



# EESI

Environmental and  
Energy Study Institute

***Materials will be available at:***

**[www.eesi.org/050721natural](http://www.eesi.org/050721natural)**

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## CONGRESSIONAL BRIEFING

**Natural Climate Solutions: A Win-Win  
Solution for Our Environment and Our  
Economy**

Friday, May 07, 2021

# About EESI...



## **NON-PROFIT**

Founded in 1984 by a bipartisan Congressional caucus as an independent (i.e., not federally-funded) non-profit organization



## **NON-PARTISAN**

Source of non-partisan information on environmental, energy, and climate policies



## **DIRECT ASSISTANCE**

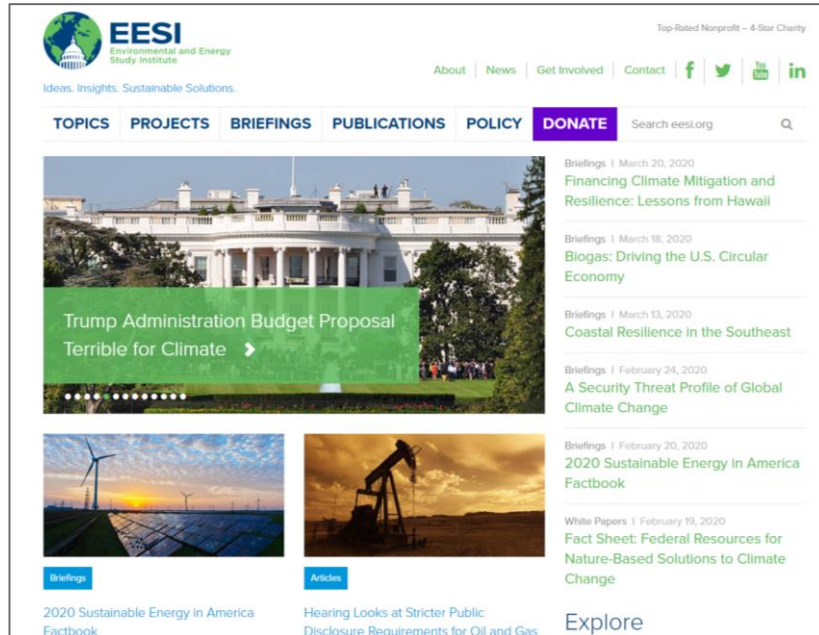
In addition to a full portfolio of federal policy work, EESI provides direct assistance to utilities to develop “on-bill financing” programs



## **SUSTAINABLE SOCIETIES**

Focused on win-win solutions to make our energy, buildings, and transportation sectors sustainable, resilient, and more equitable

# ...About EESI



## HILL BRIEFINGS

Video recordings and written summaries of Congressional briefings



## CLIMATE CHANGE SOLUTIONS

Bi-weekly newsletter with all you need to know including a legislation tracker



## SOCIAL MEDIA (@EESIONLINE)

Follow us on Twitter, Facebook, LinkedIn, Instagram, and YouTube



## FACT SHEETS

Timely, science-based coverage of climate and clean energy topics



# Natural Climate Solutions and the Economy

Catherine Macdonald  
North America Natural Climate Solutions Director  
Environmental and Energy Study Institute 5/7/2021

# Overview

- Natural Climate Solutions (NCS) Basics
- Economic Benefits of NCS
- Federal policies and programs that can help scale NCS





## THE IMPACT

Nature

Range Shifts

Extinctions

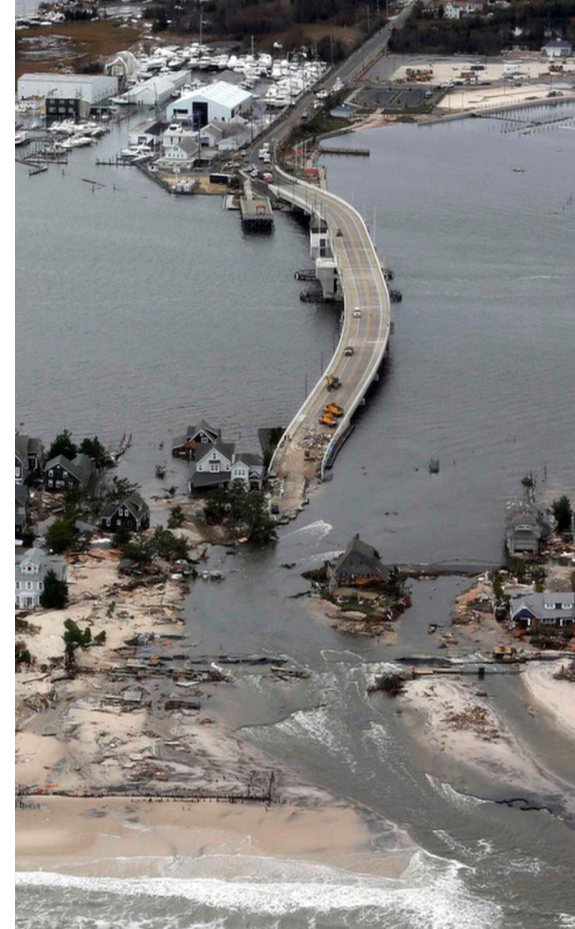
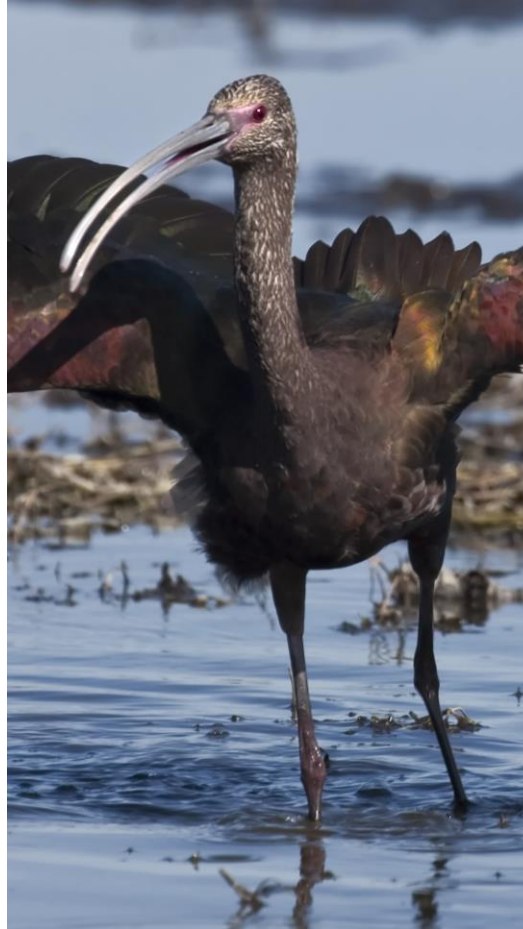
Ecosystem conversions

People

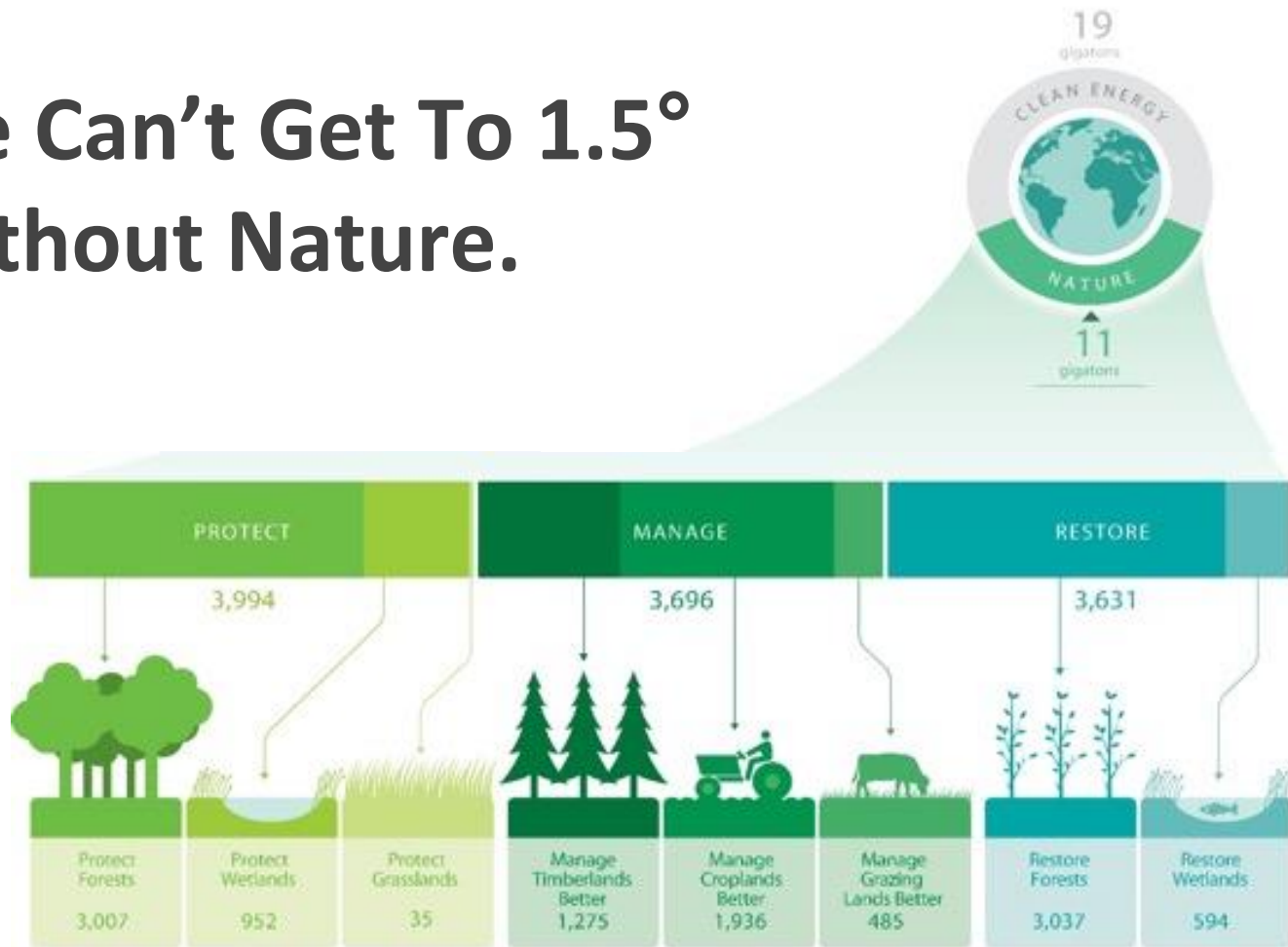
Health

Economy

Infrastructure



# We Can't Get To 1.5° Without Nature.



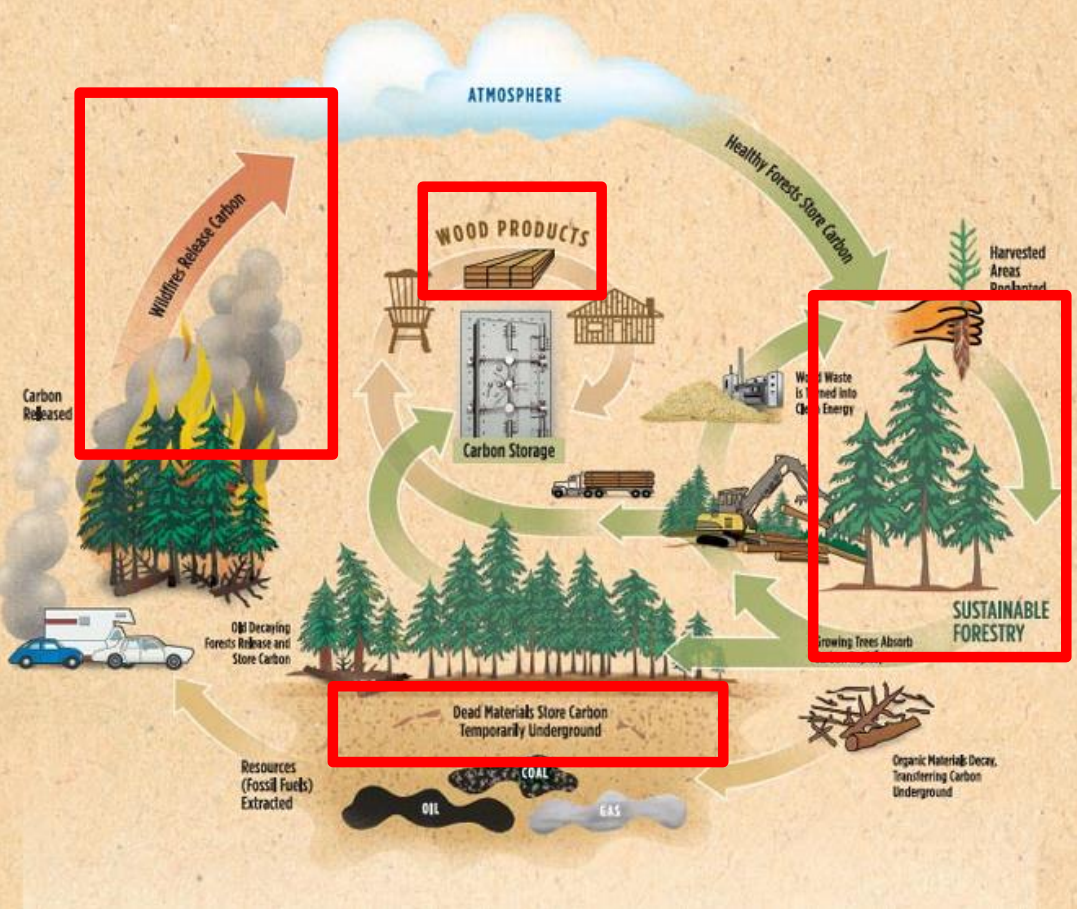
THE TIME TO ACT IS NOW

The next decade  
will be pivotal





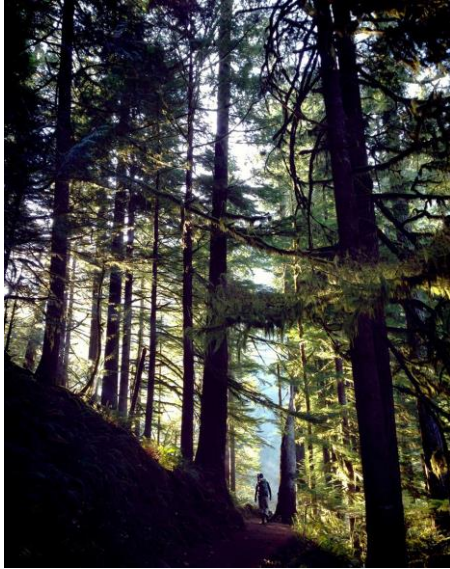
## NATURAL CLIMATE SOLUTIONS



# The carbon cycle

# Three Types of Actions

**PROTECT**  
intact ecosystems



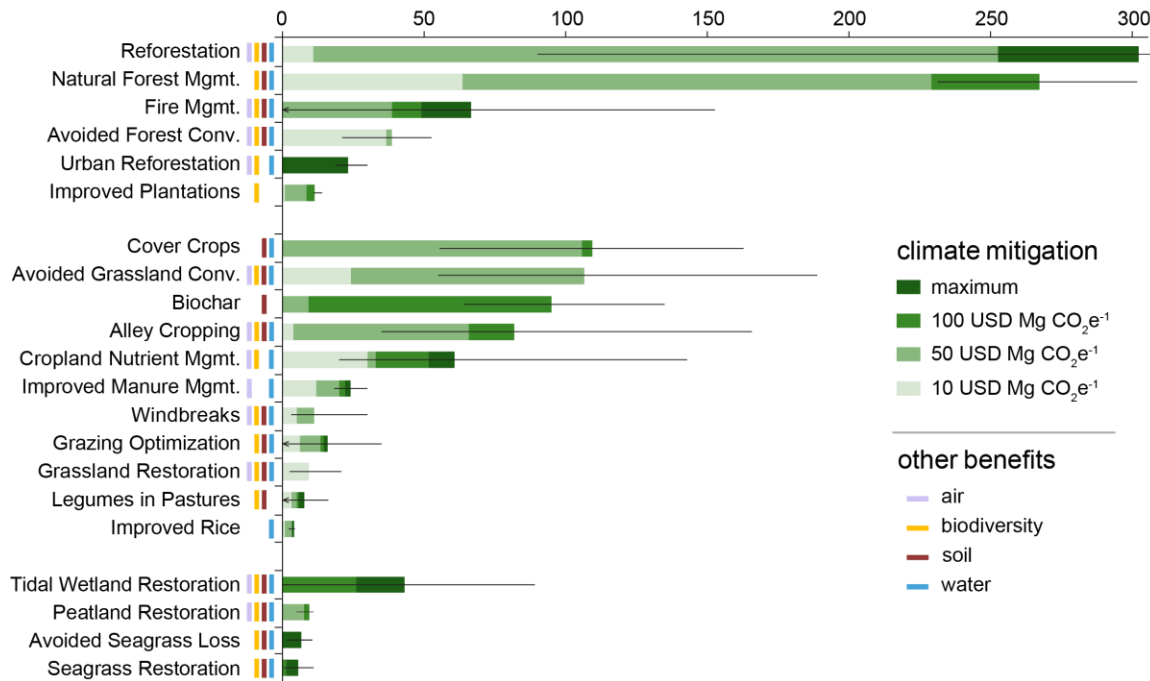
**RESTORE**  
native ecosystems



**IMPROVE**  
Management  
practices



# Climate mitigation potential in 2025 (Tg CO<sub>2</sub>e yr<sup>-1</sup>)



NATURAL CLIMATE SOLUTIONS CAN MORE THAN DOUBLE THE CONTRIBUTION FROM THE US LAND SECTOR

From: Fargione et al. 2018 Science Advances, Vol. 4, no. 11, eaat1869 DOI: 10.1126/sciadv.aat18697.

## THE SOLUTIONS

# Economic Benefits - Jobs

- Forest and wetland restoration projects already support over 220,000 jobs in the U.S.
- Every \$1 million invested in reforestation and sustainable forest management supports nearly 40 jobs



## THE SOLUTIONS

# Economic Benefits & Equity

Planting more trees in low-income and communities of color neighborhoods:

- Creates new jobs
- Reduces energy costs
- Reduces chronic respiratory conditions and heat-related illnesses
- Improves mental health

## THE SOLUTIONS

# Economic Benefits for Producers

- Soil health management practices increase net income for farmers
  - \$52/acre corn
  - \$45/acre soybeans
- Adding trees to row crops provides greater income stability improving the economic resilience of farms
- Improved forest management can increase revenue while increasing the carbon captured and stored on family forest lands.

## THE SOLUTIONS

# Economic Benefits from Nature

- Coastal wetlands provide storm protection valued at \$23.2 billion per year
- Green stormwater infrastructure lowers capital costs for developers compared to gray infrastructure.
- Drinking water treatment costs decrease by 20% for every 10% increase in forest cover in source watersheds

## THE SOLUTIONS

# Federal NCS scaling strategies

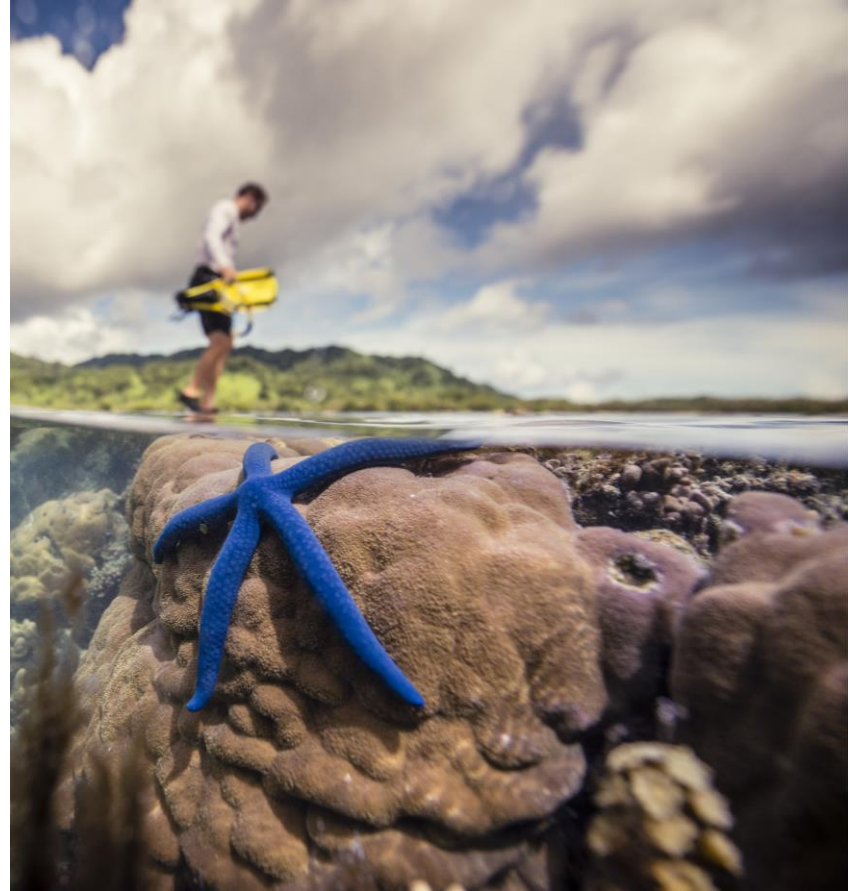
- NCS Science & Technical Assistance for landowners and states
- Investments
- Financial Incentives for Natural Climate Solutions
- Investments in federal land management
- Support to help scale voluntary carbon markets
- Incentives for state and local smart growth policies
- Workforce development programs that target forestry and ecological restoration



For more information:

[cmacdonald@tnc.org](mailto:cmacdonald@tnc.org)

Thank you



# Kris Reynolds - American Farmland Trust

**NATURAL CLIMATE SOLUTIONS: A WIN-WIN SOLUTION FOR OUR ENVIRONMENT AND OUR ECONOMY**



# SAVING THE LAND THAT SUSTAINS US

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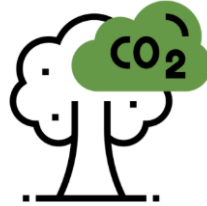
- Protecting farm and ranch land
- Promoting sound farming practices
- Keeping farmers on the land



# The Role of Soils



We have lost more than half of the organic carbon originally stored in U.S. soils



The soil organic carbon pool is up to 4X the amount of carbon stored in the vegetation on land



Rebuilding soil health is crucial to sustain agriculture



# Co-benefits of Cover Crops & No-till



SOIL TEMPERATURE  
AND MOISTURE  
REGULATION



WINTER AND EARLY  
SEASON WEED  
SUPPRESSION



IMPROVED SOIL  
STRUCTURE



REDUCED SOIL LOSS  
FROM WIND AND WATER



INCREASED DIVERSITY  
OF SOIL BIOLOGICAL  
COMMUNITIES



NUTRIENT CAPTURE  
AND AVAILABILITY



# Cover Crops on the Farm!



# Soil Health Case Studies

## PARTIAL BUDGET ANALYSIS

- Estimate the net economic benefits farmers have experienced from investing in soil health practices (e.g., no-till, strip-till, cover crops).

## USDA'S NUTRIENT TRACKING TOOL & USDA'S COMET-FARM TOOL

- Quantify the water quality and climate benefits

**Soil Health Case Study**  
Jim, Julie, and Josh Ifft, Ifft Yorkshires, IL

FEBRUARY 2020

**Farm at a Glance**

- COUNTY: Livingston, IL
- WATERSHED: Vermillion Headwaters
- CROPS: Corn & soybeans
- FARM SIZE: 1,800 acres cropland
- SOILS: Silt loam & silty clay loam soils on flat to slightly rolling fields
- SOIL HEALTH PRACTICES: Cover crops & nutrient management

**Soil Health, Economic, Water Quality, and Climate Benefits**

Partial budgeting was used to analyze the marginal benefits and costs of adopting cover crops and nutrient management on the Ifft Farm. The study was limited to only those income and cost variables affected by the adoption of these practices. The table on page two presents a summary of these economic effects, revealing that due to the two soil health practices, Jim's net income increased by \$42 per acre per year or by \$35,085 annually on the 1,800-acre study area, achieving a 122% return on investment.

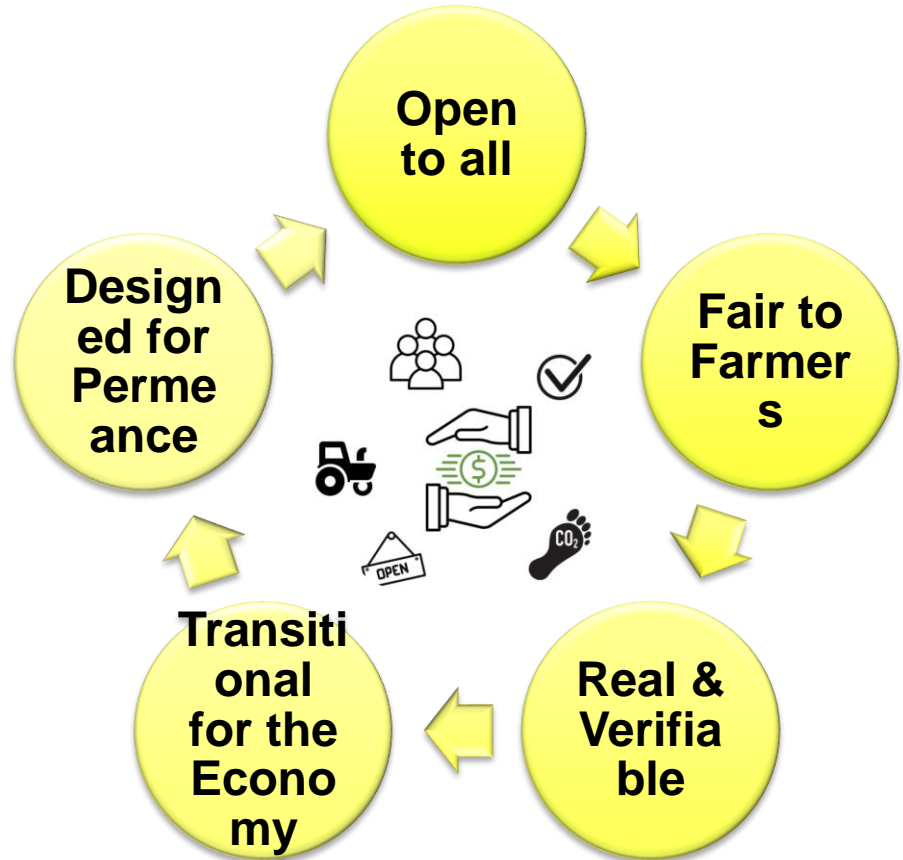
The study area is restricted to where Jim has planted covers the longest, thereby providing an accurate picture of the soil health practices he has successfully integrated into his operation. Additionally, although Jim's use of covers has allowed him to switch to no-till corn, we did not

USDA  
United States Department of Agriculture  
National Resource Conservation Service

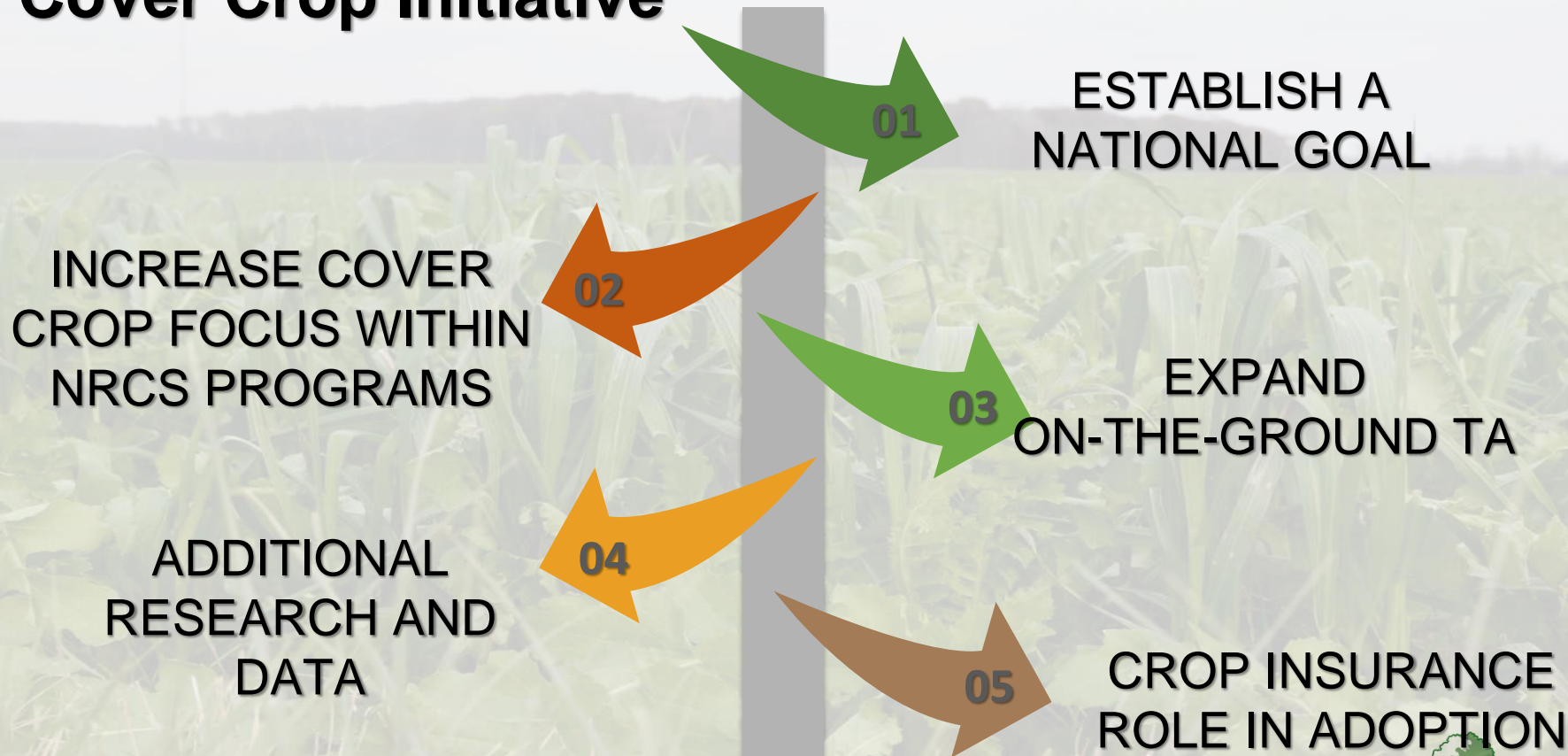
American Farmland Trust

<https://farmland.org/soil-health-case-studies/>

# Carbon Markets



# Cover Crop Initiative

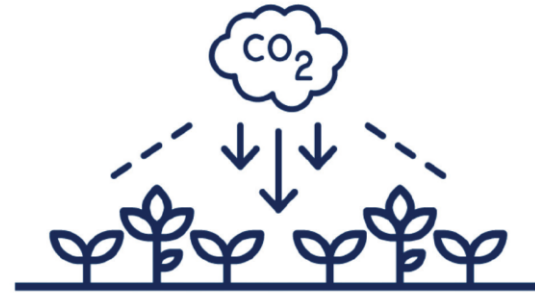






# Crop Insurance Premium Discount Program

Leveraging State, Federal and Private funding



IF COVER CROPS WERE PLANTED ON  
25% OF ROWCROP ACRES IN  
ILLINOIS, IT WOULD BE EQUAL TO

**REMOVING 633,323**

PASSENGER VEHICLES FROM THE  
ROAD FOR A YEAR

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*Innovative, efficient  
approach to accelerating  
cover crops on a big scale*



# NUTRIENT, SEDIMENT, & GHG REDUCTIONS FROM THE 2021 FCSS PROGRAM

**~15,000 lbs  
OF  
PHOSPHORUS**

*Kept in the field*

**+167,000 lbs  
OF NITRATE-N**

*Kept in the field*

**3,612  
TRUCKLOADS**

*of sediment kept out of  
waterways*

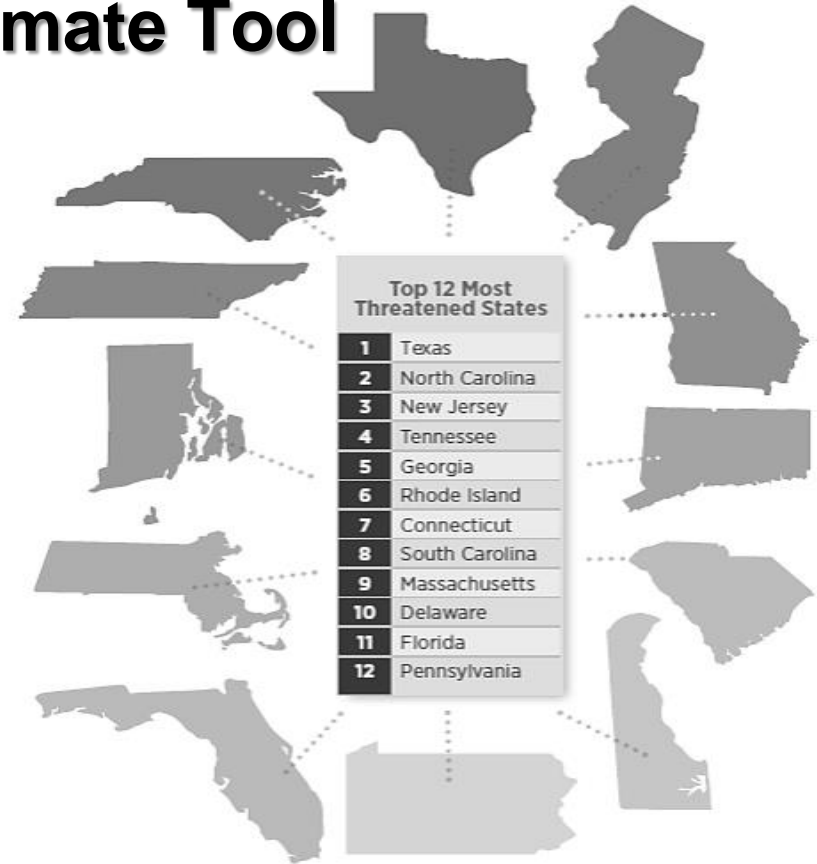
*The carbon dioxide  
equivalent of removing*

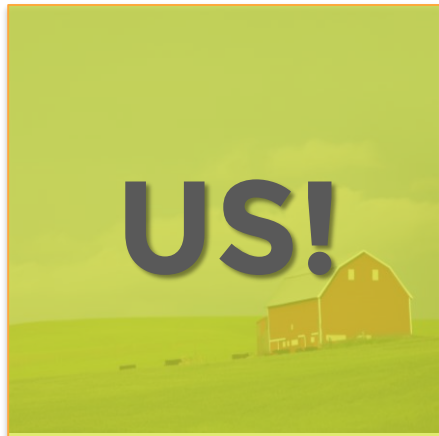
**5,359  
PASSENGER  
CARS FROM THE  
ROAD**



# Farmland Protection as a Climate Tool

- ✓ **11 million acres lost** or threatened between 2001-2016
- ✓ Agriculture is **necessary for achieving** climate goals
- ✓ When farmland is developed, **we lose both**:
  - ✓ Existing carbon
  - ✓ Future sequestration potential
- ✓ Development **disproportionately impacts the nation's best land**, pushing production to marginal lands
- ✓ Low-density residential is associated with **higher emissions** than urban high-density





# ROB SHAUT

DIRECTOR OF TREE OPERATIONS / CASEY TREES  
*ISA CERTIFIED MA-6185A*

WASHINGTON, DC





# HISTORY / 1999 WASHINGTON POST ARTICLE



The Washington Post

## METRO

WEDNESDAY, NOVEMBER 17, 1999

1973 1997

### City Of Trees

Satellite images of the District reveal a 64 percent decrease in the city's tree cover since 1973. The city has pledged \$2 million for the tree-planting and removal program this year.

Tree canopy cover

- Less than 20%
- 20%-29%
- 30%-39%
- 40%-49%
- 50% and higher

SOURCE: COURTESY OF AMERICAN FORESTS

### Mayor Working To Keep It Green

#### Williams Pleads for More Trees

By STEPHEN C. FLYNN  
Washington Post Staff Writer

In a city with 6,000 nursery children, a growing homeless population and a school system that tends to neglect playgrounds, why was the mayor of Washington standing under a 100-year-old tree yesterday talking about trees?

Mayor Anthony A. Williams posed that question himself in the chilly air wafting around Pierce Park in Northwest Washington's Adams Morgan neighborhood. The answer, he said, is that trees are a symbol of how a city views itself. Trees matter.

"It is not just a case of our trees, how are we going to take care of our schools? How are we going to take care of our roads?" Williams asked as a news conference, he held to call attention to the plight of the District's trees. "Trees are a metaphor of public space. That is what we're fighting for—vital, vibrant public space."

Clinging to Thomas Jefferson's residence, Washington has had a reputation as one of the greenest world capitals, eventually picking up the moniker "City of Trees." The D.C. government pioneered one of the most diversified street tree-planting programs in the nation, not only making the District's streets greener, but also enhancing the prestige of the District itself, according to a 1986 street tree study.

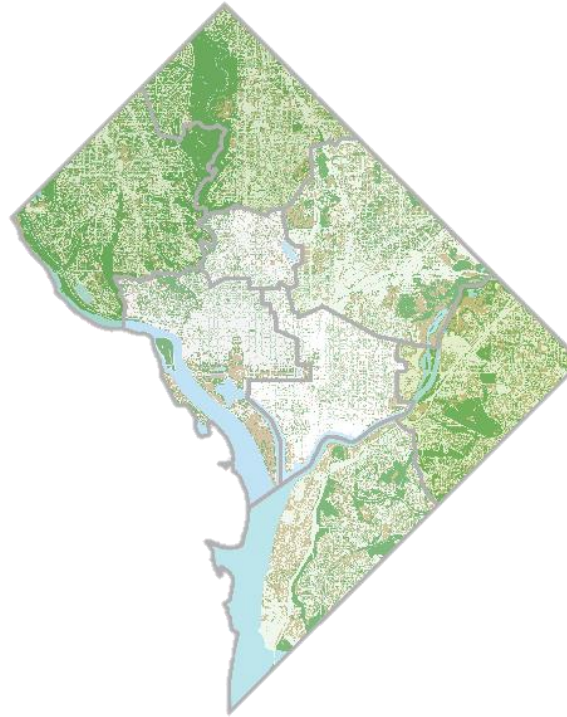
A recent report by American Forests, a national conservation group, documents the loss of trees in the District. Another report by the Corporation of 100 on the Federal City asks Williams to set a goal of planting 10,000 trees over the next three years.

American Forests brought satellite images to the mayor's news conference that showed the dramatic change in the city's green cover since 1973. The group said the number of acres of better tree cover has dropped 64 percent since then, as new office buildings, houses, development and natural attrition—and weren't replanted. The study decline was visible in photos that showed a widening dark canopy replacing splashes of green where trees once grew.

Green spaces such as this in Rock Creek Park are vital to the city, Mayor Anthony A. Williams said. He called trees "a metaphor of public space."

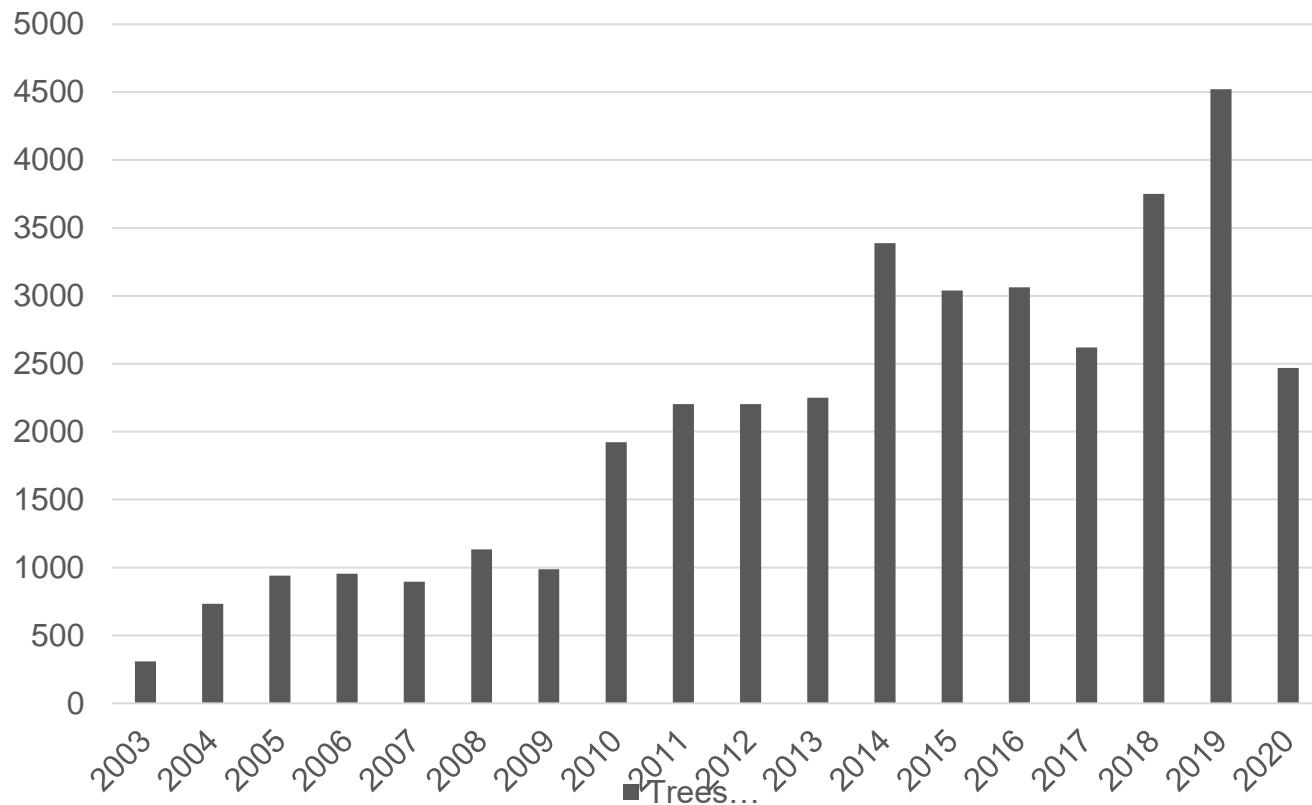
See T-REES, B1, C1, J

GOAL / 40% TREE CANOPY BY 2032





## TREES PLANTED / YEAR

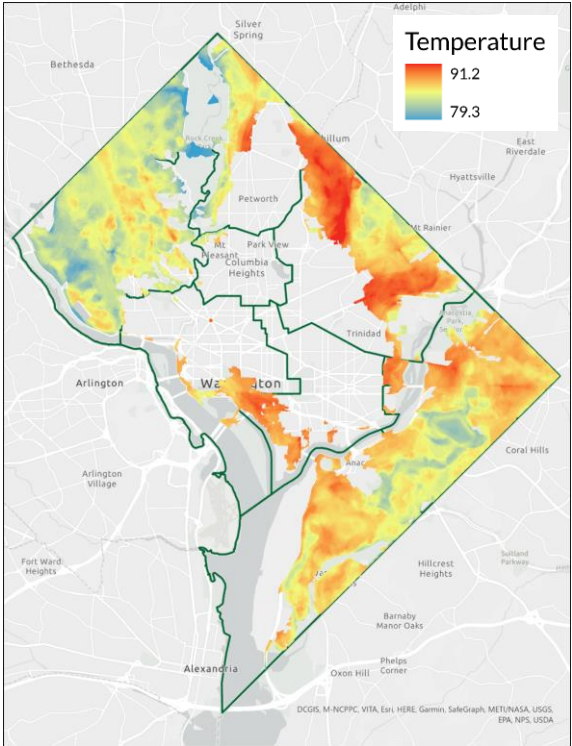
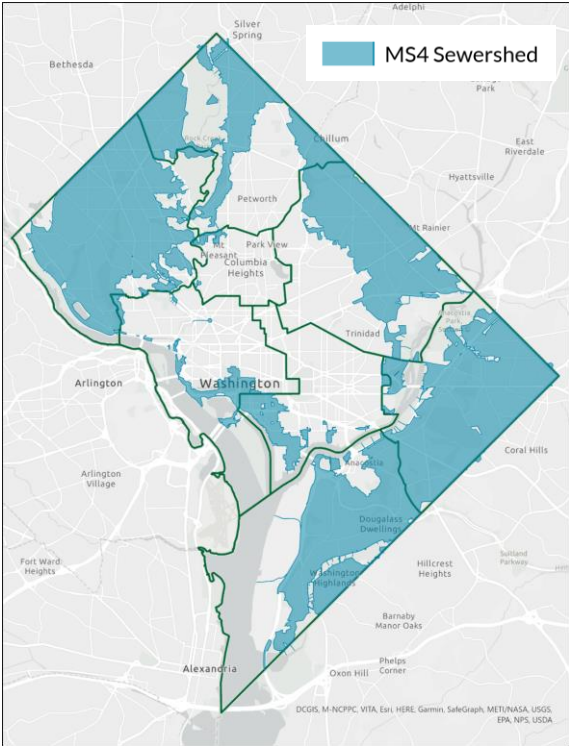
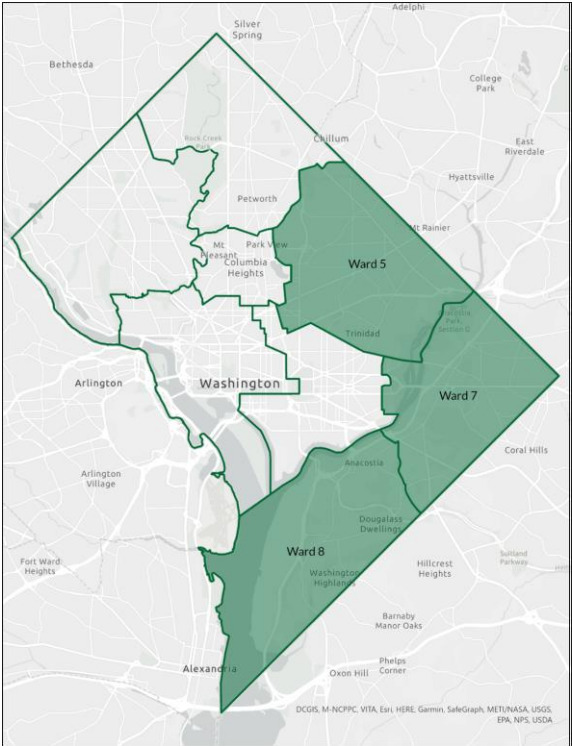




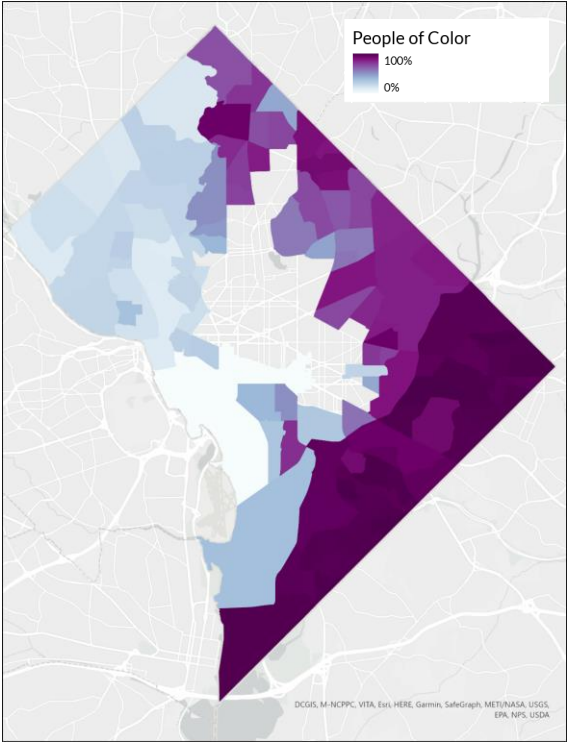
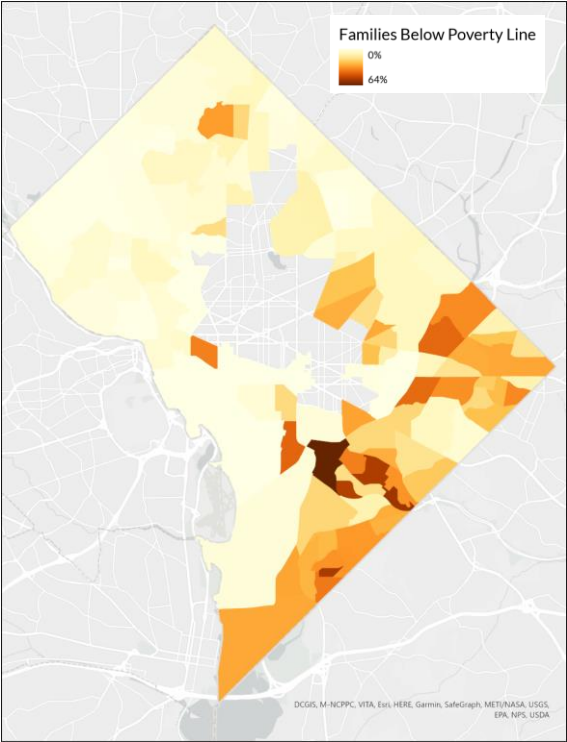
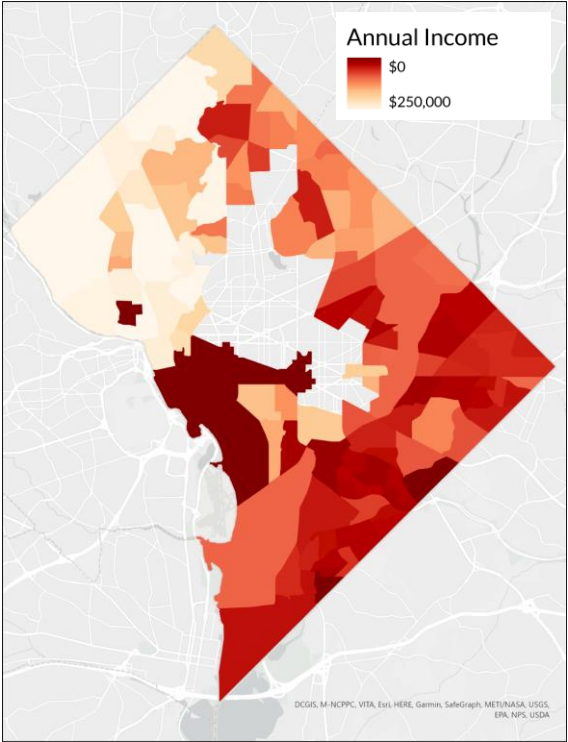
# PROGRAMS



# ENVIRONMENTAL

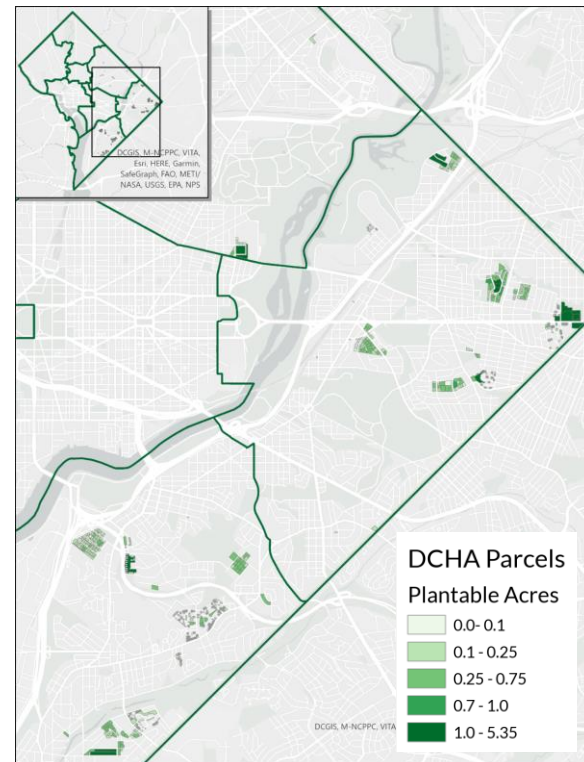
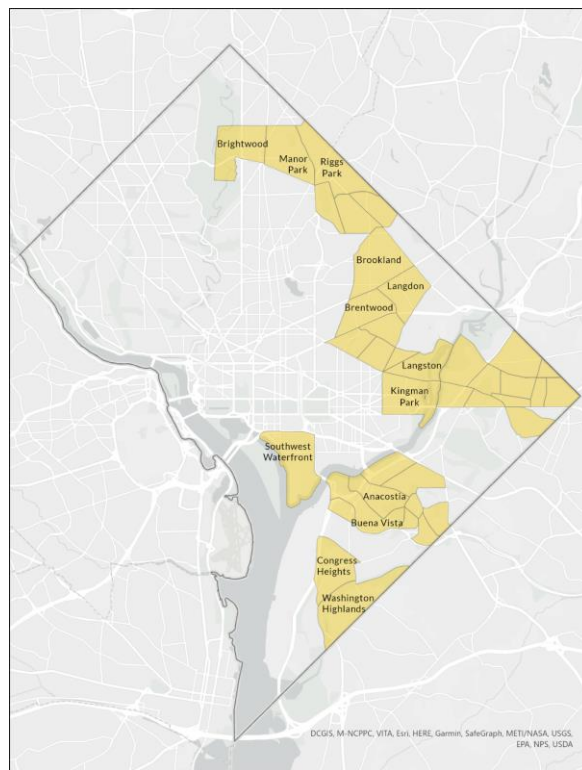
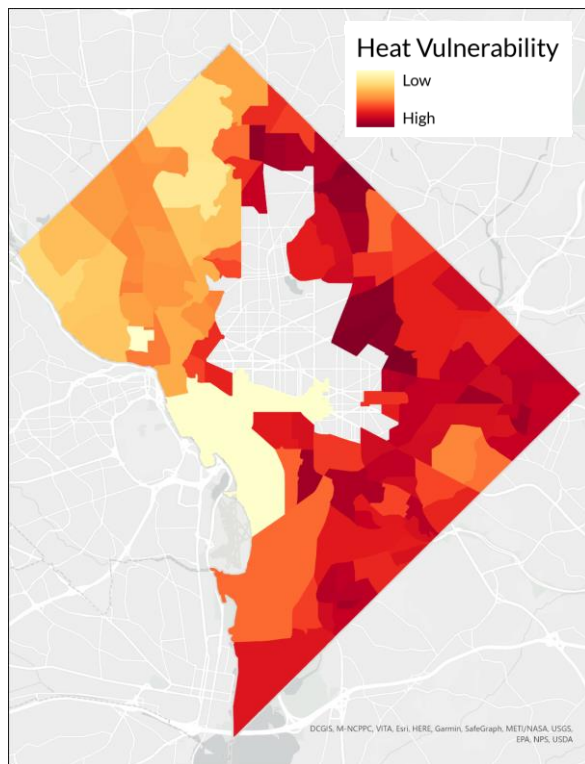


# INCOME AND DEMOGRAPHICS



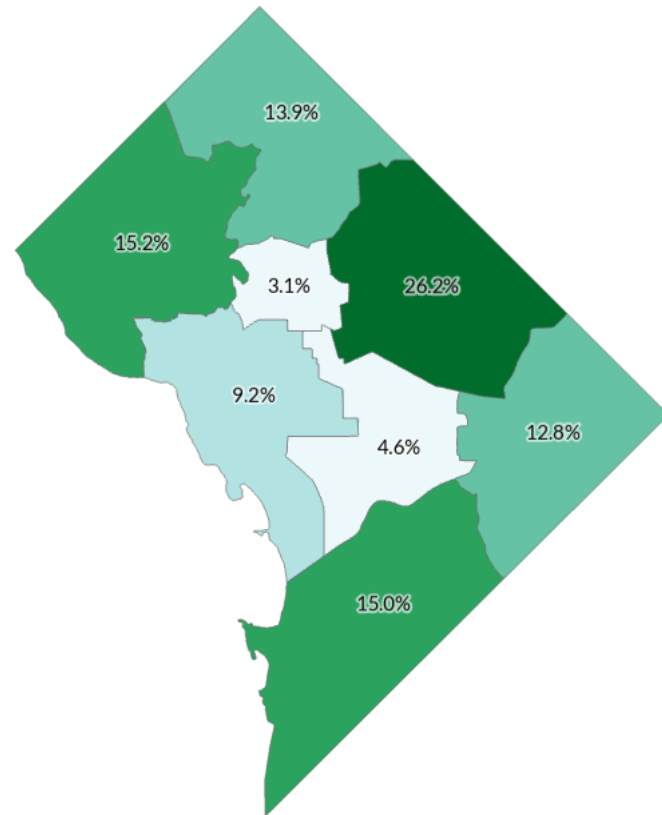
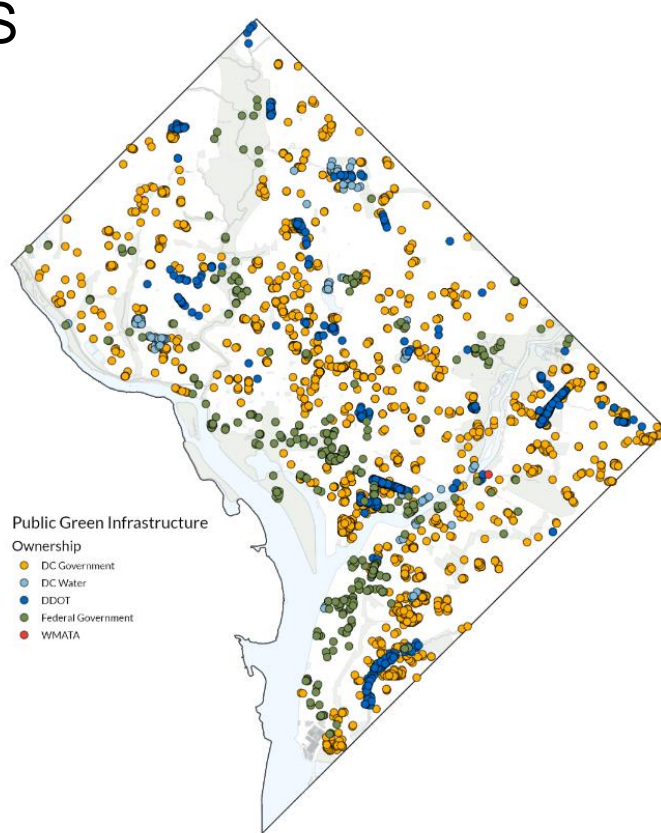


# OUTCOMES





# RESULTS



# ECONOMIC VALUE

100 mature trees  
remove 53 tons of  
carbon every year

100 mature trees  
catch 140,000 gallons  
of rainwater every  
year

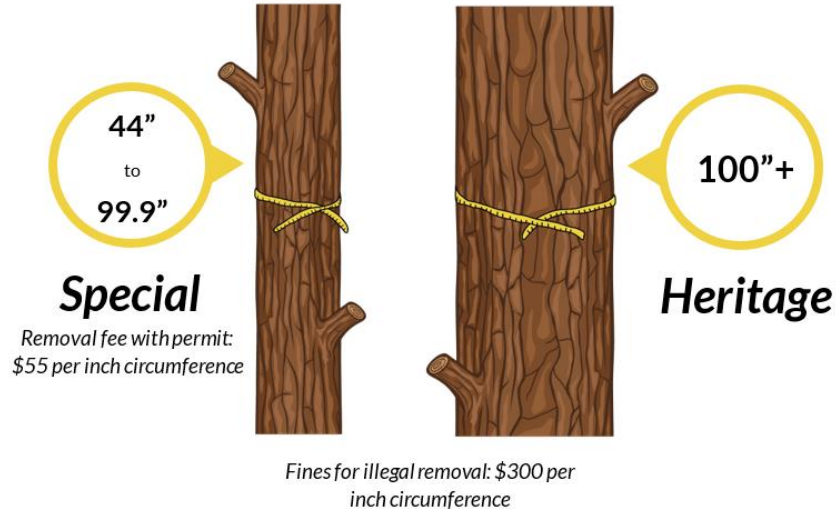
Evergreen  
windbreaks can save  
5% on heating costs

Shade trees can save  
56% on air  
conditioning costs

Healthy mature trees  
add 1% to house  
value and specimen  
trees can add 7%



# ECONOMIC VALUE CONTINUED



## Appraised Value for a 22" Willow Oak

Appraised Value = Basic Tree Cost X Species%  
X Condition % X Location %

$\$26,839.74 \times 90\% \times 68.75\% \times 80\% = \$13,286$

**Appraised value = \$13,300.**



# What did you think of the briefing?

**Please take 2 minutes to let us know at:**  
[www.eesi.org/survey](http://www.eesi.org/survey)

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