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Climate Adaptation Workshop

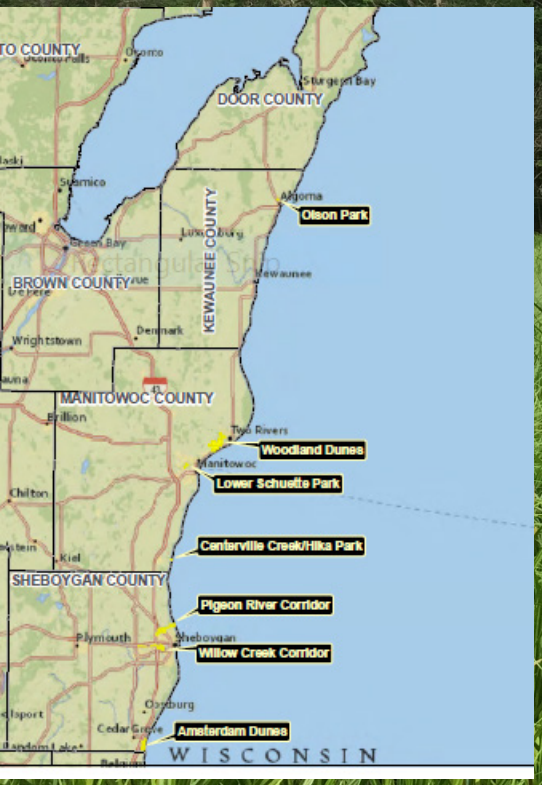
Project Overview

LAKESHORE NATURAL RESOURCE PARTNERSHIP, INC.

LNRP

Agenda

1. Project Description
2. Objectives
3. Challenges
4. Approach
5. Solutions
6. Monitoring
7. Momentum



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Project Description

- Grant Funded Projects
- Focused on restoring forests at Coastal Lake Michigan sites
- Combined Grant Funding: $750,000
- Wildlife Conservation Society – Climate Adaptation Fund
- US Forest Service: Great Lakes Restoration Initiative
  - Lake Michigan Coastal Wetland Filtration Project
  - Mitigating the Impact of EAB
- These 3 grants will fund forest restoration projects at multiple sites
- LNRP collaborative model: support local efforts, partnerships
- Timeframe: 2020-2023

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WCS Grant

- **Wildlife Conservation Society** – Climate Adaptation Fund
- LNRP's proposal was one of **13 projects nationwide** selected for funding in 2019.

Enhance Adaptability of the Lake Michigan coastal ecosystem

- Identify and address key challenges to forested and riparian habitats, migratory and resident birds, wildlife:
  - Warming climate
  - Changing precipitation patterns
  - Increase in invasive pests
- Address existing factors that increase risk from climate change:
  - Habitat fragmentation
  - Historic loss of forest cover / species
  - Development pressure
  - Watershed / runoff.
- Focus on planting diverse tree species
  - Restore habitat connectivity
  - Migratory bird habitat - Lake Michigan flyway,
  - Riparian habitat

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USFS - GLRI

- USFS – Coastal Wetland Filtration
- LNRP's proposal was selected for funding in 2019.

- **Project Description:**
- Install up to 7,000 trees
- Control invasive species within/adjacent to planting units
- Education and outreach on benefits of tree planting

USFS - GLRI

- USFS – Mitigating the Impact of EAB
- Restoration Of Our Trees Sheboygan (ROOTS)
- LNRP's proposal was selected for funding in 2019.

- **Project Description:** This project will mitigate the impact of the emerald ash borer (EAB) and restore function to the Sheboygan River watershed and the Lake Michigan basin
- EAB is well established in the county with projections that all ash trees will die in 2-3 years.
- Install up to 2,000 trees
- Complements on-going ROOTS programming
- Focused on municipal properties in Sheboygan
- Education and outreach on benefits of tree planting

Objectives

- Maintain healthy forests
- Mitigate for loss of ash to EAB
- intercept stormwater runoff
- reduce soil erosion
- increase water quality in L. Michigan tributaries
- Maintain critical Migratory Bird Habitat
- Riparian habitat enhancement
  - stabilize banks
  - maintain cooler water temperatures

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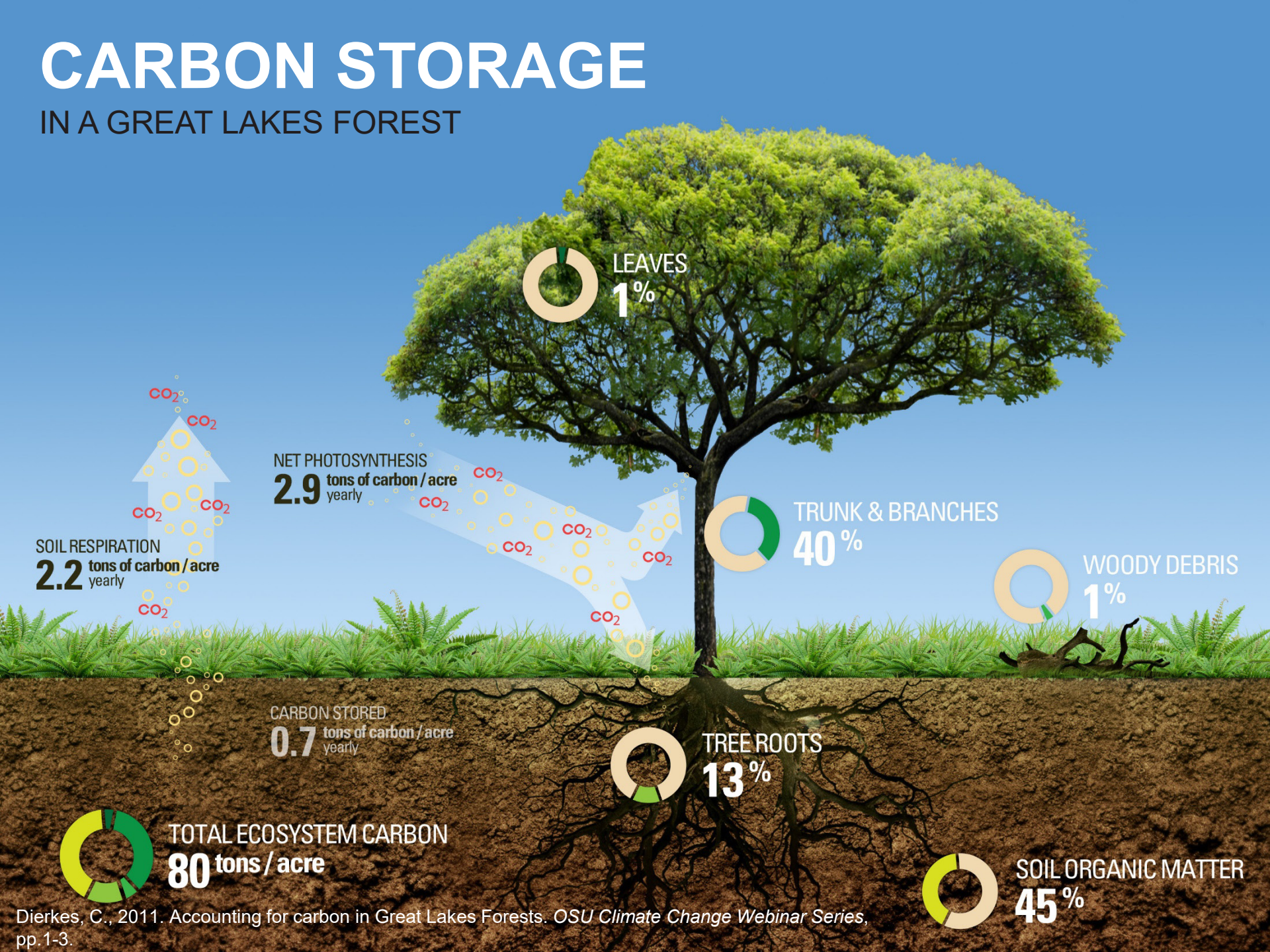
Objectives

- increase access to urban & rural public lands
- Climate Change Mitigation – carbon sequestration
- Great Lakes forest carbon sequestration rates vary widely, from approximately 50-500g C/m^2/yr
- Amplify project reach by involving land managers in climate adaptation decision making

CARBON STORAGE

IN A GREAT LAKES FOREST

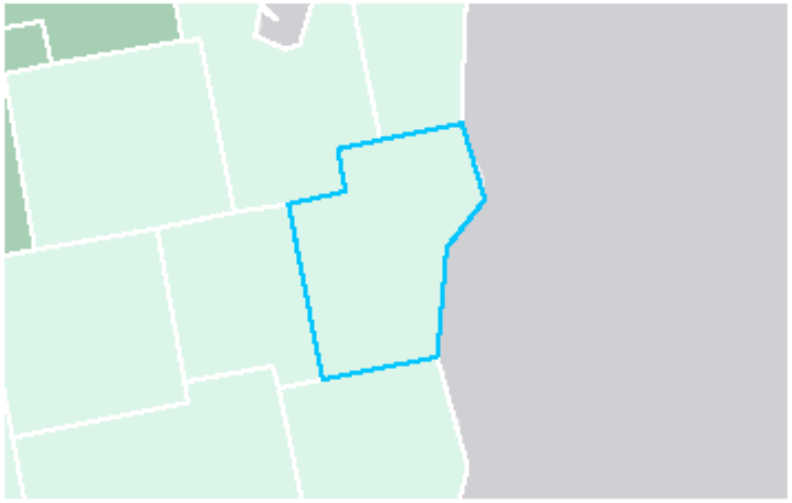


Dierkes, C., 2011. Accounting for carbon in Great Lakes Forests. *OSU Climate Change Webinar Series*, pp.1-3.

Forest Carbon Map Sequestration

State: Wisconsin

County: Manitowoc



Social Value	Total Market Value
$133,753,025	$161,952,622
U.S. dollars	U.S. dollars

All of the calculations, data sources, and assumptions in this report are from EPA's Greenhouse Gas Equivalencies Calculator available at https://www.epa.gov/energy

Gasoline Equivalence	Miles driven by avg. passenger vehicle	Homes' energy use	Pounds of coal burned	Acres of U.S. forests
1,254,201,132	**2,533,201,240**	**1,203,681**	**12,194,841,856**	**13,113,042**
gallons annually	miles annually	for one year	lbs annually	preserved from conversion to cropland

Please note that these estimates are approximate and should not be used for emission inventory or formal carbon footprinting exercises.

Existing carbon stock types	Public lands		Private lands		All lands	
	Metric Tons	Market Value	Metric Tons	Market Value	Metric Tons	Market Value
Aboveground	45,296	$2,415,411	602,388	$32,122,418	647,684	$72,397,943
Belowground	9,124	$486,536	120,914	$6,447,735	130,038	$14,508,656
Dead Down	5,075	$270,643	70,501	$3,759,448	75,576	$8,725,893
Litter	12,287	$655,222	169,137	$9,019,261	181,425	$20,451,383
Soil Organic	152,283	$8,120,481	1,797,879	$95,872,095	1,950,162	$220,269,511
Standing Dead	3,314	$176,732	32,835	$1,750,912	36,149	$3,445,394
Understory	1,758	$93,721	20,509	$1,093,620	22,266	$2,597,747
All Stocks	228,569	$12,188,472	2,808,511	$149,764,149	3,037,081	$341,807,097

The Trust for Public Land creates parks and protects land for people, ensuring healthy, livable communities for generations to come. The American Forest Foundation works on-the-ground with family forest owners, partners and elected officials to promote stewardship and protect our nation's forest heritage.

THE TRUST FOR PUBLIC LAND

AMERICAN FOREST

Challenges

- milder winters
- hotter summers
- longer growing season
- increased intensity of storms/heavy precipitation
- migratory bird patterns changing
- habitat fragmentation
- pests/disease
- invasive species
- projections of declines in some tree species/increases in others
- deer browse

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Approach

- This project seeks to use climate adaptation approaches to maintain ecosystem function while transitioning forest composition to changing conditions.
- Use regional climate vulnerability assessments and habitat suitability models to prioritize actions
- Take advantage of inherent strengths of existing vegetation diversity, landscape connectivity, and local climate
  - favor natural tree regeneration of desirable species
  - diversity of soils, terrain, exposures
  - moderating effect of L. Michigan on climate
  - assess unique site-level characteristics, develop action plan for each site
  - draw on your experience and expertise as site stewards and land managers

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Approach

- Planting trees is fundamental to achieving our goals

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Solutions: Anticipated Outcomes

- Increase tree species diversity by planting 8 or more tree species per site
- Increase variety/availability/seasonal range of food sources for migratory birds
- Increase structural complexity (canopy, sub-canopy, shrub layer)
- Favor tree species that are adapted to a range of expected future conditions
- Maintain stream temperature, baseflow
- **Maintaining and increasing global tree cover may be one of the most effective strategies to mitigate global climate change** Bastin et al, 2019

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Project Timeframe

- Planning: 2020
- Implementation: 2020-2023
- Monitoring: 2022-2026+ (site managers)
- Long term results/benefits:
  - 10 yrs: planted trees are large, rapidly growing saplings; achieving filtration, migratory bird objectives; climate more like northern Illinois?
  - 50 yrs: planted trees established in canopy; shade/moderating local climate; climate more like central Illinois?
  - 100 yrs: planted trees reach full maturity; climate like southern Illinois?

Momentum

Statewide:

- Governor joins US Climate Alliance
- Wisconsin Initiative on Climate Change Impacts (WICCI)
- DNR - Climate change is one of the defining issues of our time

Nationwide: US Climate Alliance

Green Bay Packers: First Downs For Trees

The Packers initially became interested in tree planting as a possible carbon footprint offset via a suggestion from the daughter of one of their coaches.

Because of the tremendous support they receive from the community, the Packers wanted to focus their outreach efforts in the Brown County area as much as possible.

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Questions?

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