

# FAO warns 90 per cent of Earth's topsoil at risk by 2050



© FAO | Farmers at work in Guatemala.

E360 DIGEST  
DECEMBER 21, 2020

## Agriculture Will Threaten Habitat for 90 Percent of Animal Species by 2050



PIXABAY



# Feeding the World

By 2050 we'll need to feed two billion more people. How can we do that without overwhelming the planet?

PHOTOGRAPHS BY GEORGE STEINMETZ



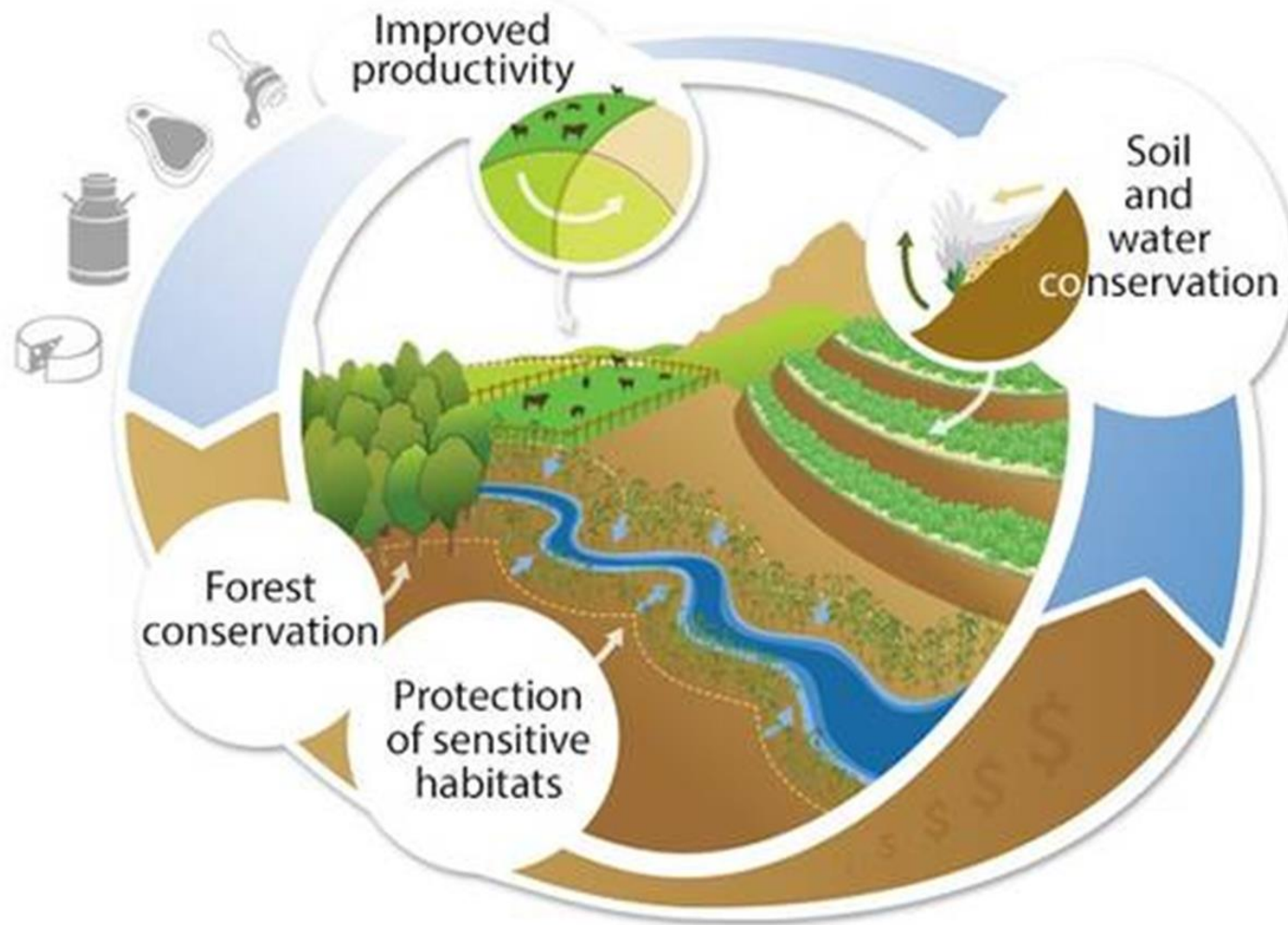
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SEPTEMBER 7TH, 2023

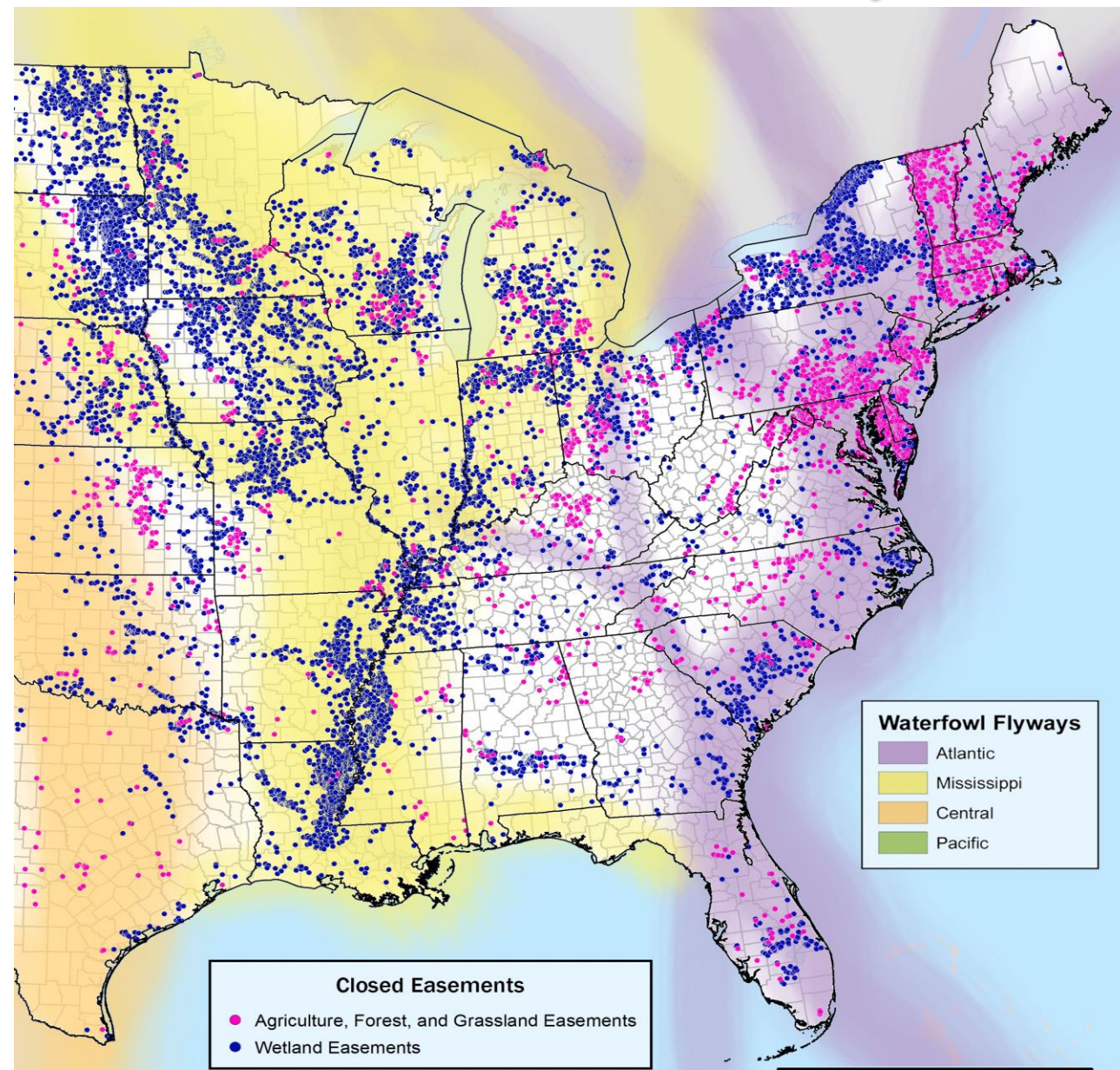
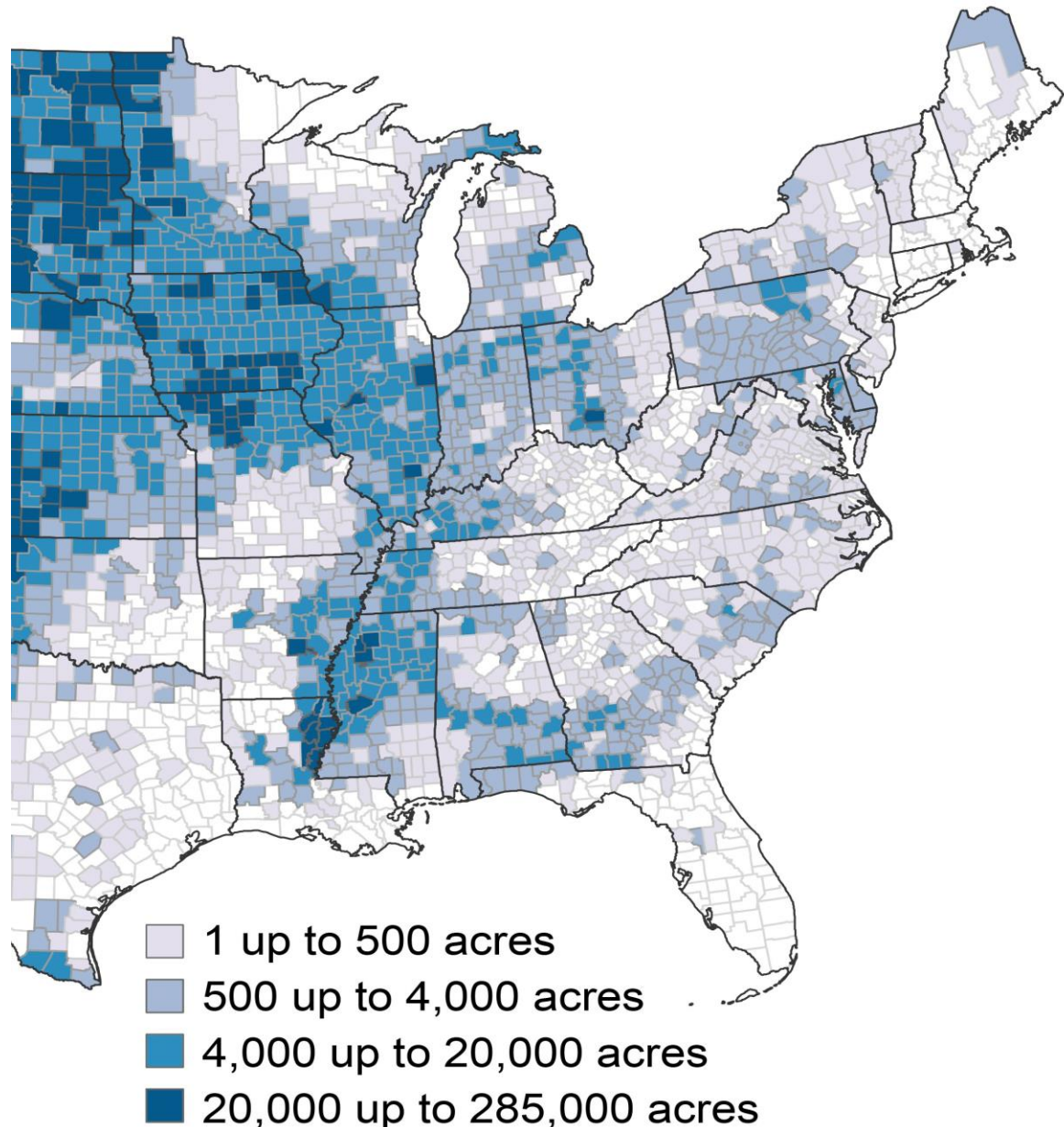
## USDA Forecasts Sharpest Decline in U.S. Farm Income in History

# Reducing Ag/Eco Conflict: “Working lands” conservation



***Working lands means farmers, ranchers, and forest landowners producing public “environmental goods” along with the food and fiber they have historically provided. All those who enjoy the benefits should share the costs of producing these goods.***

# Two Major Working Lands Paradigms: Conservation Practices vs. Conservation Easement Acquisition



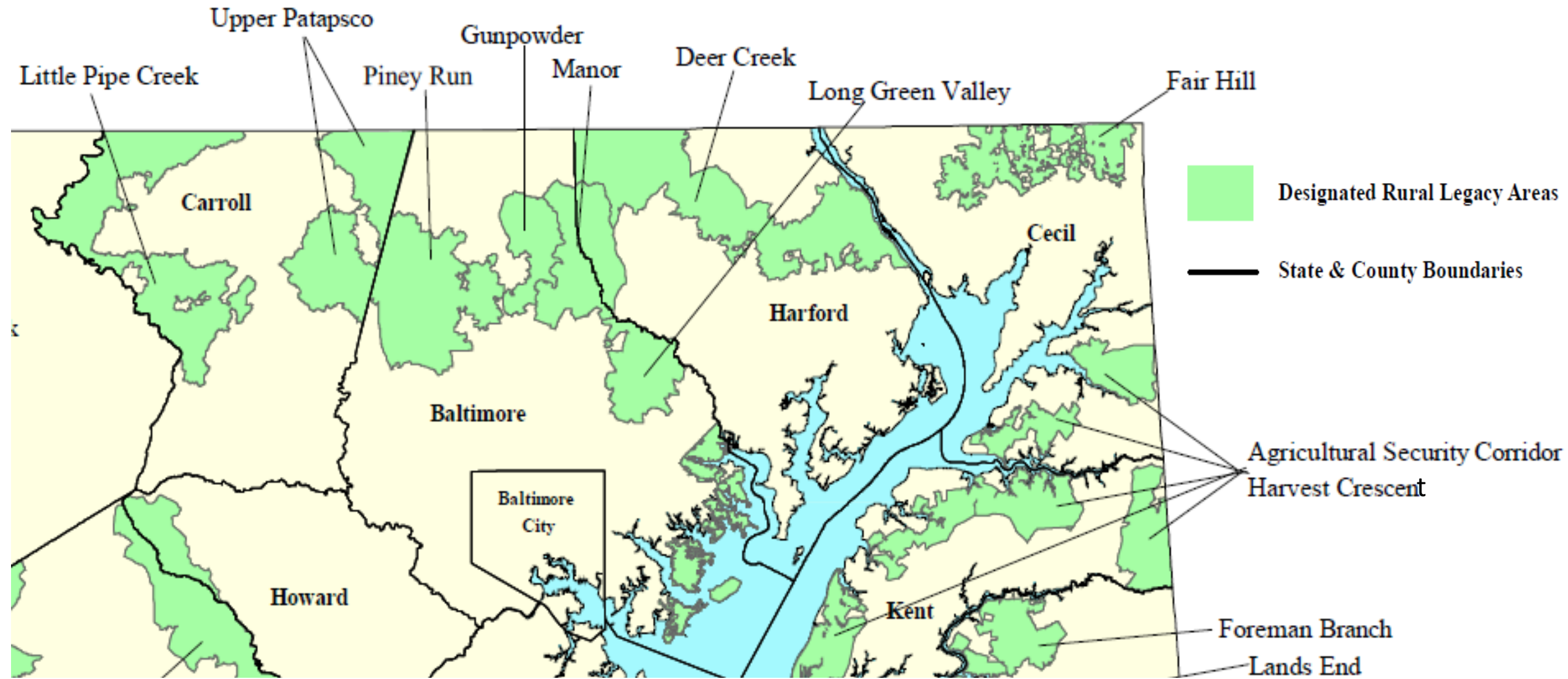
# First Watershed-Wide Conservation Practices: Honey Hollow Creek, Bucks County, PA (1939)



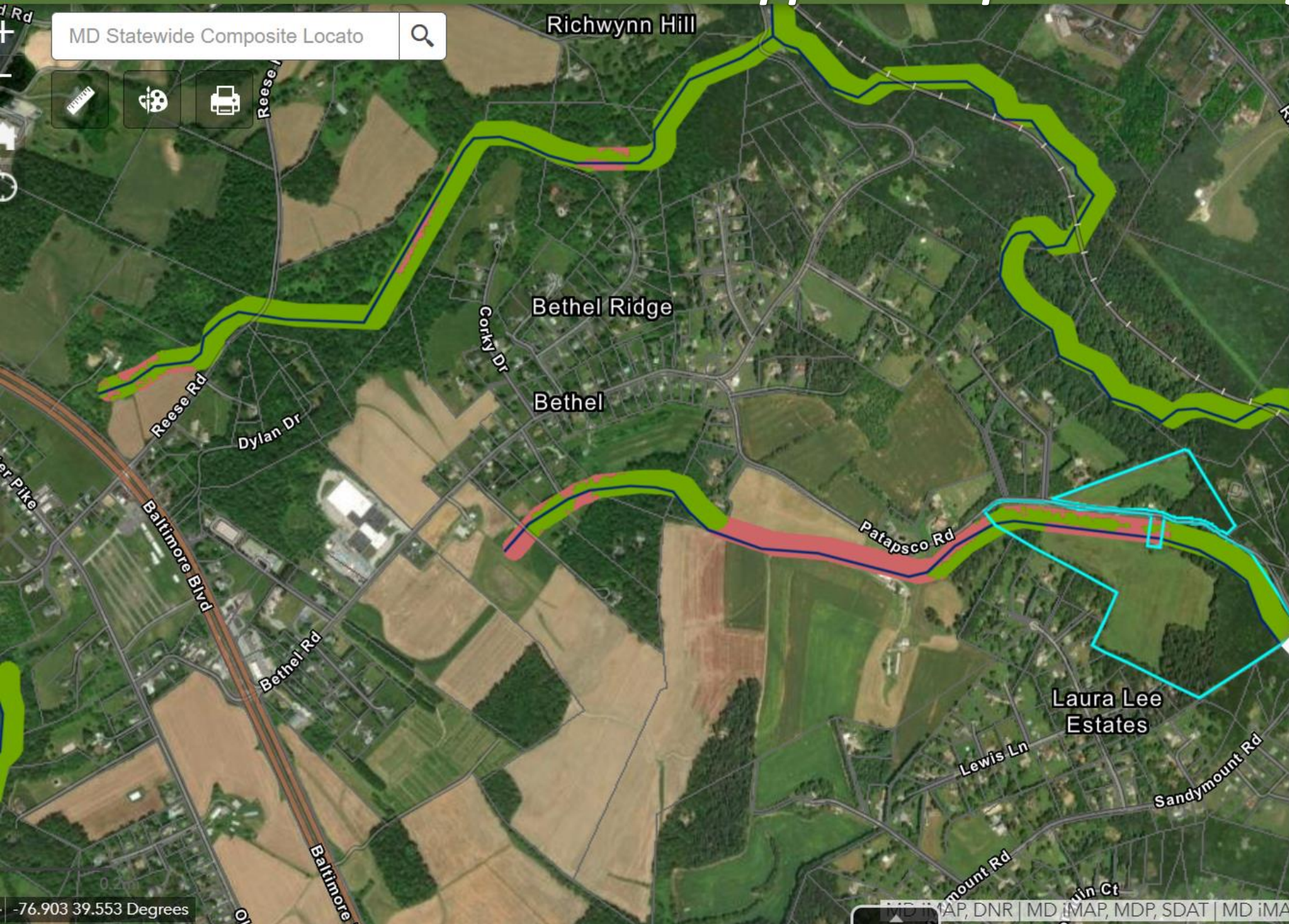
**First Farmland Easement Program:  
Maryland Ag. Lands Preservation Foundation (1974)**



# First Farmland Easements with Environmental Protections: Maryland Rural Legacy Program (1997)



MD Statewide Composite Locato



## Legend

Maryland Stream Health - Md Biological Stream Survey Stream Reach File - Biological Stream Reaches



Maryland Forests - Forested Buffers - Forested Buffers

Forested

Unforested

No Data

(5 of 7)

**Parcel Boundaries: 0704001958**

Parcel Account Number	0704001958
SDAT URL	<a href="#">More info</a>
Jurisdiction Code	CARR
ACRES_POLY	
EXISTING	UPDT2017_18
POLYDATE	2022JUL

[Zoom to](#)



## CONSERVATION EASEMENT PURCHASE

**Ag./Development Value - \$348,211 (67% of Total Value)**  
**+ Natural Resources Value - \$168,457 (33% of Total Value)**

**= Total Easement Value - \$516,668 (\$8,925/acre)**

## PERPETUAL EASEMENT RESTRICTIONS

- 12 residential lot rights extinguished
- Total Resource Mgmt. Plan required on tillable land
- Forest Stewardship Plan required on woodland (30 acres)
- 7-acre Forested Riparian Buffer required
- 2-acre Historic Preservation Easement on dwelling (easement donation appraised at \$500,000)

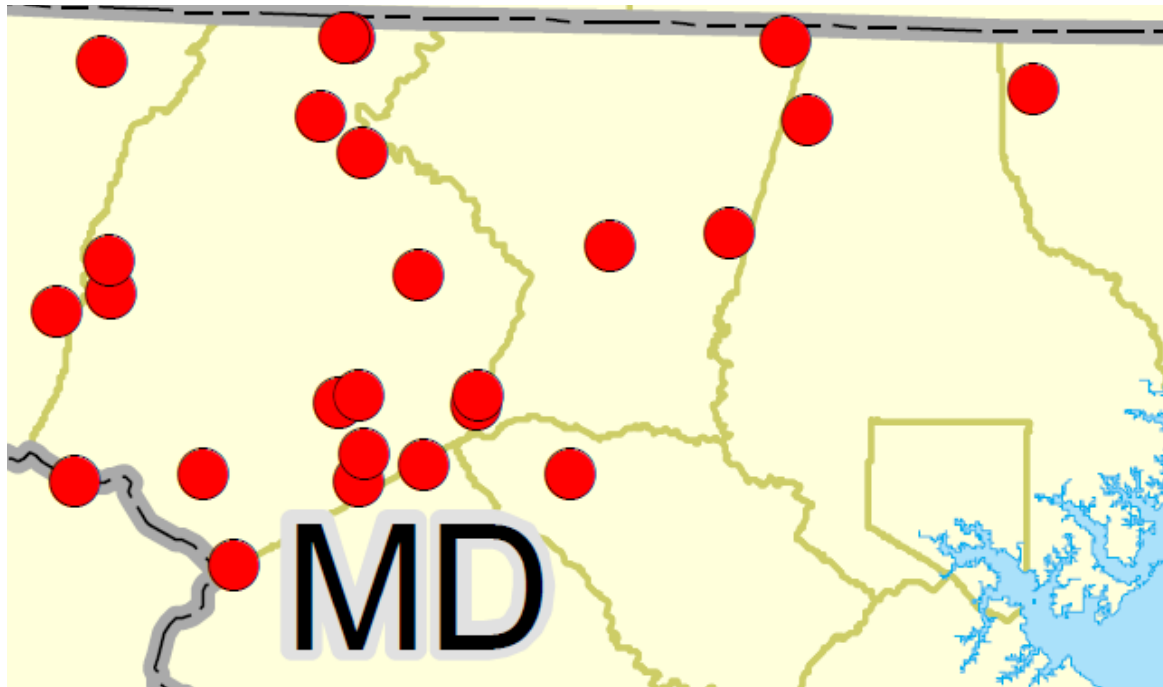


# Riparian Forest Buffer Restoration

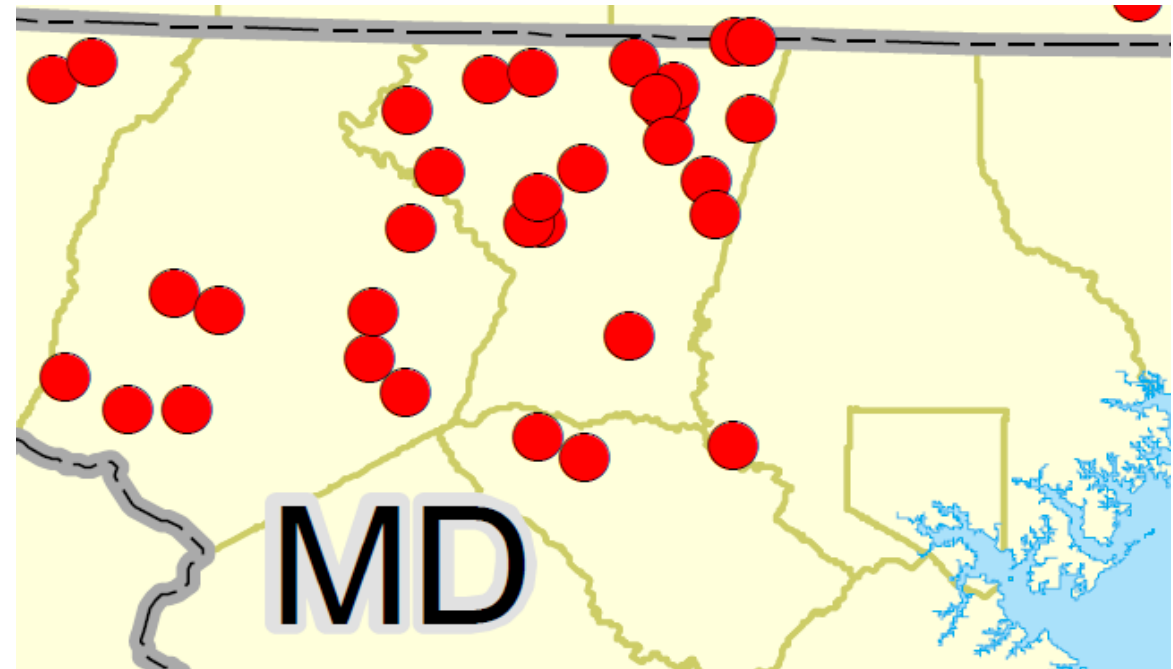
## Restoration Efforts Assessment



Chesapeake Bay Program  
A Watershed Partnership



- 2008 Projects
- County Boundary



- 2011 Projects
- County Boundary

# Riparian Forest Buffers: Centerpiece of Rural Legacy

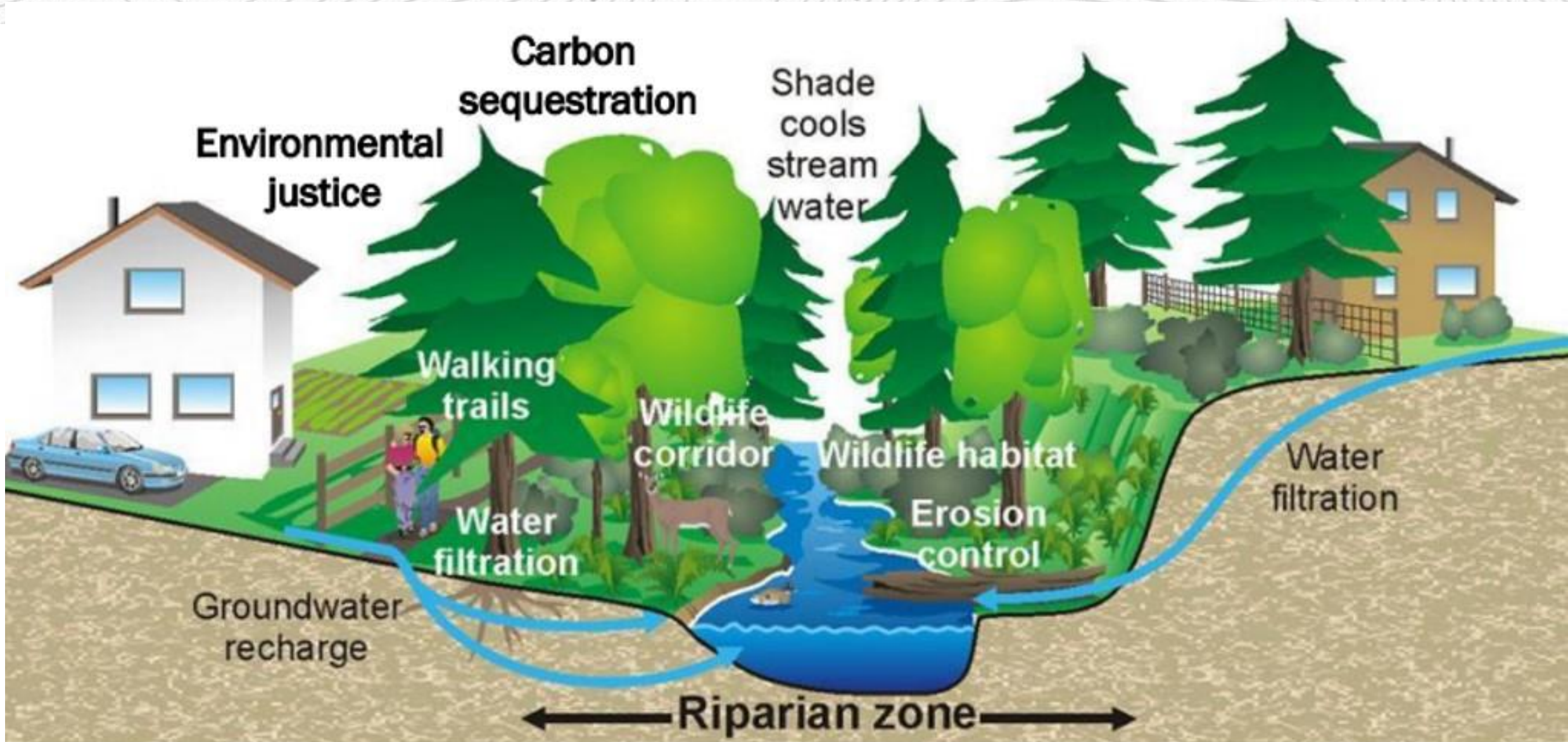
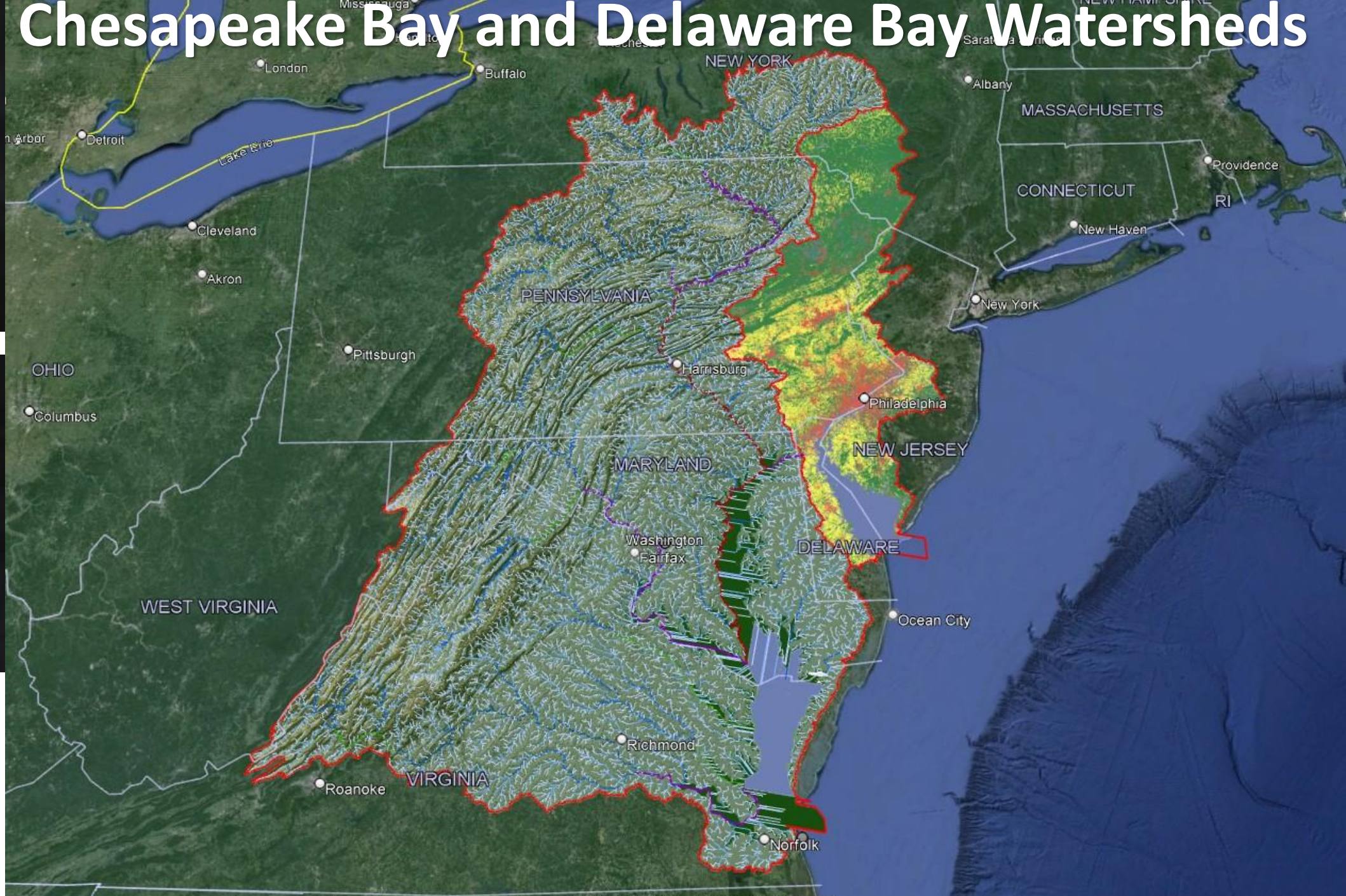


Figure © Canadian Geoscience Education Network

# Chesapeake Bay and Delaware Bay Watersheds



EDNA Streamlines  
Cubic Meters/Second



# First Cost-Share for Conservation Practices on Preserved Farms, NJ SADC (1983)



# First Cost-Share for Production Practices on Preserved Farms, NJ SADC (1983)



# Constitutionally Dedicated Preservation Funding: The “Preserve New Jersey Act” (2016)

**CORPORATION  
BUSINESS TAX**

EXAMPLE: \$3.5 BILLION

**6% ENVIRONMENTAL  
DEDICATION**

EXAMPLE: \$210 MILLION

**78% GSPT  
DEDICATION**

EXAMPLE: \$164 MILLION

**62% GREEN ACRES**

EXAMPLE: \$98.3 MILLION

**31% FARMLAND  
PRESERVATION**

EXAMPLE: \$50.8 MILLION

**7% NJ HISTORIC  
TRUST**

EXAMPLE: \$8.2 MILLION

# The Preserve New Jersey Act:

## Preserve NJ Farmland Pres. Fund (Acquisition and Stewardship)

***“The State Treasurer shall establish a fund to be known as the ‘Preserve New Jersey Farmland Preservation Fund’.... the moneys in the fund are specifically dedicated and shall be used for the same purposes as those set forth in (the Garden State Preservation Trust Act)....”:***

- 1. Grants to local governments and non-profits (land trusts) for the acquisition of easements and fee simple titles to farmland.***
- 2. Pay costs of easement and fee simple acquisitions by the state (SADC)***
- 3. Annual allocations for stewardship activities (currently 4% of total SADC approp.).***



# What is Missing from the Working Lands Paradigm?

## Acquisition: Formula-Based Easement Valuation



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News Department

### Bill revising farmland appraisal process advances

Jay Edwards · June 12, 2023

1,085 1 minute read

**P.L. 2023, CHAPTER 245, approved Jan. 8, 2024**

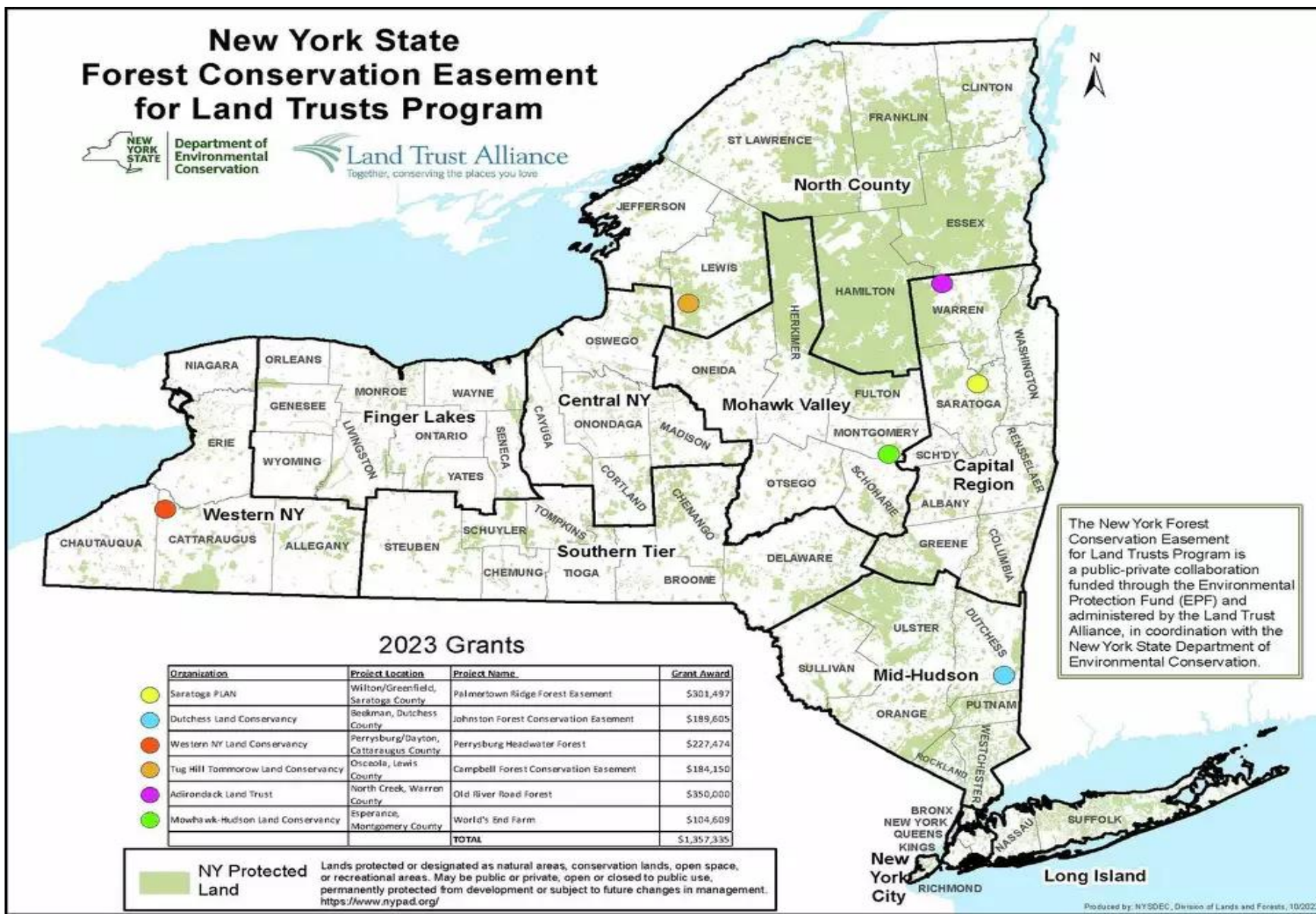
***...a value determined in accordance with a formula, to be known as the “Statewide Farmland Preservation Formula,”... that includes:***

***...considering the importance of preserving agricultural lands in the municipality and county in which the land is located...***

***...considering the status and value of natural resources in the municipality and county in which the land is located...***

# What is Missing from the Working Lands Paradigm?

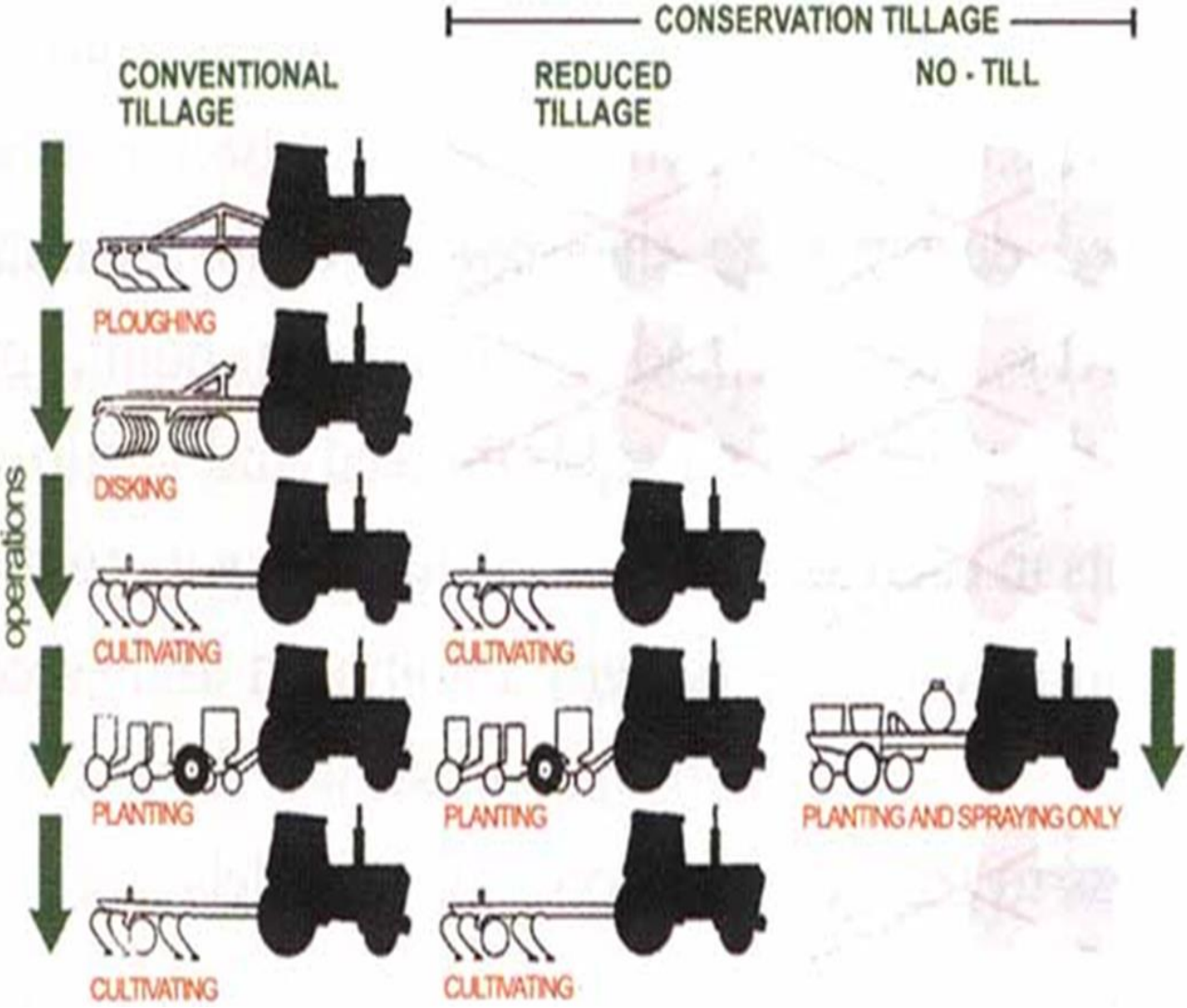
## Acquisition: Forestland Preservation Easement Program



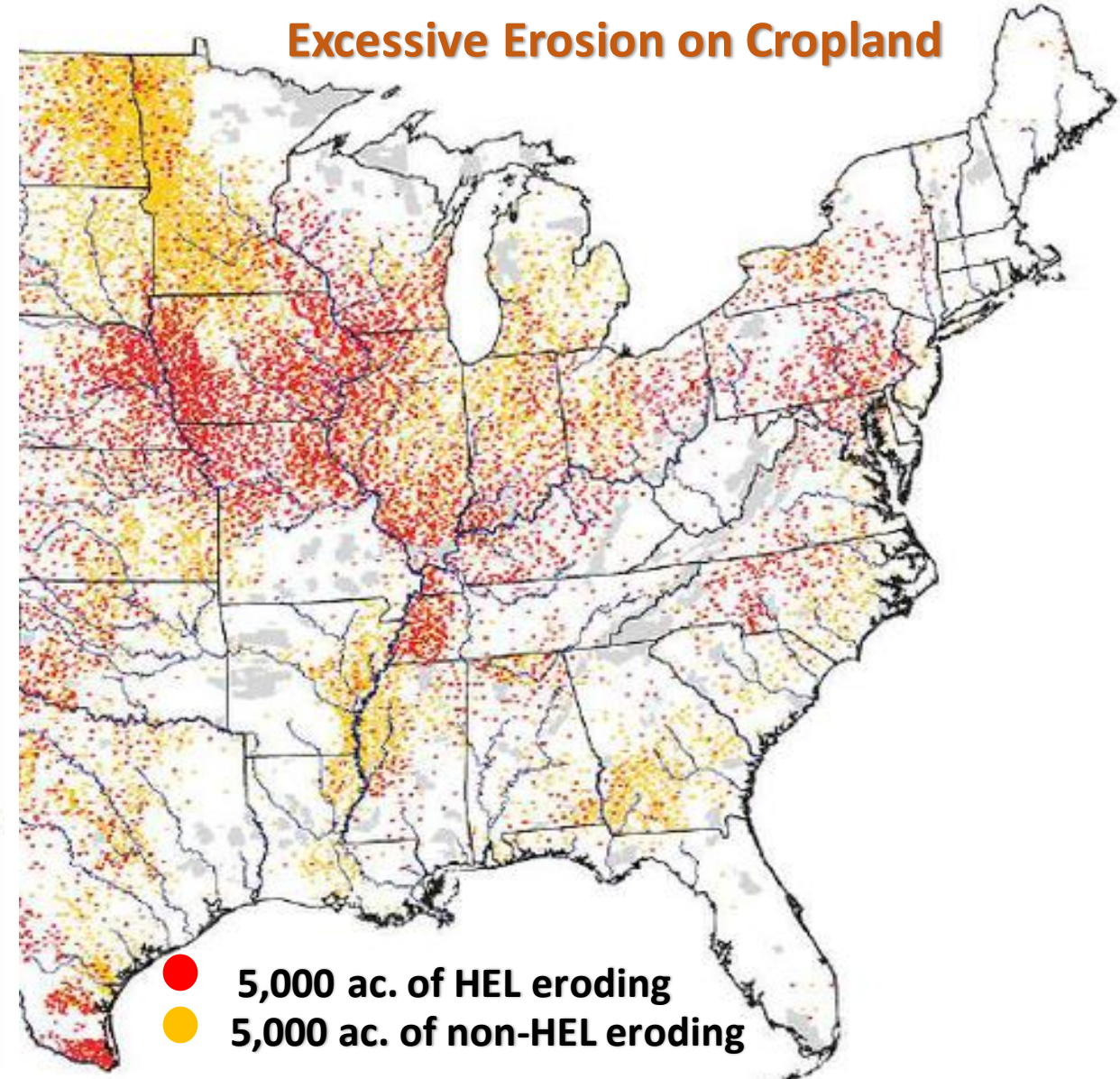
# What is Missing from the Working Lands Paradigm?

## Stewardship: State Program for Conservation Tillage

### Comparison of Tillage Systems - Number of Passes



### Excessive Erosion on Cropland

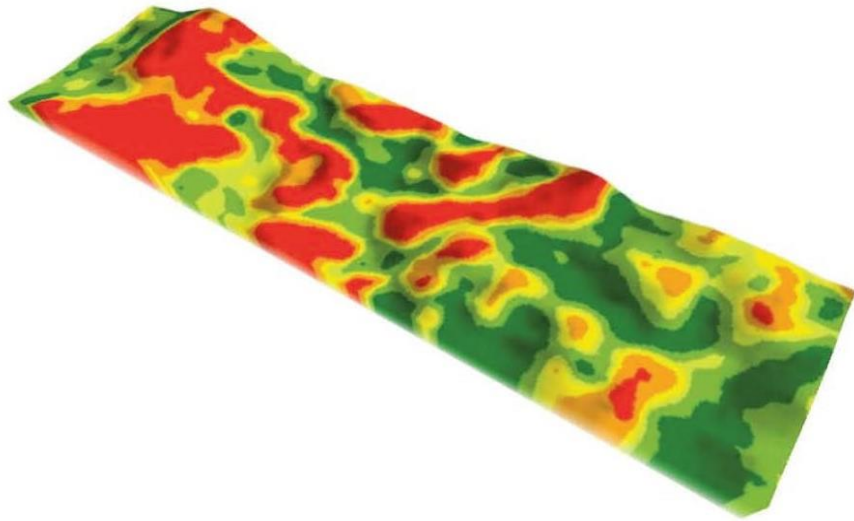


# Conservation Tillage Equipment



# What is Missing from the Working Lands Paradigm?

## Stewardship: State Program for Precision Agriculture



Zone	Area (acres)	Area (percent of total)	Yield Index All Crops
1	5.6	20.2	stable, low yields
2	4.5	16.3	somewhat stable, below average yields
3	2.3	8.4	not stable, slightly below average yields
4	2.7	9.6	not stable, slightly above average yields
5	6.5	23.7	somewhat stable, above average yields
6	6	21.6	stable, high yields
Total	27.6	100.0	

***The "5 Rs": Right Input/Right Amount/Right Place/Right Time/Right Manner***

# Why Easement Formulas and Stewardship Funding Are Important

## *NJ's National Rankings in Farm Input Costs and Farm Income*

- *Highest Cropland Cost (\$13,000 per acre)*
- *Highest Farm Fertilizer Costs (\$93 per acre)*
- *2nd Highest Farm Fuel Costs (\$70 per acre)*
- *2nd Highest Building and Machinery Costs (\$127 per acre)*
- *2nd Farm Labor Costs (\$426 per acre)*
- *4th Highest Total Farm Production Costs (\$1,386 per acre)*
- *41<sup>st</sup> out of 50 States in Lowest Net "Take Home Pay" (14.5% of gross pay)*

**Cost Savings Associated with Conservation Tillage and Precision Ag.**  
**Based on Average NJ Crop Farm - 150 acres as of 2022 Census of Ag.**

**Conservation Tillage - \$57 Per Acre/Per Year Cost Savings**  
**X 150 ac.**  
**\$8,550 Per Year**

**Precision Agriculture - \$51 Per Acre/Per Year Cost Savings**  
**X 150 ac.**  
**\$7,650 Per Year**

# Funding Path for Conservation Tillage and Precision Agriculture

## Historical State Cost-Share: 50% of Project

### Preserve NJ Act Definitions:

*“Stewardship activity” is defined as “an activity, which is beyond routine operation and maintenance, undertaken by the landowner, or a farmer operator as an agent of the landowner, to repair, restore, or improve lands preserved for farmland preservation purposes, including, but not limited to, soil and water conservation projects... and projects that improve the resiliency of farmland soils.”*

### SADC Farmland Stewardship Program Rules:

*Eligible farmland stewardship projects include:*

- Capital fixed assets (cider pasteurizers, vegetable washers, tractors, milk bottlers, brewery and winery facilities, fencing).*
- Production efficiency (on-farm recycling and composting, vehicle and computer/software acquisition, precision agriculture systems, integrated pest management).*

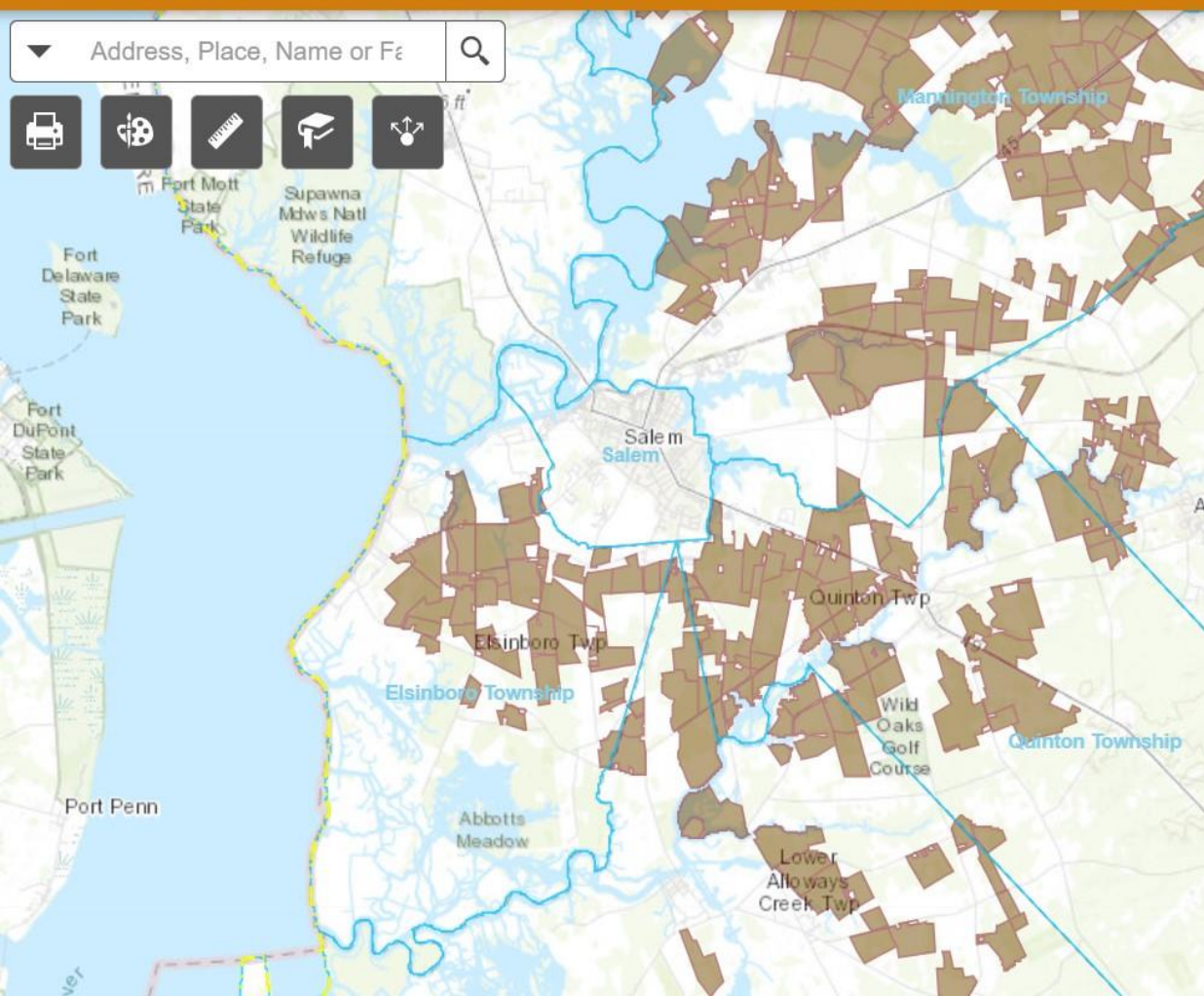


# What is Missing from the Working Lands Paradigm?

## Adaptive Management in Conservation Easement Deeds

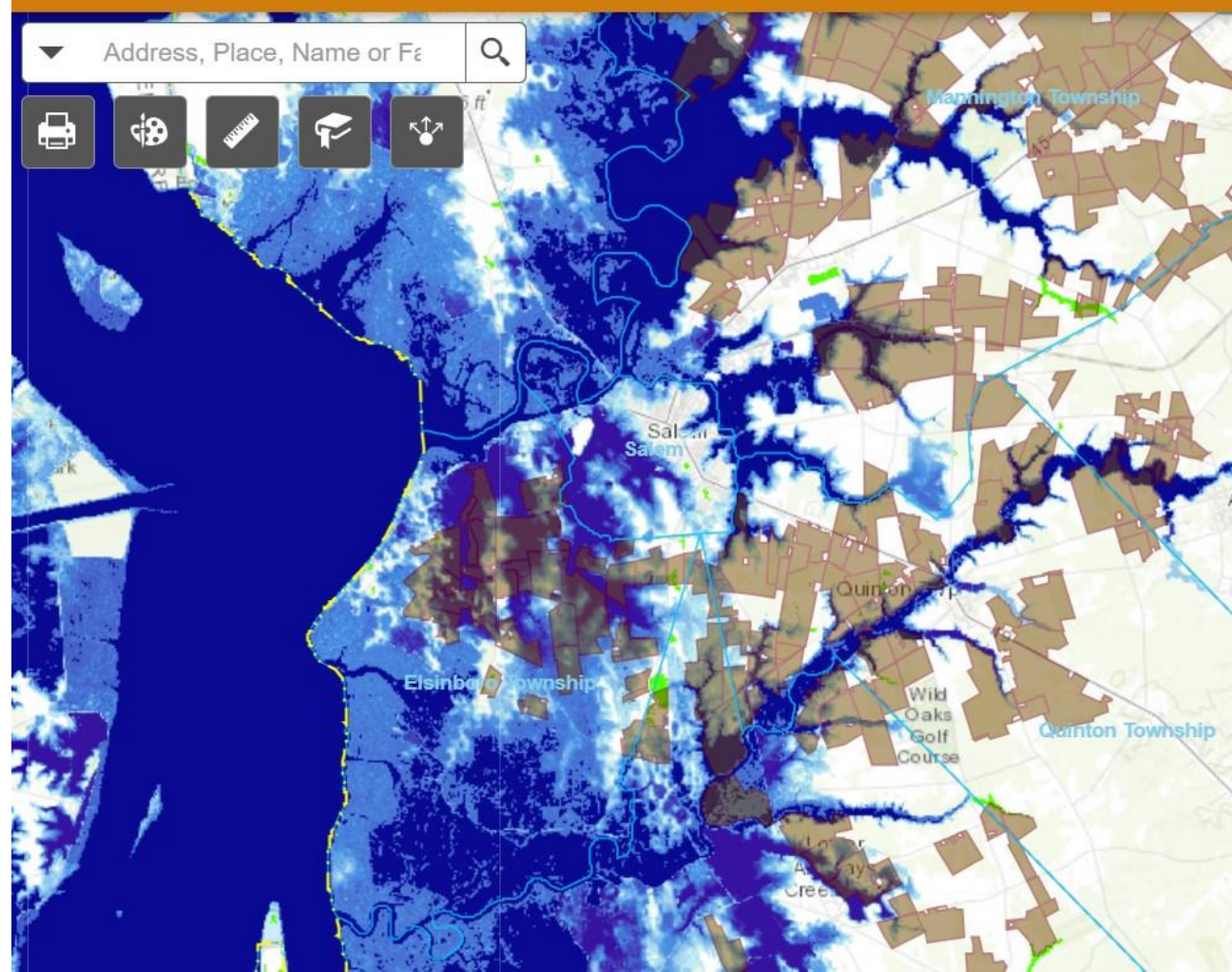
### Preserved Farmland - City of Salem Environs

New Jersey State Agriculture Development Committee Public Web Map



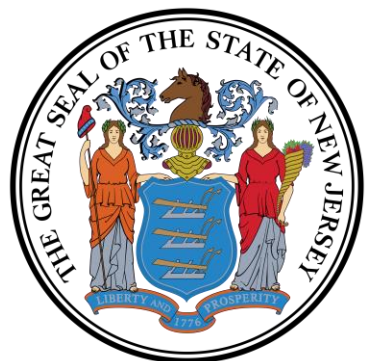
### Preserved Farmland with 5-foot Sea-Level Rise

New Jersey State Agriculture Development Committee Public Web Map



# **Cradle-to-Grave Working Lands Conservation: Implement a “Whole Systems” Approach**





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