

# Community Benefits of Land Restoration

Introducing Green Infrastructure for  
Coastal Resilience

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# TODAY'S PRESENTATION

Land Restoration throughout the Greater Bridgeport Region

About MetroCOG

West Johnson Creek, Bridgeport

Local Tree Management, Fairfield & Trumbull

Urban Tree Canopy Assessment

Beardsley Zoo's Rain Garden, Bridgeport

Open Space Conservation:

Fairfield County Regional Conservation Partnership

Hudson to Housatonic Conservation Initiative

# ABOUT US

MetroCOG is a robust, multi-disciplined organization

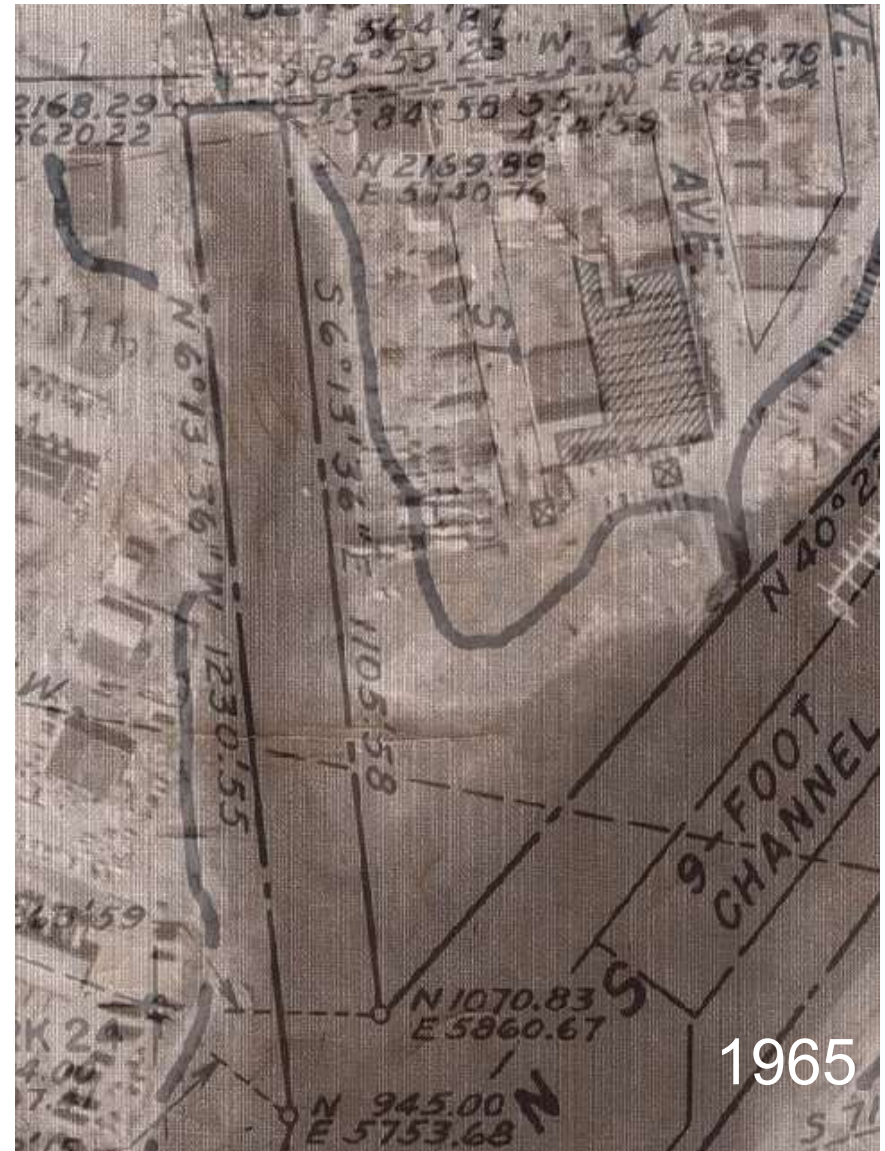


City of Bridgeport; Towns of Easton, Fairfield, Monroe, Stratford & Trumbull  
Federally Designated Transportation Planning Organization (MPO).

Provide a range of services to our member municipalities: Transportation, Land Use, Conservation & Natural Hazard Mitigation Planning; GIS & Mapping, Grant Writing and Project Management.

# WEST JOHNSON CREEK, 1934 & 1965

U.S. Harbor Line maps regulate fill & dredging limits





# WEST JOHNSON CREEK, 2016

Limited public access to the waterfront



One of Bridgeport's most distressed neighborhoods, the East End has suffered from disinvestment and environmental degradation. Due to its relatively low elevation, the neighborhood is also vulnerable to flooding. The City of Bridgeport has been active in assembling parcels and has begun to enforce right-of-ways for public access to the waterfront.

# CONCEPTUAL PLANS FOR A LIVING SHORELINE

A naturally restored oasis in an urban environment

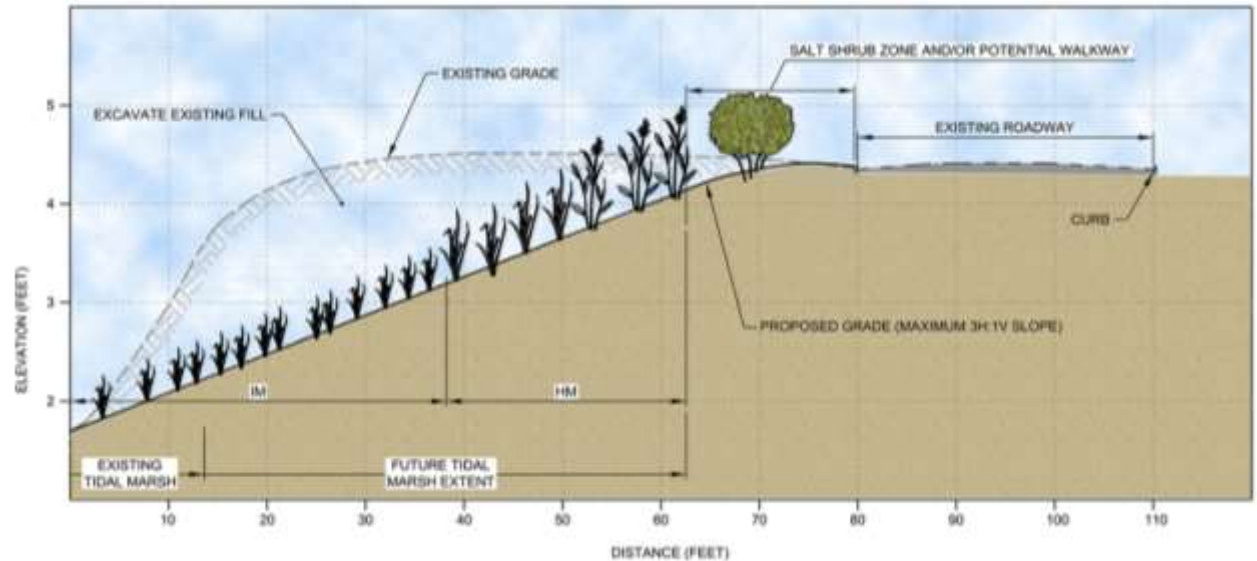
Reduce the grade of bank slopes to allow vegetative stabilization and support potential wetland migration.

If sea level rises one foot within the design life of the wetland's edge, the vegetation could move up the bank into the bioswale areas.

Restore the creek's predevelopment flood mitigation functions.

A passive recreation trail along the water and a boardwalk.

Remove debris and invasive species to create a habitat for marsh species.



1 EXISTING PERSPECTIVE  
NOT TO SCALE



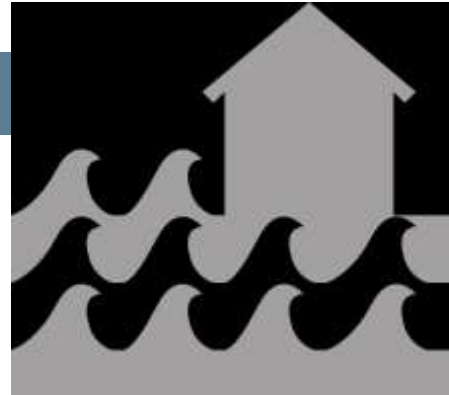
1 PROPOSED PERSPECTIVE  
NOT TO SCALE

# ECOSYSTEM SERVICES

Restored ecosystem services will benefit the community and environment

## *Regulating: Flood Mitigation*

Restoration of the creek's predevelopment flood mitigation and ecosystem functions will protect residents and their homes from flooding.



## *Recreation, Aesthetics & Quality of Life*

Improved access to the waterfront will provide passive and active recreation opportunities to residents; overall quality of life will be enhanced.

## *Supporting: Habitats*

Establishment of a vegetated bank and removal of invasive species and debris will restore the tidal marsh habitat.



# LOCAL TREE MANAGEMENT: FAIRFIELD

Community Forest Management Plan (2014, non-binding guidance)

*“Implementation of the Community Forest Vision is based in large part on the concept of perpetual stewardship whereby agencies, organizations, governmental officials, and Town residents with an interest or authority pertaining to public trees and the community forest recognize their responsibilities for care of the*

## Priority Goals:

Manage town-owned trees and shrubs to provide for the continued health, safety, and welfare of all persons who use Town roads, right-of-ways, and properties, and who otherwise experience the community forest.

Preserve, enhance, maintain, and otherwise manage town-owned trees and shrubs in the public interest, for the benefit of all residents and the general public. Utilize town and state laws to maintain an effective program and plan for community forest management that will





# LOCAL TREE MANAGEMENT: TRUMBULL

## Outreach to property owners & draft Tree Management Policy

### HARMFUL IMPACTS OF CLEAR CUTTING

**Clear cutting** and removal of substantial portion of trees from any property radically changes the natural landscape and can cause damage to public health and safety, as well as adjacent properties, due to loss of tree canopy, increased stormwater flow, soil erosion, siltation of water courses, and exposure of adjacent trees to wind damage.

**Steep slopes** are especially vulnerable to damage when trees and their established root systems are removed.

**Tree clearing from a construction site** is subject to permits and expressed approval of Town planning and zoning authorities.

### BENEFITS OF WETLAND AND STREAM BUFFERS

- Trees serve an especially critical role along streambanks and waterbodies as protection from stormwater pollution, erosion, and flooding, as well as providing shade and cool habitat for fish and wildlife.
- Land uses within 100 feet along wetland and streamside borders—including construction, removal of trees, soil, and substantial vegetation—are regulated and subject to approval of the Trumbull Inland Wetland and Watercourses Commission.

## TREES & Home Landscape

ILLUSTRATION: Donald Watson

### RECIPE FOR A HEALTHY LANDSCAPE

1 TREE CARE

2 NATIVE PLANTS

3 INVASIVE CONTROL

4 LAWN CARE

5 GRASS CLIPPINGS

6 RAIN GARDENS

7 WINTER BIRD SHELTER

8 POLLINATOR GARDEN

9 COMPOSTING

### RIGHT TREE IN THE RIGHT PLACE

- Right Tree, Right Place guidelines (see "Resources") provide lists for tree and shrub maintenance under utility lines on public and private properties.
- Trees removed within public and utility rights-of-way must be approved by the town tree warden.

How to improve your home's beauty and property value by tree and landscape care

"Trees provide us with critical environmental, economic, and emotional benefits. The landscape and character of Trumbull is due in large part to the existence of our healthy urban tree canopy and the multiple benefits it provides. It is essential that we work together to restore and protect this natural asset for future generations."

# URBAN TREE CANOPY ASSESSMENT

Spatial Analysis Laboratory at the University of Vermont & USDA Forest Service protocols



Tree canopy (TC) is the layer of leaves, branches, and stems of trees that cover the ground when viewed from above.

A tree canopy assessment is the first step in urban forest planning, as it estimates the amount of tree canopy currently present in an area as well as the amount of tree canopy that could theoretically be established

*Many communities are not aware of their existing or potential tree canopy. A tree canopy assessment increases this awareness and can inform local tree canopy goals, tree planting efforts and forest master plans.*

# ECOSYSTEM SERVICES

The tree canopy provides a variety of ecosystem services and benefits.

## *Regulating - Climate*



The tree canopy provides direct shade and retains soil moisture. During warmer months, the tree canopy cools the air & reduces the urban heat island effect.

## *Cultural – Sense of Place*



Tree lined streets calm traffic and welcome bicyclists & pedestrians. A well managed tree canopy enhances quality of life and often positively impacts property values.

## *Support - Habitat*



Trees are essential to local biodiversity. They provide food and shelter for many species.



# BEARDSLEY PARK & ZOO, BRIDGEPORT

Tree Canopy (green) & other land cover categories





# TREE CANOPY IN GREATER BRIDGEPORT

Over 50,000 acres of existing tree canopy



# RAIN GARDEN, BEARDSLEY ZOO

Lead by Save the Sound, first phase of a long term green infrastructure plan

## PHASE I- Completed September 2016



By filtering and reducing stormwater runoff, less pollution will enter the Pequonnock River, which eventually flows into Long Island Sound.

Future projects include a stormwater retention basin and the installation of porous pavement.

Educational opportunity as area youth assisted with planting.

# OPEN SPACE CONSERVATION

Fairfield County Regional Conservation Partnership



Network of organizations, businesses, and government agencies that collaborate on protecting, connecting, and restoring the natural landscape of Fairfield County.

Aims to protect large-scale ecological processes, as well as improve land protection, connectivity and the quality of land stewardship.

*“A protected, connected, and restored landscape across and beyond Fairfield County that supports thriving communities who celebrate the land and what they have created together.”*



# AN INTERCONNECTED LANDSCAPE

One of the Fairfield County Regional Conservation Partnership's three goals



20% of land in Fairfield County is Protected Open Space; large areas of forest cover persist in central and northern Fairfield county.

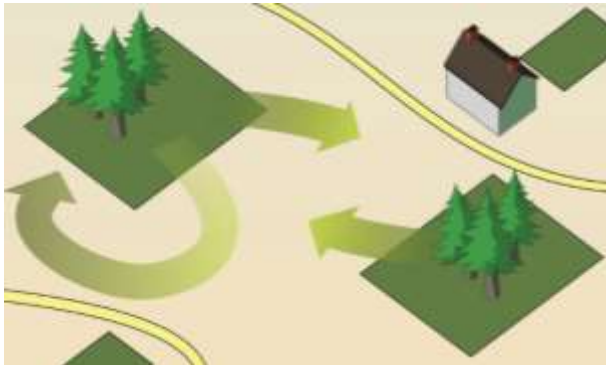
Forest areas are highly interconnected, which means flora and fauna can freely move to different habitats according to population and individual needs.

The FCRCP maintains connectivity by linking open spaces together to ensure the free flow of wildlife, water, and recreation. Prioritizing “free flow” serves to balance needs for natural services, quality open space and sustainable re-development.



# SMALL PARCELS TO CONNECTIVITY PATHWAYS

## Visualizing scales of interconnectivity



A: Fragmented Habitats



B: Connected Habitats

Scenario B allows for greater movement between the two forest blocks than does Scenario A.

The small parcels in B shorten the gaps that wildlife must cross to travel between the large blocks.

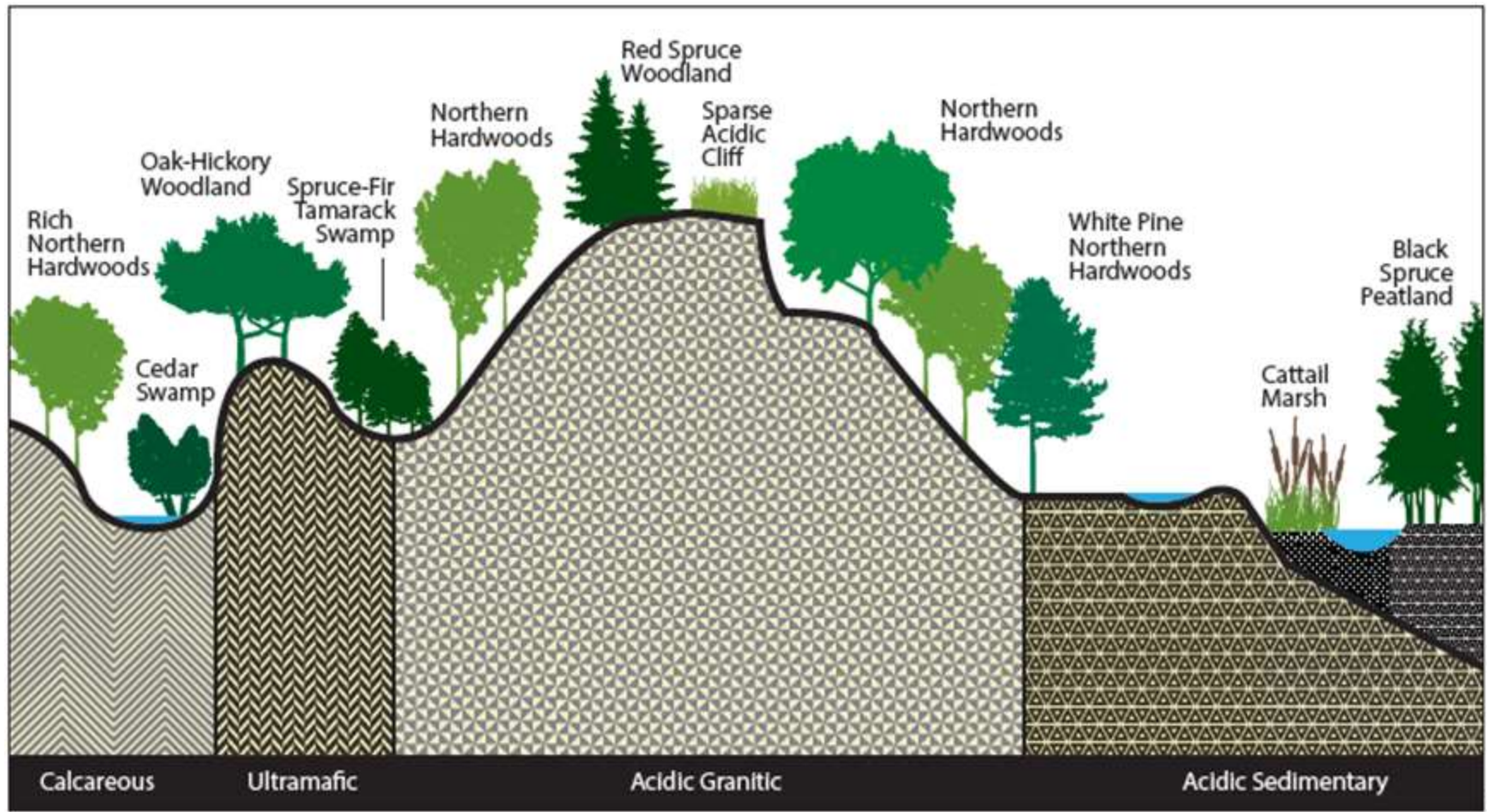
Certain land areas have higher capacity to host more species because of the geology and shaping of the land.

These resilient sites will hold the most biodiversity no matter how the climate may change. Maintaining connectivity to these sites allows species to naturally distribute themselves, and this keeps our region resilient.



# BIODIVERSITY & CLIMATE RESILIENCE

Physical diversity equals biological diversity

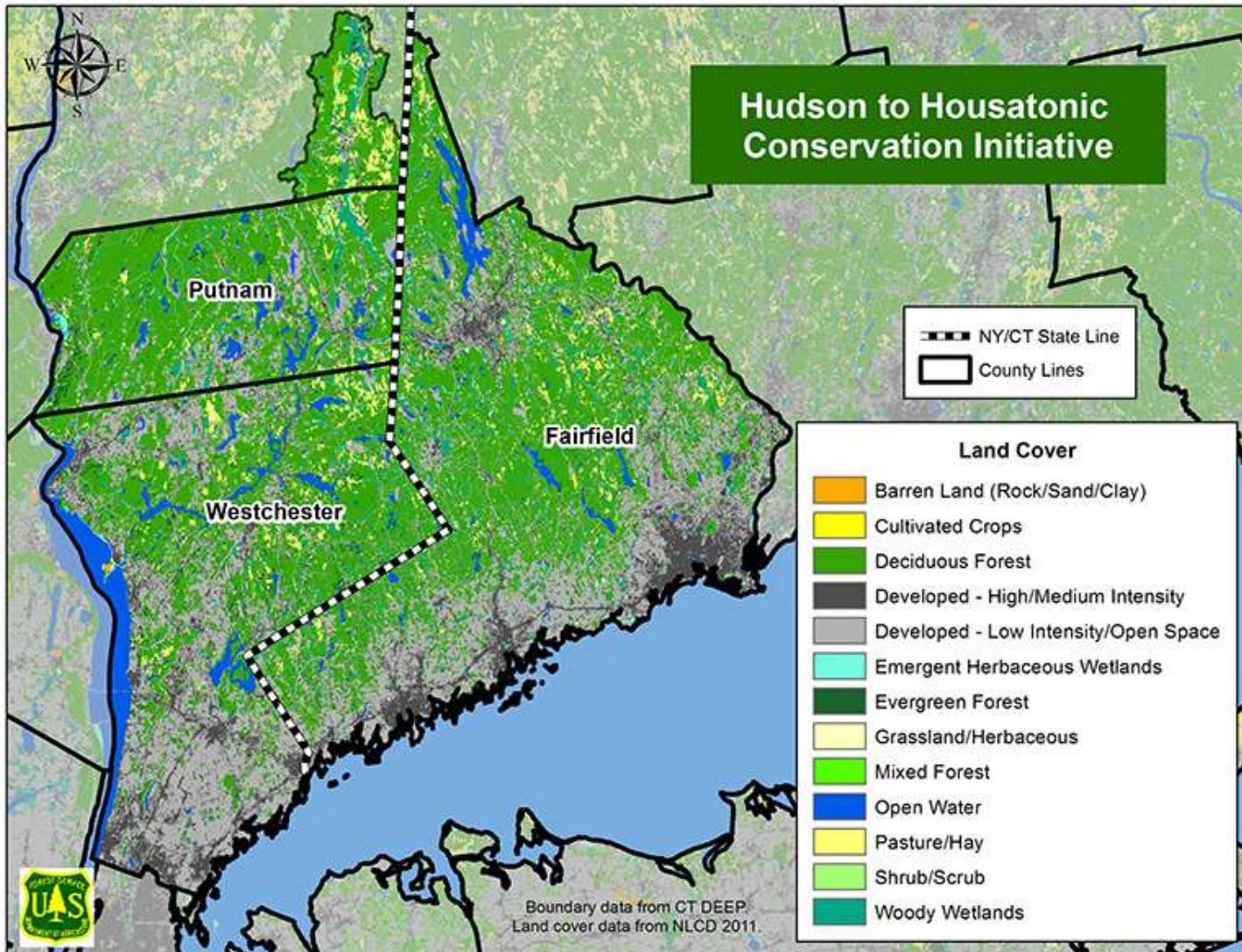


Jeffrey Jenkins (after Mark Andersen)



# HUDSON TO HOUSATONIC CONSERVATION INITIATIVE

Southwestern Connecticut, Westchester County and southeastern Putnam Counties



Land formations likely to adapt to climate change.

Targeted outreach to educate landowners about their land and vital role in sustaining the natural resources critical to supporting people and wildlife.

Will contribute to a more connected open space network in support of local and regional conservation visions.

# ECOSYSTEM SERVICES

Open space conservation is critical to maintaining diverse range of ecosystem services



## *Provisioning – Clean Water*

The quality of the rivers, lakes and streams that contribute to the public water supply are dependent on the quality of the watershed. By protecting this land, drinking water sources are also protected.

## *Cultural – Recreation & Aesthetics*

Natural areas and the diverse wildlife and vegetation that they support are scenic and enjoyable to visit. The lakes, rivers and trails in these areas provide many opportunities for recreation.

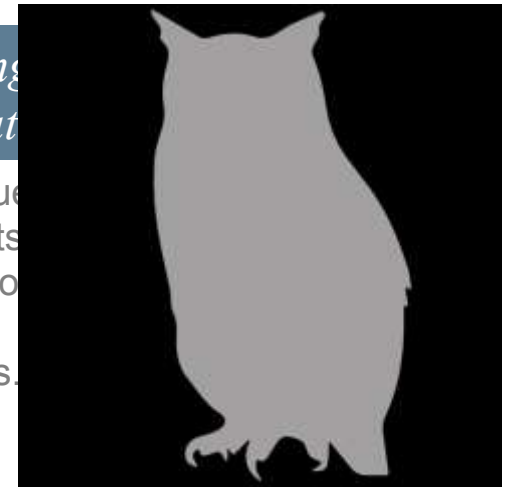


## *Regulating – Air Quality*

Natural resources such as wetlands, trees, and soil, filter many pollutants from our air

## *Supporting Habitat*

By conserving unique natural environments, habitat is provided for threatened and endangered species.







# Thank You

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