

**CENTRAL
PINE
BARRENS**

**JOINT
PLANNING
&
POLICY
COMMISSION**

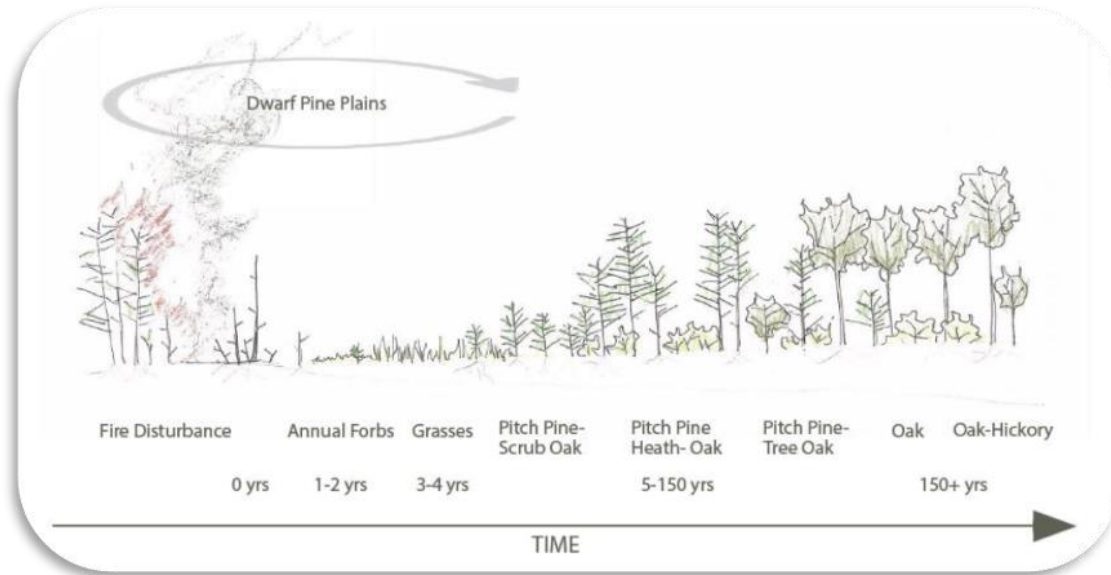


RE-INTRODUCING PRESCRIBED FIRE IN AN URBAN LANDSCAPE

-MOTIVATIONS, OBJECTIVES, AND PROGRESS

Long Island Pine Barrens Protection Act Goals:

1. *Protection of a threatened ecosystem and landscape*
2. *Protection of ground, surface, and drinking water*

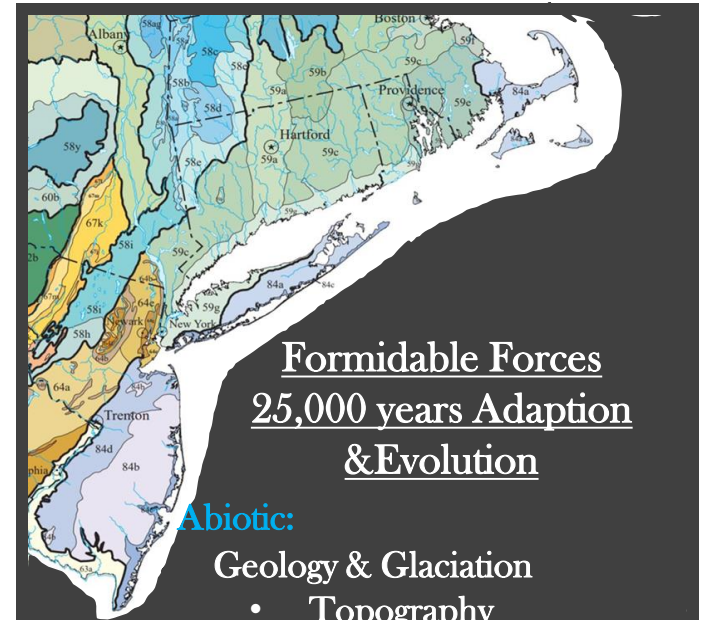
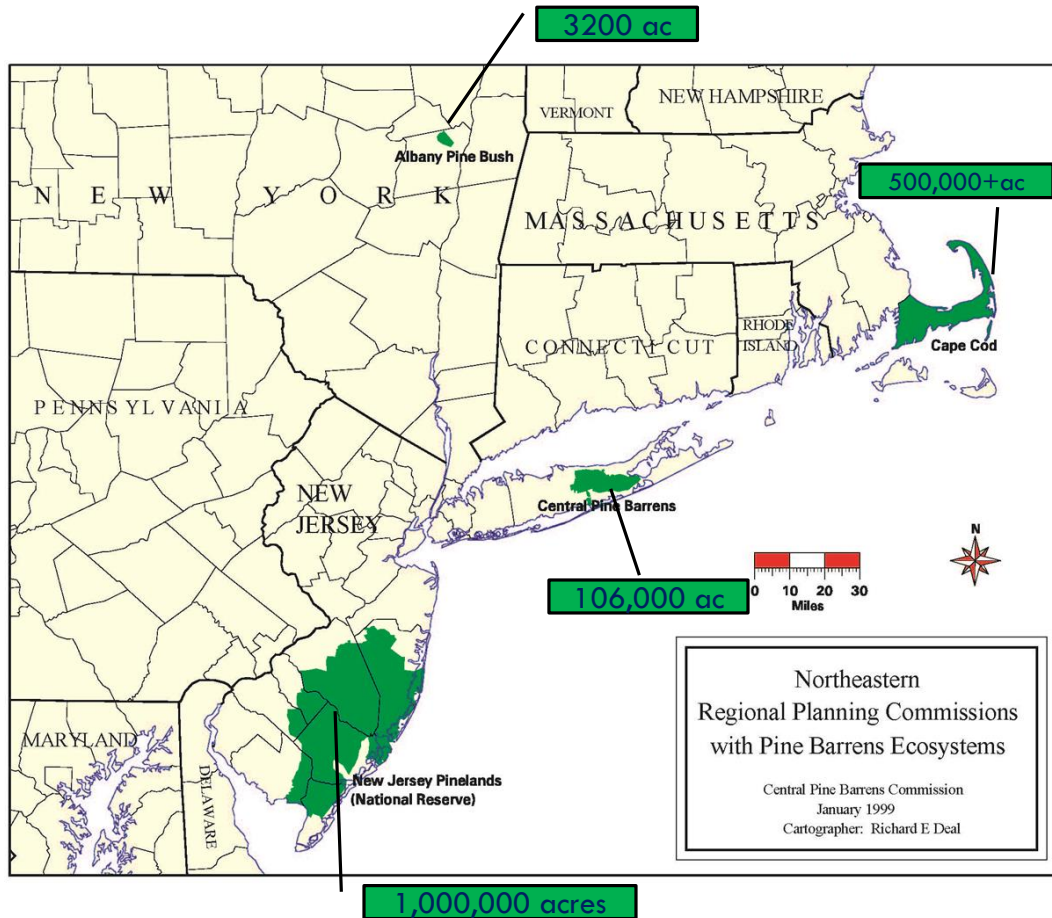


ECOLOGICAL MANAGEMENT AND STEWARDSHIP

Ecology: understanding of relationships of biota to one another and interactions with natural environment.

Ecological Management: Maintaining or restoring the species; interconnectivity to achieve optimal ecological function.

Consider: Environmental, cultural, economic, and social values, influences, dependencies.



Formidable Forces 25,000 years Adaption & Evolution

Abiotic:

- Geology & Glaciation
 - Topography
 - Edaphics
- Geography
 - Coastal Exposure*
 - Island/Peninsula
- Climate/Weather*
 - Fire
 - Storm Events

Biotic:

- Species Adaption
- Speciation
- Co/Evolution
- Disease/Pest Pressures
- Native American (10,000 years)
 - Fire

PINE BARREN ECOSYSTEMS

6200 SQ MILES

*DISTURBANCE DEPENDENT, FIRE PRONE ECOSYSTEM

Pine Barren Ecosystems

Globally rare, disturbance dependent w/high endemic richness and unique species assemblages

Ecological Community Types:

- Pitch Pine - Oak Forest
- Pitch Pine Shrub Oak Barrens (S1/G2)
- Dwarf Pine Plains (S1/G1G2)
- Maritime Post Oak Forest (S2S3/G3G4)
- Maritime Grasslands (S1/G2G3)
- Maritime Shrublands
- Maritime Heathlands (S1/G3)
- Red Maple/ Black Gum Swamp (S2/G3G4)
- Maritime Beach
- Coastal Oak-Heath Forest
- Coastal Plain Ponds (S2/G3G4)
- Coastal Plain Poor Fen (S1/G3?)
- Coastal Plain Atlantic White Cedar Swamp (S1/G3G4)

(NYS NYNHP Ranking)



Dwarf Pine Plains in Westhampton, NY

Ecological Community	# of Rare Species
Coastal Plain Pond Edge	53
Pitch Pine – Oak Forest	52
Maritime Grassland	44
Atlantic Plain White Cedar Swamp	8
Dwarf Pine Plains	28

MODIFYING FORCES – TRANSITIONS AND TRENDS

LAND USE AND ALTERED DISTURBANCE REGIMENS

■ European Colonization – (1600's – 1900's)

- Mass deforestation and grazing
- Altered seasonality & fire frequency
- Initiated development and transportation infrastructure

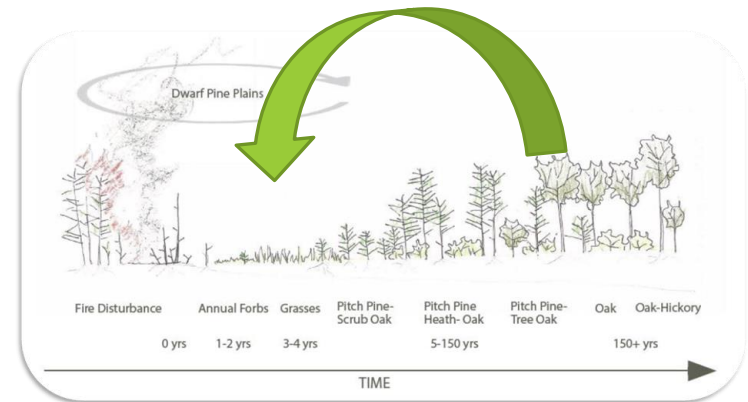


- Mass reset of succession
- Mass Pitch pine/Scrub oak recruitment & expansion
- Mass outbreaks of devastating wildfire
- Initiated culture of suppression

■ Industrialization to Modern Day (1900 +)

- Eastward creep into Pine Barrens & Wildland Urban Interface
- Sustained fear of wildfire and culture of fire suppression
- Preservation and protection legacy
- Climate change
- Decreased awareness of ecosystem ecology
- Loss of dominant disturbance regimen and prescribed fire culture
- Increased absence of large-scale fires, many small scale arson fire
- Increase in disease and pest pressures
- Increased WUI and Wildfire risk due to fuel accumulation
- Reduced ecosystem health and transition

European Colonization Reset Succession



The succession of the Pine Barrens. Illustration courtesy of Amanda Branum
<http://www.refugiadesign.com/blog/2015/9/11/the-pinelands-a-battle-of-succession-oak-vs-pine>

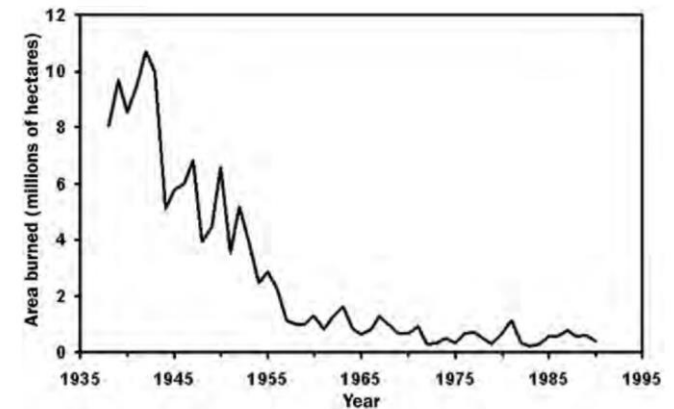


Figure 3. Area burned in the eastern United States (1938–1990) based on historic fire records held at the US Forest Service, Fire and Aviation Management, Washington Office, and compiled by Regina Winkler (R6 Information Technology Specialist). Area includes Minnesota, Iowa, Missouri, Arkansas, Louisiana, and all states eastward.

IMPACT OF CULTURAL LEGACIES ON ECOSYSTEM HEALTH

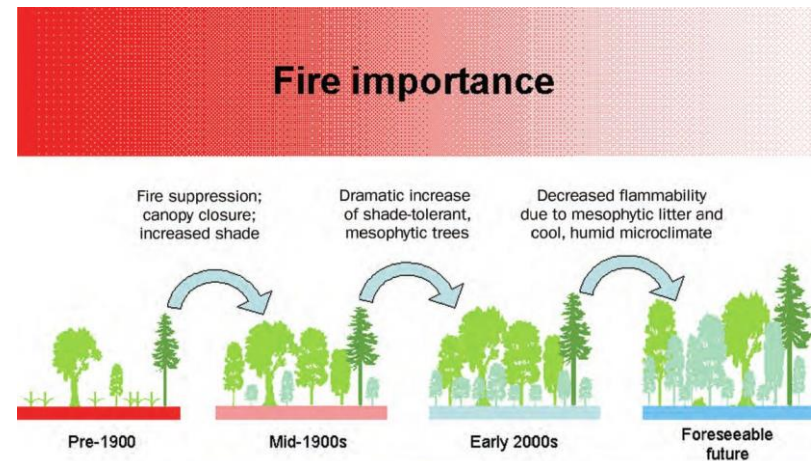
- FOREST HEALTH & FUELS CONDITIONS

Degraded Forest Health Symptoms:

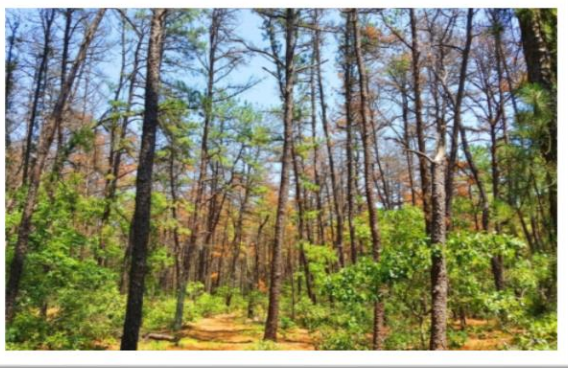
- High density, even-aged, low diversity, declining stands (180 – 220 ft²/acre basal area)
- Thickets of understory shrubs
- Thick layers of duff and organic matter
- Increased pest & disease susceptibility & pressure
 - Gypsy moth, SPB, Pine looper, Oak Wilt, SLF, Two lined chestnut borer, Ips beetle, Turpentine beetle
- Increase in T/E species
- Loss of fire adaptations and dependencies
- Habitat and species homogenization (Loss of barrens, xeric system, habitat and species)
- Succession and mesophication (Enrichment of moisture, carbon, nutrients, loss of fire, xeric system)

Fuels:

- Continuous increase in fuels
- Dense vegetation
- Downed woody and fine fuels
- High abundance of ladder fuels

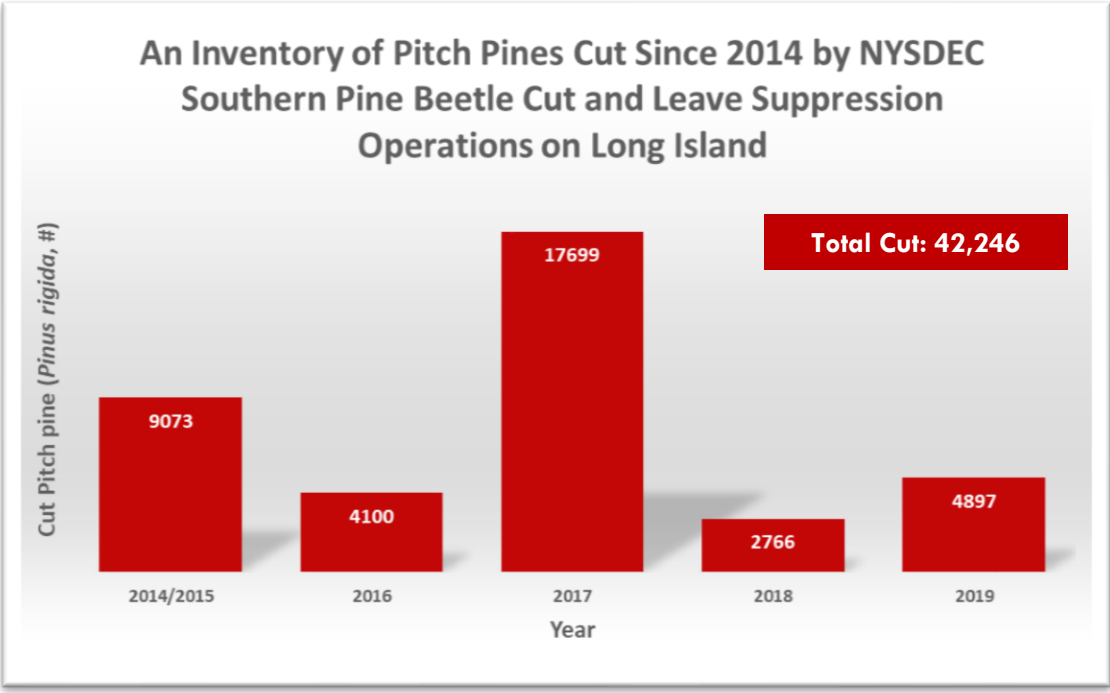


SOUTHERN PINE BEETLE (*DENDROCTONUS FRONTALIS*) — AN INDICATOR OF DEGRADED FOREST HEALTH



Incident Command Leadership Response

- Aerial and Ground Survey
- Cut and Leave Suppression (Eradication unlikely)
- Monitoring
 - SPB Adaption, Predator/Response
 - Vegetation Response
- Restoration
- Public Education
- Community Recovery Grants
- Forest Health Improvement



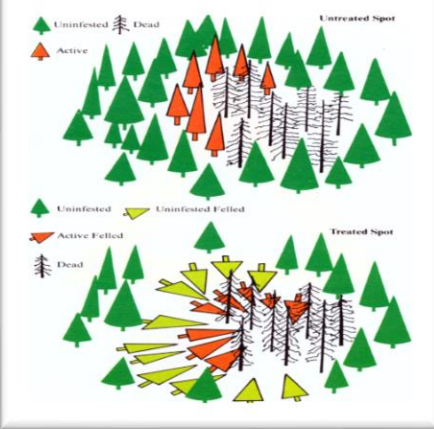
Untreated Spread of the Southern Pine Beetle



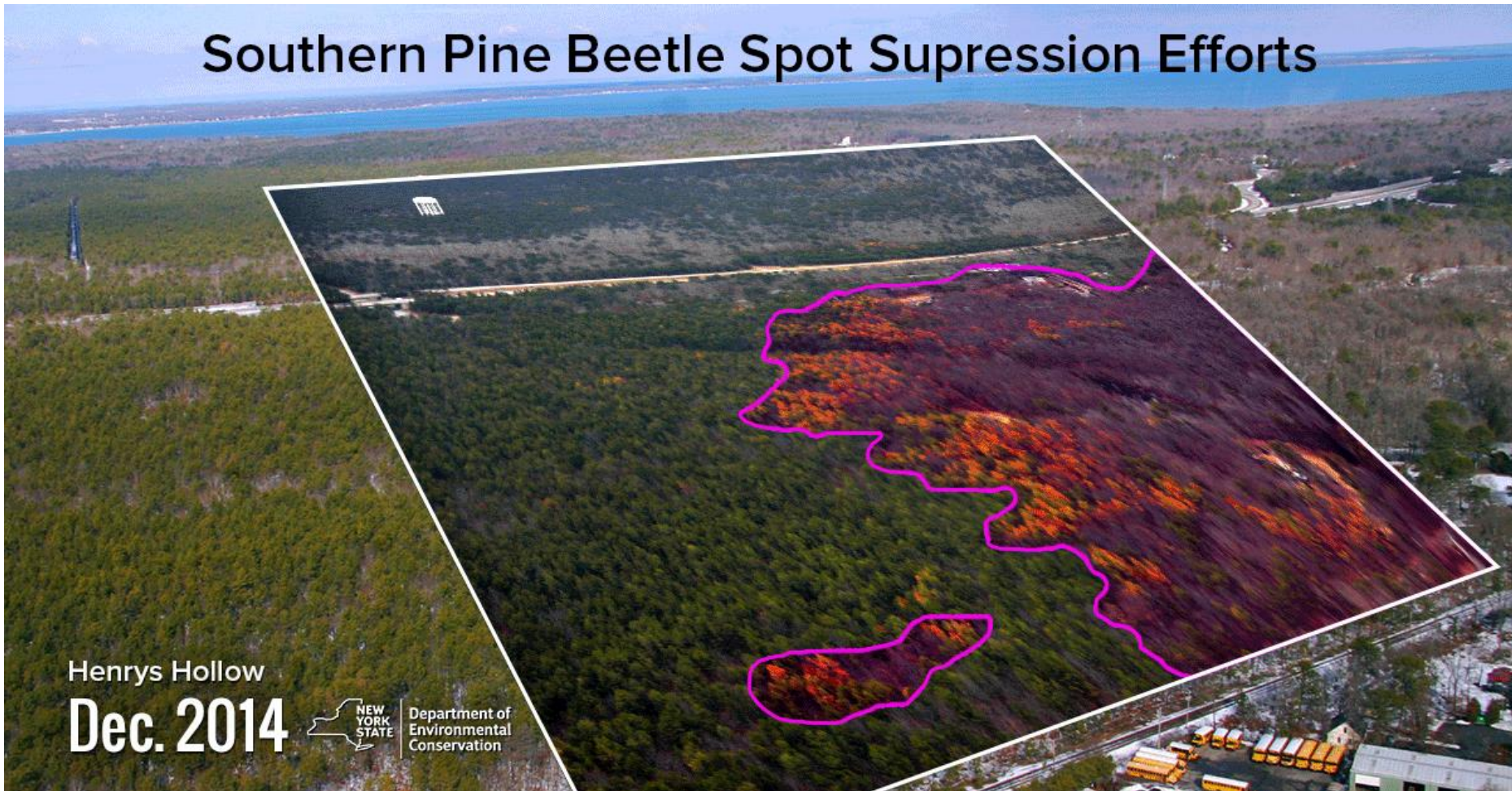
East Quogue
Dec. 2014

- 2016 – 1600 surveyed acres
- 146 acres active infested
- 100+ acres dead standing trees
- Numerous affected trees in developed area

HENRYS HOLLOW PINE BARRENS STATE FOREST MUNN'S POND COUNTY PARK HAMPTON BAYS ~ 30 ACRES CUT AND LEAVE SUPPRESSION



Southern Pine Beetle Spot Suppression Efforts



Henrys Hollow

Dec. 2014



Department of
Environmental
Conservation

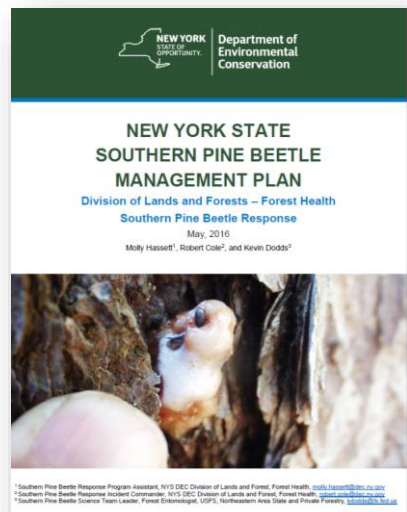


SPB Preferred Pitch Pine Demographics (NYSDEC Research)

- Tree densities above 80 ft²/ac Basal Area
- Average tree age = 100 years
- Average diameter = 14.5 in.
- Susceptible to SPB Attack = 4" diameter
- Regeneration time to reach 4" diameter = 29 years

Impacts and Challenges

- Altered community compositions
 - Mass loss of Dominant and Co-Dominant Pines
 - Loss of old growth pines
- Accelerated succession w/oak dominance
- Potential for altered fire behavior/hazard
- Limited Pitch pine recruitment
- Challenge for Rx Fire w/ SPB suppression sites
 - Smoke, Mop Up
- Increased hazard tree development (forest/urban)



SPB – A Silver Lining

- Brought forest health into land managers, policy makers and public's view
- Identified the legacy impacts of fire suppression and preservation
- Increased regional ecosystem awareness of disturbance dynamics
- Introduced standard forest and fuels management operations
 - Cutting pines and hardwoods-> thinning, mastication, prescribed fire

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³ Southern Pine Beetle Science Team Leader, Forest Entomologist, USFS, Northeastern Area State and Private Forestry, kevin.dodds@usda.gov

CENTRAL PINE BARRENS JOINT PLANNING AND POLICY COMMISSION

Commission Members

New York State
Governor's Representative

Suffolk County
Executive

Brookhaven Town
Supervisor

Riverhead Town
Supervisor

Southampton
Town Supervisor

Commission Councils & Committees

- Law Enforcement Council
- Protected Lands Council
- Pine Barrens Credit Clearinghouse
- Science & Stewardship Committee
- Research Committee
- Wildfire Task Force
- New York Wildfire & Incident Management Academy
- MSRM Twinnings

Suffolk County Water Authority (SCWA)
(Provides staff, office space and support services, via long-term contract with the Commission.)

Advisory Committee
(Statutorily created by NYSECL Article 57)

No Land Ownership

**Administration
& Management**

Legal

Communications

**Administration/
Support Staff**

**Education &
Outreach
Division**

Land Use Division

- Land Use and Planning
- Pine Barrens Credit Program

**Science &
Stewardship
Division**

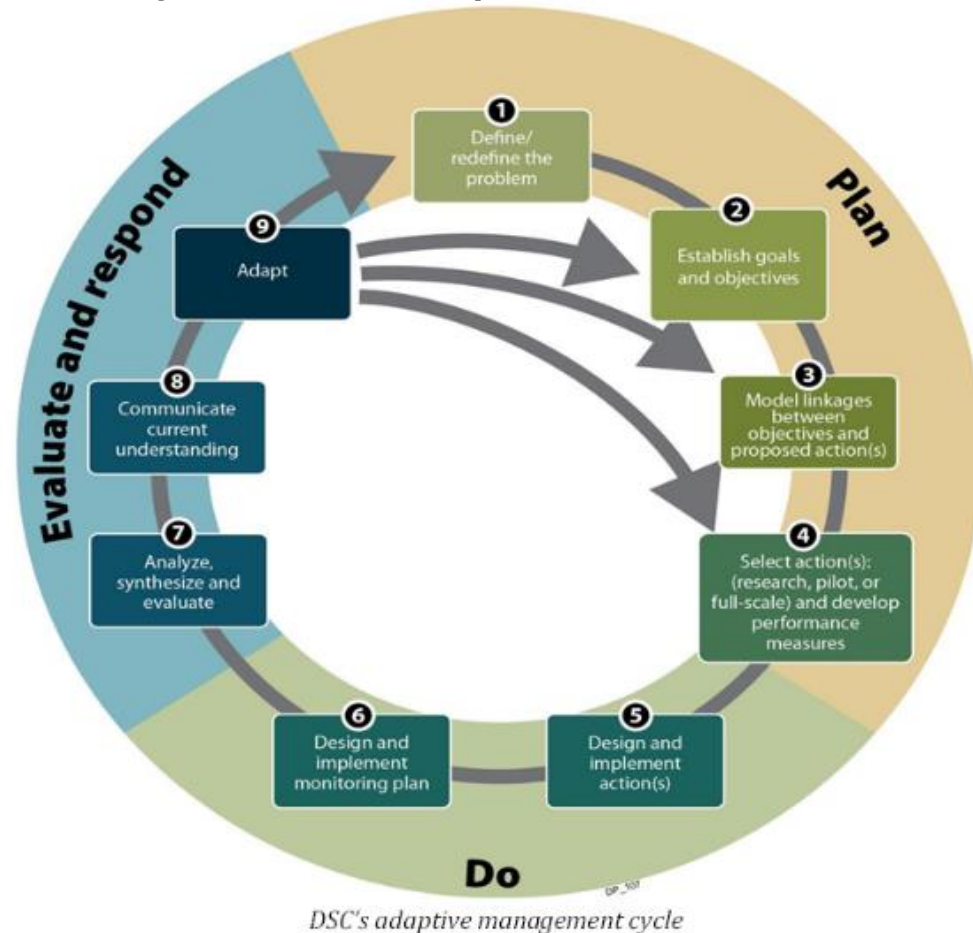
**Compliance &
Enforcement
Division**

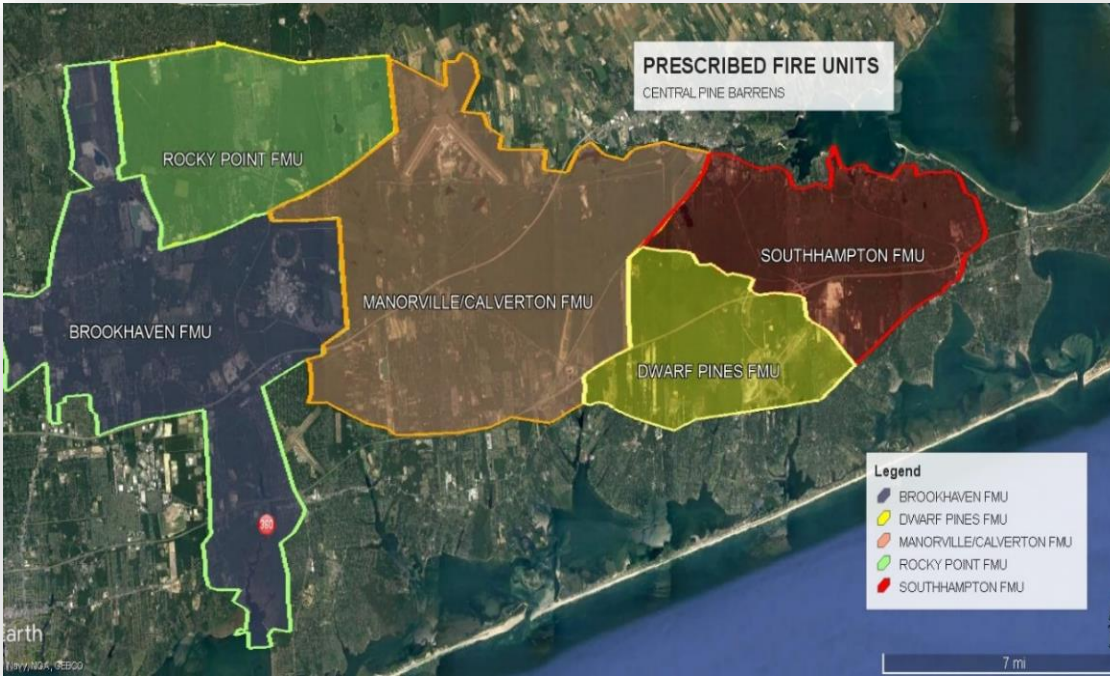
Mission: "To manage land use within the Central Pine Barrens to protect its vital groundwater and surface water and the region's vast and significant natural, agricultural, historical, cultural and recreational resources for current and future Long Island residents."

RETURNING & MAINTAINING DISTURBANCE – BUILDING RESILIENCE

Holistic Adaptive Management Program Development

- Founded in Research and Monitoring
 - Collaborative with Federal, State, and Local levels
 - Academic Partnerships
 - Consistent Monitoring Protocols with other agencies and organizations
- Extensive Outreach Efforts
 - Introducing a new and novel management framework for the Central Pine Barrens
 - Building and redefining a new management culture with the public and with stakeholders
- Exploring and Implementing Multiple Methods and Tools
 - Prescribed Fire
 - Mechanical Treatments
 - Seasonality
 - Intensity and Response
- Building Capacity through Collaboration

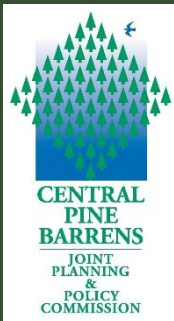




**5-year Contractual Program
funded by the NYS
Environmental Protection Fund
through**



**Department of
Environmental
Conservation**



PRESCRIBED FIRE PROGRAM

Goals:

- Improve forest health
- Strengthen ecosystem resiliency
- Increase native species diversity
- Ensure suitable habitat for rare and endangered species
- Retain species-specific fire adaptations
- Reduce wildfire risk
- Increase public safety
- Reduce ticks and disease
- Landscape Scale Approach

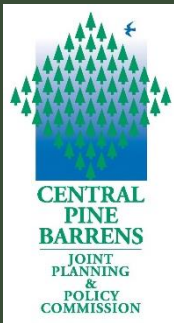


1995 Wildfires Sunrise Highway Westhampton - CFD Firefighters



Challenges and Opportunities

- High Wildland Urban Interface (WUI)
 - Fire-Wise Implementation
 - Fire preparedness
- High fuel loading
- Availability of trained staff
 - Limitations
- Limited Burn Plan Development
 - Approval
 - Scale – Comprehensive – Implementation Plans
- Historical Firebreaks
 - Transition/Succession
 - Surface vs Crown Spread
- Public Perception
 - Understanding of Pine Barren Ecology
 - Resistance to mechanical pretreatment
 - Resistance to herbicide
 - Preservation vs Conservation
 - Short term memory
 - Perceived Risk



PRESCRIBED FIRE PROGRAM



Planning Phases

- Insurance
- Fire Management Plan Development
- MOU/MOA
- Prioritization of public lands
- Pre-treatment vegetation planning
- Burn plan development
- Qualifications and training
- Equipment cache and storage
- Outreach and education

Implementation

- Collaboration
- Vegetation Treatments
- Fire Line Installation
- Prescribed Fire

Vegetation Monitoring

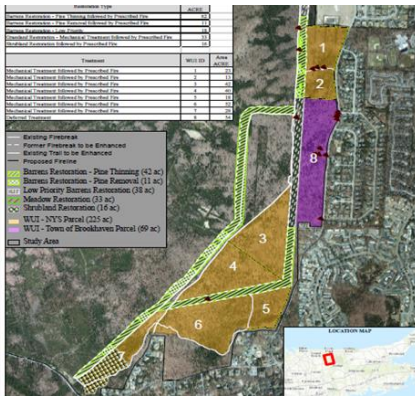
- Pre and post RX Fire



PRESCRIBED FIRE PROGRAM



- Fire Management Plan – Landscape Plan
- Fire History Update
- NYSDEC, NYS Parks, Suffolk County and Towns MOU/MOA
- NYSDEC Forest Health Management (Thinning & Fire line) Mechanical Treatments (Other Public Lands) Following w/ Prescribed fire this year



- Burn Plan Drafting, Review, and Approval
- Adaptive Management Foundational Information
 - Forest Health and Structure Metrics – System, Stand, and Unit Levels
 - Xeric Monitoring Protocols
 - Empire Pollinator Studies



STRATEGIC PLANNING
 ~ WHERE WE ARE NOW

PROGRAMMATIC VISION

NEAR AND LONGER TERM



• Near Term

- Agreements in Place
- Test and Refine Monitoring in Practice
- Test and Determine Partner Agency Commitment and Capacity
 - Examine our staffing and ability to grow
 - Engage and Develop Volunteers, Fire Department Involvement
- Active and Experimental Prescribed Fire
 - Inform and Refine Adaptive Processes
 - Plot and Unit based
 - Smaller Fires
 - Dial in Desired Behavior and Effects
 - Catch up on all completed pretreatments
- Examine Pretreatment Effectiveness, Benefit, and Need

• Medium Term

- Scale Up
- Examine and Test Ability and Safety in Making Structural Changes with Fire
- Reviewing and Refining Fire Break Standards and Methodology
- Work Periphery to Larger Blocks
- Develop Longer Budget Projections for Program at Scale – Capacity
- Recurring Fire Implementation at Effective Return Intervals

• Longer Term

- Continue to Scale
- Achieve Balance with Maintenance and Restoration Phase Fire Use
- Develop Sustainable Long-Term Fire Use across entire Central Pine Barrens Region

Conclusions

- Striving to set a firm foundation and a rigorous basis for the program to build into the future
- Demonstrated Public and Ecological Need For Management – Communicating Broadly
- Slow and steady in some aspects with the goal of scaling up, measured approach
- Seeking to capitalize on our in-house experience and expertise, but desiring broad input and advice from other fire programs and fire practitioners while being responsive and receptive to internal and external stakeholders
- Adaptive MGMT framework is key
 - Continuing to learn and refine
 - Test, confirm, and develop comfort and confidence in the program





Questions / Comments



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