



Department of
Transportation

Native Roadside Restoration

Enhancing Resiliency Against Invasive Species &
Supporting Pollinators in the Adirondacks

The NYS Department of Transportation

The Adirondack Park Invasive Plant Program (APIPP PRISM)

The St. Lawrence Eastern Lake Ontario Partnership (SLELO PRISM)

John Falge, New York State Department of Transportation

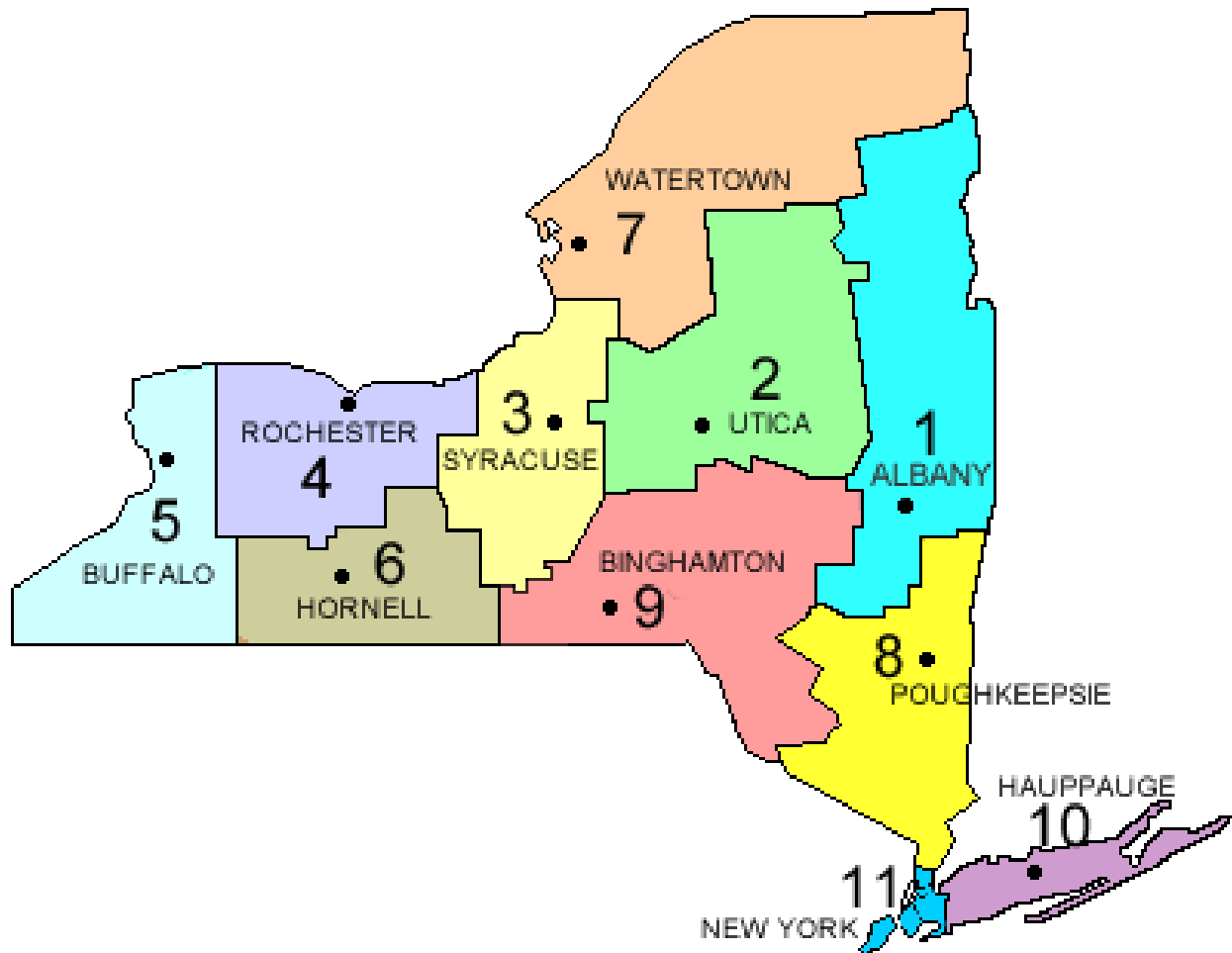
2019 Eastern Lake Ontario Invasive Species Symposium

Thursday, June 20th

Tailwater Lodge in Altmar, NY.

Presentation Outline

- I. NYSDOT Introduction & Organization Structure**
- II. Partnerships for Regional Invasive Species Management (PRISM's)**
- III. Adirondack Park Unit Management Planning**
- IV. Adirondack Roadside Seed Mix Selection**
- V. NYSDOT Roadsides**
- VI. Operations and Maintenance**



“It is the mission of the New York State Department of Transportation to ensure our customers, those who live, work and travel in New York State, have a safe, efficient, balanced and environmentally sound transportation system,”

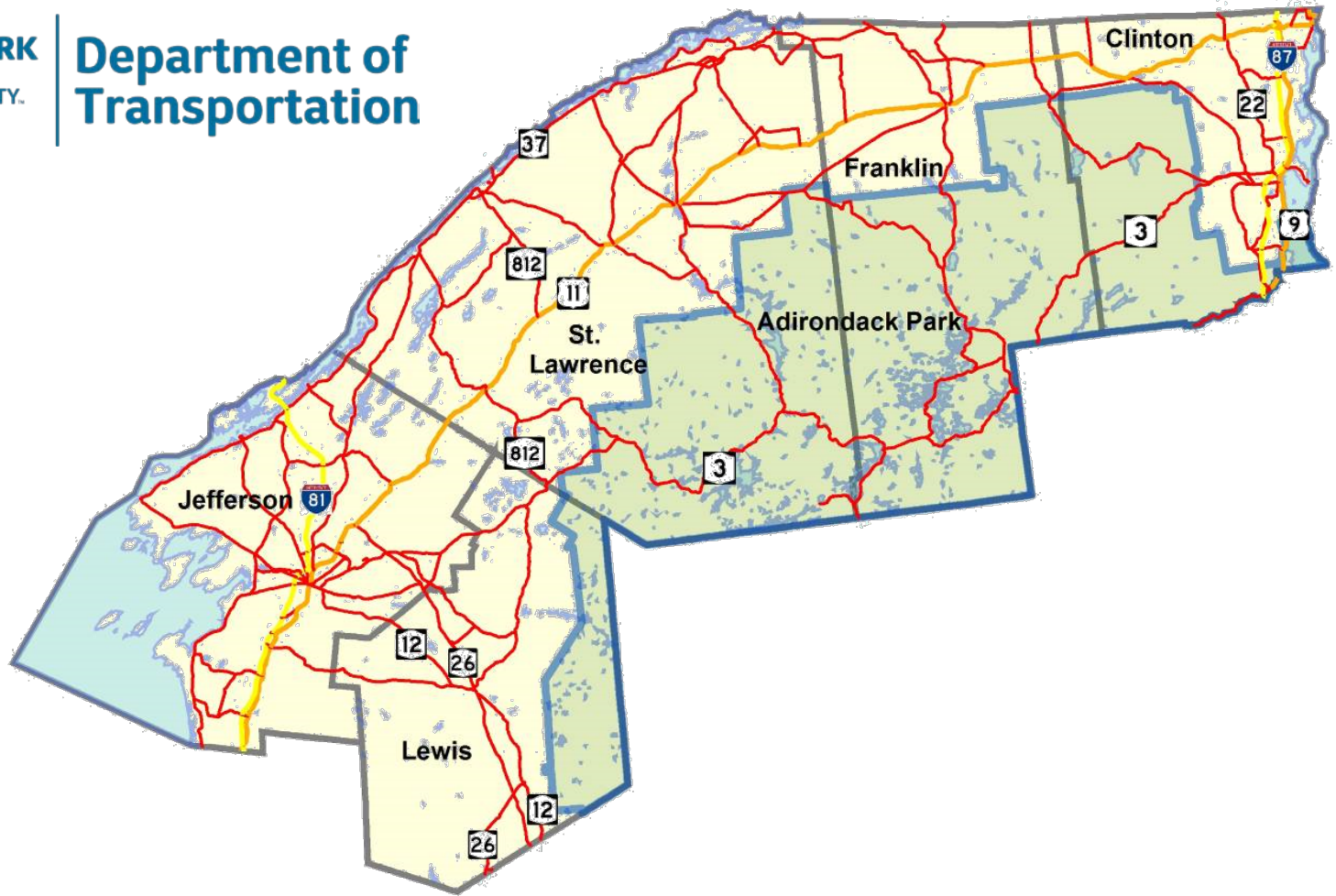
- **1777 - Office of Surveyor-General**
- **1846 - Office of State Engineer and Surveyor**
- **1878 - Department of Public Works**
- **1909 - New York State Department of Highways**
- **1923 - Unified Department of Public Works**
- **1967 - New York State Department of**

Transportation

- ✓ A state and local highway system that 113,000 highway miles
- ✓ More than 17,400 bridges.
- ✓ An extensive 3,500-mile rail network.
- ✓ 485 public and private aviation facilities.
- ✓ Over 130 public transit operators, serving more than 80 million passengers each day.
- ✓ 12 major public and private ports.



Department of
Transportation



NYSDOT Region 7 Transportation Network

NYSDOT R7 ASSET MANAGEMENT



1252 Bridges (> 20')

671 Large Culverts (5' – 20')

9142 Small Culverts (< 5')

3500 Lane Miles Highways

21,212 Acres of Right of Way





NEW YORK
STATE OF
OPPORTUNITY.

Department of
Transportation



Construction



Snow and Ice



Paving



Bridge Maintenance

Region 7 Functional Groups:

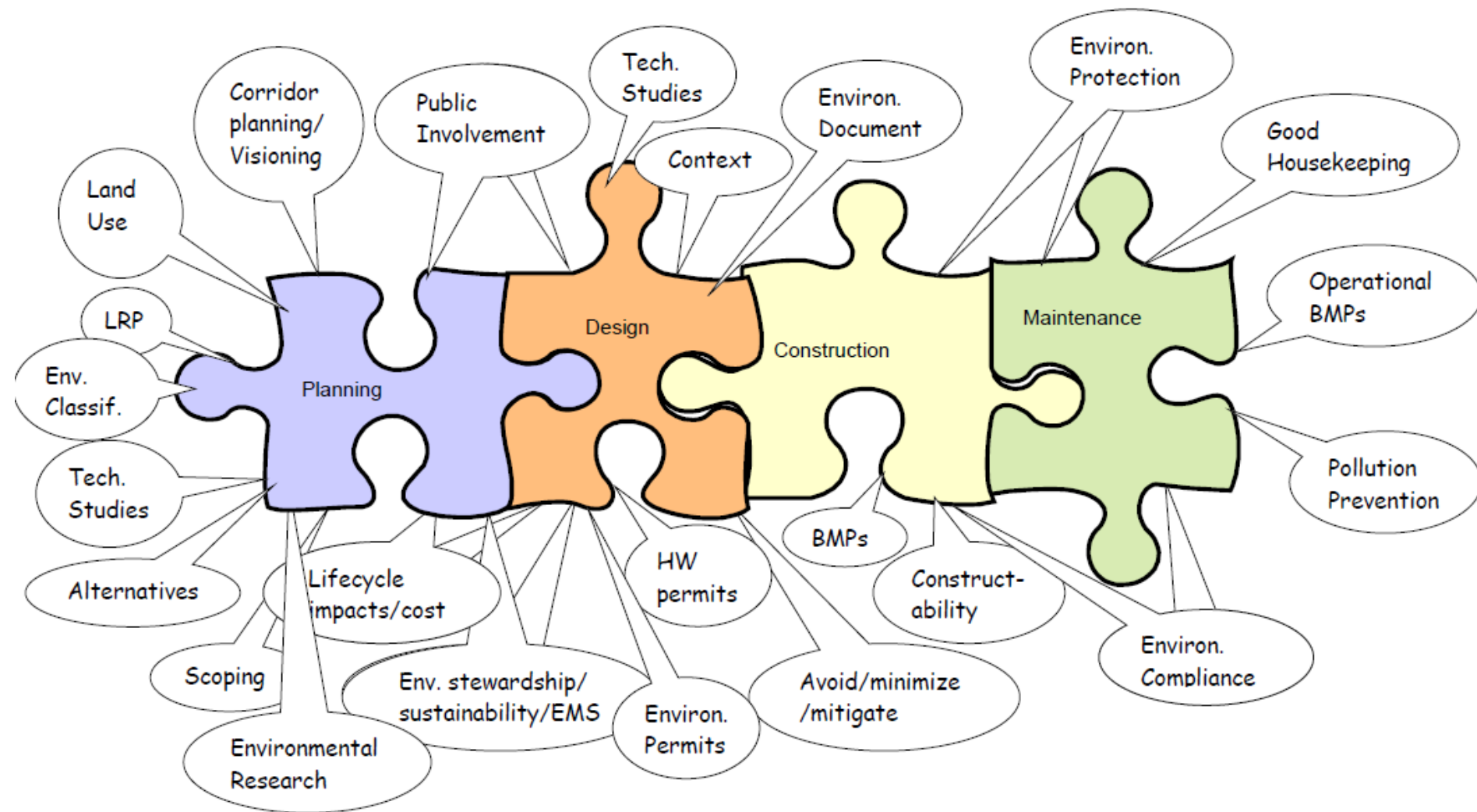
- Administration
- Planning
- Real estate
- Design
- Construction
- Operations



- Traffic
- County residencies
- Bridge maintenance

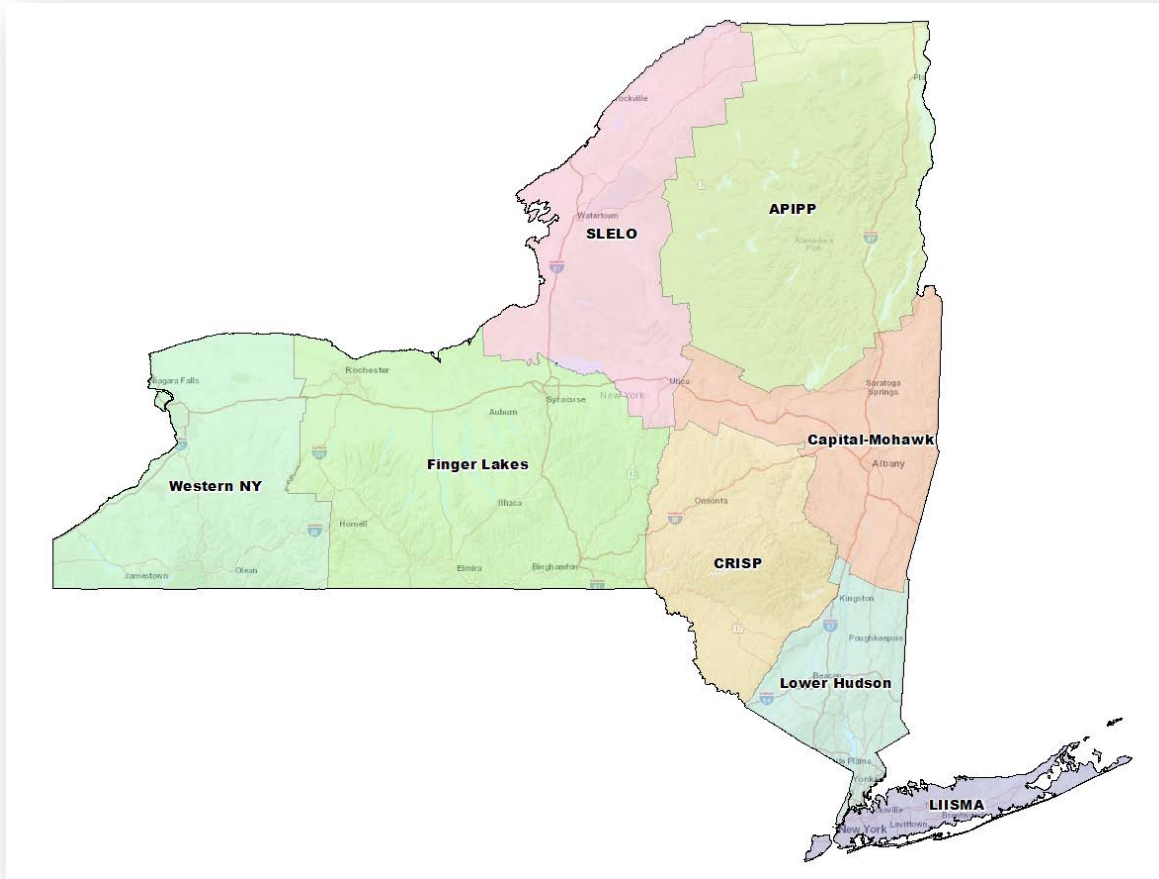


NYSDOT Environmental Network



II. Partnerships for Regional Invasive Species Management (PRISM's)

Partnerships for Regional Invasive Species Management (PRISMs)



Funding Provided by the Invasive Species Line of NYS's Environmental Protection Fund through 5-year contracts with the NYSDEC

Key Strategies:

- Coordination
- Priority Setting
- Pathway/Predictive Analysis
- Spread Prevention & Vector Management
- Enforcement & Legislation
- Awareness Building
- Control & Management
- Monitoring & Information Management
- Restoration
- Research
- Climate Change Adaptation
- Resource Development & Funding
- Innovation & Adaptive Change
- Early Detection & Rapid Response

SLELO PRISM

St. Lawrence Eastern Lake Ontario
Partnership for Regional Invasive Species Management

Protecting our lands and waters
from the impacts of invasive species.



The Nature
Conservancy 

Protecting nature. Preserving life.

SLELO Partners:

- The Nature Conservancy
- NYS Dept. of Transportation
- NYS Dept. of Environmental Conservation
- NY Power Authority
- Cornell Cooperative Extension
- NYS Parks, Recreation & Historic Preservation
- NYS Sea Grant
- Thousand Islands Land Trust
- Soil & Water Conservation Districts
- Ducks Unlimited
- Tug Hill Tomorrow Land Trust
- Tug Hill Commission
- Fort Drum Military Installation
- Save The River Organization
- Onondaga Audubon
- CNY Regional Planning & Dvlp. Board
- United States Coast Guard Auxiliary
- Indian River Lakes Conservancy
- St. Regis Mohawk Tribe at Akwesasne

Pledge To Protect

Our Lands & Waters from
Invasive Species



Whether you live here to play here, there
are simple steps you can take to help.

Take The Pledge
sleloinvasives.org

SLELO Partnership Goals/Priorities:

1. Prevention
2. Early Detection/Rapid Response
3. Education/Outreach/Community Preparedness
4. Cooperation *resource sharing*
5. Information Management
6. Control
7. Ecological Restoration & Climate Adaptability.
8. Innovation *Utilize new technologies, methods or approaches to invasive species management*





Our Mission is...

To Protect the Adirondack Region from the
Negative Impacts of Invasive Species



Our Partners

Founding Partners

- The Nature Conservancy
- NYS Dept. of Environmental Conservation
- NYS Dept. of Transportation
- NYS Adirondack Park Agency

NYS Program Partners

- iMapInvasives
- NY Invasive Species Research Institute
- NYS Invasive Species Advisory Committee
- NYS Invasive Species Council
- PRISMs

Cooperating Partners

- Adirondack Association of Towns & Villages
- Adirondack Council
- Adirondack Garden Club
- Adirondack Lakes Alliance
- Adirondack Landowners Association
- Adirondack Mountain Club
- Adirondack Research LLC
- Cornell Cooperative Extension
- Darrin Freshwater Institute
- Essex Co. Soil & Water Conservation District
- The Fund for Lake George
- Hamilton Co. Soil & Water Conservation District
- Lake Champlain Basin Program
- Lake Champlain Sea Grant
- Lake George Association
- Lake George Land Conservancy
- Lake George Park Commission
- Lake Placid Land Conservancy
- New York Power Authority
- NYS Dept. of Agriculture & Markets
- NYS Hemlock Initiative
- NYS Natural Heritage Program
- Paul Smith's College Adirondack Watershed Institute
- USDA Animal & Plant Health Inspection Service
- Warren Co. Soil & Water Conservation District

There are currently 71 Pollinators on the endangered species list, including the Rusty-patched bumble bee (*Bombus affinis*), and the Karner blue butterfly (*Lycaeides melissa samuelis*, originally discovered in Karner, NY).

We are on the verge of what some experts have called the [Insect Apocalypse](#), a phenomenon in which 40 percent of insect species are now threatened with extinction. Many of those insects are pollinators.



There is hope, and it comes in the form of flowers. Native flowering plants provide nectar and pollen for pollinators, critical to their survival.

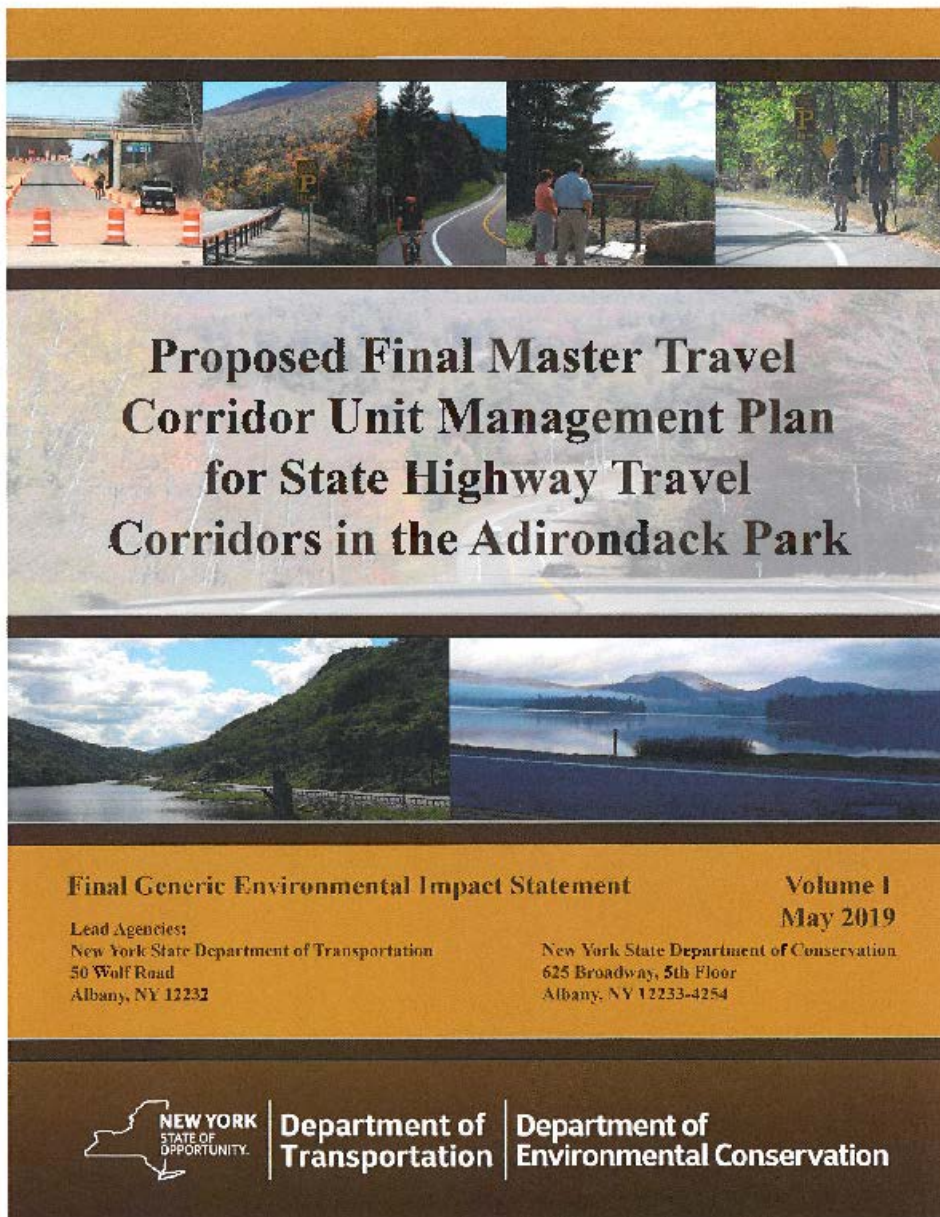


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III. Adirondack Park Unit Management Planning

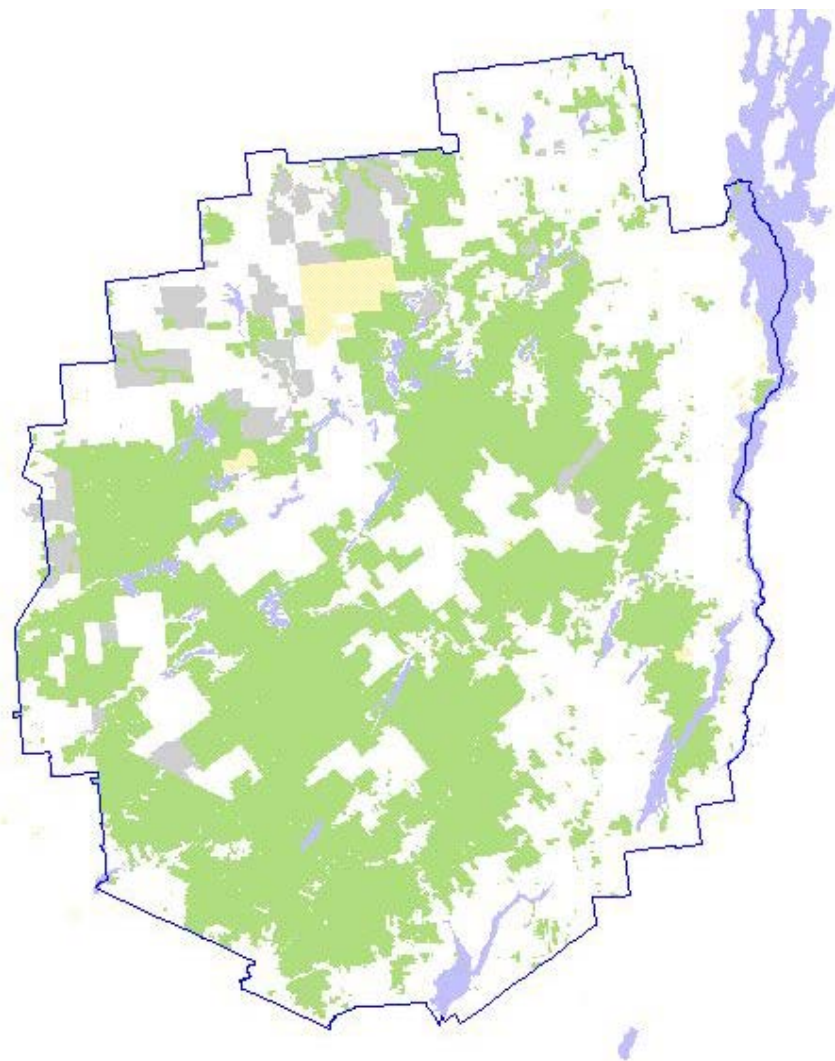
2019 New York State Travel Corridor Unit Management Plan for the Adirondack Park

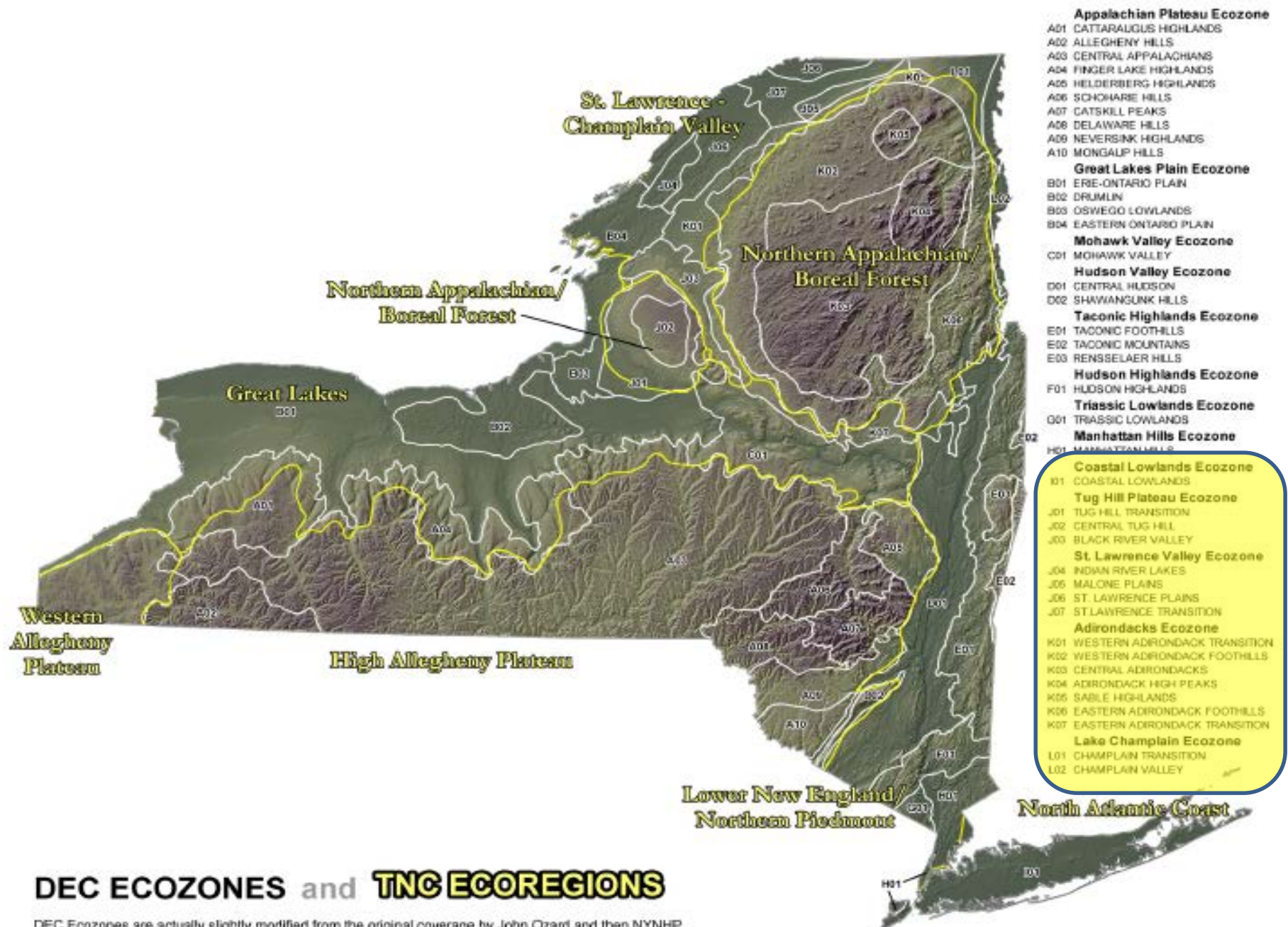
“ This proposed final Master plan outlines park-wide goals, strategies, objectives , policies, guidelines and best management practices to enable the development of route-specific corridor plans.”



The Adirondack Park

- Six Million Acres
- Public and Private
- Great South Woods
- Lakes, Rivers and Wetlands





DEC ECOZONES and TNC ECOREGIONS

DEC Ecozones are actually slightly modified from the original coverage by John Ozard and then NYNHP.

ROADSIDE CONSERVATION

The natural communities, native plant and animal species that are the focus of conservation.



The Adirondacks include large diverse landscapes, intact ecosystems, and high quality natural communities that can be impacted by invasive species.

Invasive Plant Species

A Threat to Natural Areas

Third leading threat to biodiversity after habitat loss and habitat modification.

- Cover 100 million acres, increase 8-20% annually
- \$45 million loss - purple loosestrife
- \$100 million loss - aquatic invasive

***Competition or suppression
of native species***



Prioritizing Species for Management

- Current extent of species
- Current and potential impacts
- Value of the habitat
- Ability to control



- Purple Loosestrife
- Common Reed Grass
- Japanese knotweed

IV. Adirondack Roadside Seed Mix Selection Guidance

A Sustainable Adirondack Roadside Planting Approach

How to create sustainable roadsides that are more resilient against invasive species?



- **Objectives of roadside restoration efforts:**

- ✓ *Clarifying the desired outcome*
- ✓ *Taking inventory of reference existing native & invasive plants*
- ✓ *Analyze site conditions*

- **Overview of DOT TCUMP strategies:**

- ✓ ***Seed selection** for various roadside habitat and pollinator support (grasses, wildflowers, wet areas with dormant seed stock, maintained lawn)*
- ✓ ***Subsoil/topsoil application techniques** that reduce the introduction & spread of invasive species along roadsides while blending the natural adjacent roadside.*



Adirondack Wildflower Seed Mix Selection Guidance

The Designer, in consultation with the Landscape Architect, should consider options when determining the appropriate roadside seed mix to facilitate grass and flora establishment. All options share a common goal – to provide a sustainable and resilient roadside native/naturalized stand of grass/vegetation for environmental and aesthetic purposes and, when appropriate, a high-quality turf lawn for adjacent property owners.

Before selecting an option, the Designer and Landscape Architect must: examine the soil types, existing vegetative cover and current level of roadside maintenance that exists within the project limits and determine if existing or proposed soils will support the type of plants desired.

The seed mix options presented in this guidance will apply to most projects and the use of more than one option on a single project is allowed. Some projects may require specialty seed mixes included in this guidance and that are tailored to the existing environment. The Landscape Architect will provide the Designer with the appropriate specifications and pay items.

Department goals:

- Commercially available.
- Cost effective.
- Aesthetic use of wildflowers.
- Native/naturalized.
- Promotes erosion and sediment control.
- Facilitates quick establishment.
- Resilient roadside landscape.
- Low mow/no mow roadside maintenance.
- Promotes pollinator habitat.
- Facilitates grassland bird nesting
- Long term sustainable roadside.

Site conditions: Roadside soils in the Adirondacks are generally:

- ✓ Thin
- ✓ Sandy
- ✓ Acidic
- ✓ Infertile
- ✓ Subject to drought.
- ✓ Roadsides slopes can have any aspect.
- ✓ On grades and slopes from flat up to 1:2.
- ✓ Are subject to applications of salt overspray.

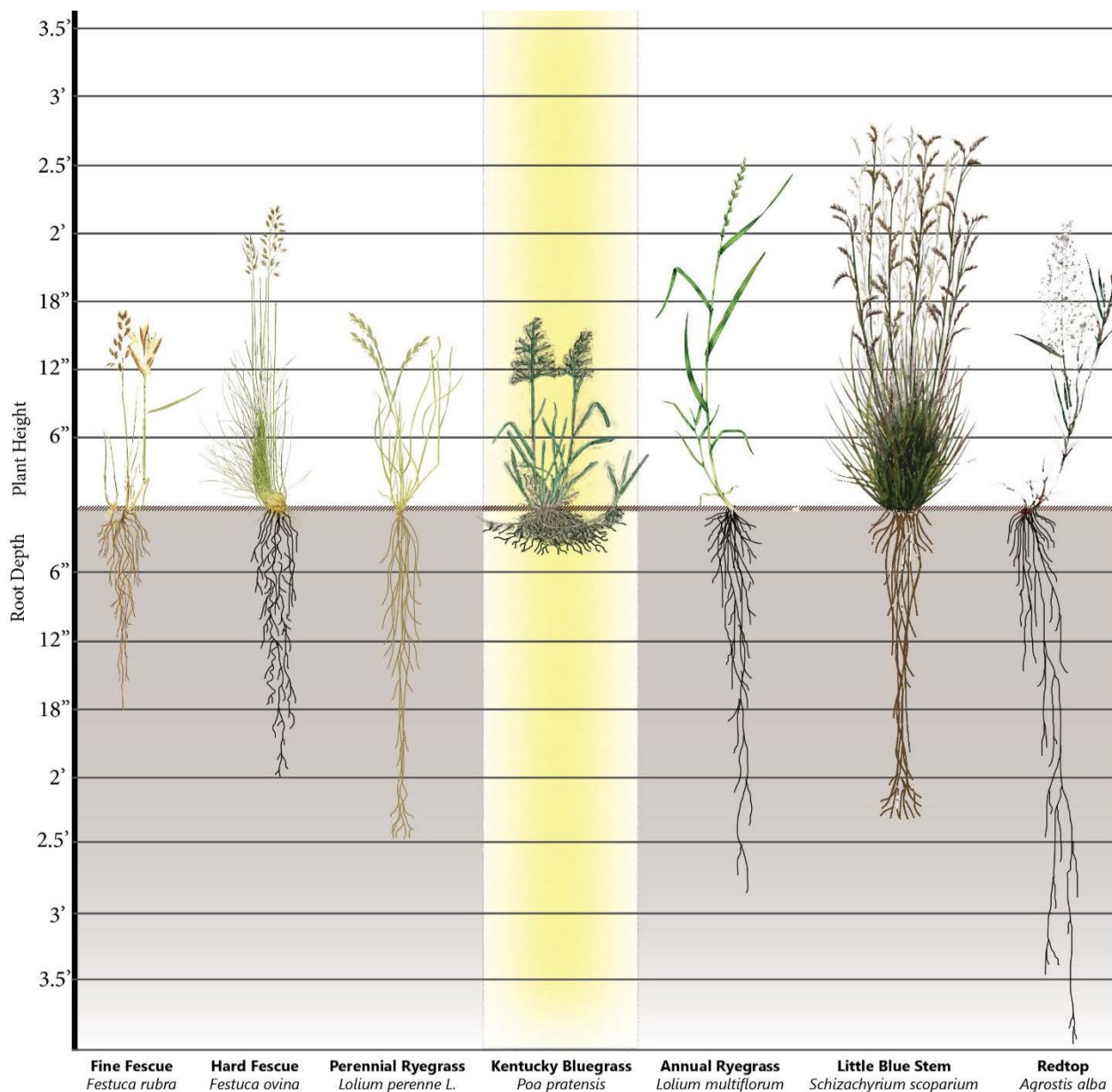
Partnering for Local Seed Sources

- Commercial seed suppliers
- Locally sourced native plant stock
- Volunteer or staff harvested seed
- Regional brokers/vendors

Adirondack Roadside Grass

Common Name	Scientific Name	Variety	% of Mix (by weight)
Fine Fescue	Festuca rubra		15-25
Hard Fescue	Festuca ovina		15-25
Perennial Ryegrass	Lolium perenne L.		15-25
Annual Ryegrass	Lolium multiflorum		15-25
Little blue stem	Schizachyrium scoparium		5-15
Redtop	Agrostis gigantea		5-15
Recommended Seeding Rate is 30 pounds per acre.			
Purpose:	Adirondack native/naturalized SPDES roadside		
Planting Area:	Native soils, all slopes and aspects		

Rooting Depth for Erosion and Sediment Control



Invasive Restoration

Wet areas/Temporary seeding & mulch

Where dormant native seed stock within soil exists

Common Name	Scientific Name	Variety	% of Mix (by weight)
Annual Ryegrass	Lolium multiflorum		25-50
Perennial Ryegrass	Lolium perenne L.		50-75
Recommended Seeding Rate is 30 pounds per acre.			
<i>Seeding after 10/1</i>			
Cereal Rye/Winter Rye	Secale cereale		100
Recommended Seeding Rate is 100-110 pounds per acre.			
Purpose:	Erosion and sediment control, quick growth and use as a nursery planting		
Planting Area:	Native soils, all slopes and aspects where soil contains existing seed		

Adirondack Roadside Wildflower/Pollinator Mix

Common Name	Scientific Name	Variety	% of Mix (by weight)	Ht.	Color	Bloom
Big Bluestem	<i>Andropogon gerardii</i>	Vitman	20.0	6-8'		
Little Bluestem	<i>Schizachyrium scoparium</i>		21.4	1.5-3'		
Roundseeded Panicgrass	<i>Dichanthelium sphaerocarpon</i>	Gould	22.0	1-3'		
Canada Wildrye	<i>Elymus Canadensis</i>		17.0	<4'		
Deertongue	<i>Dichanthelium clandestinum</i>	Tioga	10.0	1-3'		
Autumn Bentgrass	<i>Agrostis perennans</i>		5.0	3.5'		
New England Aster	<i>Symphotrichum novae-angliae</i>		0.5	2.5-6.0'	Pinkish purple	summer fall
New York Aster	<i>Symphotrichum novi-belgii</i>	novi-belgii	0.5	2.5-6.0'	Pink, white purple	summer fall
Common Milkweed	<i>Asclepias syriaca</i>		0.5	2-6'		
White Snakeroot	<i>Ageratina altissima</i>		0.3	1.5-3'	white	summer fall
White Avens	<i>Geum canadense</i>		0.3	1.5-2.5'	white	summer
Ox-Eye Sunflower	<i>Heliopsis helianthoides</i>		1.0	4-4'	Yellow	summer
Wild Bergamot	<i>Monarda fistulosa</i>	fistulosa	0.5	2-4'	Pink, Lav.	summer
Early Goldenrod	<i>Solidago juncea</i>		0.3	<3'	Yellow	summer
Gray Goldenrod	<i>Solidago nemoralis</i>		0.1	.5-2.5'	Yellow	fall
Wrinkleleaf Goldenrod	<i>Solidago rugosa</i>		0.3	2-5'	Lt. Yellow	fall
Grass Leaf Goldenrod	<i>Euthamia graminifolia</i>		0.3	3-6'	Yellow	fall

Recommended Seeding Rate is 30 pounds per acre.

Purpose:

Adirondack native conservation, pollinator & wildflower roadside

Planting Area:

Native soils, all slopes and SW, S & SE aspects

V. NYSDOT Roadsides



Native Plants = Pollinators



07/28/2016 12:37



08/25/2015 12:40



2016/06/29

Pollinators



Transportation + Native Plants + Pollinators Can Co-Exist



VI. Operations and Maintenance NYSDOT

Operations & Maintenance ?

- **Alternative Mowing Practices**

- Delayed mowing
- Altered frequency
- Modified width
- Alternate sides

- **Reduced Pesticide Application**

- **Seed Harvesting**

- Staff harvesting
- Partner with outside conservation entities

- **Reduced Management**

- Maintain early successional stage
- Mow minimal to prevent shrubs
- Less disturbance = more resiliency (harder for invasive to establish)



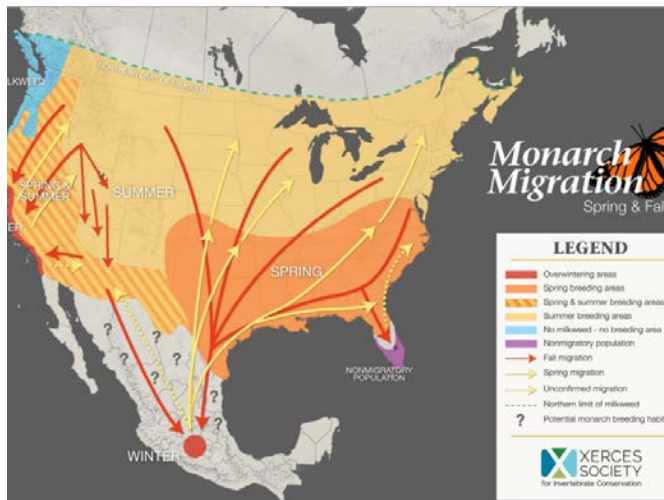
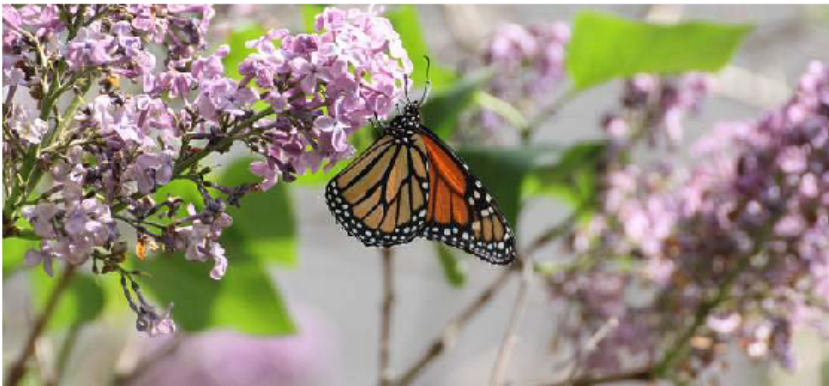


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Partnering to conserve the monarch butterfly migration

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Monarch Butterfly ESA Listing Decision Deadline Extended



Monarch Butterfly

- **Monarch Butterfly and Candidate Conservation Agreement with Assurances (CCAA)**
- **Listing decision was recently extended to December 15, 2020 with, if listed, an effective date one year later.**

“New York is taking aggressive actions to protect our state's invaluable natural resources, recreational assets and fish and wildlife habitats from invasive predators to ensure our environment remains sustainable, healthy and strong.”

Partners, Partners & Partners..

A photograph of a lush green field with numerous purple flowers in the foreground. A monarch butterfly is visible on one of the flowers in the lower right. In the background, there is a small, dark evergreen tree and a line of trees under a clear sky.

QUESTIONS ??

JOHN FALGE

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Construction Environmental Coordinator

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