agriculture cropland taken out of production.

Although priority areas will be selected first, numerous other possibilities exist. See the description below of projects that are eligible to receive financial assistance.



Projects Eligible for Assistance

- Creation of grassy vegetated or forested buffers along streams or wetlands
- Reconnect channelized streams with their floodplains
- Wetland creation on marginal agriculture fields
- Reforestation of areas near large forest tracts
- Invasive species plant control
- Restore hydrology (natural water flow) to ditched wetlands
- Establish and maintain early successional (stage) upland habitats
- Tax ditch right-of-way best management practices

Value of Wetlands



Benefits of Restoration

- Increases flood control and water storage
- Improves ground-water recharge
- Removes nutrients and sediment from surface waters
- Enhances wildlife habitat
- Increases aesthetics and educational opportunities
- Reduces erosion
- Protects rare and endangered plant and wildlife species



WETLAND RESTORATION DELAWARE A Landowner's Story

Author: ANTHONY JACKSON, Environmental Scientist
DNREC, DE Aquatic Resources Division

NOTE: The story in this document being published in the Delaware Landowner's Guide to Wetland Restoration and Rehabilitation. The finished book is available for purchase at www.dnrec.de.gov.

The Battista Backyard Wetland

Like many landowners, Bill and Roseanne Battista weren't sure what to do with the unused acreage on their property. The area had once been flat pasture with a ditch running through it. It seemed as though every alternative involved a lot of costs and too much work. "We had considered a number of other options for the land such as Christmas trees or hay fields, but then you have to sink money into supplies and equipment and you've got to put in a lot of hours of work. We wanted to be able to enjoy our land, to come back here and be able to just relax."



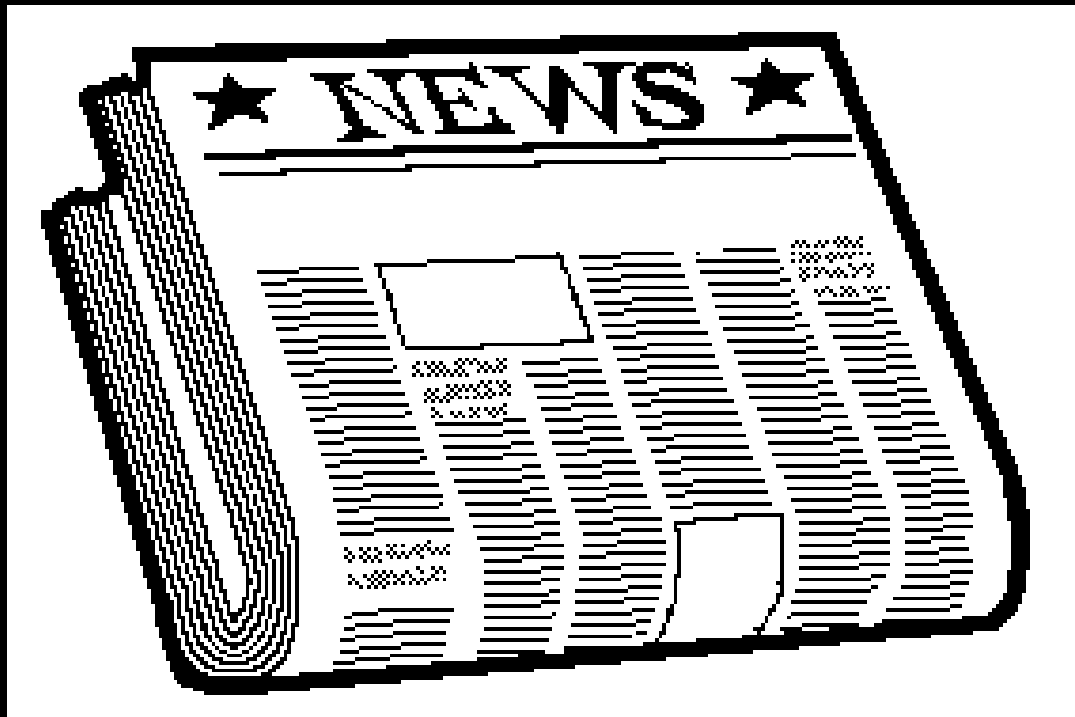
Bill and Roseanne Battista at their 'backyard' wetland.

A few years earlier, Bill and Roseanne had completed a small backyard habitat project near their house and they thought perhaps they could create even more habitat on a grander scale. But they weren't sure what kind of habitat would be most attractive for themselves and for the wildlife they hoped would visit. There was also the problem of how to take on such a large project and how to pay for it. Then someone told them that DNREC's Soil and Water Division had provided assistance to neighboring landowners in restoring wetlands on their property. The Battistas knew a wetland in their area would be an excellent natural resource, but then their land had been a hay field or pasture for as long as anybody could remember. Fortunately, because their field still retained its soggy soils and hydrology, they found it was possible to restore the area into a functioning wetland.



The Battista's backyard used to be an old field (photo left). With restoration (photo below), that old field was transformed into a beautiful, vital wetland habitat.





NANTICOKE RESTORATION PARTICIPANT



Gravelly Branch Project

RESTORING WETLANDS AND WATERWAYS TO IMPROVE THE WATER QUALITY, FLOOD STORAGE CAPACITY, AND WILDLIFE HABITAT OF THE NANTICOKE WATERSHED.

A partnership between the Delaware Forest Service, DNREC, and Gravelly Branch Tax Ditch Association to reconnect channelized streams to their floodplain habitats.



NANTICOKE RESTORATION INITIATIVE

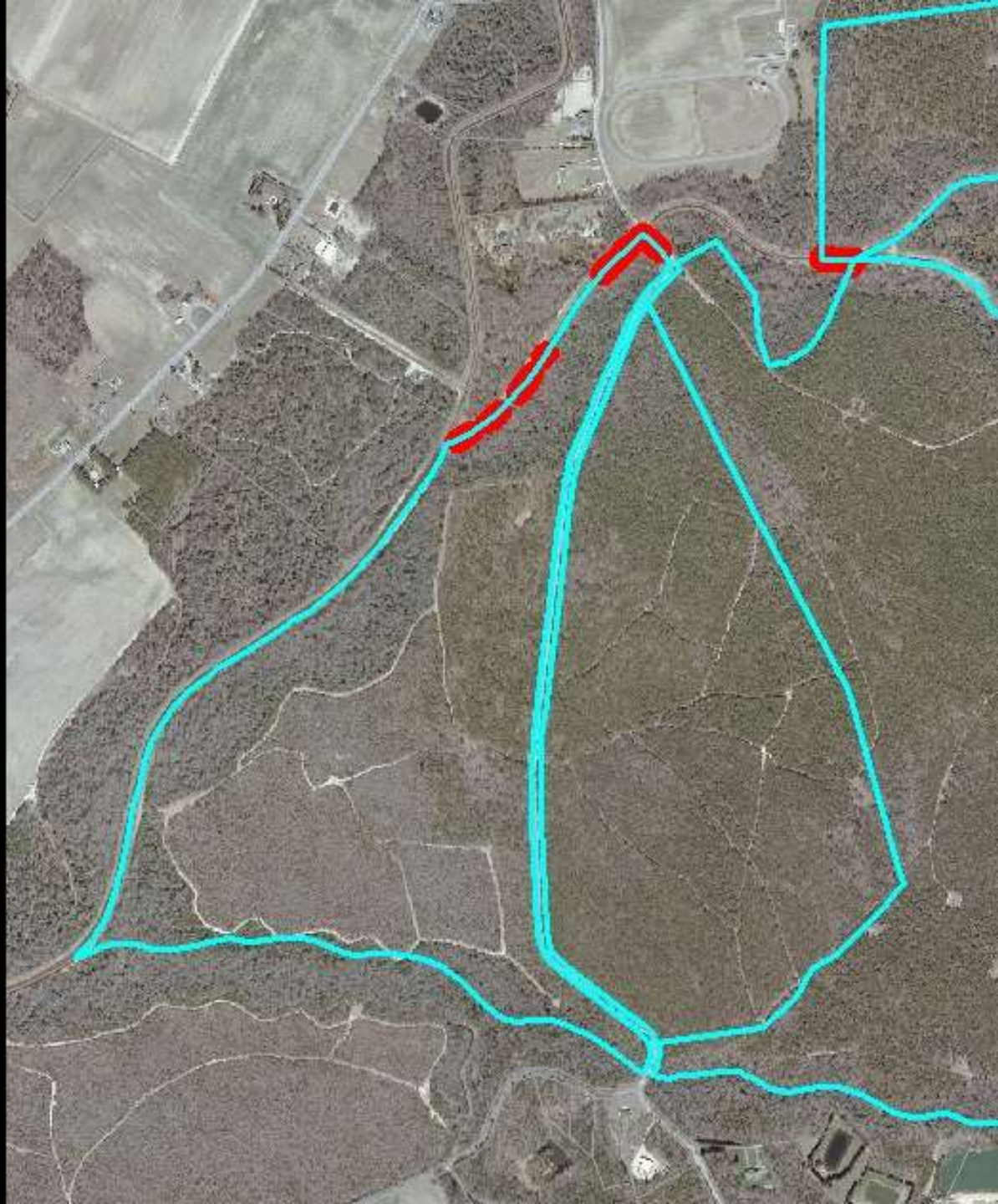
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and NFWF Small Watershed Grant*

Tom Barthelmeh

Chris Bason

Karen Bennett

Jack Conner

Ken Dunne

Deb Fillis

Rob Gano

Tim Garrihan

Kate Hackett

Laura Herr

Amy Jacobs

EB James

Lyle Jones

Sally Kepfer

Rob Line

Anne Love

Andy Manus

Bill McAvoy

Rick McCorkle

Erin McLaughlin

Bill Meredith

Marlene Mervine

Bill Moyer

Evan Rehm

Al Rizzo

Tom Saladyga

Austin Short

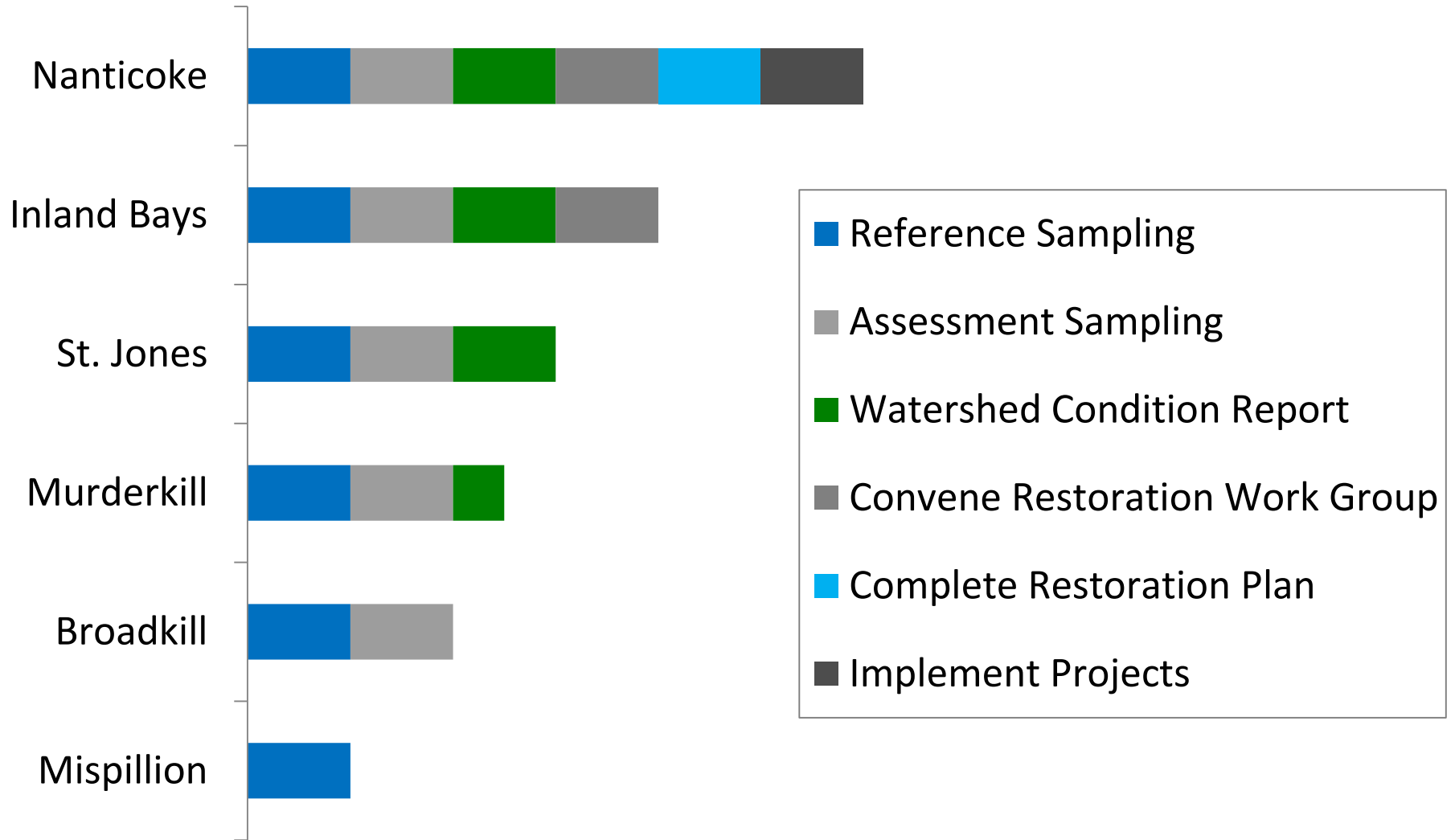
Shelly Tovell

Melanie Tymes

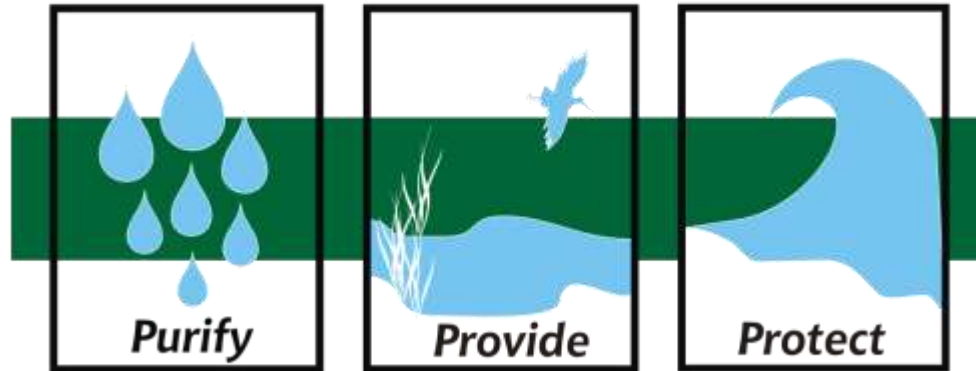
Tommy Wiltbanks

Anne Love

Watershed Progression



Delaware Wetlands



www.dnrec.delaware.gov/admin/delawarewetlands