

CHAPTER 10



Since 2020, Erie County and the City of Buffalo have both received Community Wildlife Habitat certifications from the National Wildlife Federation, creating a wildlife corridor of parks, community gardens, private residences, schools, and businesses for easier passage for animals of all species. Black Rock Riverside Alliance Executive Director Anne McCooley, second from the left, has spearheaded The Habitat Project, which has had a significant positive impact on ecosystem health, community action and education, as well as wildlife welfare.

“It’s simple, easy things like planting native plants in your garden or a native tree in front of your yard,” says McCooley, standing in the recently certified Market Square Park in Black Rock. “We need to make sure as animals are moving through our communities, they find things to eat, places to drink, and places to have babies and raise their young safely.”



Nature-based Solutions



GOAL: Promote equitable nature-based solutions to protect intact landscapes, restore degraded ecosystems, and improve equitable access to green infrastructure, tree canopy, and open space for all residents.

Nature-based solutions to climate change are often cost effective, provide opportunities for communities and landowners to benefit from climate investments, and provide co-benefits for communities and ecosystems. Erie County is a region with diverse ecosystems and habitats that have been degraded due to loss of land from overdevelopment and sprawl, climate change, and extreme weather events. Degradation of ecosystems is disproportionately endured by low-income communities and communities of color. Loss of biodiversity impacts our health, food, air quality, water quality, soil, and culture. To overcome these impacts, Erie County

must prioritize protecting habitats, upgrading infrastructure, and creating green space. This includes preserving tree canopies, protecting water quality, and combating invasive species.

There is tremendous opportunity within Erie County to use nature-based solutions to improve the County's natural environment. The Great Lakes provide over 20% of the world's available fresh water. Erie County lies on the shores of the Great Lake of Lake Erie, providing drinking water for 12 million people. The Niagara River, which forms part of Erie County's western border, was officially designated as a Wetland of International Importance in 2019 under the Ramsar

DEFINITIONS

FOR ACTIONS
SPECIFICATIONS

Short-term:

By or before 2030

Medium-term:

By 2040

Long-term:

By 2050

Direct:

County government can directly control the action - relating to County government operations and infrastructure

Indirect:

Regional agencies and municipalities have control and/or County government can support/influence

Convention, an international treaty that promotes the sustainable use of the world's wetlands.¹⁰⁹ The Niagara River corridor has also been named a “globally significant” Important Bird Area.

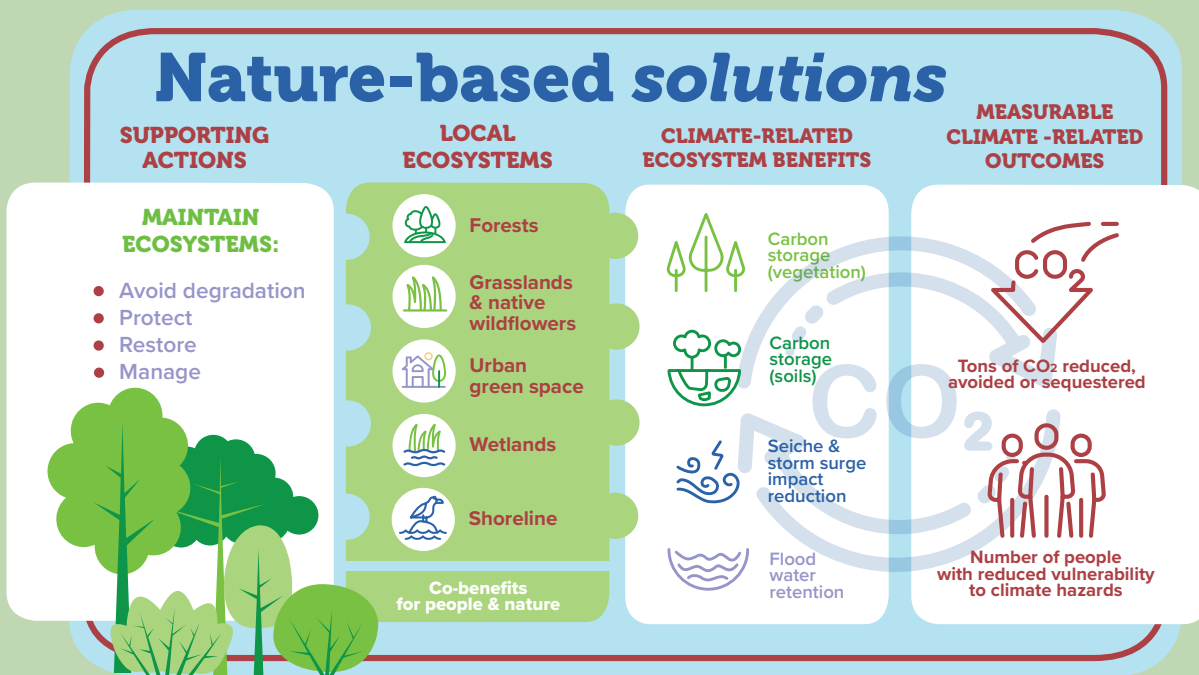
The Erie County government manages nearly 10,000 acres of traditional parks, natural habitat parks, and forestry lots. In addition, the County is responsible for over 1,000 miles of

roadway and the adjacent rights-of-way.

In addition to providing habitats for flora and fauna, the diverse landscapes throughout Erie County offer residents and communities green spaces to be active and enjoy nature, which greatly improves health and emotional well-being. However, as a result of environmental racism, discriminatory

land use practices, and unequal public investment, low-income communities and communities of color commonly reside in areas of Erie County that have fewer trees, as well as less access to parks and recreation.¹¹⁰ Erie County will work to ensure all residents have equitable access to green spaces and that new projects consider and seek to remedy historic injustices.

Figure 31 What are Nature-based Solutions?



What are Nature-based Solutions?

Nature-based solutions are inspired and supported by nature, cost-effective, and simultaneously provide environmental, social, and economic benefits. These solutions also help build resilience.

Protection of forests are one of the best examples of nature-based solutions. Home to 80% of the world's terrestrial biodiversity, forests provide clean air and water, protect against erosion and landslides, and help to regulate the climate by removing carbon from the atmosphere.¹

Examples of nature-based solutions:

Carbon sequestration: The process of capturing and storing atmospheric carbon dioxide. For example, trees remove carbon from the atmosphere.

Green infrastructure: An approach to water management that filters and absorbs stormwater where it falls and reduces flow to sewer systems or to surface waters.

Permeable pavement: Permeable surfaces allows rain to soak into the ground, which helps reduce the risk of flooding, reduces runoff, and replenishes the groundwater table.

Source:

1 United Nations, “UN Forum on Forests: 5 Things You Need to Know,” UN News, May 8, 2023, <https://news.un.org/en/story/2023/05/1136442>.

STRATEGY 1: Skilled Labor Jobs

As extreme weather events occur more often throughout the County due to the changing climate, a mix of labor-based approaches to adaptation will be necessary. Developing dedicated positions that focus on fortifying our landscape and restoring it from the effects of extreme weather events, as well as incorporating mitigation techniques and practices within the existing workforce, is and will continue to be pivotal in Erie County. As described in the Erie County CVA (found in Chapter 3 Climate Resiliency), Erie County’s landscape, infrastructure, and communities, especially disadvantaged communities, are impacted by increased heat, wind storms, ice storms, rain, snowfall, flooding, and seiche events.¹¹

Professionals require specialized training to accomplish most nature-based solutions. Some training includes landscaping and groundskeeping, forestry,

construction, equipment operation, soil and plant science, green infrastructure installation and maintenance, ecological monitoring, field testing, tree removal, tree trimming, tree pruning, and invasive species management. New York State recognized the need for this workforce when in 2022, Governor Kathy Hochul signed a pledge to “add more women to the ranks of Environmental Conservation Police Officers, Forest Rangers, and Park Police Officers.”¹²

Erie County will prioritize working with partners to provide interested residents access to the essential training and skills required to work on nature-based projects. The County will work to ensure that these jobs have family-sustaining wages and are available to all residents that are interested, especially individuals living in communities that are disproportionately affected by environmental degradation. It is a primary goal to create economic

opportunities that benefit workers in Erie County and prioritize disadvantaged communities, which are those that are more vulnerable to the harmful impacts of climate change.

To achieve this workforce-focused goal, working with interested parties like New York State, Climate Corps, and AmeriCorps will be a high priority. To provide equitable opportunities for all, investing in education and exposure to nature-based, skilled labor jobs at the high school and college levels is of utmost importance. Erie County will work with training facilities to ensure adequate availability at affordable prices, which may include providing resources like grants and other funding opportunities to supplement training costs. Providing childcare, transportation, and a geographic spread of training sites in communities throughout Erie County will also help achieve this goal.

NATURE-BASED SOLUTIONS GOAL: Promote equitable nature-based solutions to protect intact landscapes, restore degraded ecosystems, and improve equitable access to green infrastructure, tree canopy, and open space for all residents.

STRATEGY 1: Skilled Labor Jobs	HORIZON	SPHERE OF INFLUENCE	LEAD COUNTY ENTITY	PARTNERS
ACTION ITEM 10.1.1:	Partner with interested parties to collaborate on training needs and opportunities.			
	Short-Term	Indirect	DEP	High schools and colleges, Corps Groups, state and federal agencies, non-profits, BOCES programs, Workforce Investment Board, job training facilities, local municipalities, businesses, unions, community-based organizations and block clubs, Live Well Erie
ACTION ITEM 10.1.2:	Provide skilled labor job training for nature-based projects.			
	Short-Term	Indirect	DEP	High schools and colleges, Corps Groups, state and federal agencies, non-profits, BOCES programs, Workforce Investment Board, job training facilities, local municipalities, businesses, unions, community-based organizations and block clubs, Live Well Erie
ACTION ITEM 10.1.3:	Hire workers from skilled labor job trainings.			
	Medium-Term	Direct	Parks, DPW, DSM	Local businesses, unions, non-profits
ACTION ITEM 10.1.4:	Pursue on-going preventive and maintenance efforts for nature-based projects.			
	Medium-Term	Direct	Parks, DPW	Community-based organizations

Figure 32 Land Protection & Land Use Planning

Land protection & planning



Protected forests, floodplains, & other natural habitats

Strategic planning and permanent protection of natural ecosystems are critical solutions for the impacts from climate change.

Impacts of poor land use:

- Reduced biodiversity which impacts human health, food, air quality, water resources, & soil
- Increased runoff
- Flooding, degrading water quality, & increased burden on stormwater infrastructure
- Creation of fragmented landscapes, & prime conditions for invasive species
- Deforestation which releases carbon stored in trees

STRATEGY 2: Conserve Resilient Lands, Waterways, & Priority Habitats

Land conservation protects valuable ecosystem services and is one tool that ensures resilient lands remain intact. Protected lands provide improved water and air quality, habitat for native plants and wildlife, critical water storage and flood mitigations, and open space and recreational opportunities for the public. In 2022, Governor Kathy Hochul signed legislation “that sets the goal to support and contribute to national efforts to conserve at least 30 percent of U.S. land and water by 2030.”¹¹³

Resilient lands are a critical focus for land conservation. The Nature Conservancy defines resilient land as “an area of land where high microclimatic diversity and low levels of human modification provide species with connected, diverse climatic conditions they will need to persist and adapt to changing regional climates.”¹¹⁴ Resilience is influenced by local connectedness, which is the ability for species

to move across a landscape without barriers. Resilient lands promote biodiversity through connection and microclimatic diversity. By protecting resilient lands and areas of high biodiversity, and ensuring those lands are connected, species are better able to respond to changes in climatic conditions.

Land conservation provides valuable ecosystem services and avoided costs for Erie County. Ecosystem services are ways that people benefit from their surrounding environment. Common ecosystem services include benefits that support daily life, such as air filtration, carbon sequestration, water filtration, flood regulation, soil formation, and pollination. The most well-known example of avoided costs by investing in ecosystem services in the eastern United States is the protection of the Catskill and Delaware Watersheds instead of New York City spending \$8 to \$10 billion

to build a water filtration plant plus an annual cost of \$100 million to operate.¹¹⁵ Avoided costs also include the potential future costs if intact natural systems are lost. A USEPA paper on protecting healthy watersheds shows a correlation between the percentage of forest cover and predicted water treatment costs.¹¹⁶

Land conservation also provides the opportunity for outdoor recreation resulting in overall public health benefits, a stronger relationship to nature, and better stewardship of natural spaces. Exposure to nature has many physiologic benefits, including lowering cortisol levels and blood pressure, thus lowering stress and anxiety.¹¹⁷ Living near green space reduces mortality even when adjusted for additional socio-demographic factors.¹¹⁸ People having access to local green space can also foster a sense of community, ownership, and thus stewardship, in addition to health benefits.

STRATEGY 2: Conserve Resilient Lands, Waterways, & Priority Habitats

	HORIZON	SPHERE OF INFLUENCE	LEAD COUNTY ENTITY	PARTNERS
ACTION ITEM 10.2.1:	Map the most climate resilient lands in Erie County and prioritize them for protection.¹¹⁹			
	Short-Term	Direct	DEP	NYSDEC, WNYLC, Buffalo Niagara Waterkeeper, Lake Erie Watershed Protection Alliance (LEWPA)
ACTION ITEM 10.2.2:	Create a Conservation Plan for Erie County that prioritizes areas for protection and ensures equitable access to open space, connectivity, and green infrastructure.			
	Short-Term	Indirect	DEP	Local municipalities, NYSDEC, WNYLC, Buffalo Niagara Waterkeeper, LEWPA
ACTION ITEM 10.2.3:	Work with partners and residents to protect priority lands through outreach and education.			
	Medium-Term	Direct/ Indirect	DEP	Local municipalities, NYSDEC, WNYLC, Buffalo Niagara Waterkeeper, LEWPA

STRATEGY 3: Restoration Strategies

For portions of the County where lands have been degraded or contaminated, restoration techniques can re-establish ecosystem services associated with intact natural landscapes. Restoration techniques can improve carbon storage, increase biodiversity, add flood retention, and provide many other benefits that both mitigate and improve resilience to climate vulnerabilities identified within Erie County.

In addition to the ecosystem services described above, living shoreline restoration has proven to be successful in acting as the first line of defense in protecting communities from coastal erosion and extreme flooding. Living shorelines include native plant species that grow deep and complex root systems, which improve resilience to forces acting along shorelines and are increasingly important as the impacts of climate change intensify. Natural materials like logs and stone can also be incorporated to protect the shoreline while creating important habitats. Living shorelines also improve water quality by filtering out runoff and pollutants before they flow into local waterways, while overhanging cover cools water temperatures, improves water quality, and reduces the occurrence of harmful algal blooms. The

dense native plant communities also prevent the occurrence of invasive species.

Beyond restoration of shoreline areas, restoring inland wetlands, natural corridors, open green spaces, urban forests, and grassland habitats are all nature-based solutions that contribute towards climate resilience. Additionally, focusing on transforming brownfields or contaminated properties into a natural habitat is another effective nature-based solution that addresses inequities in low-income communities and communities of color that have been historically dominated by industrial land with minimal green space.

An important component of all restoration efforts is the removal of invasive and non-native species while establishing beneficial native plants. This requires ongoing, long-term monitoring and adaptive management to ensure any recurrence of invasive species is controlled so that native species can thrive. Coordination with partners, such as the Partnership for Regional Invasive Species Management (PRISM) and others doing this work locally who can share best practices and knowledge will benefit these efforts in Erie County.



Ecosystem Services

An ecosystem service is any positive benefit, small or large, that wildlife or ecosystems provide to people.¹

Ecosystem services result in:

- Carbon sequestration
- Filtration of pollutants and nutrients from runoff
- Increased biodiversity
- Flood water retention
- Reduced erosion
- Increased coastal and climate resiliency
- Soil formation and nutrient cycling
- Uptake of contaminants in soils
- Educational, cultural, and aesthetic values

Source:

¹ NWF, "Ecosystem Services," National Wildlife Federation, accessed July 12, 2023, <https://www.nwf.org/Home/Educational-Resources/Wildlife-Guide/Understanding-Conservation/Ecosystem-Services>



Connecticut Agricultural Experiment Station Archive, Evidence of hemlock woolly adelgid on western hemlock, 2005, photograph, United States, https://en.wikipedia.org/wiki/Hemlock_woolly_adelgid#/media/File:Adelges_tsugae_3225077.jpg

Native Species

A species that originated and developed in its surrounding habitat and has adapted to living in that particular environment. For North America, is one that was found within (as a component of) the ecosystem under consideration pre-European settlement.

Western Hemlock

Invasive Species

A species that is non-native to an ecosystem under consideration and whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health.

Hemlock Woolly Adelgid

Stream Bank Stabilization & Green Infrastructure

As the severity of storm events increases due to climate change, stream banks erode at a faster rate. Erosion of stream banks can increase nutrient load in the water (which can increase algal growth), causing potential property loss and posing a risk for existing ecosystems.

Implementing green infrastructure can sequester storm water before it reaches streams, which increases resilience to climate change. In addition, protecting stream banks and restoring eroded shorelines can reduce the impacts on aquatic ecosystems. Techniques to protect aquatic ecosystems, which are described below, include building living shorelines, utilizing in-water root wads, and establishing rock reefs and rock weirs.

In-Water Root Wads:

“A bank stabilization and aquatic habitat improvement strategy that involves burying a dead tree into the streambank with the root system still attached.”²



Red Jacket Riverfront Natural Habitat Park

Rock Weirs:

A pile of stones that redirect stream flow to the center of the stream channel and slow down the flow of water.⁴



Red Jacket Riverfront Natural Habitat Park

Living shorelines:

“A living shoreline is a protected, stabilized coastal edge made of natural materials such as plants, sand, or rock.”¹



Pre-Restoration at Ellicott Creek Park

Photo credit: Buffalo Niagara Waterkeeper



Post-Restoration at Ellicott Creek Park

Photo credit: Buffalo Niagara Waterkeeper

Rock Reefs:

A method to “lessen wave energy impacting the shoreline, and the calm water area behind these structures [creates] more suitable conditions for wetland vegetation.”³



Beaver Island State Park

Photo credit: Buffalo Niagara Waterkeeper

Sources:

1 NOAA Fisheries, “Understanding Living Shorelines,” NOAA Fisheries, October 12, 2022, National, <https://www.fisheries.noaa.gov/insight/understanding-living-shorelines>.

2 Regional Stream Stewardship & Recovery Handbook, “Root Wads,” Stream Handbook, 2017, <https://streamhandbook.org/project/root-wads/>.

3 Buffalo Niagara Waterkeeper, “Little Beaver Island,” Buffalo Niagara Waterkeeper (blog), September 24, 2019, <https://bnwaterkeeper.wpengine.com/beaver-island/>.

4 Missouri Botanical Garden, “Rainscaping Guide: Rock Weirs and Filter Socks,” Missouri Botanical Garden, accessed July 14, 2023, <https://www.missouribotanicalgarden.org/sustainability/sustainability/sustainable-living/at-home/rainscaping-guide/rock-weirs-and-sock-dams>; Janine Castro and Robert Sampson, “Design of Rock Weirs” (USDA, February 1, 2001), https://efotg.sc.egov.usda.gov/references/Delete/2010-1-23/eng_tn13.pdf.

**STRATEGY 3:
Restoration
Strategies**

	HORIZON	SPHERE OF INFLUENCE	LEAD COUNTY ENTITY	PARTNERS
ACTION ITEM 10.3.1:	Identify and prioritize degraded lands, including shorelines, for implementation projects.			
	Short-Term	Direct	DEP	LEWPA, Erie County Soil & Water Conservation District (SWCD), NYSDEC, PRISM, WNYLC, Buffalo Niagara Waterkeeper, ECEMC, local municipalities, Erie County Parks
ACTION ITEM 10.3.2:	Identify lead organizations for implementation projects and funding sources.			
	Short-Term	Direct	DEP	LEWPA, Erie County SWCD, NYSDEC, PRISM, WNYLC, Buffalo Niagara Waterkeeper, ECEMC, local municipalities, Erie County Parks
ACTION ITEM 10.3.3:	Complete habitat and living shoreline restoration, including signage, to educate the community. Focus on priority areas that address climate vulnerabilities identified for Erie County.			
	Medium-Term	Direct	DEP	LEWPA, Erie County SWCD, NYSDEC, PRISM, WNYLC, Buffalo Niagara Waterkeeper, ECEMC, local municipalities, Erie County Parks
ACTION ITEM 10.3.4:	Develop protocols and mechanisms for continued monitoring and adaptive management of work completed as part of this goal.			
	Medium-Term	Indirect	DEP	LEWPA, Erie County SWCD, NYSDEC, PRISM, WNYLC, Buffalo Niagara Waterkeeper, ECEMC, local municipalities, Erie County Parks

STRATEGY 4: Improve Connectivity for Pollinators & Wildlife

Pollinators are integral to ensuring the health of the natural food web, without which all other species, including humans, would struggle to survive. Bees are most commonly thought of when pollinators are discussed, however, over 100,000 invertebrates (including bees, butterflies, beetles, moths, wasps, and flies) and more than a thousand mammals, birds, reptiles, and amphibians take on the job of pollinating plants as well.¹²⁰ Much of Erie County is located within the Eastern Wildway and the Western New York Wildway (see Figure 33), making it all the more valuable to protect the pollinators. Pollination is a mutualistic

relationship for the plant and animal, meaning both parties benefit. The pollinator consumes protein rich pollen and high energy nectar from the plant, while the plant's pollen is transported to other neighboring plants of the same species, allowing fertilization to occur. Pollinators are valuable in supplementing the fertilization of both wild plants and the agricultural crops we use for food.

Without pollinators, some plant species can resort to other modes of fertilization, such as pollen carried by the wind. Despite this, for some plants, wind pollination is inefficient and unsuccessful, making pollinators the ideal method of fertilization. One-third

of the food we eat is dependent on the successful fertilization that occurs through pollinators.¹²¹ As a result, their importance to both a balanced ecosystem and human food production cannot be understated.

Unfortunately, pollinator numbers are on the decline as they face serious threats. Habitat loss due to changing weather patterns and temperatures coupled with industrial development practices are a huge threat to pollinators. Pesticide poisoning and foreign insect diseases are some of the other main causes of decline. The accumulation of all of these threats has resulted in reductions of insect populations

across the board and has endangered wild bee species and monarch butterflies populations, which have declined by 90% over the past 20 years.¹²² Despite the trending decline, 2022 showed an increase in monarch butterfly populations over-wintering in Mexico, which may signify that conservation and protection actions (e.g., protecting grasslands, planting milkweed and wildflowers, and educating the public) are working.¹²³ In the midst of climate change, native perennial plants that provide shelter or food for wildlife are integral for promoting a healthy ecosys-

tem and biodiversity.

Improving the connectivity for pollinators and wildlife can be done easily, inexpensively, and scaled from the park-sized level to the individual resident's backyard. In fact, Black Rock Riverside Alliance worked with residents to certify Erie County as a National Wildlife Federation (NWF) Wildlife Habitat Community.¹²⁴ This certification requires a certain amount of green spaces to be converted into pollinator- and wildlife-friendly habitats that encourage a symbiotic existence between humans and nature. It also requires education and outreach

efforts that spread the understanding and knowledge of how to plant with nature in mind.

Erie County is the sixth largest NWF Community Wildlife Habitat in the country. This grassroots approach to creating wildlife-friendly habitats throughout the County continues in order to maintain certification status¹²⁵ and to expand the network of individual certified properties. Despite the great accomplishments that Erie County has achieved to receive the certification, there is still a lot of work to be done in the realm of improving habitat and connectivity.

STRATEGY 4:
Improve Connectivity for Pollinators & Wildlife

	HORIZON	SPHERE OF INFLUENCE	LEAD COUNTY ENTITY	PARTNERS
ACTION ITEM 10.4.1:	Encourage and educate the public on creating pollinator-friendly habitat.			
	Short-Term	Direct	DEP	ECEMC, Home for a Gnome, Citizen Coalition for Wildlife and Environment, Pollinator Conservation Association, Save the Bees WNY, Cornell Cooperative Extension (CCE) Master Gardeners, Buffalo Niagara Waterkeeper, NYSDEC, local municipalities
ACTION ITEM 10.4.2:	Continue habitat certification efforts through outreach and education.			
	Short-Term	Direct	DEP	Black Rock Riverside Alliance, The Nature Conservancy, National Wildlife Foundation
ACTION ITEM 10.4.3:	Support the planting of pollinator gardens in both urban and rural environments.			
	Short-Term	Indirect	DEP	Community gardens, CCE Master Gardeners, Grassroots Gardens WNY, nurseries, Pollinator Conservation Association
ACTION ITEM 10.4.4:	Support the planting of native plants in both urban and rural environments.			
	Short-Term	Indirect	DEP	Nurseries, garden stores, Grassroots Gardens WNY, MAP, other urban farms with Agriculture & Markets Greenhouse licenses, NYSDEC
ACTION ITEM 10.4.5:	Combat invasive species to promote biodiversity.			
	Short-Term	Indirect	DEP	PRISM, Erie County SWCD, LEWPA, WNYLC, Let's Goat Buffalo
ACTION ITEM 10.4.6:	Educate the public about nature-based residential lawn care.			
	Short-Term	Direct	DEP	CCE Master Gardeners, ECEMC, Home for a Gnome, Black Rock Riverside Alliance

Planting with Nature in Mind

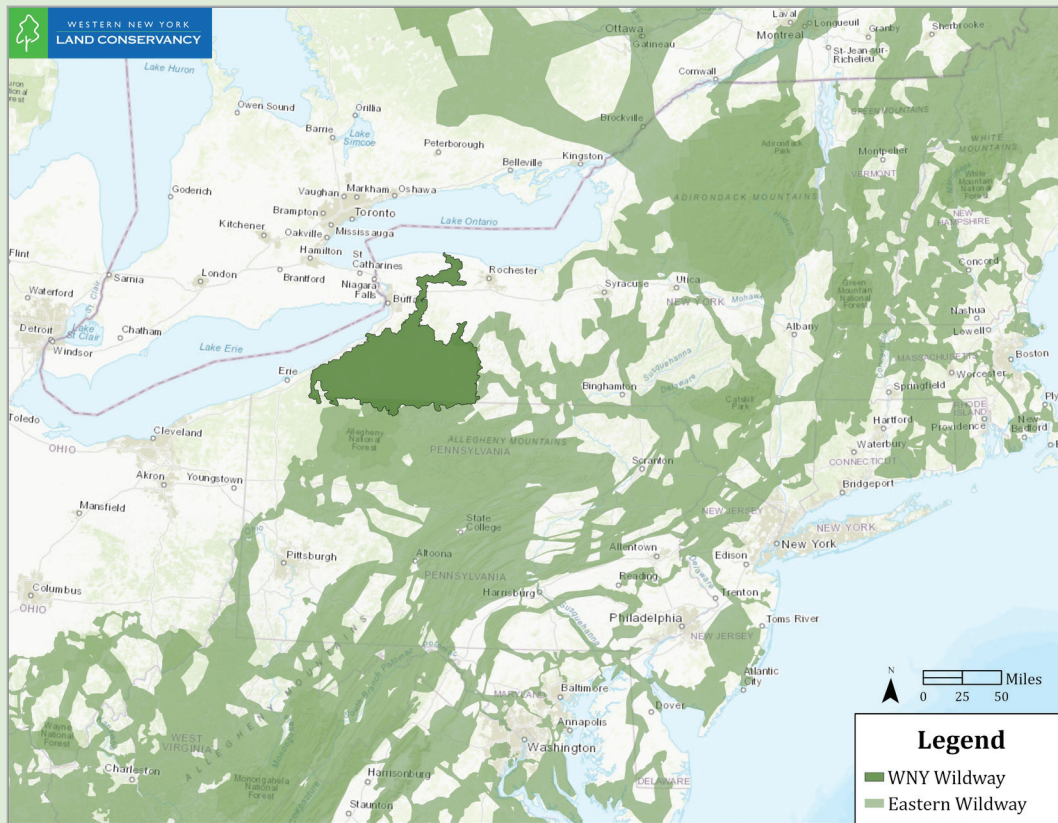
Changing the way we plant our lawns and gardens is one key nature-based solution that individuals can implement. By using native and local trees, pollinator-friendly plants, and stopping the use of pesticides, we can encourage a more resilient and biodiverse local ecosystem. For more information about planting with nature in mind, visit the NWF webpage, which sponsors the certification of community wildlife habitats.¹ With the help of the Black Rock Riverside Alliance, Erie County has already been certified as a NWF Wildlife

Habitat Community!² Community members can certify their own garden to help build momentum to earn community-wide certification in their municipality, especially since about 93% of the land in Erie County is privately owned.

Sources and Notes:

- 1 To visit the NWF webpage, go to <https://www.nwf.org/communitywildlifehabitat>
- 2 BRRRA, "National Wildlife Federation Community Wildlife Habitat Project," Black Rock Riverside Alliance, 2023, <https://brralliance.org/index.php/projects/making-buffalo-a-national-wildlife-federation-habitat-city/>

Figure 33 The Western New York Wildway



The Western New York Wildway

In 1991, the Wildlands Network was created to protect species from extinction by promoting habitat connectivity between existing protected areas.¹ The Western New York Land Conservancy is leading an effort to create the Western New York Wildway, which will be a part of the Eastern Wildway. The Eastern Wildway was formed in 2015 as part of the Wildlands Network to advance conservation efforts across eastern North America.² The Western New York Wildway will create a corridor for plants and animals to move with the changing climate and access new core habitats.³

To explore the Western New York Wildway through an interactive map, go the Western New York Land Conservancy's (WNYLC) online story map.⁴

Sources and Notes:

- 1 Wildlands Network, "Eastern Wildway Version 2.2," ArcGIS Online, October 2019, <https://wn.maps.arcgis.com/apps/webappviewer/index.html?id=d247ee318cca498bb457d71eba9aac2a>
- 2 Network for Landscape Conservation, "Eastern Wildway," Network for Landscape Conservation, accessed July 12, 2023, <https://landscapeconservation.org/our-work/initiatives-list/eastern-wildway/>.
- 3 WNYLC, "Western New York Wildway," Western New York Land Conservancy, July 12, 2023, <https://www.wnylc.org/wnywildway>.
- 4 To access WNYLC's online story map of the Western New York Wildway, go to <https://storymaps.arcgis.com/stories/2205b3f623fc42a2b46779f05cacd5b6>

STRATEGY 5: Increase and Preserve Tree Canopy

Strategic tree canopy preservation and expansion are vital approaches for mitigating the harms of human-induced climate change. Trees and forest ecosystems are carbon sinks that can remove emitted carbon from the atmosphere through natural photosynthetic and respiration processes.¹²⁶ Tree canopies, therefore, provide a natural method for removing carbon from the atmosphere without relying on expensive and technologically complex solutions, such as carbon capture, carbon storage, and geoengineering.

The presence of tree canopy provides weatherization benefits, such as cooling and stormwater management for nearby communities, thus reduc-

ing the reliance on energy-intensive technologies (e.g. air conditioning and stormwater pumps). As crucial as it is to plant new trees, it is important to acknowledge that older trees have a larger canopy, thus providing more shade and a larger root system. Therefore, preservation of older trees should be a priority. Strategic tree planting could reduce building energy demand by up to 30%.¹²⁷ Trees can mitigate the effects of stormwater, flooding, and erosion from runoff by absorbing excess water and providing ground covering.¹²⁸ The polluting effects of high energy demand and extreme storms can also be reduced by the presence of strategically situated tree canopies.

Increasing tree canopies provide co-benefits related to local social and economic infrastructure by expanding outdoor recreation and environmental workforce development opportunities. Tree canopies also provide a myriad of physical and mental health benefits, especially with the climate crisis being the gravest global health threat of this century. Importantly, tree canopy preservation and expansion can be a highly cost effective climate strategy with agencies, such as NYSDEC and the USDA, investing in tree planting programs because of their relatively low costs and high job creating potential.

STRATEGY 5: Increase and Preserve Tree Canopy	HORIZON	SPHERE OF INFLUENCE	LEAD COUNTY ENTITY	PARTNERS
ACTION ITEM 10.5.1: Establish and maintain a list of native and climate resilient tree and shrub species of all sizes that can thrive in current and future climate conditions projected for the region, paired with a list of complementary best practices for planting and maintenance.	Short-Term	Indirect	DEP	CCE, Erie County SWCD, NYSDEC, local municipalities, USDA
ACTION ITEM 10.5.2: Map and assess the demographic and geographic disparities in tree canopy, including a timeline with 2030 and 2050 goals, thereby establishing priority communities for tree canopy preservation and expansion.	Short-Term	Direct	DEP	CCE, Erie County SWCD, NYSDEC, local municipalities, colleges and universities, USDA
ACTION ITEM 10.5.3: Establish mechanisms for ongoing care and maintenance of canopy trees.	Short-Term	Indirect	DEP	CCE, Erie County SWCD, NYSDEC, local municipalities, block clubs, USDA
ACTION ITEM 10.5.4: Encourage developers, builders, homeowners, and municipalities to plant and grow shade trees effectively.	Short-Term	Indirect	DEP	CCE, Erie County SWCD, NYSDEC, local municipalities, block clubs, WNY SBR, USDA

Figure 34 Benefits of Planting Trees

TREE BENEFITS

PLANT A TREE | SAVE THE EARTH

IMPROVE MENTAL HEALTH

Studies show being near trees can reduce stress levels by decreasing your blood pressure and slowing your heart rate.

PROTECT WILDLIFE

Trees provide a home and protection to animals

HELP US BREATHE

Through photosynthesis, trees produce oxygen

COMBAT CLIMATE CHANGE

Trees absorb carbon-dioxide and convert it to oxygen

PROVIDE SHELTER

Trees provide shelter and shade from the heat and cold

PREVENT FLOODING

Trees along river banks help soak up excess water and keep soil in place

SOURCE OF FOOD

Many parts of a tree are a source of food for people and animals: roots, leaves, flowers, fruits, seeds, nuts, pollens and sap.

TREE CARE

"TREASURE OUR TREES" YOUR STREET TREE IS STUPENDOUS!

WATER YOUR TREE

Each young tree needs about 15-20 gallons of water per week. Water slowly every few days so it doesn't run off the surface.

ADD MULCH

Mulch will help keep soil moist, but don't mound it around the trunk. Say No to Mulch Volcanoes!

KEEP SHARP OBJECTS AWAY

String trimmers & mower blades can damage the trunk or roots

NOTICE THE FEATURES OF YOUR TREE

Does it have a fairy or gnome, an interesting knot, or is it HUGE!

PRETTY BLOOMS OR LEAVES?

Keep track of when your tree is in bloom or has colorful leaves

NAME YOUR TREE

Each tree is unique. Give yours a unique name

REQUEST A STREET TREE THROUGH YOUR MUNICIPALITY

Inquire availability with your municipality.



Further Reading

Restoration Strategies Strategy

Early Detection of Invasive Species — Explore WNY PRISM's Priority Species list, which includes all of the invasive species that are known to already be in, and those that are approaching the Western New York region. Learn about ways to play a part in the early detection/reporting of these species.

<https://www.wnyprism.org/management/early-detection/>



Let's Goat Buffalo sent a team of goats to Erie County's Red Jacket Riverfront Natural Habitat Park to eat an invasive species, Japanese Knotweed, on an otherwise hard to manage sloped terrain.

FOOTNOTES: Nature-based Solutions

- 109 WNYLC, "The Niagara River Corridor: A Ramsar Site," WNYLC, accessed August 4, 2023, <https://www.wnyc.org/niagara-river-corridor>.
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