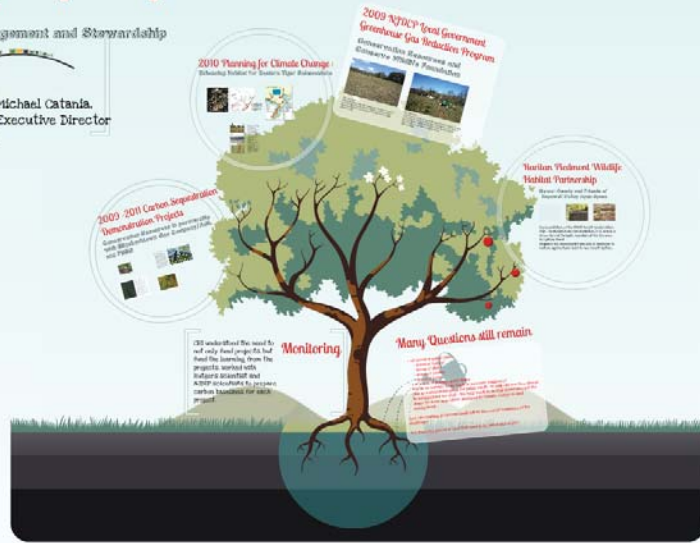


Preparing for Climate Change in New Jersey: Preparing our Infrastructure



Preparing for Climate Change in New Jersey: Preparing our Infrastructure

Lands Management and Stewardship



2010 Planning for Climate Change :
Enhancing Habitat for Eastern Tiger Salamanders



Preparing our Infras

Lands Management and Stewardship



Michael Catania,
Executive Director

Carbon Sequestr

2009 -2011 Carbon Sequestration Demonstration Projects

Conservation Resources in partnership
with Elizabethtown Gas Company/AGL
and PSEG





Ridge and Valley Conservancy (RVC)
 Dark Moon Preserve
 \$7,500 Small Grant Award
 Green Township, Sussex County
 Project Type: Grassland Restoration
 The Ridge and Valley Conservancy will monitor the carbon sequestered in soils at a 32-acre grassland restoration site on the Dark Moon Preserve. The grant funds will provide for establishing baseline mapping and developing monitoring points and protocols for subsequent monitoring over the next 5 years.

New Jersey Audubon Society (NJAS)
 Wattles Preserve
 \$7,500 Small Grant Award
 Mansfield Township, Warren County
 Project Type: Grassland Restoration
 New Jersey Audubon Society is restoring 40 acres of warm season grasses at their recently acquired Wattles Preserve. This preserve will serve as the new location of the NJAS Conservation Program. The warm-season grasses will be harvested and pelletized and used to fuel a biomass-pellet furnace that will heat the new NJAS offices. The grant funds will be used to pay for the restoration project as well as proposed monitoring of the biomass harvested at the site - one measure of the amount of carbon sequestered.

New Jersey Audubon's
work establishing native warm-season grasses will...

- Establish a viable alternative energy option for farms.
- Diversify the farm economy and availability of local products.
- Provide nesting habitat for state threatened and endangered grassland-dependent bird species.
- Sequester increased amounts of carbon in the soil.
- Reduce need for chemical fertilizer, and
- Improve soil health by increasing soil organic matter.

The development of a native warm-season grass (WSG) pellet biofuel industry has amazing potential to revitalize rural economies by absorbing the surplus production of the agricultural sector and reducing the economic and environmental costs associated with fossil fuel use. The rising price of heating oil and natural gas will increasingly make the replacement of these fuels with biomass energy more financially attractive to consumers. Relative to heating oil systems, grass pellets have the potential to reduce heating costs and greenhouse gas emissions by up to 30% and 60%, respectively. As the economic benefits of grass pellets are recognized, production of the grasses will be providing natural resource production of our soils, water, air, and critical grassland habitat.

Establishing Critical Grassland Habitat for Endangered Species through Biofuel Crops

FACT: Native grasslands are one of the most endangered ecosystems in the Northeast. They are also one of the only habitats in New Jersey that face an imminent, irrevocable threat of disappearing from the state. As a result, grassland-dependent bird species like the Blue-winged Teal are an already native, yet successful habitat have experienced significant declines in population.

Logo: NRC NEW JERSEY



Township of Woodbridge
 Pin Oak Afforestation Project
 \$5,000 Small Grant Award
 Woodbridge Township, Middlesex County
 Project Type: Forest Restoration
 Woodbridge Township in partnership with its Environmental Commission and the non-profit Woodbridge River Watch plans to afforest 2-3 acres of the headwaters of the Woodbridge River. The funds will be used to purchase native trees that will be planted by the local public works department on the 97-acre Pin-Oak Forest at Avenel -protected by Middlesex County in 2003. The grant will also support establishment of baseline monitoring for this project. Woodbridge Township has been active in the Sustainable Jersey Program and working to gain recognition for its efforts. This proposed forest restoration project will complement their efforts to create a sustainable community.



D&R Greenway Land Trust (D&RG)
 St. Michael's Afforestation Project
 \$5,000 Small Grant Award
 Hopewell Township, Mercer County
 Project Type: Forest Restoration
 D&R Greenway Land Trust proposes to reforest an approximately 1-acre field at its new St. Michael's Preserve. The funds will be used to cover the costs of the restoration as well as necessary monitoring. The project will occur on an existing clearing on this 337-acre preserve. The property consists of crop fields, young successional forest, mature forests and stream corridor along the Bodens Brook. The area will be fenced from deer to ensure the establishment of the trees and shrubs. The proposed monitoring will occur over the next five years. The restoration site is located near a proposed trail, and signs will be placed to provide information on forest restoration and carbon sequestration.

2009 NJDEP Local Government Greenhouse Gas Reduction Program

Conservation Resources and Conserve Wildlife Foundation

age:
nders



Otto Farm Park
Working in partnership with Hillsborough Township to afforest 7.6 acres with trees and shrubs. Portion of Otto Farm Park (Township Park) that was marginal farmland most recently planted in corn.



Otto Farm Park
While the project was not funded through the LGGRP (source funding was rescinded), the project was funded through the CRI - Raritan-Piedmont Wildlife Habitat Partnership (RPWHP) to implement the RPWHP Forest Conservation Management Plan
Otto Farm Park

Conservation Resources and Conserve Wildlife Foundation



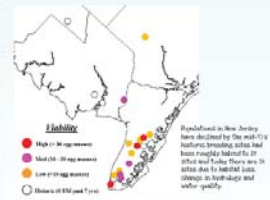
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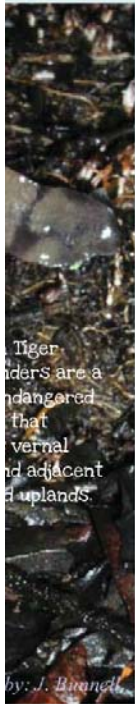


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2010 Planning for Climate Change:

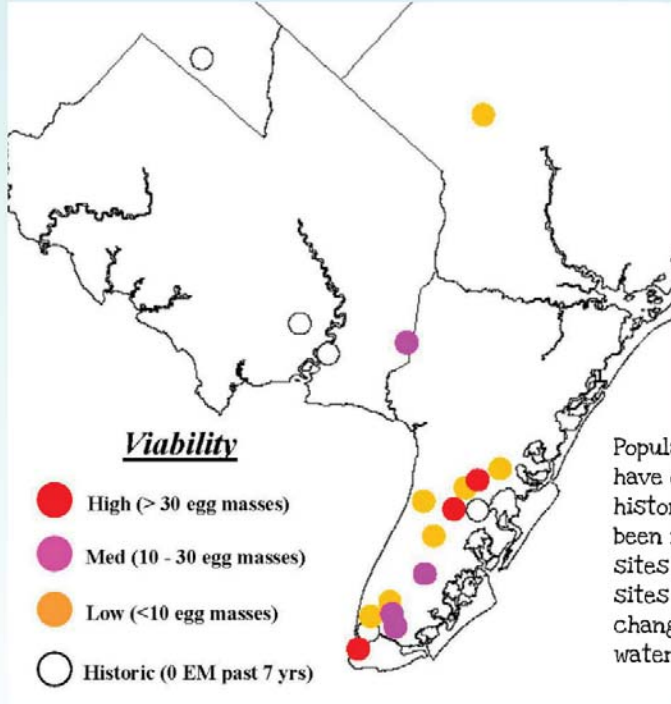
Enhancing Habitat for Eastern Tiger Salamanders



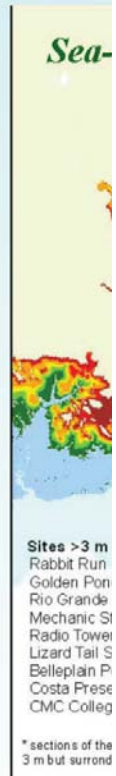


Tiger Salamanders are endangered species that rely on vernal pools and adjacent uplands.

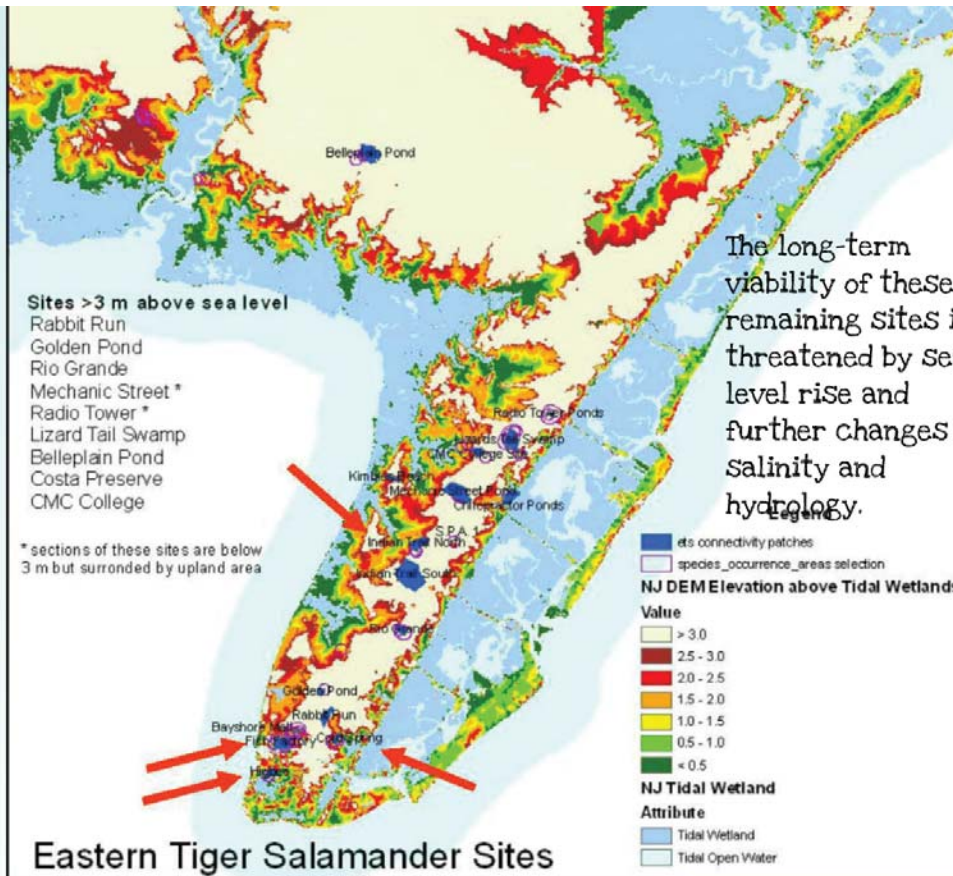
by: J. Buranelli



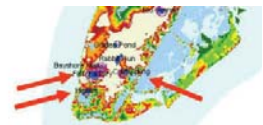
Populations in New Jersey have declined by the mid-70's. Historic breeding sites had been roughly halved to 19 sites and today there are 14 sites due to habitat loss, change in hydrology and water quality.



y
-70's
ad
e 14



The long-term viability of these remaining sites is threatened by sea-level rise and further changes in salinity and hydrology.



Eastern Tiger Salamander Sites



Based on pond creation projects from the 1980s, there was clear evidence the tiger salamander populations could be successfully established. Partnership identified suitable sites - not vulnerable to the impacts of sea-level rise, permanently preserved and connected to other sites. In 2011, ponds were created and in 2012 populations were established, an on-going project that is successfully stemming the loss of habitat and the threat of sea-level rise.

Raritan Piedmont Wildlife Habitat Partnership

Mercer County and Friends of
Hopewell Valley Open Space



Implementation of the RPWHP Forest Conservation Plan - Restoration and afforestation of 40 acres of fallow field at Baldpate Mountain at the 109 acre Hollystone tract.
Required soil amendments and use of subsoiler to restore agricultural soils to new forest system.

CRI understood the need to not only fund projects, but fund the learning from the projects. Worked with Rutgers scientist and NJDEP scientists to prepare carbon baselines for each project.

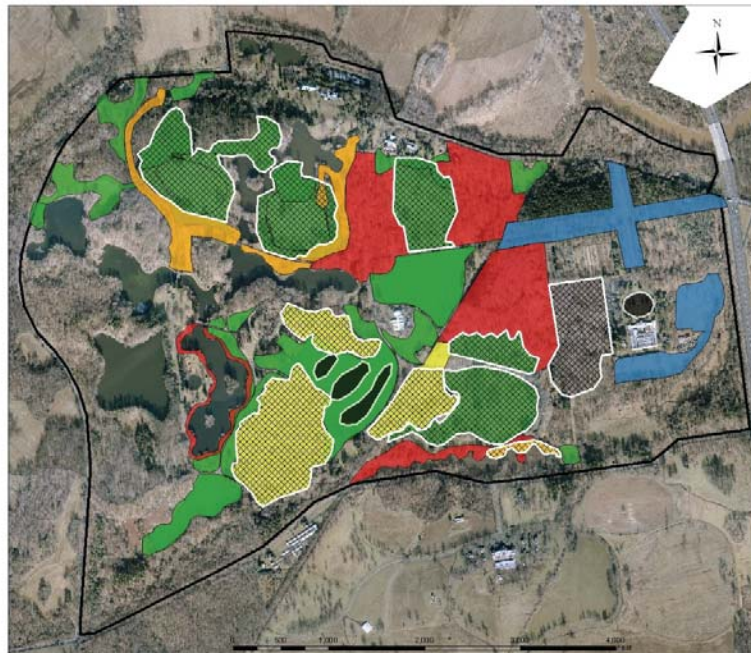
Monitoring

Lands Management and Ste



Duke Farms
Living Habitats

Michael Catania,
Executive Director



2008/2009 4-Step Habitat Regeneration Process

Step 1: Wildlife Management: Fauna

□ Fauna Management Area

Steps 2 & 3: Wildlife Management: Flora / Regenerative Planting

Invasive Removal / Woody Planting

■ 2009 Regeneration Areas

■ Herbaceous Planting 2009

■ 2008 Invasive Removal / Woody Planting Areas

Native Meadow Regeneration

■ Invasive Treatment / Native Meadow Planting Areas

■ Invasive Treatment / Short Native Grass Mix Areas

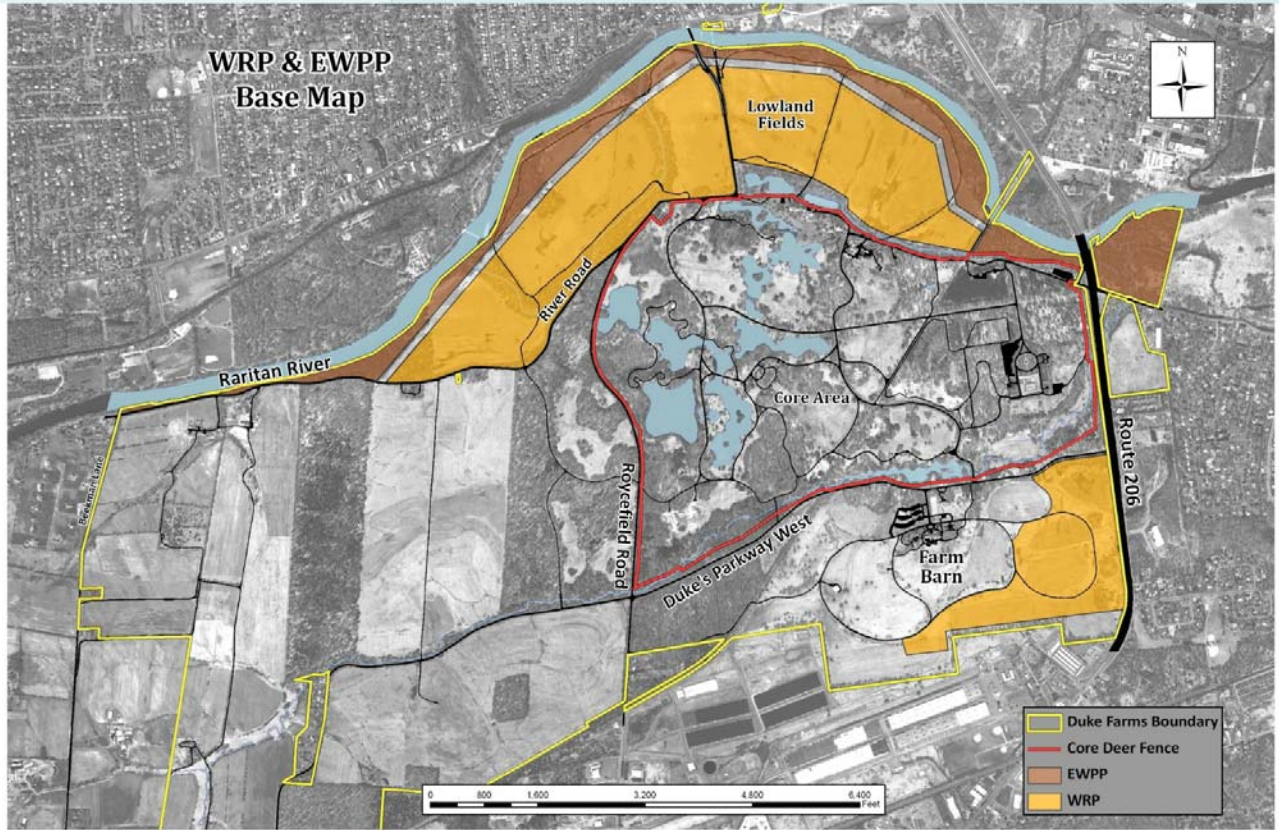
■ Invasive Treatment / Shade Mix Areas

■ Invasive Treatment / Annual Wildflower Mix Areas

Step 4: Follow-Through and Monitoring

■ Follow-Through and Monitoring Areas

STEP 1: Control wildlife causing negative impacts on systems/habitats











WRP Pools

- WRP Easement
- WRP Pools

0 112.5 225 450 675 900 Feet

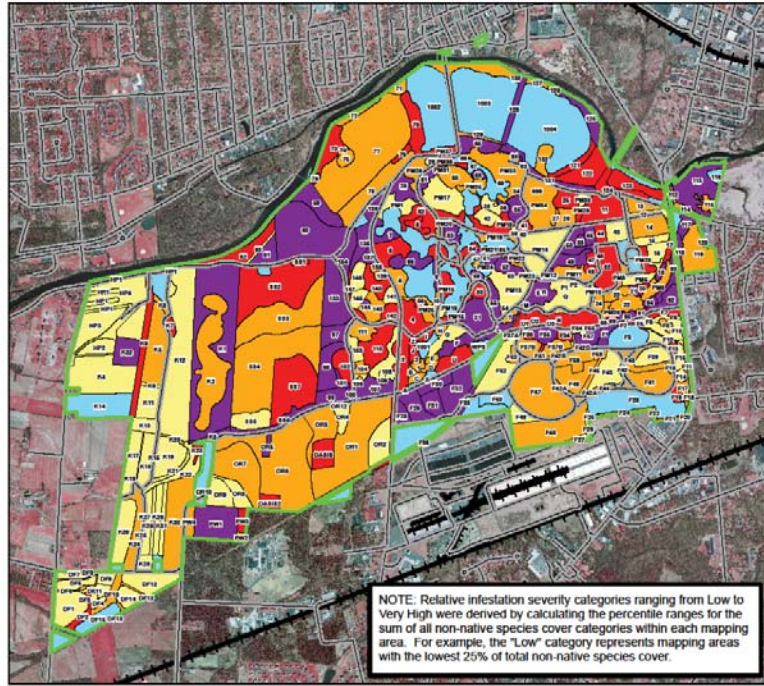


Figure 6.
Relative Infestation
Severity by Mapping Area

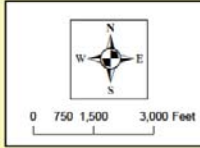
Duke Farms
Invasive Species Plan

Map prepared by Michael Van Cief,
 Ecological Solutions, LLC

Legend

- Property Boundary
- Roads
- Railroads
- Absent or Unmapped
- Low - 1 to 25%
- Moderate - 26 to 50%
- High - 51 to 75%
- Very High - 76 to 100%

NOTE: Relative infestation severity categories ranging from Low to Very High were derived by calculating the percentile ranges for the sum of all non-native species cover categories within each mapping area. For example, the "Low" category represents mapping areas with the lowest 25% of total non-native species cover.





Bringing back a native shrub layer



Production houses converted to native plant growing area.



*Over 125 acres of former lawn converted to pollinator meadows
& Over 350 acres hay and crop fields planted with native grasses and forbs*



Month DD, YYYY

Presentation title

The background features a stylized illustration of a landscape. At the top left, a dark brown tree branch with a red apple hangs down. Below it, a light blue watering can is shown watering a green landscape with rolling hills and grass. The sky is a pale blue gradient.

Many Questions still remain

- #Of acres of public land
 - acres of federal
 - acres of state
 - acres of county
 - acres of local
- # of acres of private open space
- How do we manage these lands to increase resiliency?
- Still no management plans for public lands - to address how they should be managed and for what - the RGGI funds to do this would have set the stage for more aggressive solutions to climate change in land management.

How can existing preserved lands add to the overall resiliency of the landscape?

Are there key pieces of land that need to be added and where?