



**MASSWILDLIFE**

# **MassWildlife Landscape Goals for Wildlife Habitats**

**Southern New England Chapter, Soil & Water Conservation Society**

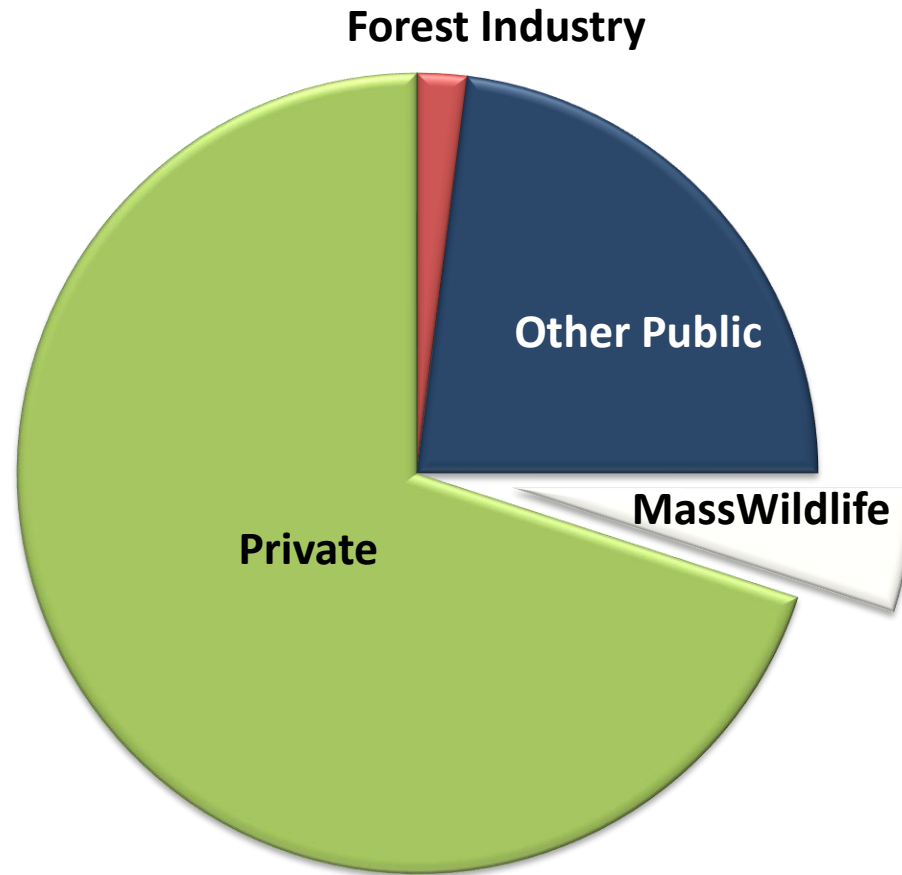
**Yankee Division Society of American Foresters**

**2018 Winter Conference, Sturbridge, MA**

**John Scanlon, Habitat Program Supervisor**

# Massachusetts Forestland Ownership

## 3.2 Million Acres





# Habitat Management on MassWildlife Lands

**Mandate:** Conservation (including restoration, protection and management) of wildlife and vegetation resources for the benefit and enjoyment of the public.

**Habitat Management Goal:** Provide a range of forested and non-forested conditions to conserve the biological diversity of species, communities, and ecosystems.



# 2015 State Wildlife Action Plan (SWAP)

## Massachusetts State Wildlife Action Plan 2015



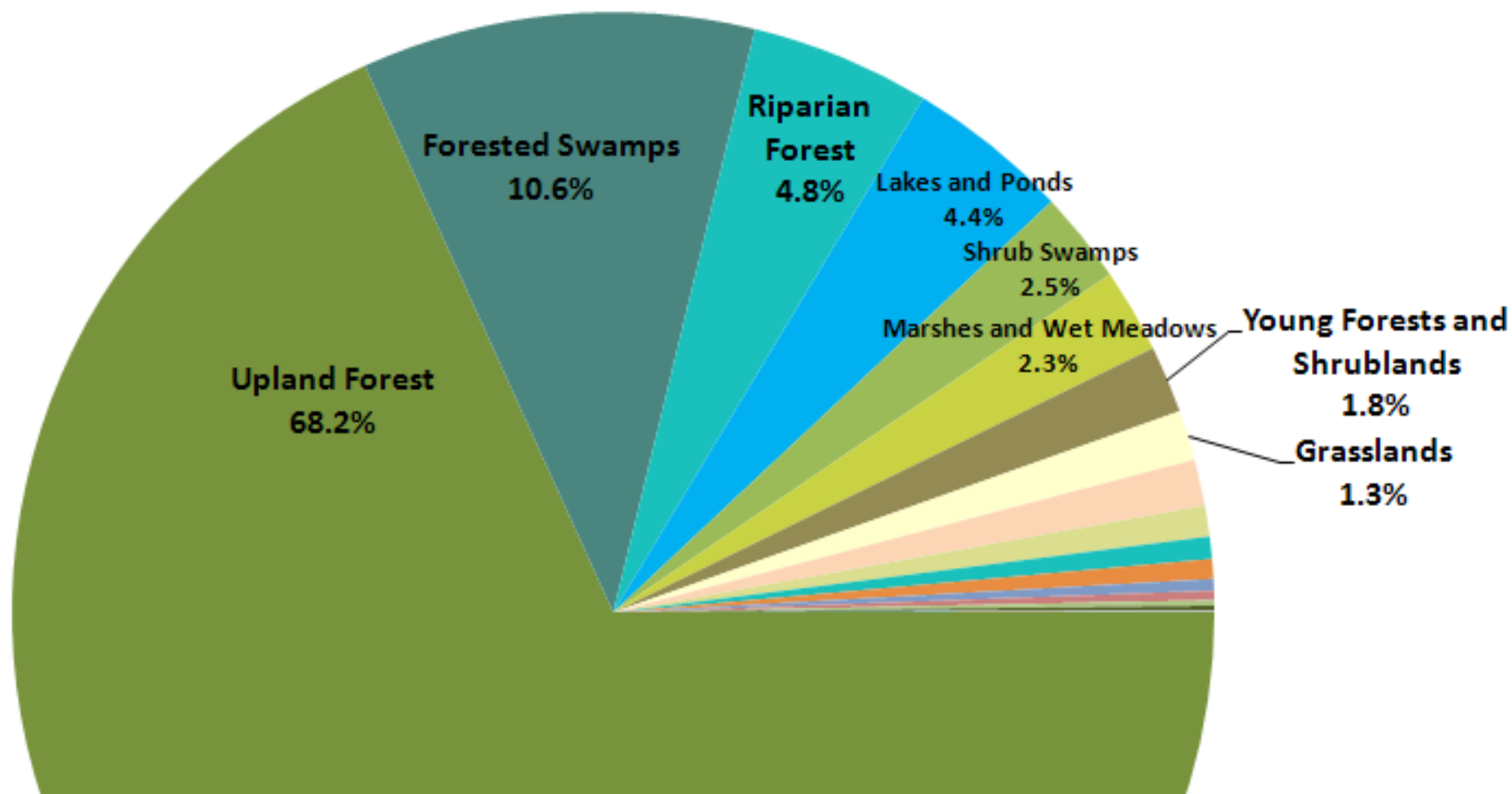
Produced by the

**Massachusetts Division of Fisheries & Wildlife**  
Department of Fish and Game  
Executive Office of Energy and Environment



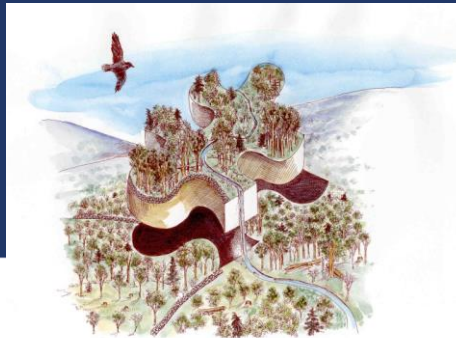
- Describes 24 habitat types, and lists species of conservation need that rely on each type of habitat.
- Includes focus on a diversity of grassland, shrubland, and forested habitats.

# Summary of major SWAP habitats



# MassWildlife Landscape Habitat Goals for Upland Areas

Habitat Type	Current	Desired
Grassland	1%	1-2%
Shrubland	4%	8-9%
Young Forest	4%	10-15%
Mature Forest	81%	60-70%
Forest Reserve	10%	10-15%





United States  
Department of  
Agriculture

Forest Service

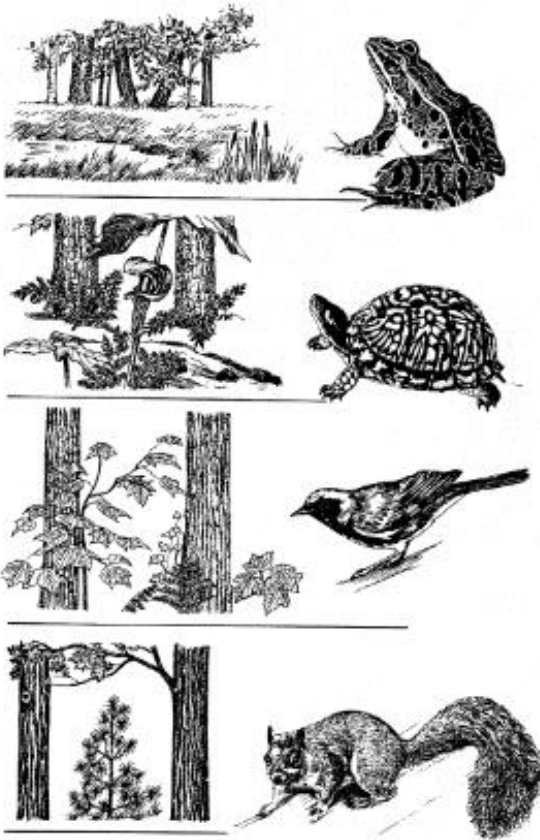
Northeastern Forest  
Experiment Station

General Technical  
Report NE-144

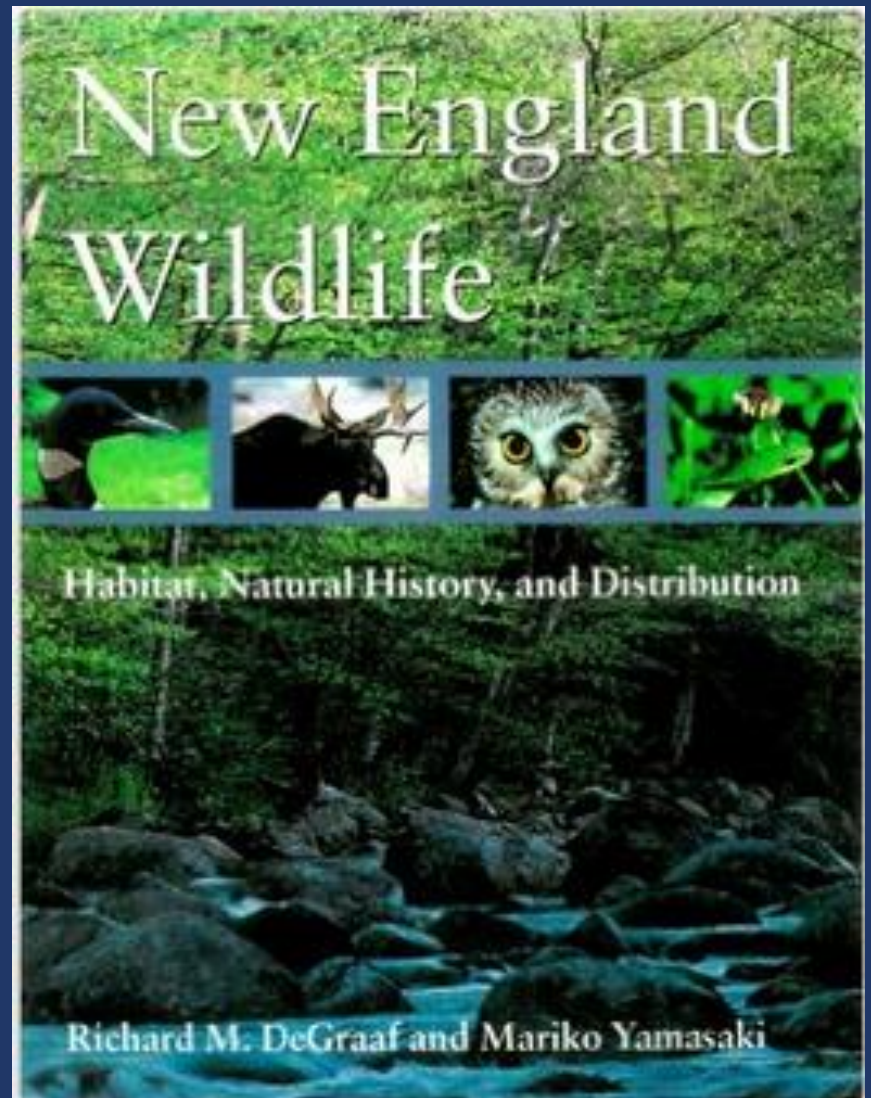


## New England Wildlife: Management of Forested Habitats

Richard M. DeGraaf, Mariko Yamasaki, William B. Leach, John W. Lanier



1992



2000

# Support for MassWildlife Landscape Goals

- Current research continues to support landscape habitat goals.
- Public support for these goals was significant during a statewide 2010 public review process.

 **The Auk**  
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Ecology and Management of  
Scrub-shrub Birds in New England:  
A Comprehensive Review



Submitted to the USDA Natural  
Resources Conservation Service  
Resource Inventory and Assessment  
Division, August 30, 2007

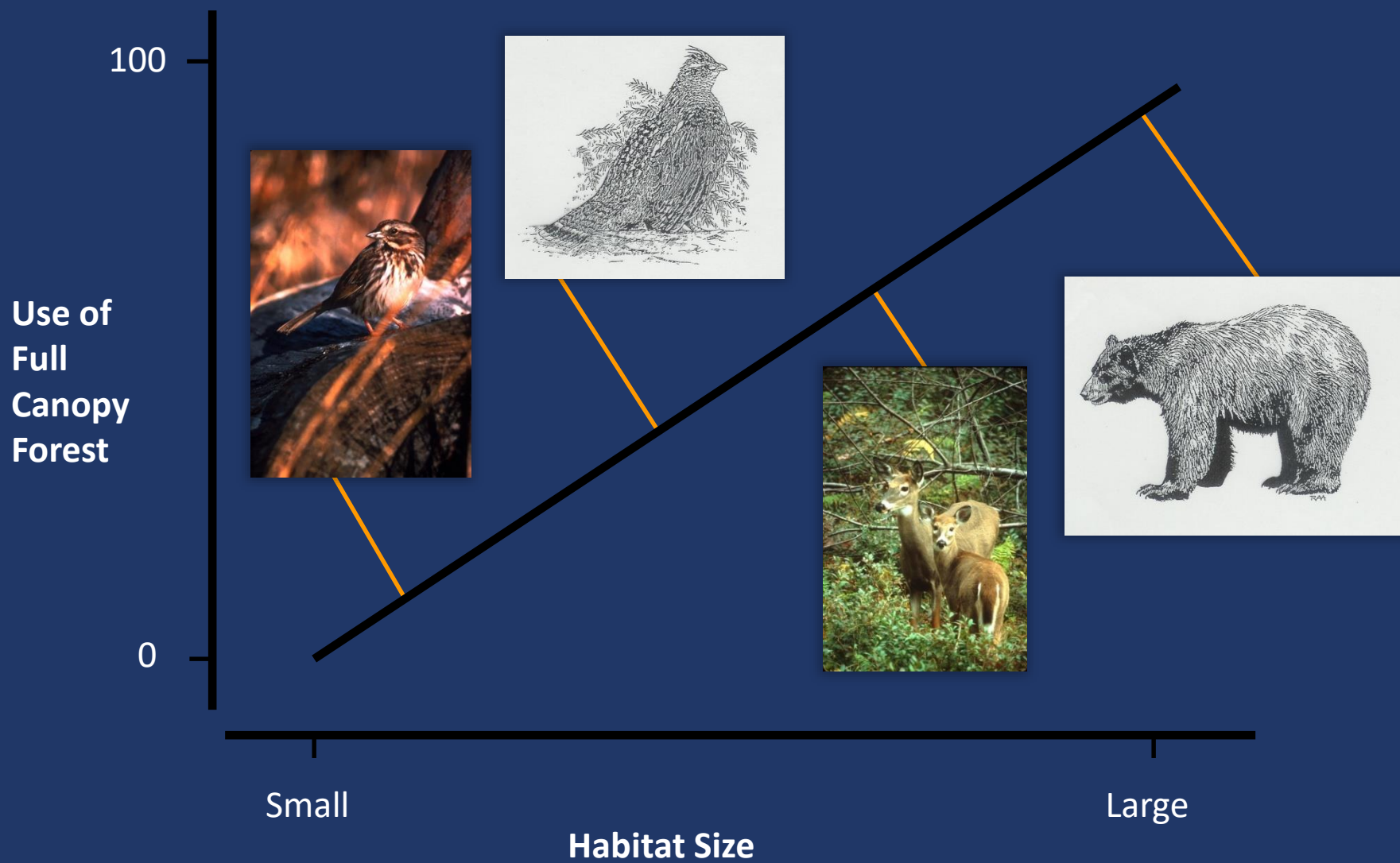
**MASSACHUSETTS  
BREEDING BIRD  
ATLAS 2**

Edited by John Walsh  
and Wayne Peterson

Written by Matthew Kavanagh,  
John Walsh, John Galloway,  
and Wayne Peterson

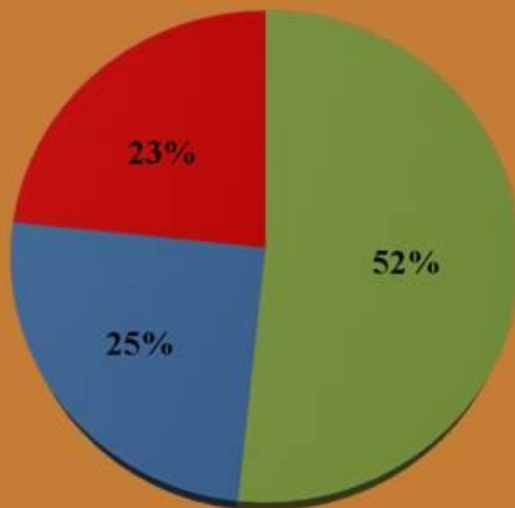
 **Mass Audubon**  
Protecting the Future of Massachusetts



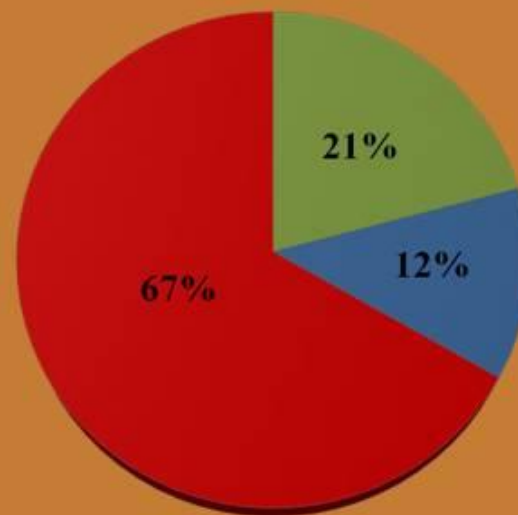


# Bird Population Trends in the Northeast 1966 - 2010

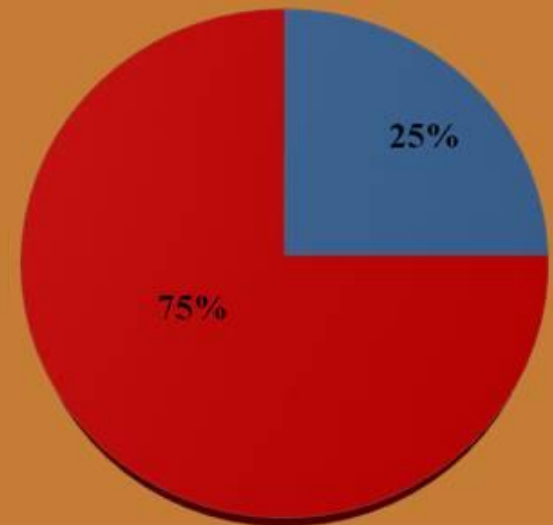
**WOODLAND**  
(60 Species)



**SHRUBLAND**  
(24 Species)



**GRASSLAND**  
(8 Species)

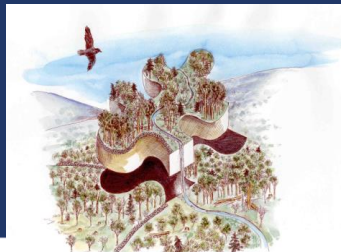


■ % Increasing   ■ % Stable   ■ % Decreasing

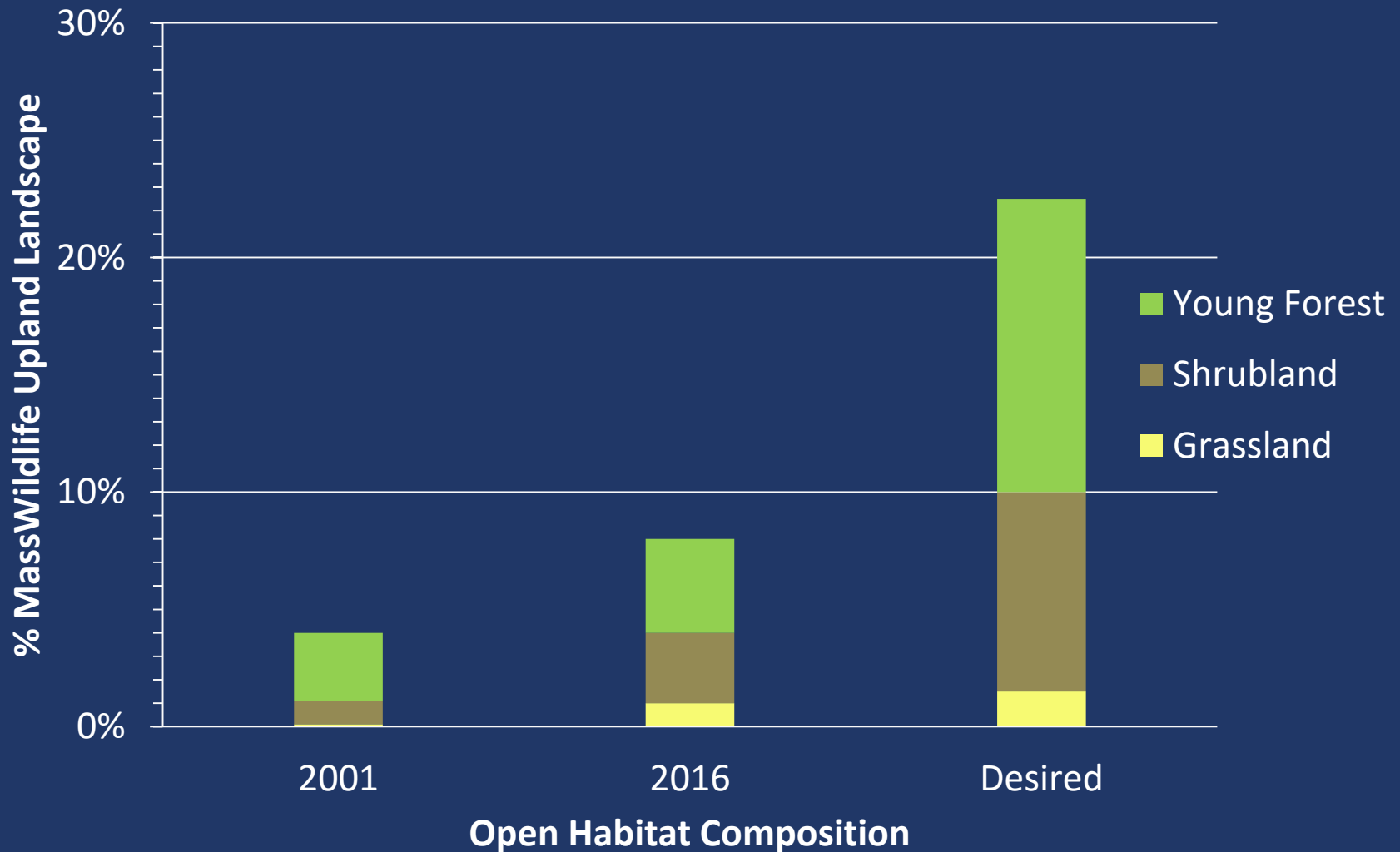
Data extracted from The North American Breeding Bird Survey (BBS) using population trends from 1966 - 2010 for the New England/Mid-Atlantic Region. Habitat designations assigned by BBS.

# MassWildlife Landscape Habitat Goals for Upland Areas

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# MassWildlife Open Habitat Goals



# Grassland, Shrubland, Young Forest

A landscape photograph showing a grassy field in the foreground, a winding stream in the middle ground, and a forest with autumn foliage in the background. The grass is green and yellow, and the trees are in various shades of orange, red, and green. The stream is a light blue color.

# Grassland Habitat



# Species of Conservation Need that utilize Grassland Habitat

*Eastern Box Turtle*



*Purple Tiger Beetle*



*Grasshopper sparrow*



*Chain-dot Geometer*



Photo by M.W. Nelson

*Sandplain Gerardia*



© 2003 Eleanor Saulys

# Frances Crane WMA

## Grassland Habitat Expansion 2014-2016



# 1. Frances Crane WMA (North)

- Sand-plain Grassland Expansion & Restoration
  - Top-ranking site- MA Grassland Bird Plan
  - Many endangered species





# Shrubland Habitat – Heath



# Shrubland Habitat – Scrub Oak



# Barrens Habitat



Ben C. Jones Photo

- 1) Widely recognized for importance to rare plants and invertebrates, but value to early successional wildlife [e.g. ruffed grouse, snowshoe hare] often overlooked.
- 2) Largely due to human fire exclusion, barrens habitats are disappearing, but can be restored through active management.

# Barrens Habitat



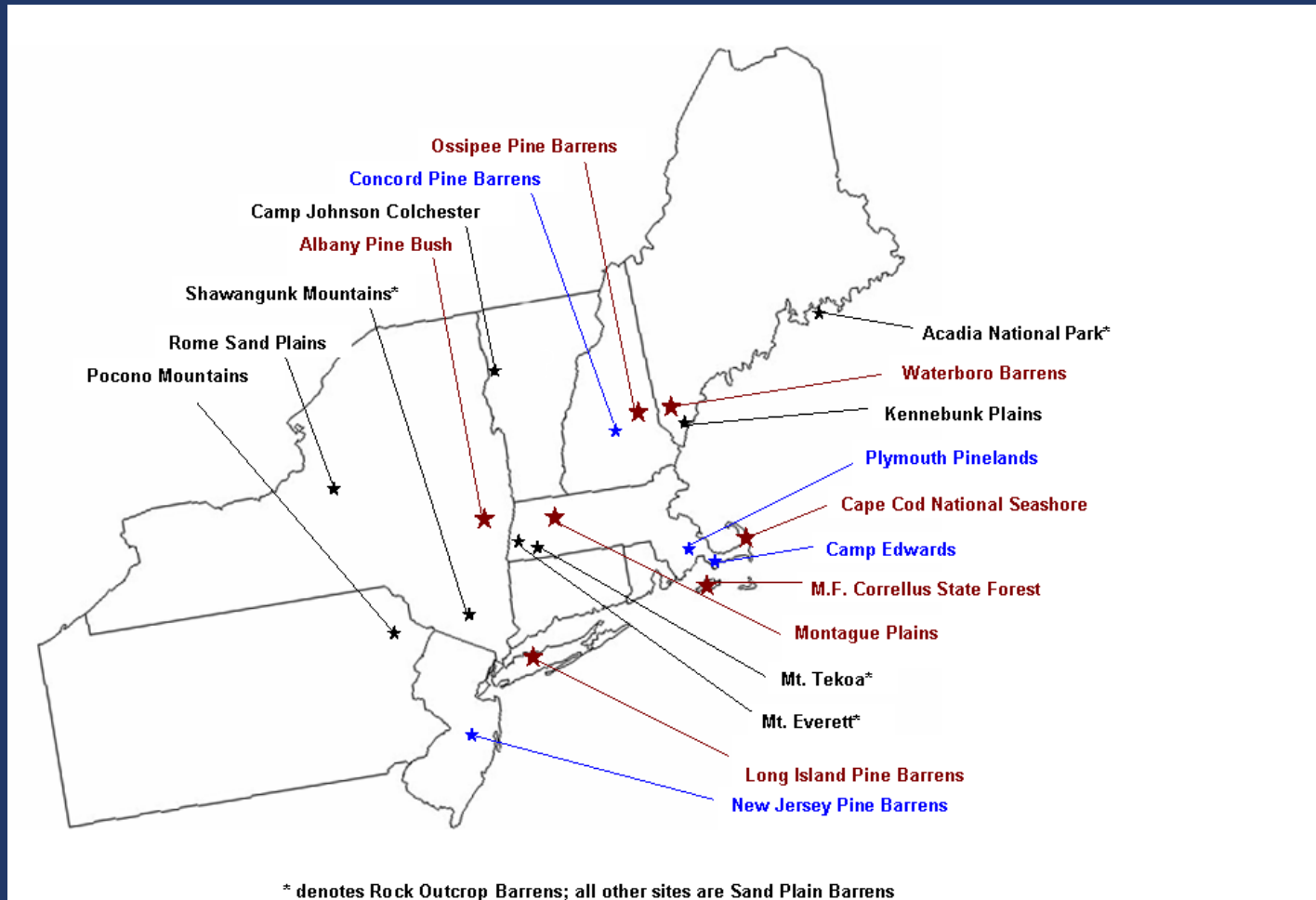
George Cress Photo



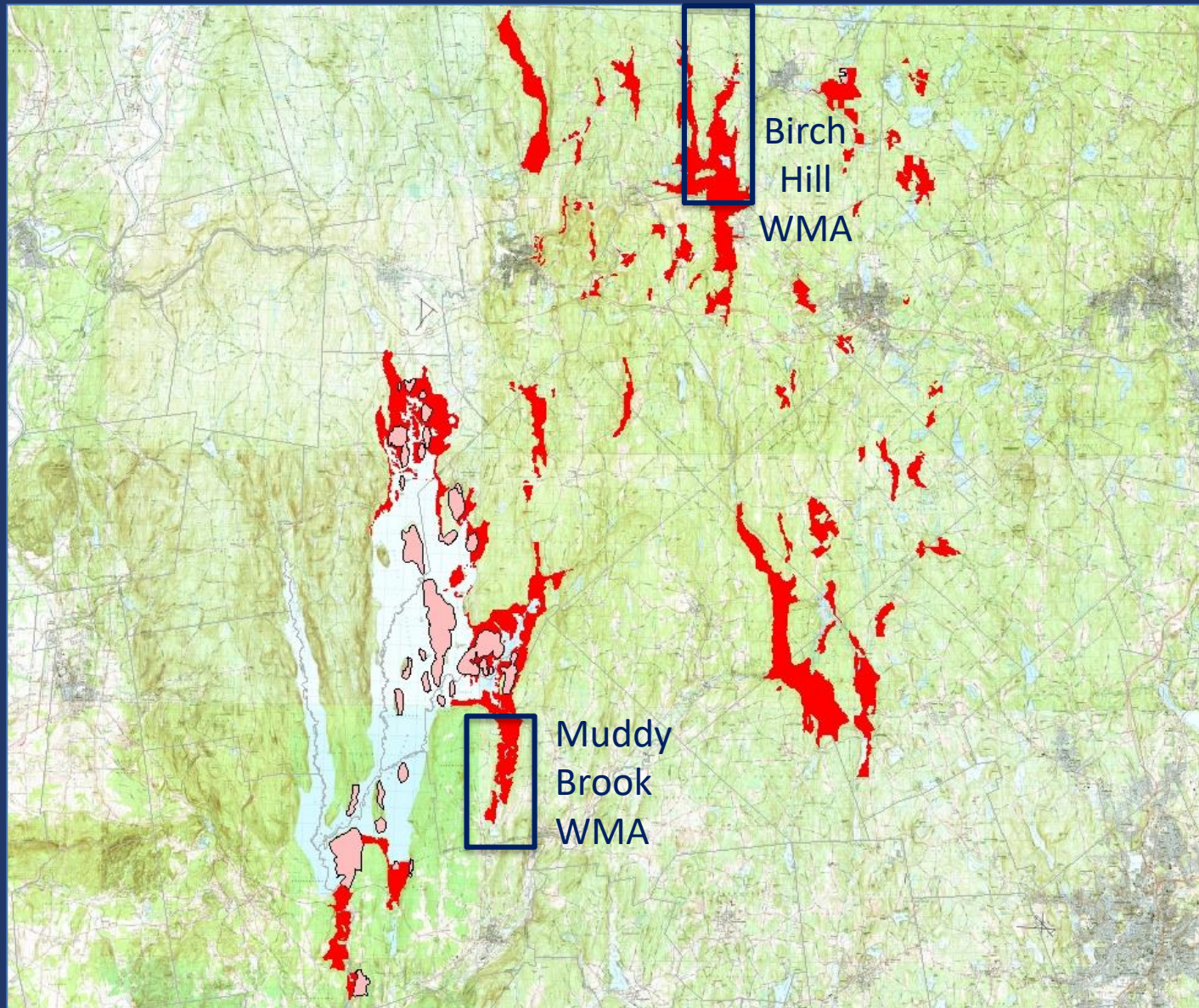
- 1) Barrens occur on well-drained, sandy & acidic (nutrient poor) soils.
- 2) Frequent disturbance (especially fire) and thin soils historically limited tree growth on these sites.
- 3) Healthy barrens have early-successional structure with abundant ground cover, shrubs, herbaceous pockets, and scattered trees.
- 4) An array of wildlife food & cover are provided by pitch pine, tree oak, scrub oak, blueberry, huckleberry, blackberry, and herbaceous plants.

# Barrens Habitats

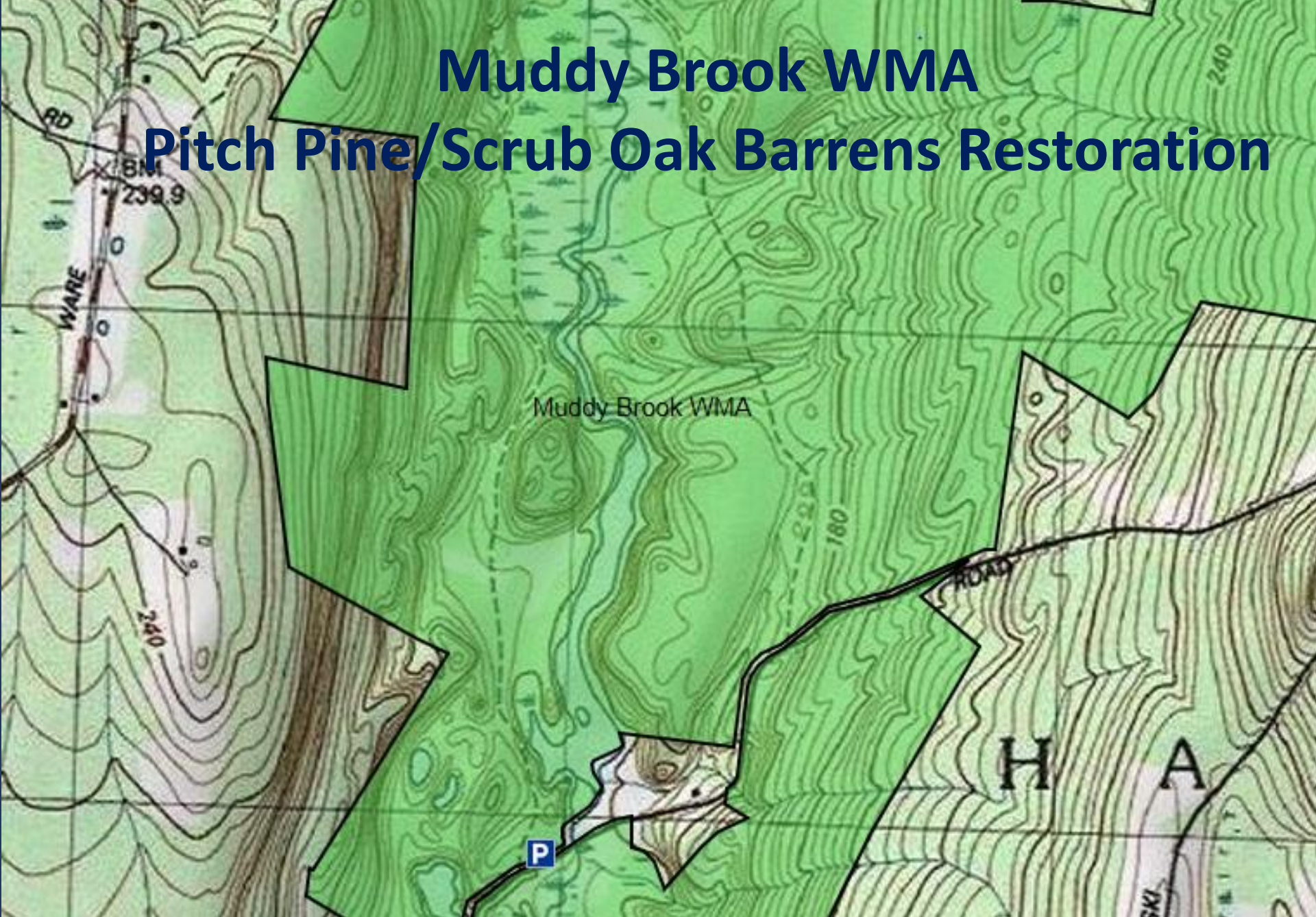
Most are Globally Rare Natural Communities that only occur on the Northeast Coastal Plain



# Potential Barrens in Central Massachusetts



# Muddy Brook WMA Pitch Pine/Scrub Oak Barrens Restoration



# Muddy Brook WMA - 2013

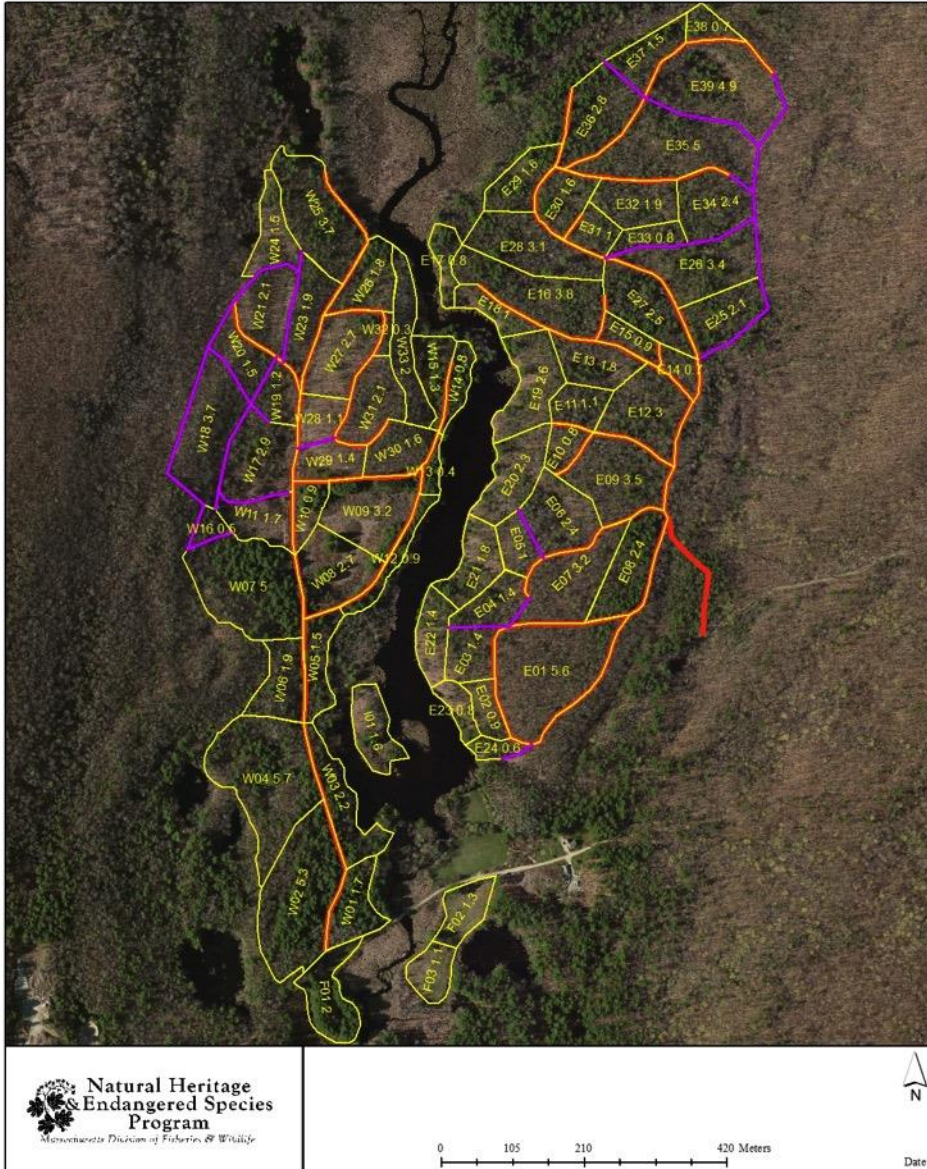


# Muddy Brook WMA - 2016



Imagery Date: 8/23/2016 lat 42.345726° lon -72.231571° elev 519 ft eye alt 5080 ft

## 2013-XI-15 Revised Fire Compartments Muddy Brook WMA - Patrill Hollow



# Planning

Site Plans  
Burn Plans  
Permitting  
Best Management Approaches

# Heath Regeneration One Growing Season Following Canopy Release



# Barrens Communities Establish on the Landscape



# Regeneration of Lowbush Heathland Following Fire



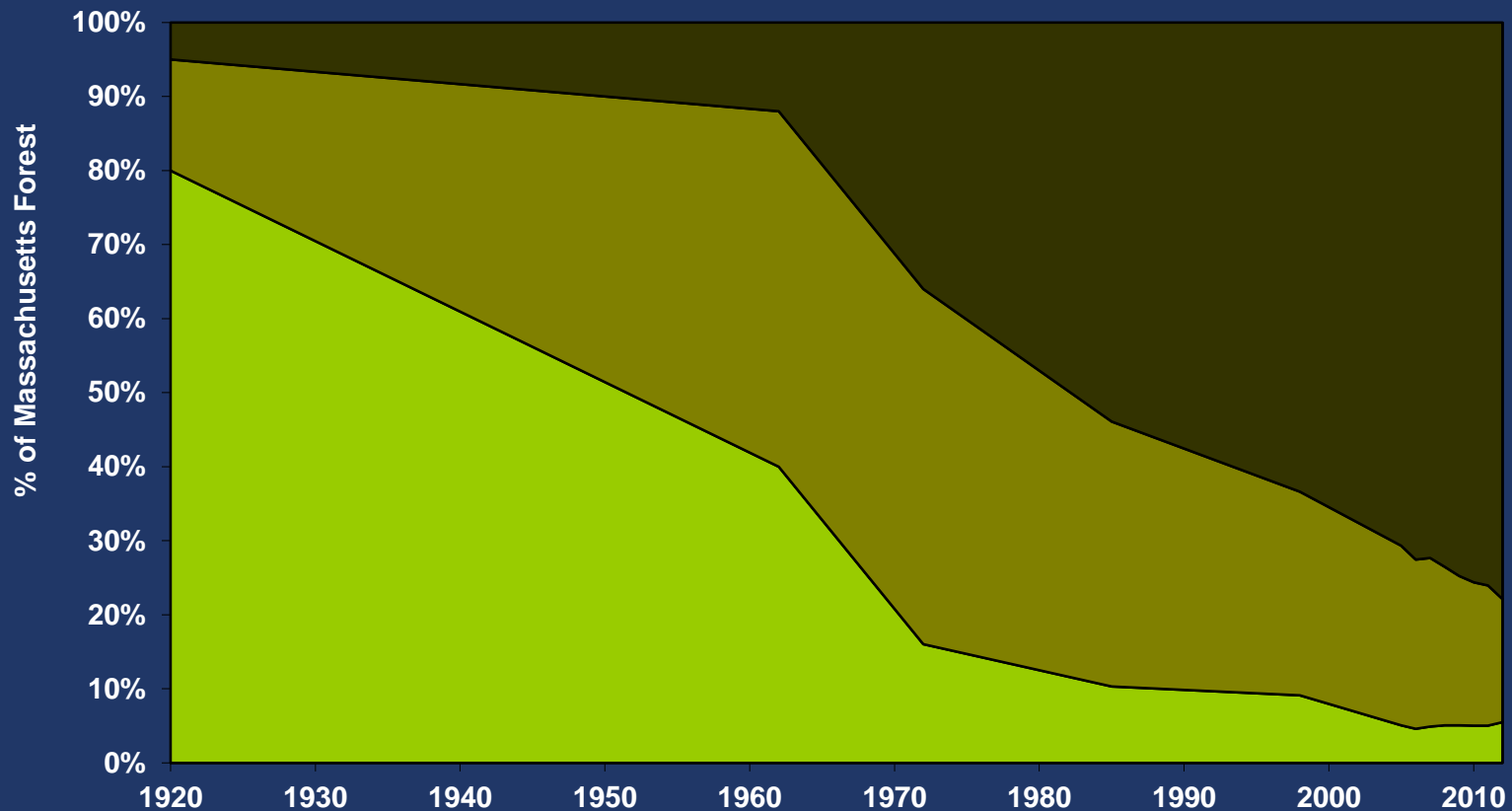
# Young Forest Habitat



# Massachusetts Forest History

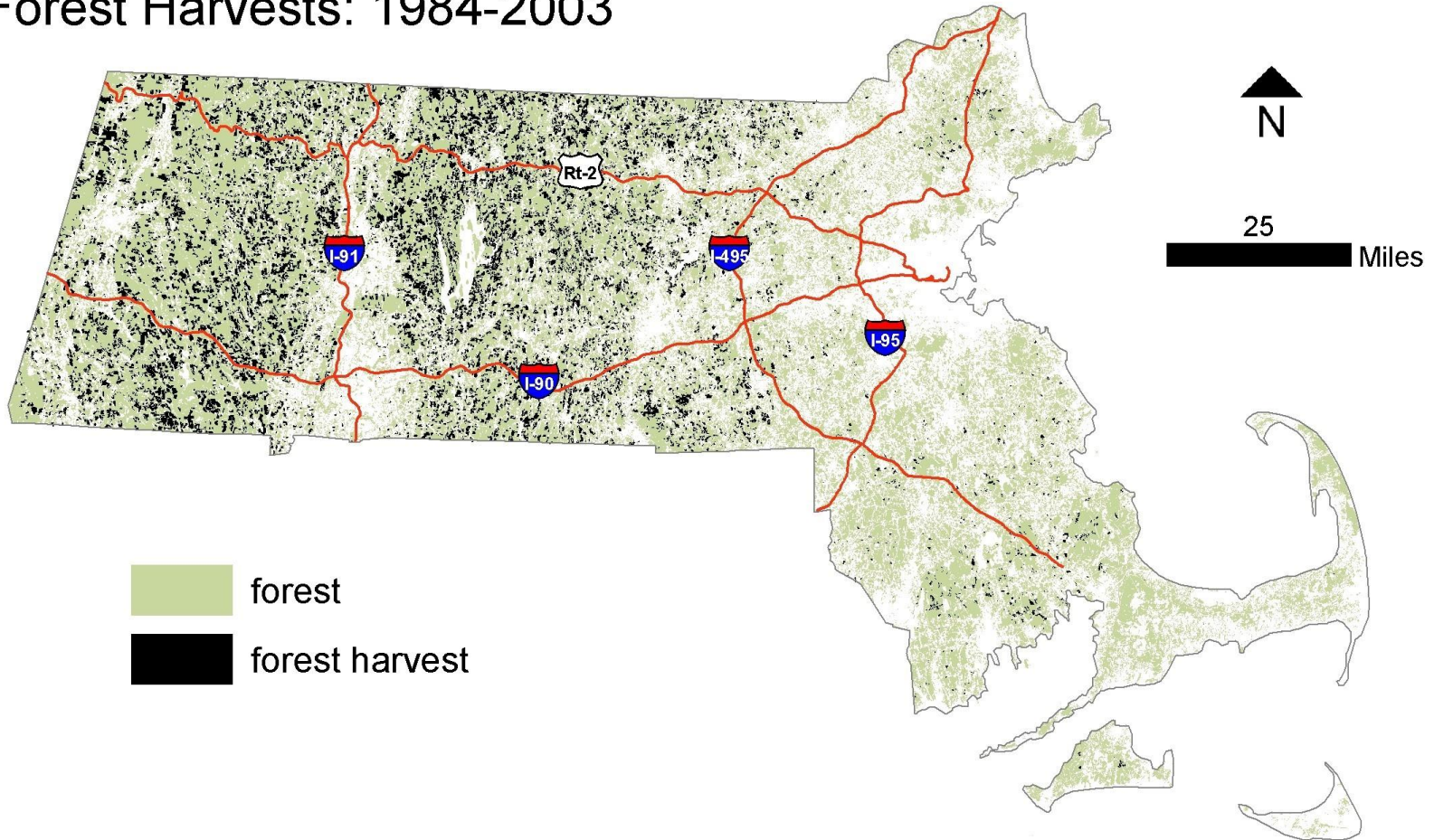
## Tree Size Class Distribution

- Large ( $\geq 9"$  softwood,  $\geq 11"$  hardwood, Sawtimber)
- Medium (Pole)
- Small (most trees  $< 5"$  diameter, Seedling/Sapling)



# Forest Harvesting in Massachusetts

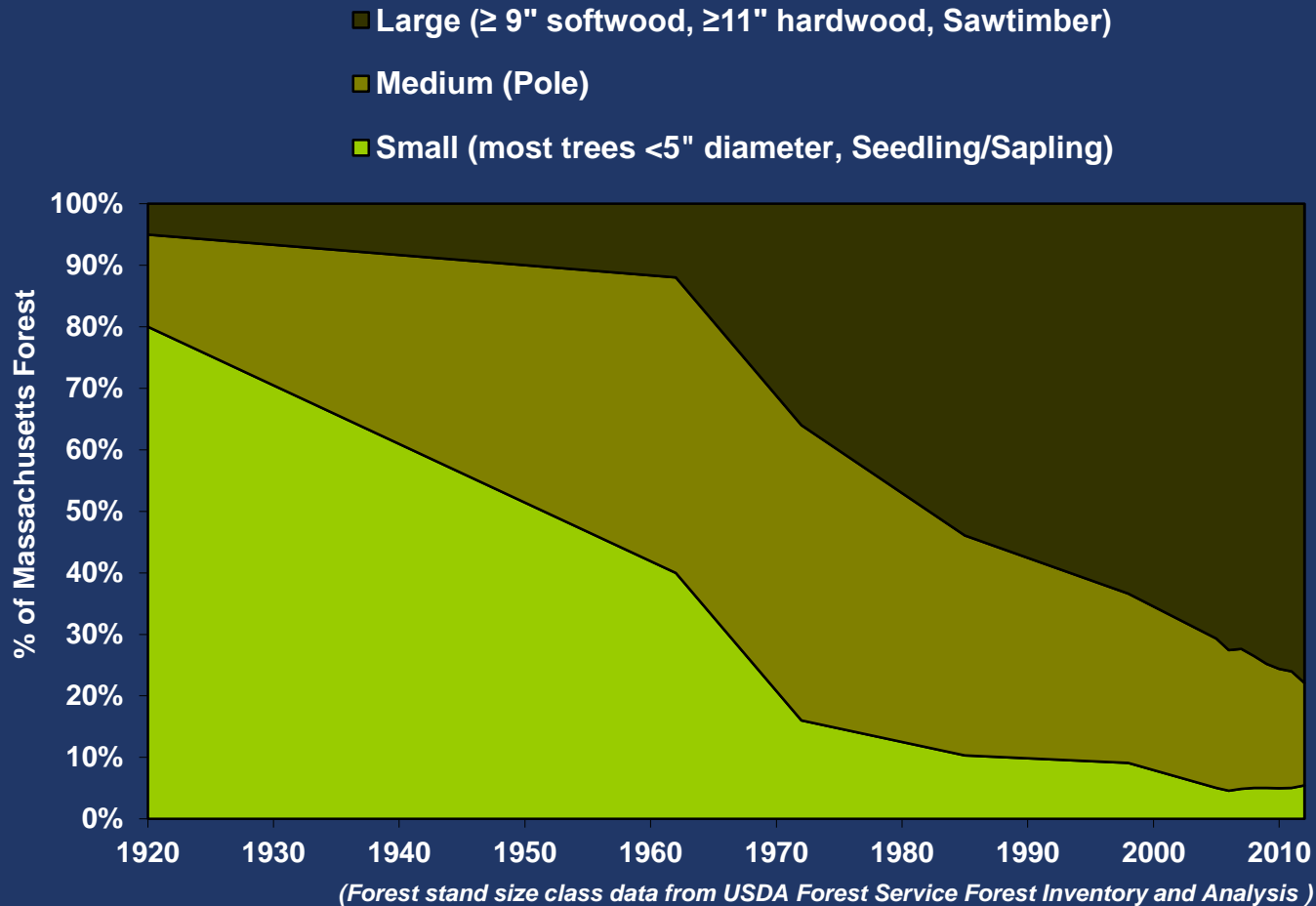
## Forest Harvests: 1984-2003

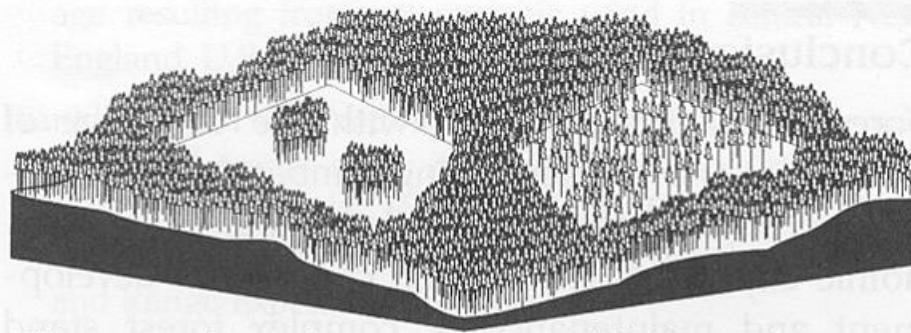


Forest harvest data compiled by Harvard Forest; forest cover data from MassGIS.

# Massachusetts Forest History

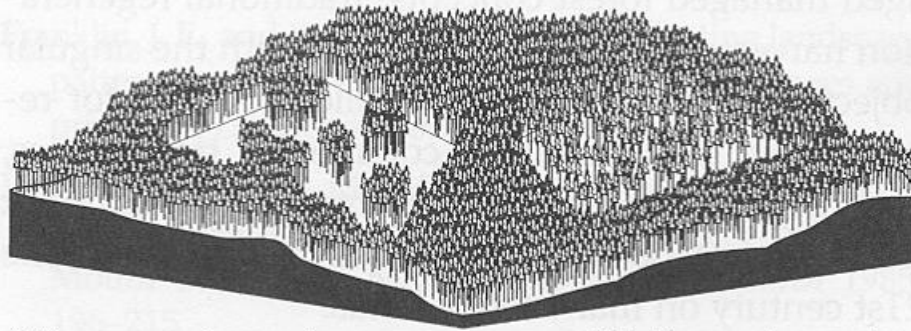
## Forest Size Class Distribution





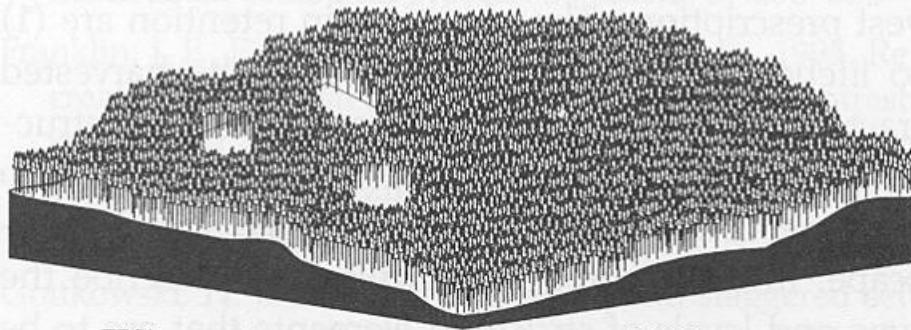
15% aggregated retention

15% dispersed retention



40% aggregated retention

40% dispersed retention

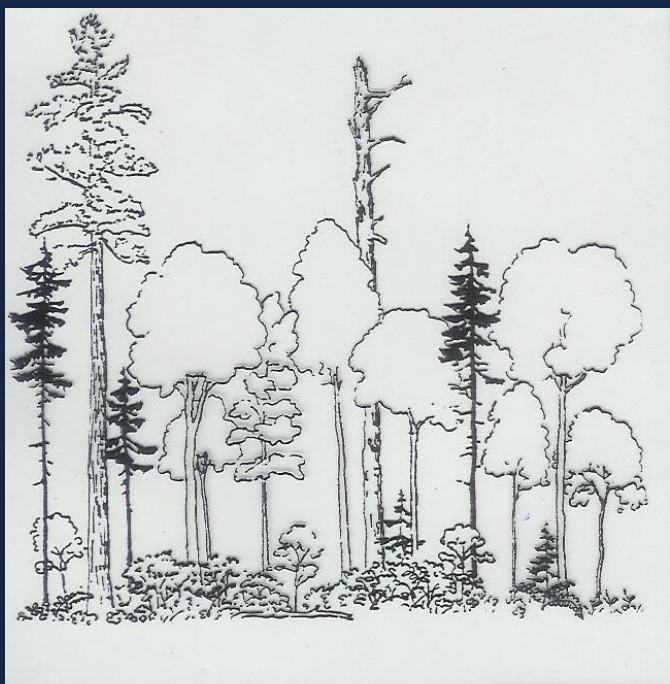


75% retention

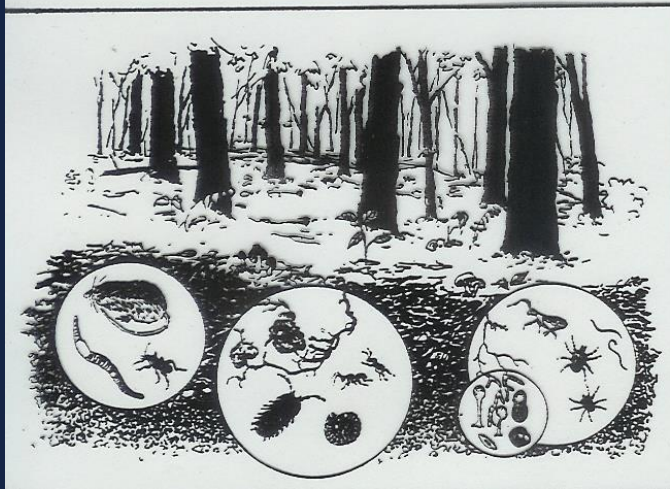
100% retention

## Retention

What you keep  
is more  
important than  
what you take



## Biological Legacies



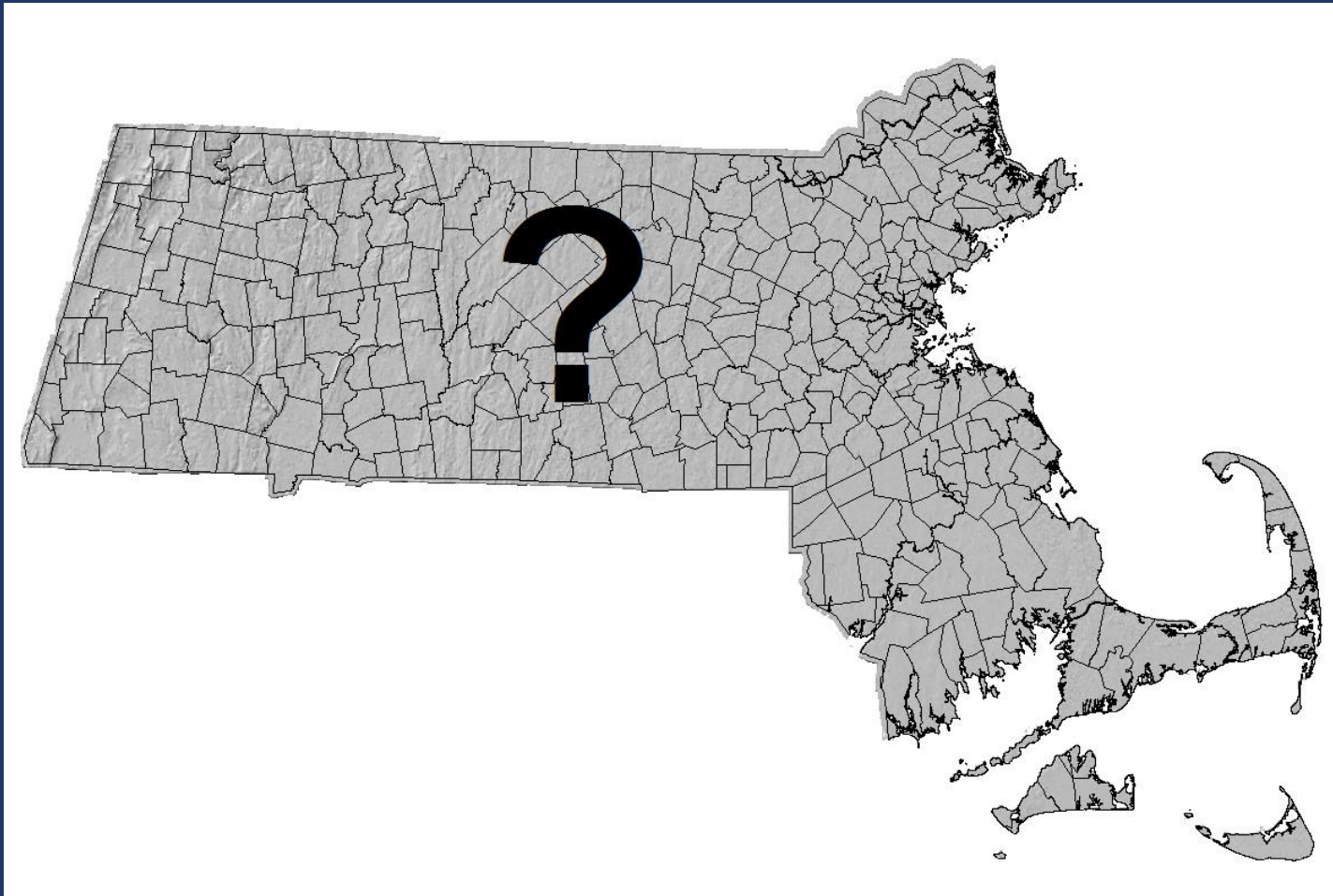


## Biological Legacies

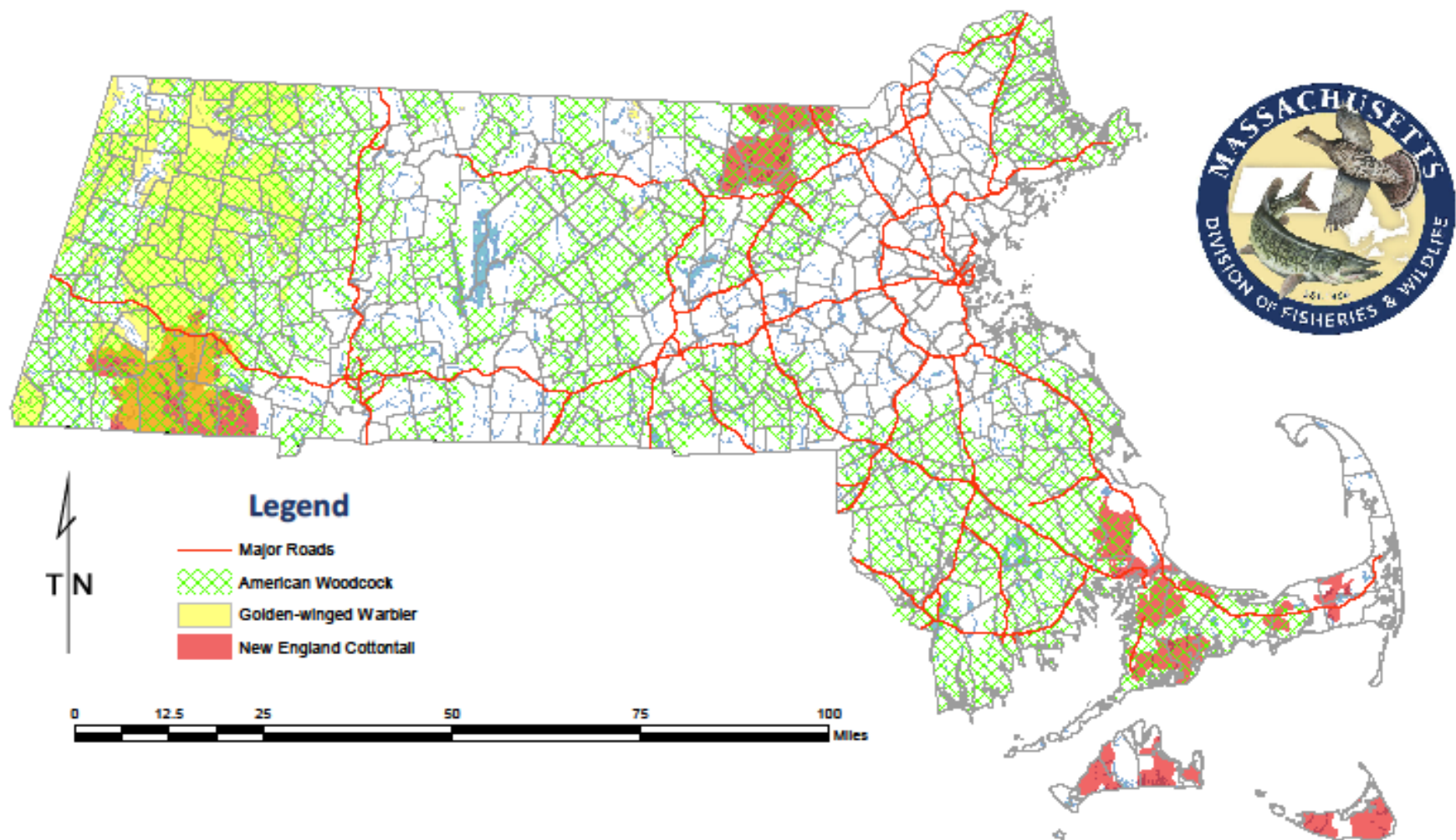


## Biological Legacies

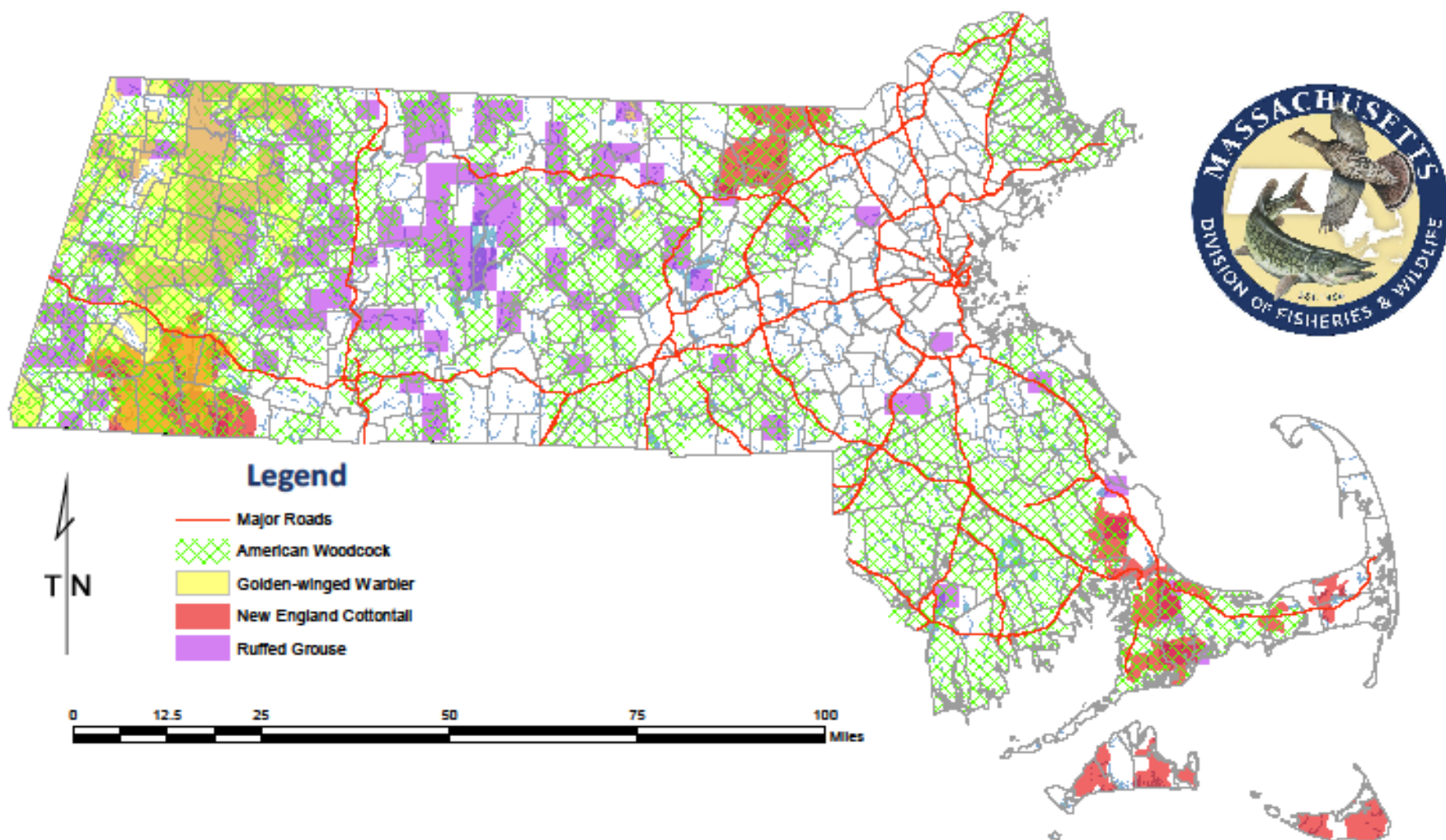
# Planning for Young Forest Habitat



## Young Forest Focus Areas



## Young Forest Focus Areas



# Results of Edaphic Features Analysis

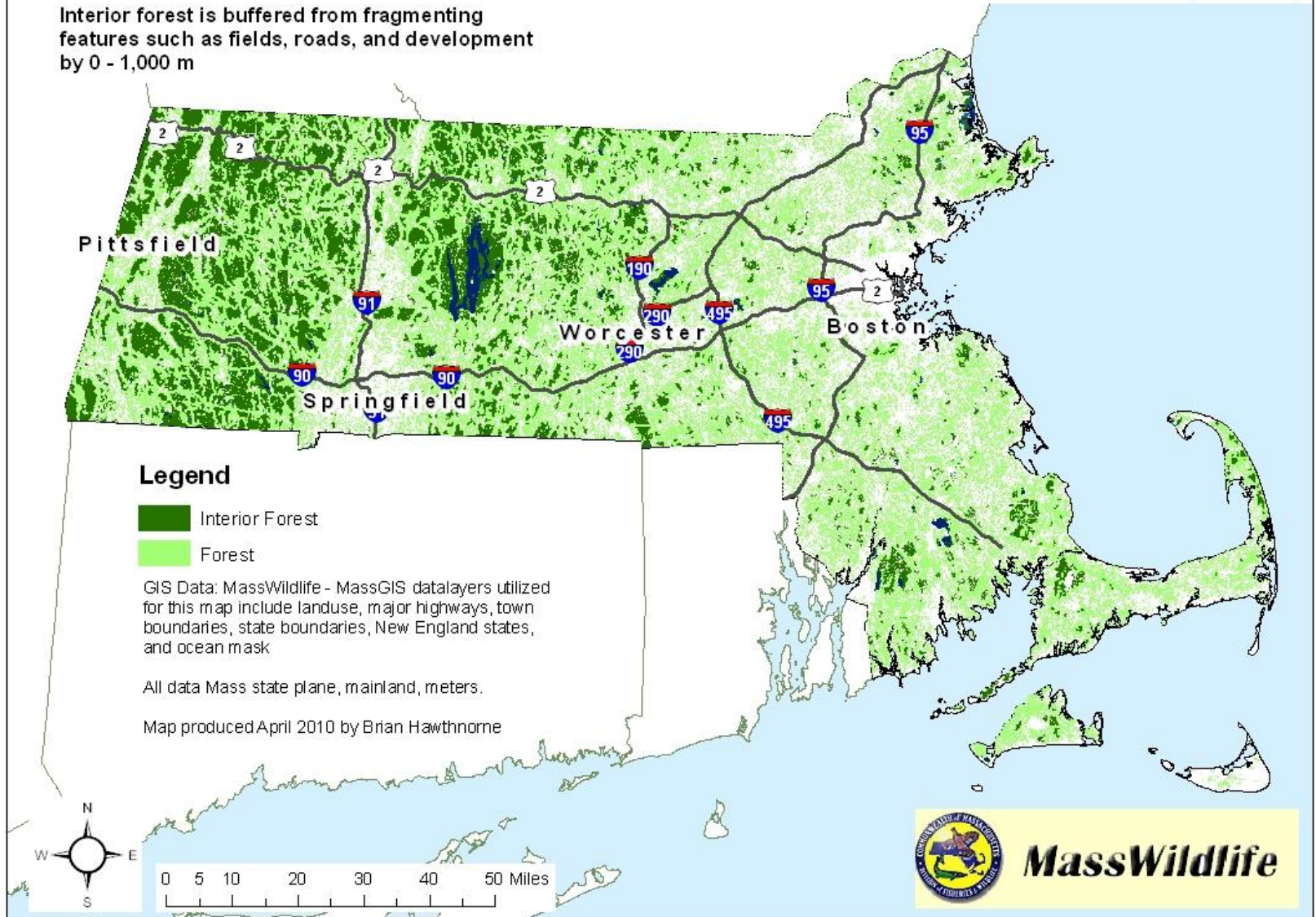
- Of the 3.2 million acres of forest in MA, about 1.9 million acres (59%) is potentially amenable for management of young forest habitats based on:
  - Soil type
  - Slope
  - Landscape Position
  - Landuse History

# Full Canopy Forest



# Massachusetts Forest and Estimated Interior Forest Areas (2005)

Interior forest is buffered from fragmenting features such as fields, roads, and development by 0 - 1,000 m



# Forest Fragmentation

3.2 Million Acres of  
Massachusetts Forest  
in 2005

0.8 Million

Acres of

Interior

Forest

# Beaver Floodlands



MassWildlife photo by Laura Hajduk



MassWildlife photo by Laura Hajduk

Massachusetts Bay Colony reported shipments of >6 tons of beaver pelts to Britain in the 1620's (Foster, et al. 2002).

William Pynchon was granted a monopoly on the fur trade in the CT River Valley by the King of England in mid 1600's and by mid 1670's had shipped nearly 250,000 beaver pelts to London (Outwater, 1996).

Beaver largely extirpated from Massachusetts by early 1700's (Foster, et al. 2002). Began returning in early 1900's (natural immigration & human release).

Over a 25-year period from 1970-1995 <30,000 beaver pelts tagged by all licensed trappers throughout all of Massachusetts (MassWildlife, unpublished data).



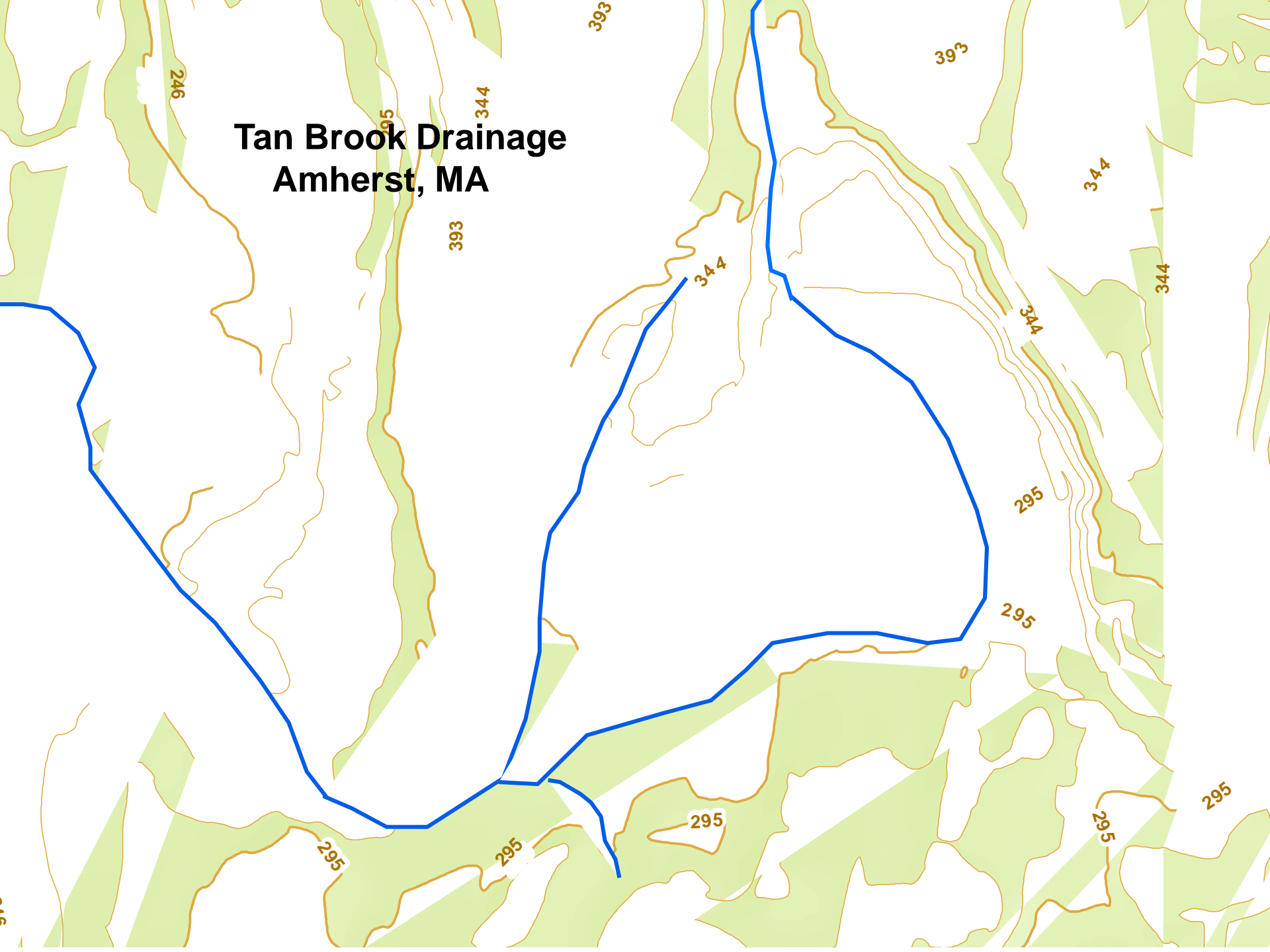
Foster, D.R., G.Motzkin, D.Bernardos, and J. Cardoza. 2002. Wildlife dynamics in the changing New England Landscape. *Journal of Biogeography* 29:1337-1357.

Outwater, Alice. 1996. *Water: A Natural History*. Basic Books, pg. 12.

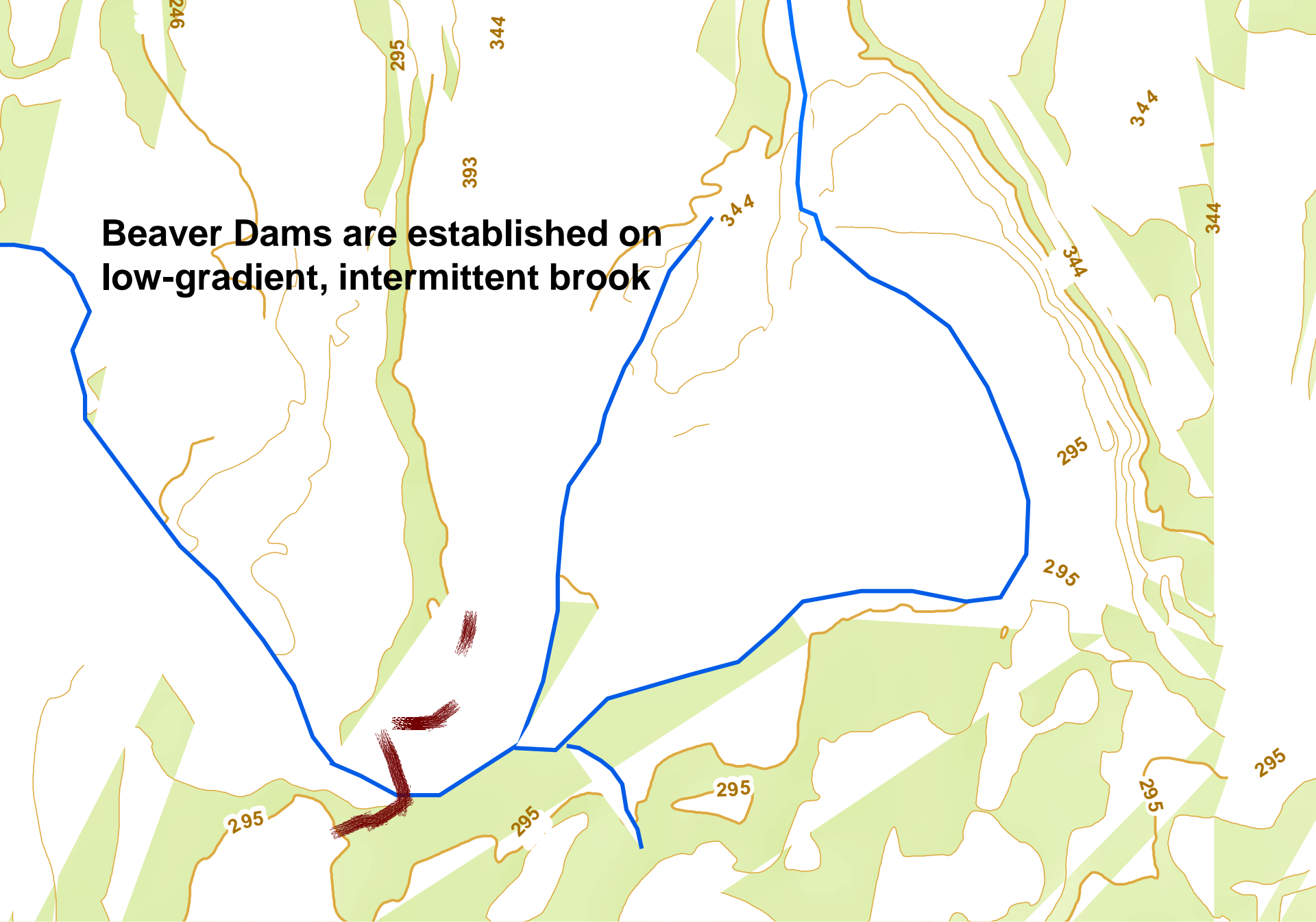
# Amherst, MA

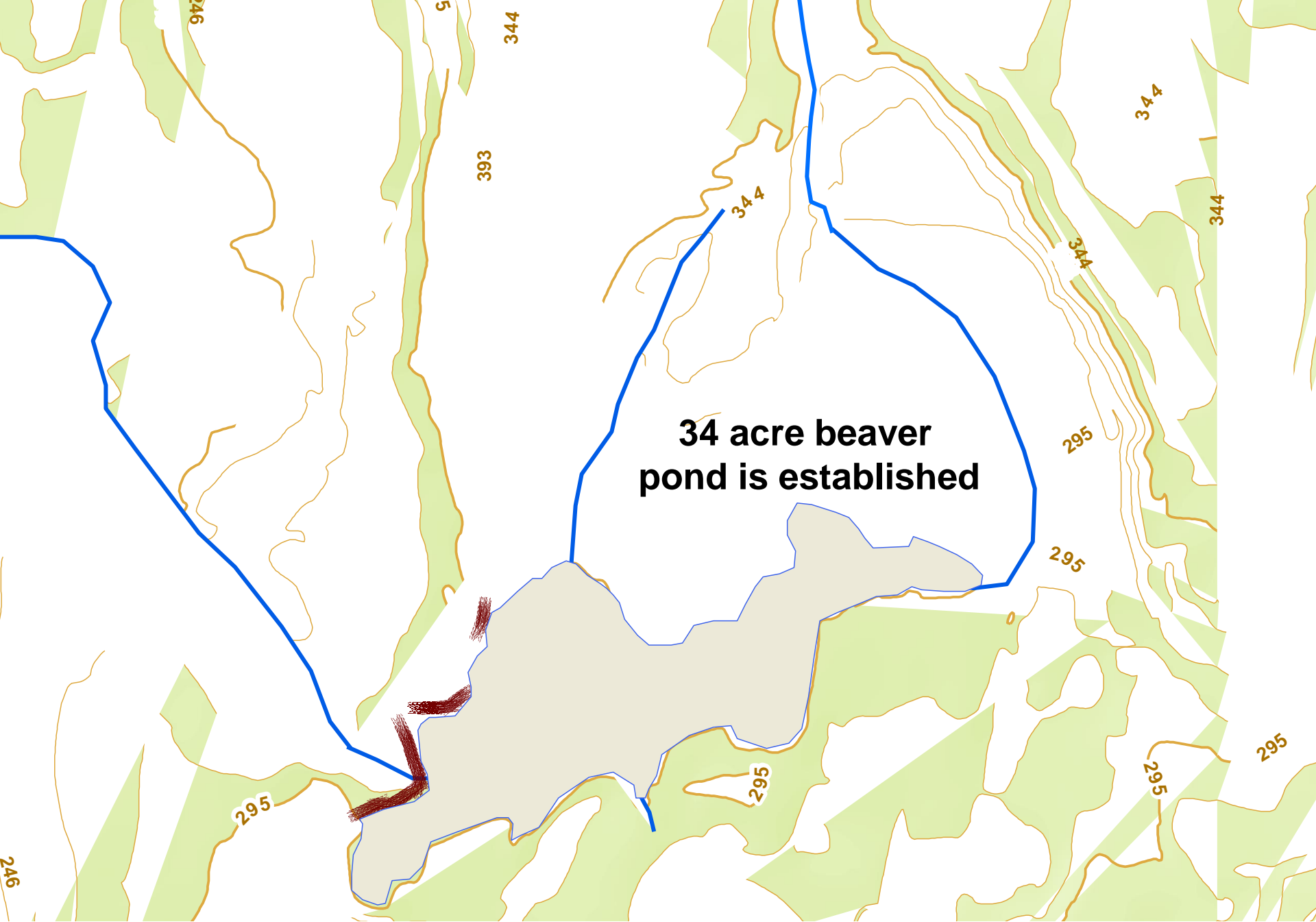


# Tan Brook Drainage Amherst, MA

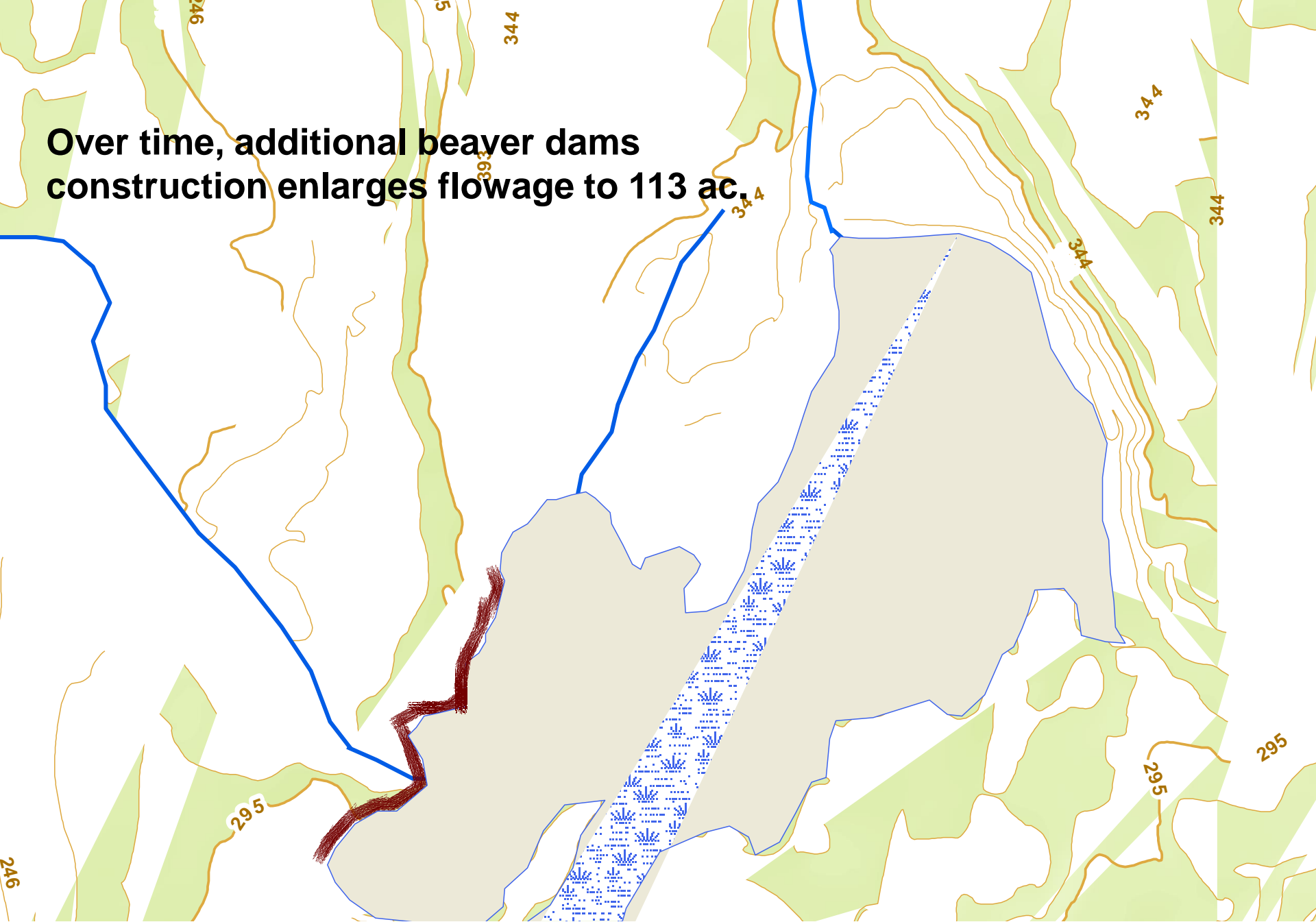


**Beaver Dams are established on  
low-gradient, intermittent brook**





**Over time, additional beaver dams  
construction enlarges flowage to 113 ac.**



**UMass Amherst**

**Tan  
Brook**

**Amherst Regional  
High School**



Amherst, MA

# MassWildlife Habitat Management Grant Program

- Goals
  - Improve habitats for game species
  - Manage habitat for SWAP species
  - Expand public recreational opportunities for hunting, fishing, trapping, and other wildlife associated recreation on conserved lands



Owners of private or municipal conserved lands (conservation restriction, Ch61, Landowner Incentive Program covenant) are eligible



# Natural Resource Conservation Service Financial & Technical Assistance

- Environmental Quality Incentive Program (EQIP) – Habitat management throughout Massachusetts
  - Working Lands for Wildlife funding pool under EQIP
  - Young Forest RCPP (EQIP Funding)
  - Collaboration for Private Forestland RCPP (EQIP Funding)
- Wetland Reserve Easement (WRE) – for eligible landowners to protect wetlands or riparian areas throughout Massachusetts

# NRCS - EQUIP

- Eligibility: Private Agricultural Producers or Forest Landowners
- Funds forest management plans & implementation of forest and habitat management
- Rolling deadline



# NRCS Working Lands for Wildlife

## 1) National Species

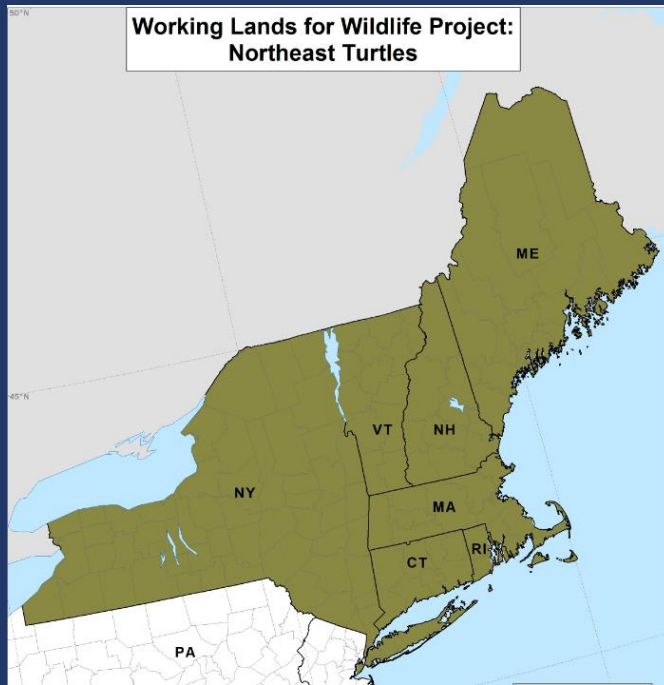
- Eight nationally-identified target species
  - Greater sage-grouse
  - Lesser prairie-chicken
  - Gopher tortoise
  - New England cottontail
  - Golden-winged warbler
  - Southwestern willow flycatcher
  - Bog turtle
  - Monarch butterfly
- In Massachusetts: New England Cottontail and Bog Turtle



# NRCS Working Lands for Wildlife

## 2) State-identified Priorities

- Northeast Turtles Project
  - Blandings, Spotted, & Wood turtles



# The Young Forest Initiative for At-Risk Species

- Funded by the NRCS Regional Conservation Partners Program
- Participating States: CT, MA, ME, NH, NY, RI, VT
- Technical and financial assistance to non-industrial private forestland owners who implement practices outlined in the EQIP that result in an increase in the quality of young forest habitats within specific focal areas
- In Massachusetts: Golden-winged Warbler, American Woodcock, or New England Cottontail



# NRCS Wetland Reserve Easements

- Technical and financial assistance to restore, protect, and enhance wetlands on private land through the purchase of a Wetland Reserve Easement



- Eligible land
  - farmed or converted wetland
  - wetland or riparian area connecting already protected wetland or riparian areas
- NRCS will prioritize applications based the easement's potential for protecting and enhancing habitat for migratory birds and other wildlife

# Two NRCS Programs in CT

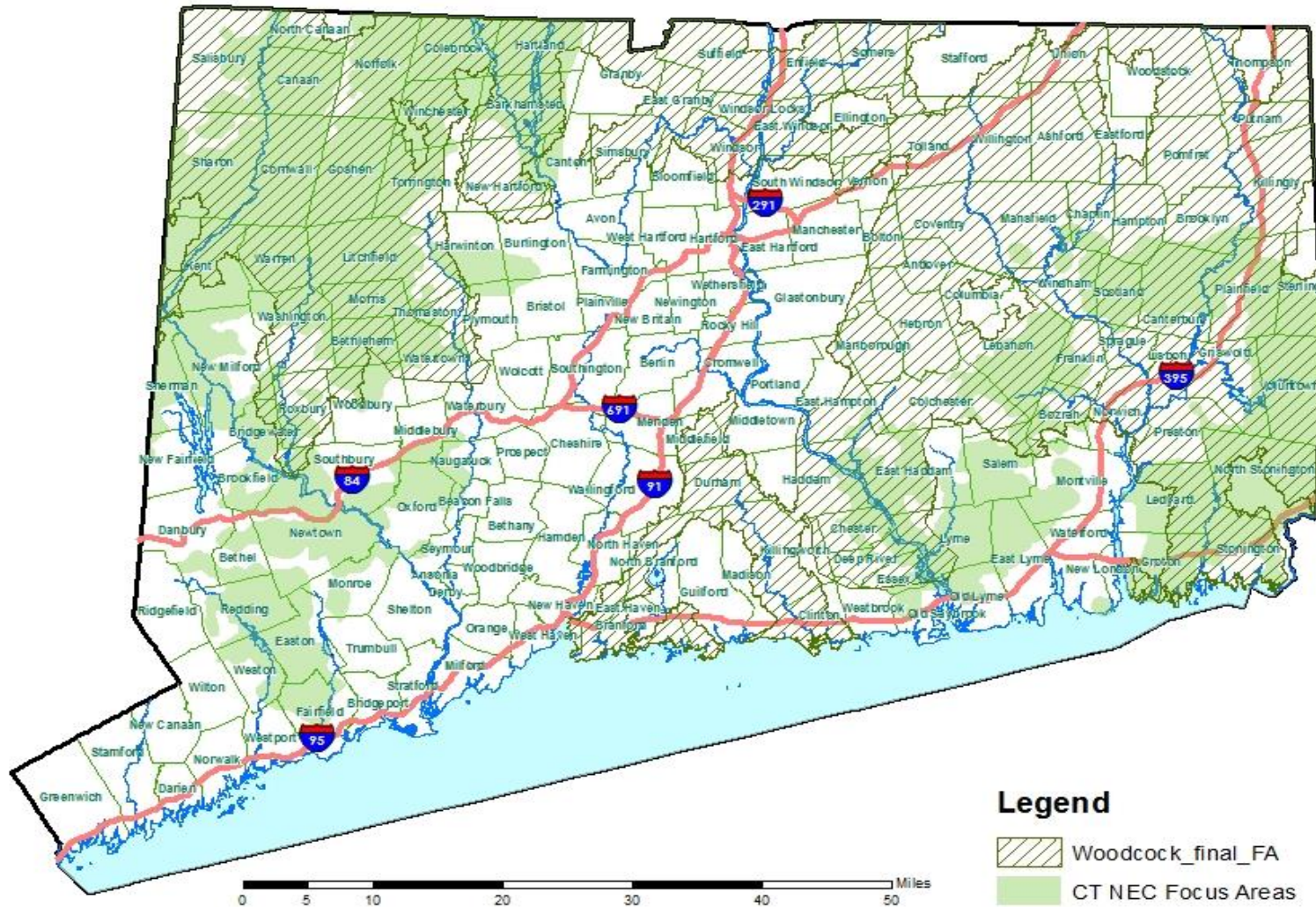
## for Private Landowners

1. Regional Conservation Partnership Program (RCPP)
  - American woodcock & all young forest species
  - Focus Areas & throughout state
  - Requires a habitat plan & Forest Management Plan for entire property.
2. Working Lands for Wildlife (WLFW)
  - Focus on NEC
  - Restricted to NEC Focus Areas
  - Requires a habitat plan & cutting plan for management area





# New England Cottontail & American Woodcock Focus Areas





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2018 Winter Conference, Sturbridge, MA

John Scanlon, Habitat Program Leader