Protecting & Maintaining Grasslands in MA:

Planning for resilience with farmers and communities

Mass Audubon
Protecting the Nature of Massachusetts

Arcadia Wildlife Sanctuary
May 10, 2016

SHAPING the Future of YOUR COMMUNITY

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Agenda

- History of Land Use in New England
- Regulatory Tools – Opportunities and Challenges
- Climate change and identifying resilient land with MAPPR
- Tools to work with farmers & communities to preserve farmland

History of Land Use in MA

1700

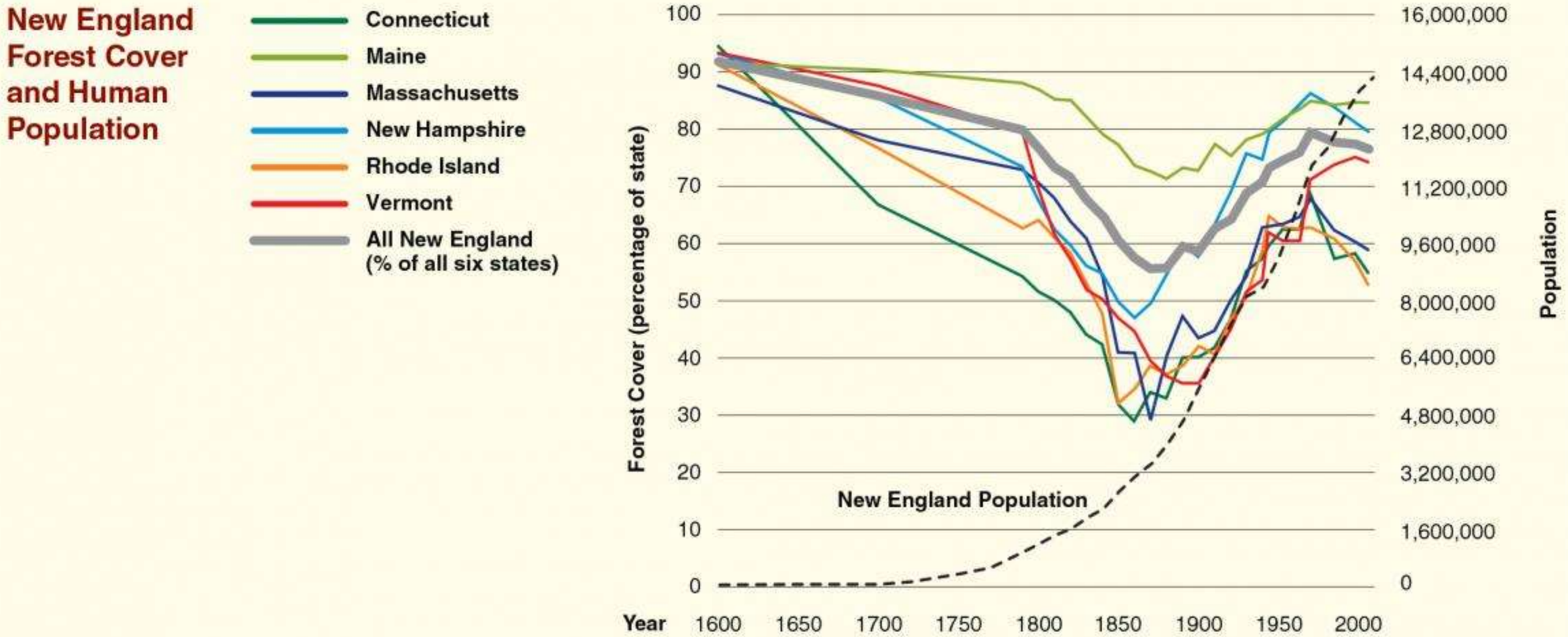
1740

1850

1915

1930

History of Forest Cover & Population



Source: Wildlands and Woodlands

Single Aged Forests Leave Out Early Successional and Mature Old Growth

STATE Of The Birds 2011

Documenting Changes in
Massachusetts' Birdlife

Mass Audubon
BIRD CONSERVATION PROGRAMS
State of the Birds

In Massachusetts…

Grassland birds *have declined significantly more than birds of other habitats*

- Wild Turkey
- Eastern Bluebird
- *Bobolink*
- Barn Swallow
- Tree Swallow
- Red-winged Blackbird
- *Savannah Sparrow*
- American Woodcock (SWAP)
- Killdeer
- Brown-headed Cowbird
- Barn Owl (SC)
- *Vesper Sparrow (T)*
- *Grasshopper Sparrow (T)*
- *Short-eared Owl (E)*
- Horned Lark
- American Kestrel (SWAP)
- *Eastern Meadowlark (SWAP)*
- Northern Bobwhite (SWAP)
- Sedge Wren (E)
- *Upland Sandpiper (E)*
- Ring-necked Pheasant
- *Henslow's Sparrow (E)*
- Dickcissel

Challenges for grassland habitat

- Declining natural disturbances such as wildfires and beaver flooding – leading to less creation of early successional habitat
- Open space requires consistent active management to keep as OS

Fire practically out of the equation

Development and fragmentation

Mammalian predators increasing

Farmers face their own challenges

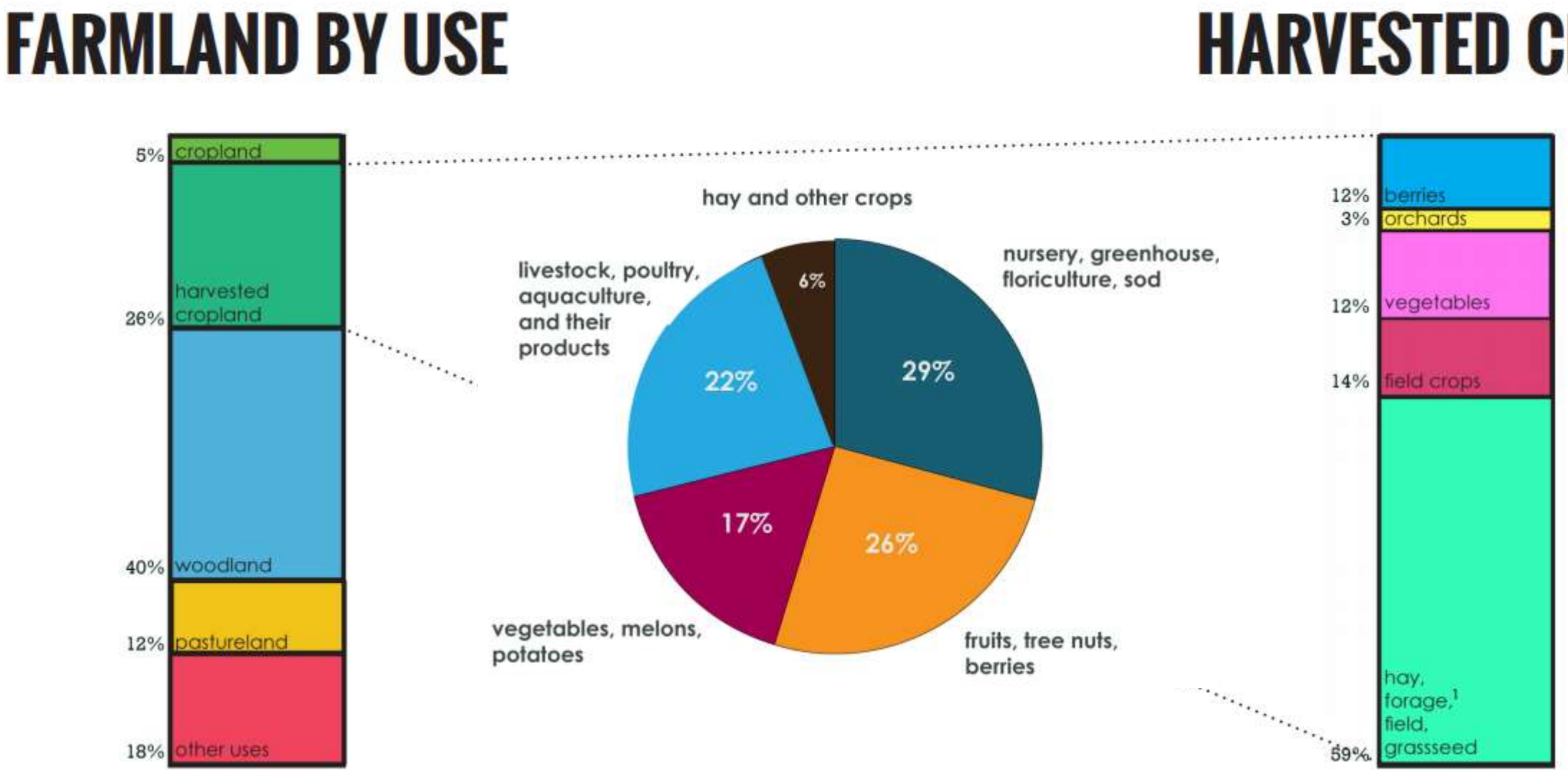
Development

Aging Farmers

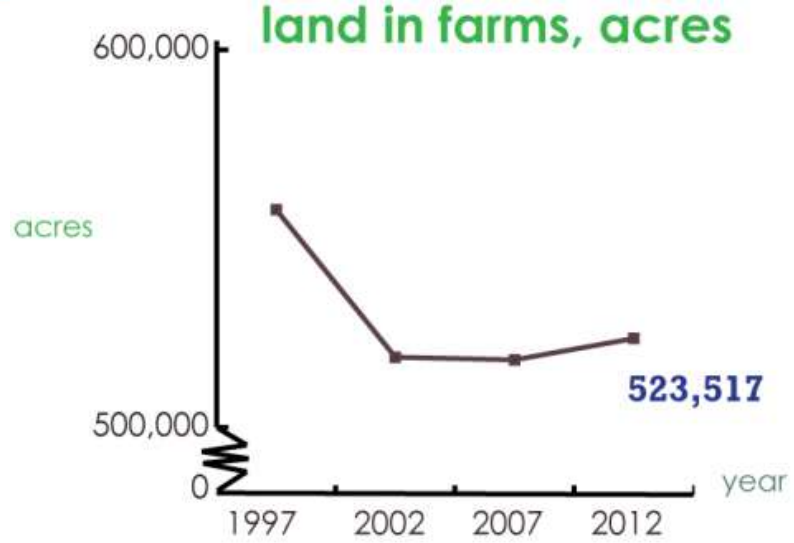
High Land Prices

Demand for Local Food

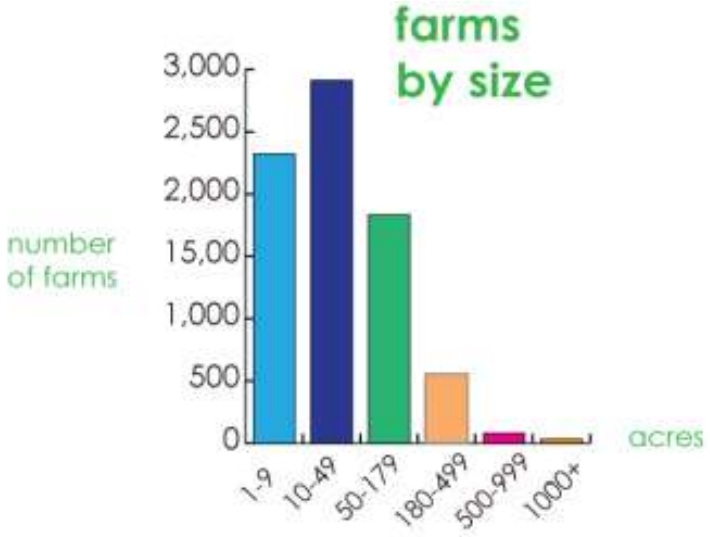
Current Agricultural Trends

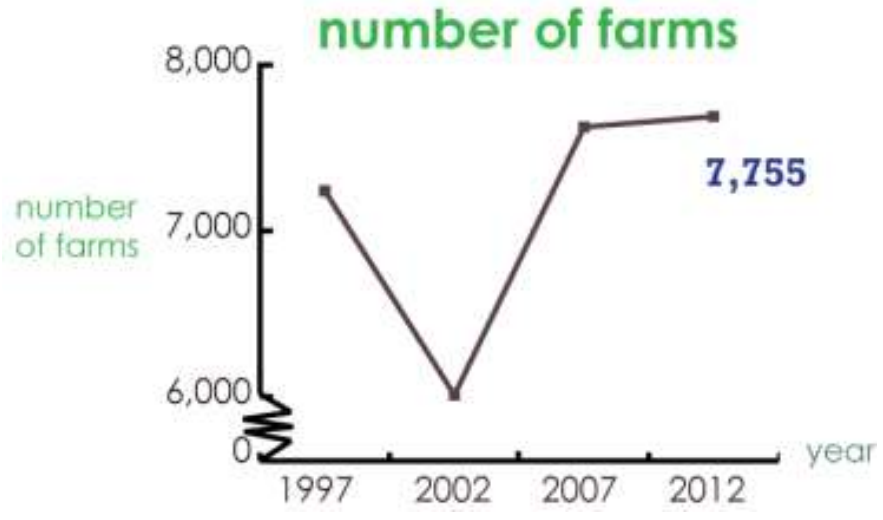


Current Agricultural Trends

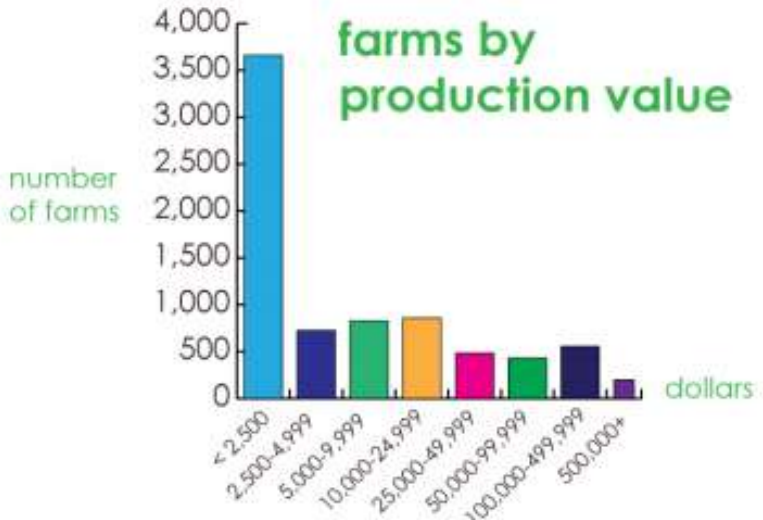


Slowly gaining farmland





Lots of small farms



State Plans for Early Successional Habitat

- BioMap2
- State Wildlife Action Plan (SWAP)
- Grassland Bird Plan

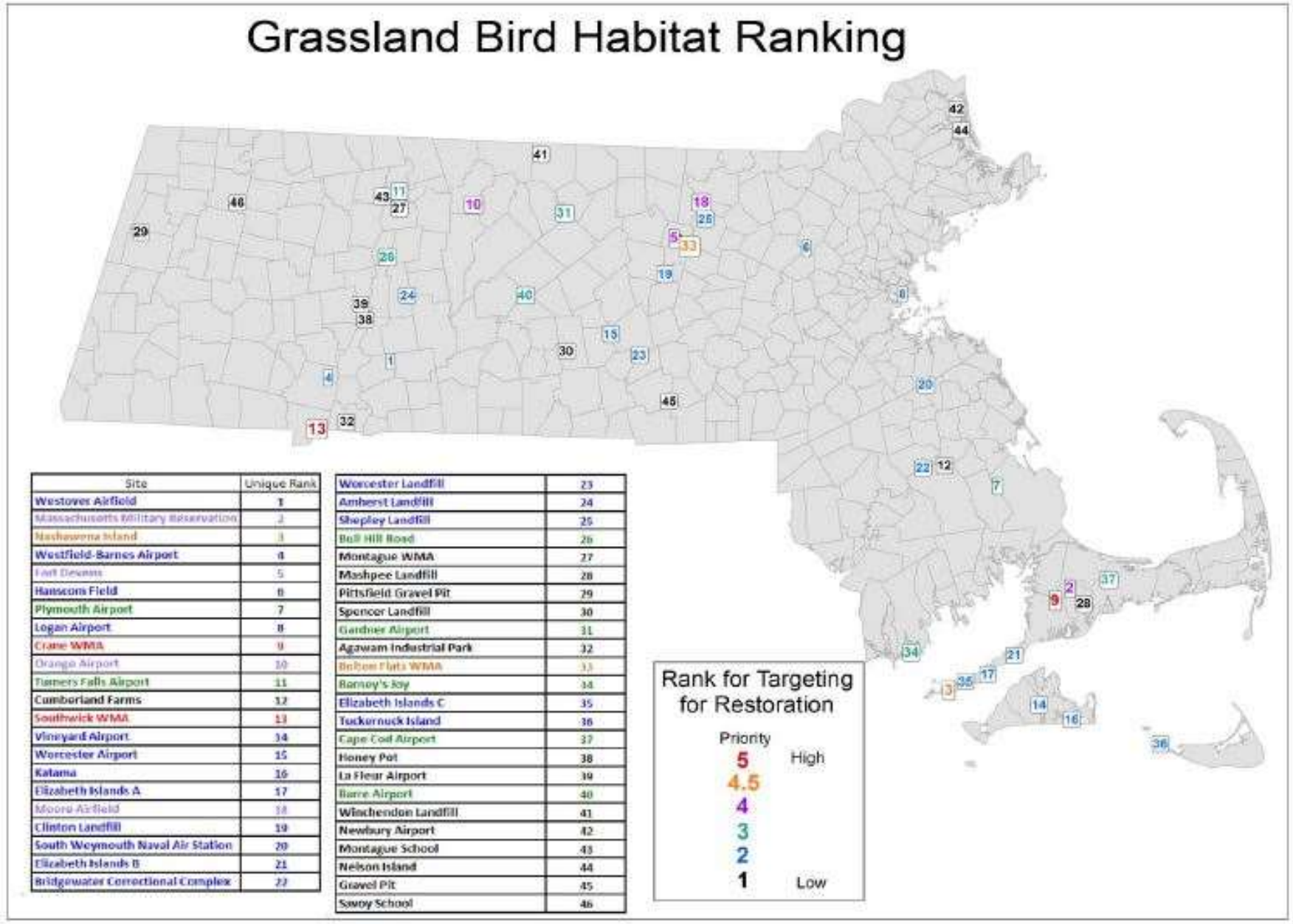
Regulatory Considerations

- Wetlands Protection Act
- Massachusetts Endangered Species Act (MESA)
- Migratory Bird Treaty Act

Other issues & opportunities

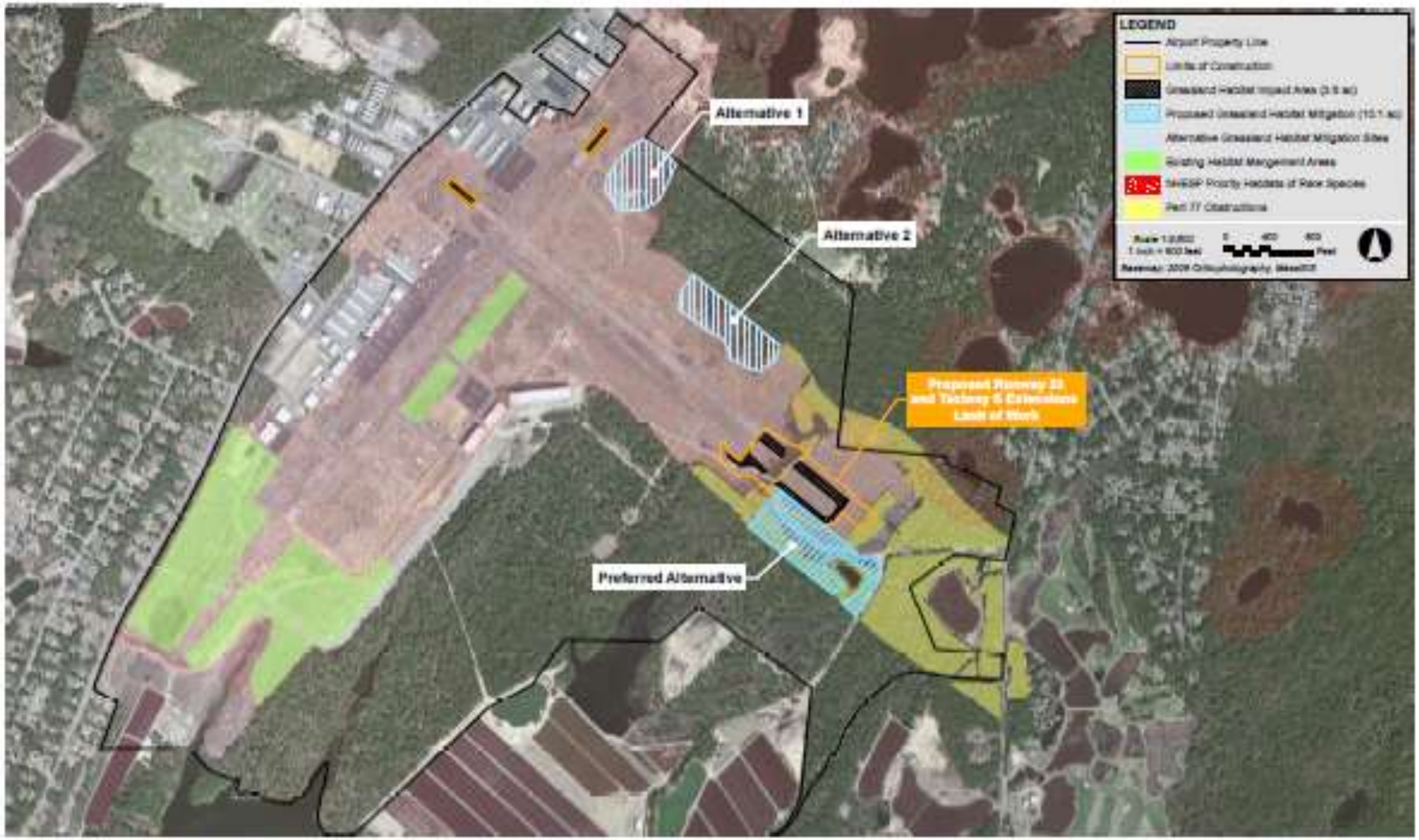
- Airfield safety
- Energy Facilities
  - Solar arrays
  - Utility Rights of Ways
- Municipal finances and sports

Figure 1. Locations and rankings of all sites in Massachusetts known to have Upland Sandpipers or Grasshopper Sparrows since 1990.



Site	Unique Rank
Westover Airfield	1
Massachusetts Military Reservation	2
Nashawena Island	3
Westfield-Barnes Airport	4
Fort Devens	5
Hanscom Field	6
Plymouth Airport	7
Logan Airport	8
Crane WMA	9
Orange Airport	10
Turners Falls Airport	11
Cumberland Farms	12
Southwick WMA	13
Vineyard Airport	14
Worcester Airport	15
Katama	16
Elizabeth Islands A	17
Moore Airfield	18
Clinton Landfill	19
South Weymouth Naval Air Station	20
Elizabeth Islands B	21
Bridgewater Correctional Complex	22

Worcester Landfill	23
Amherst Landfill	24
Shepley Landfill	25
Bull Hill Road	26
Montague WMA	27
Mashpee Landfill	28
Pittsfield Gravel Pit	29
Spencer Landfill	30
Gardner Airport	31
Agawam Industrial Park	32
Bolton Flats WMA	33
Barney's Joy	34
Elizabeth Islands C	35
Tuckernuck Island	36
Cape Cod Airport	37
Honey Pot	38
La Fleur Airport	39
Barre Airport	40
Winchendon Landfill	41
Newbury Airport	42
Montague School	43
Nelson Island	44
Gravel Pit	45
Savoy School	46

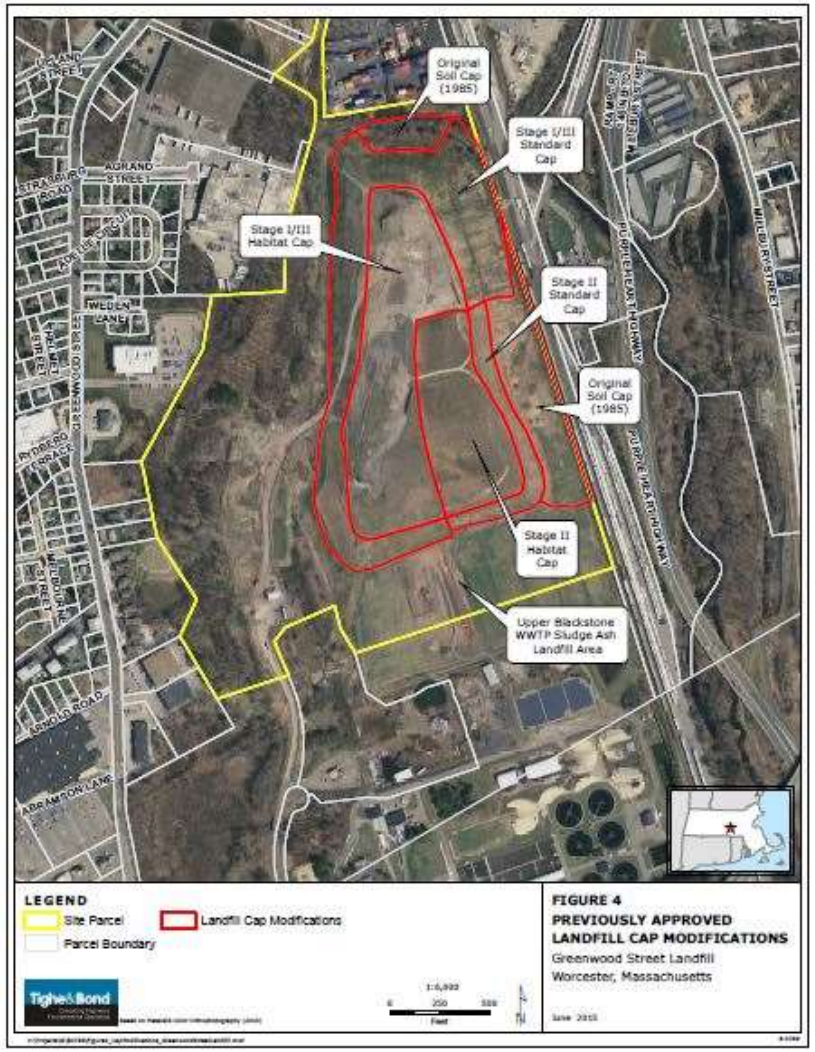


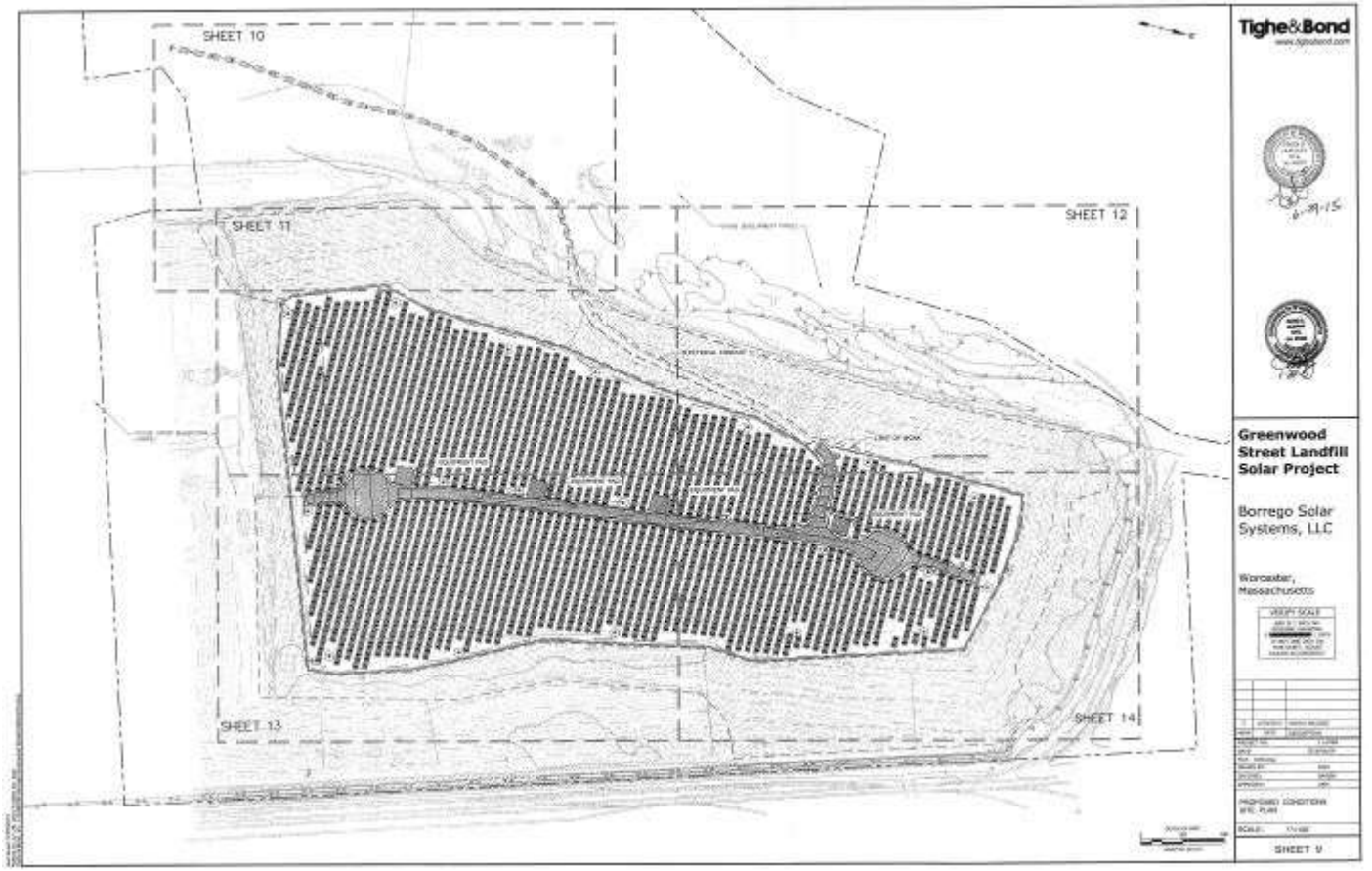
Plymouth Airport Plymouth, Massachusetts

Epsilon

Figure 4-1

Landfills and Solar Arrays





Municipal Lands

- Cost of maintaining fields
- Leases to farmers
- Other municipal uses/interests
  - Active recreational fields
  - Special events

Utility Rights of Ways

Community Development Interests

- Weymouth Naval Air Station
  - SouthField Redevelopment

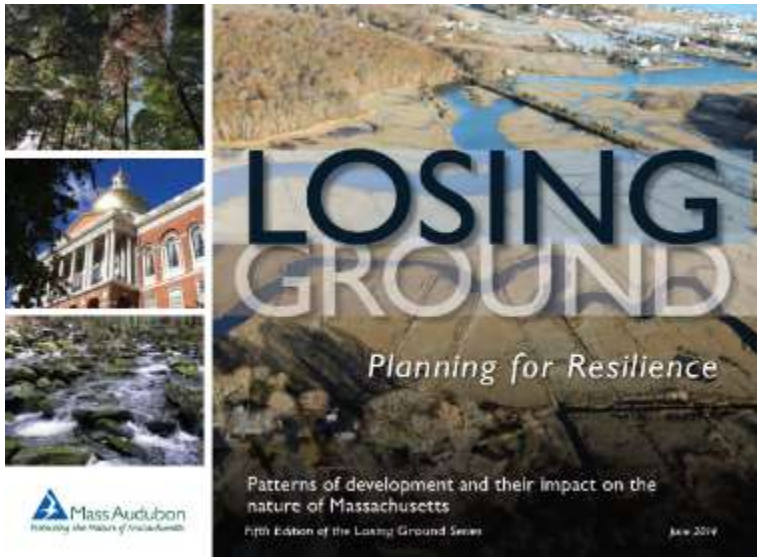
Shaping the Future of Your Community

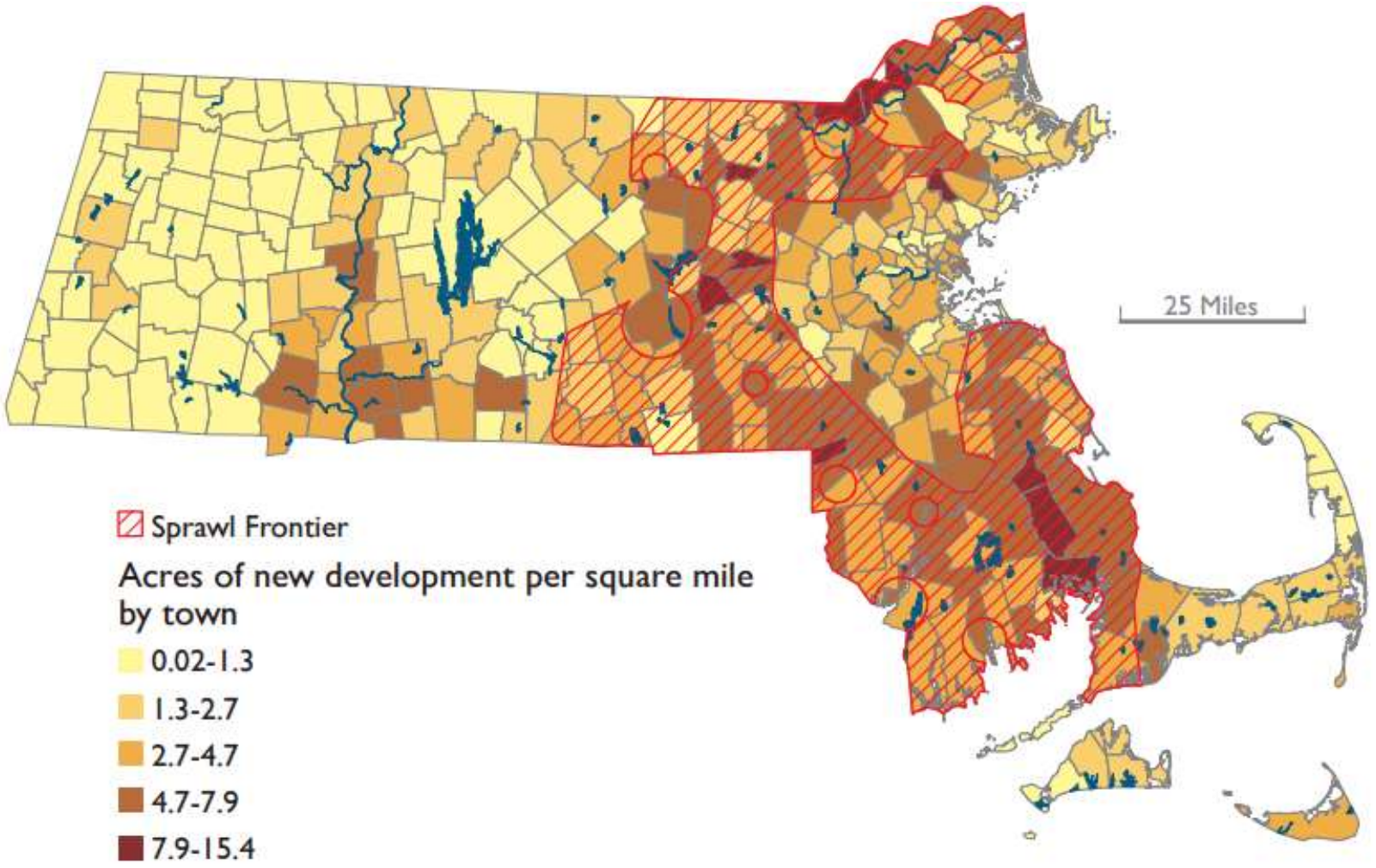
- Created in response to Losing Ground
- Works with communities to implement sustainable development and increase conservation efforts – especially in "sprawl frontier"
- Protect habitat and water supplies, preserve community character, encourage community planning, guide development, etc.

SHAPING the Future of YOUR COMMUNITY

massaudubon.org/shapingthefuture

Losing Ground





Losing Ground

As of 2013, **over half** of the land in Massachusetts had not yet been protected or developed.

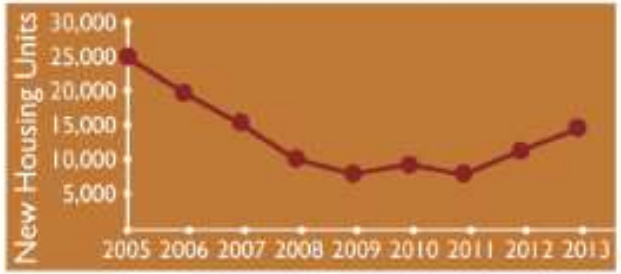
Recent Trends

During the period of **2005-2013**,

13 acres of land per day were **developed** (on average).

41 acres of land per day were **protected** (on average).

The rate of development plummeted during the recent **Great Recession**. Lately, however, **new housing permits** are on the rise.



Planning for the Future

54% of the remaining unprotected land is of **high conservation value.** *(BioMap 2)*

As development pressures increase, we can plan our land use for both a **strong economy** and a **safe, healthy environment.**

Climate Change

Mitigation

How do we help ecosystems and species cope with and adapt to these changes?

How do we avoid or reduce impacts to infrastructure?

Where are these resilient places?

Conserve resilient places –
and restore resilience where it's lost

Resilience = Complexity + Connectivity

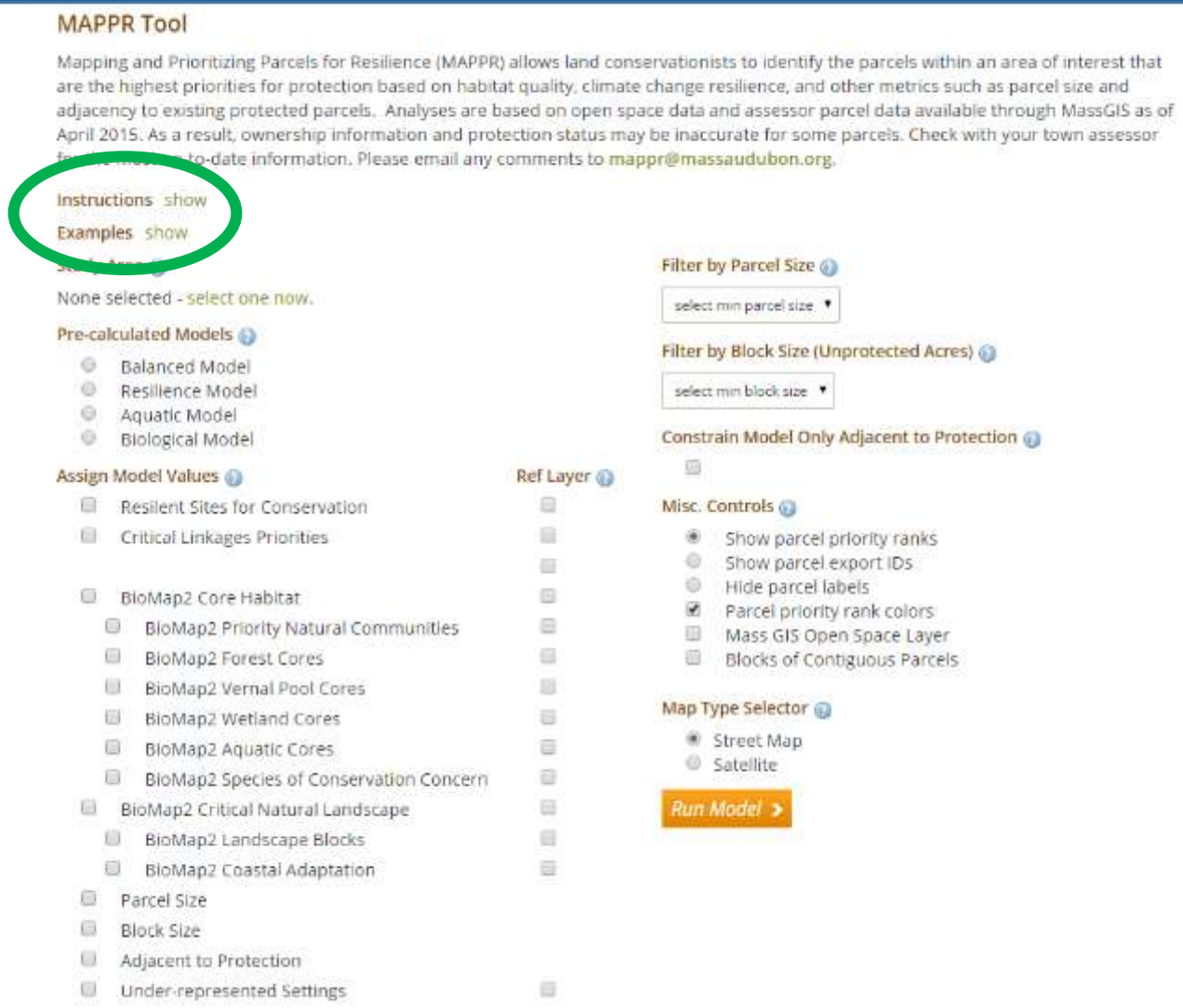
Landscape Complexity

- How many landforms are available from each point ("microclimates")

Landscape Connectivity (Permeability)

- How connected are the lands at each point

Instructions, examples, ? - always ready



Instructions hide

Step 1 - Select your study area.

Step 2 -
Choose to run a custom model using one of our **Pre-calculated Models** or the **Assign Model Values** section.

Step 3 - Apply additional criteria/filters.

Step 4 - Click Run Model button.

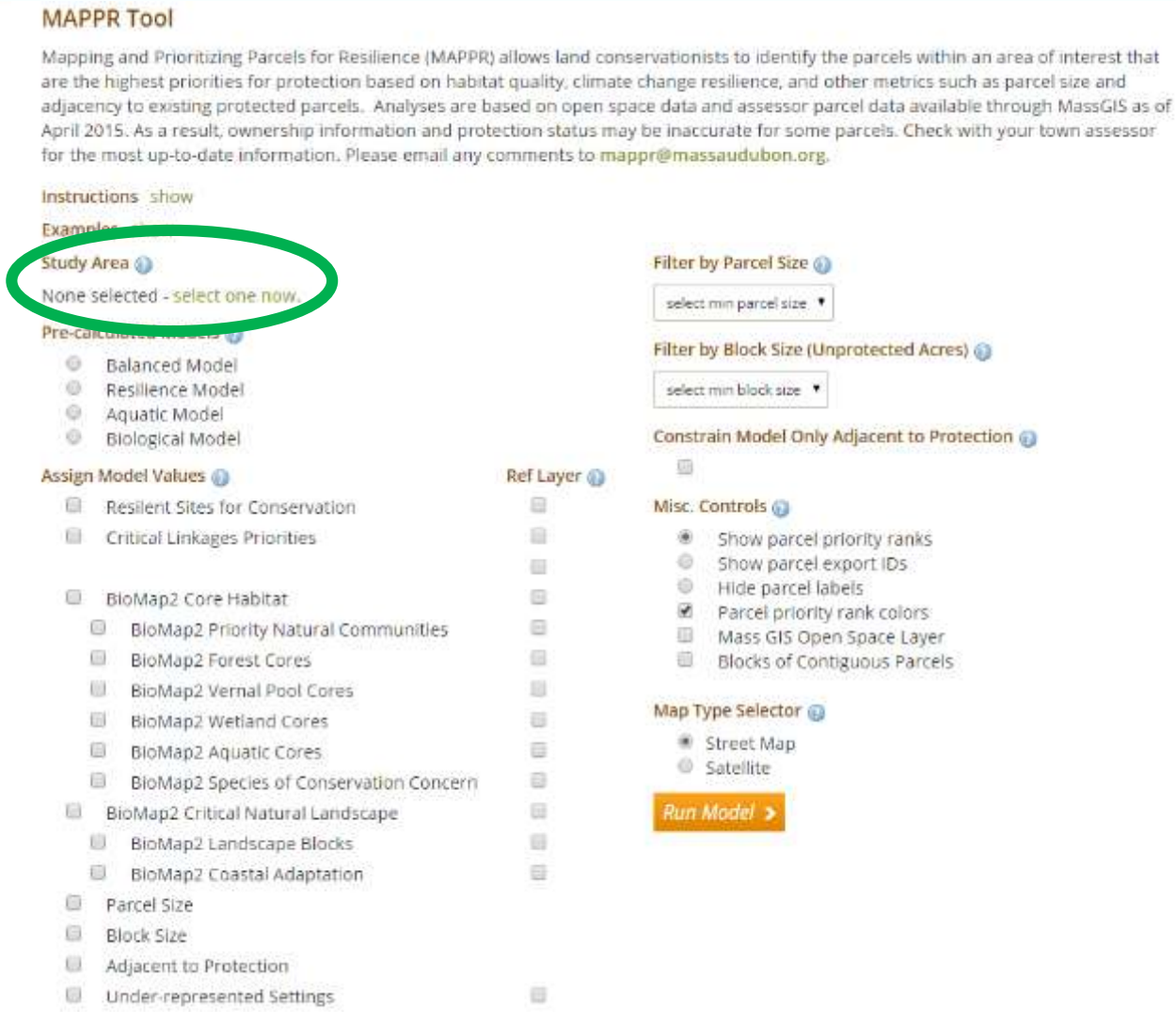
Step 5 - After the model has run.

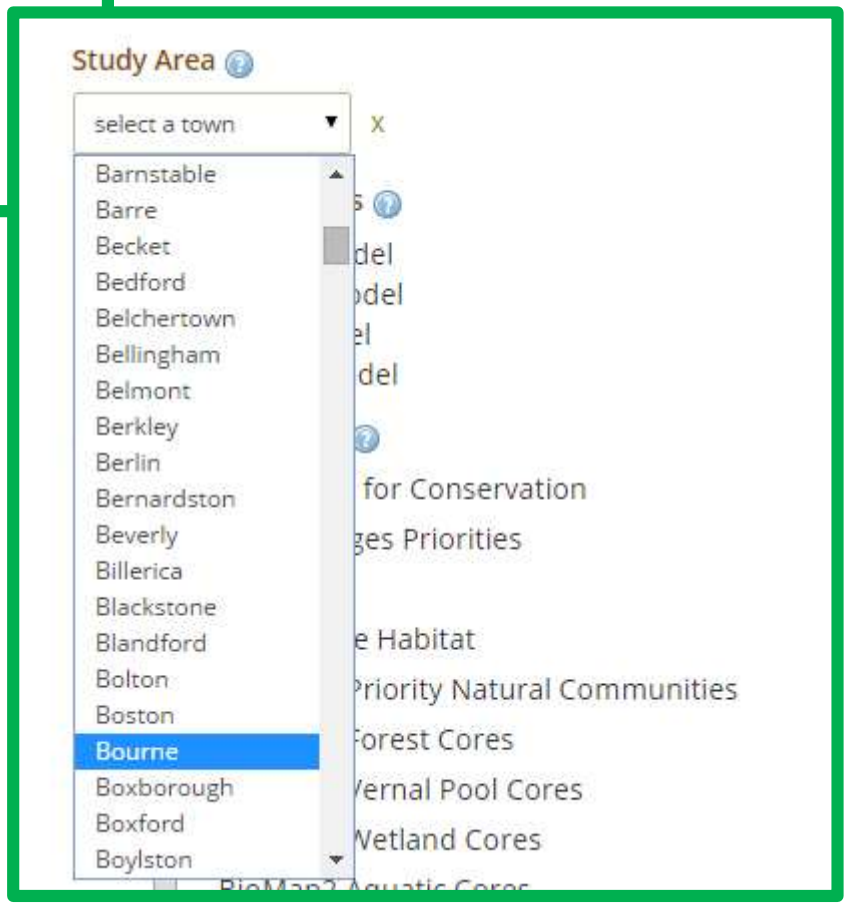
Examples hide

Example 1

Example 2

Choose a study area: town, county, watershed





Choose a pre-calculated model

MAPPR Tool

Mapping and Prioritizing Parcels for Resilience (MAPPR) allows land conservationists to identify the parcels within an area of interest that are the highest priorities for protection based on habitat quality, climate change resilience, and other metrics such as parcel size and adjacency to existing protected parcels. Analyses are based on open space data and assessor parcel data available through MassGIS as of April 2015. As a result, ownership information and protection status may be inaccurate for some parcels. Check with your town assessor for the most up-to-date information. Please email any comments to mappr@massaudubon.org.

Instructions show

Examples show

Study Area

None ... one now.

Pre-calculated Models

- Balanced Model
- Resilience Model
- Aquatic Model
- Biological Model

Assign Model Values

- Resilient Sites for Conservation
- Critical Linkages Priorities
- BioMap2 Core Habitat
  - BioMap2 Priority Natural Communities
  - BioMap2 Forest Cores
  - BioMap2 Vernal Pool Cores
  - BioMap2 Wetland Cores
  - BioMap2 Aquatic Cores
  - BioMap2 Species of Conservation Concern
- BioMap2 Critical Natural Landscape
  - BioMap2 Landscape Blocks
  - BioMap2 Coastal Adaptation
- Parcel Size
- Block Size
- Adjacent to Protection
- Under-represented Settings

Ref Layer

Filter by Parcel Size

select min parcel size

Filter by Block Size (Unprotected Acres)

select min block size

Constrain Model Only Adjacent to Protection

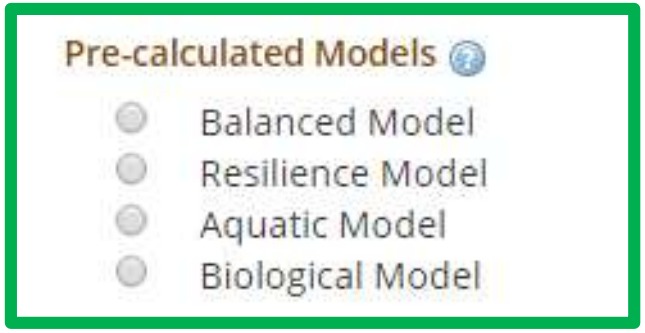
Misc. Controls

- Show parcel priority ranks
- Show parcel export IDs
- Hide parcel labels
- Parcel priority rank colors
- Mass GIS Open Space Layer
- Blocks of Contiguous Parcels

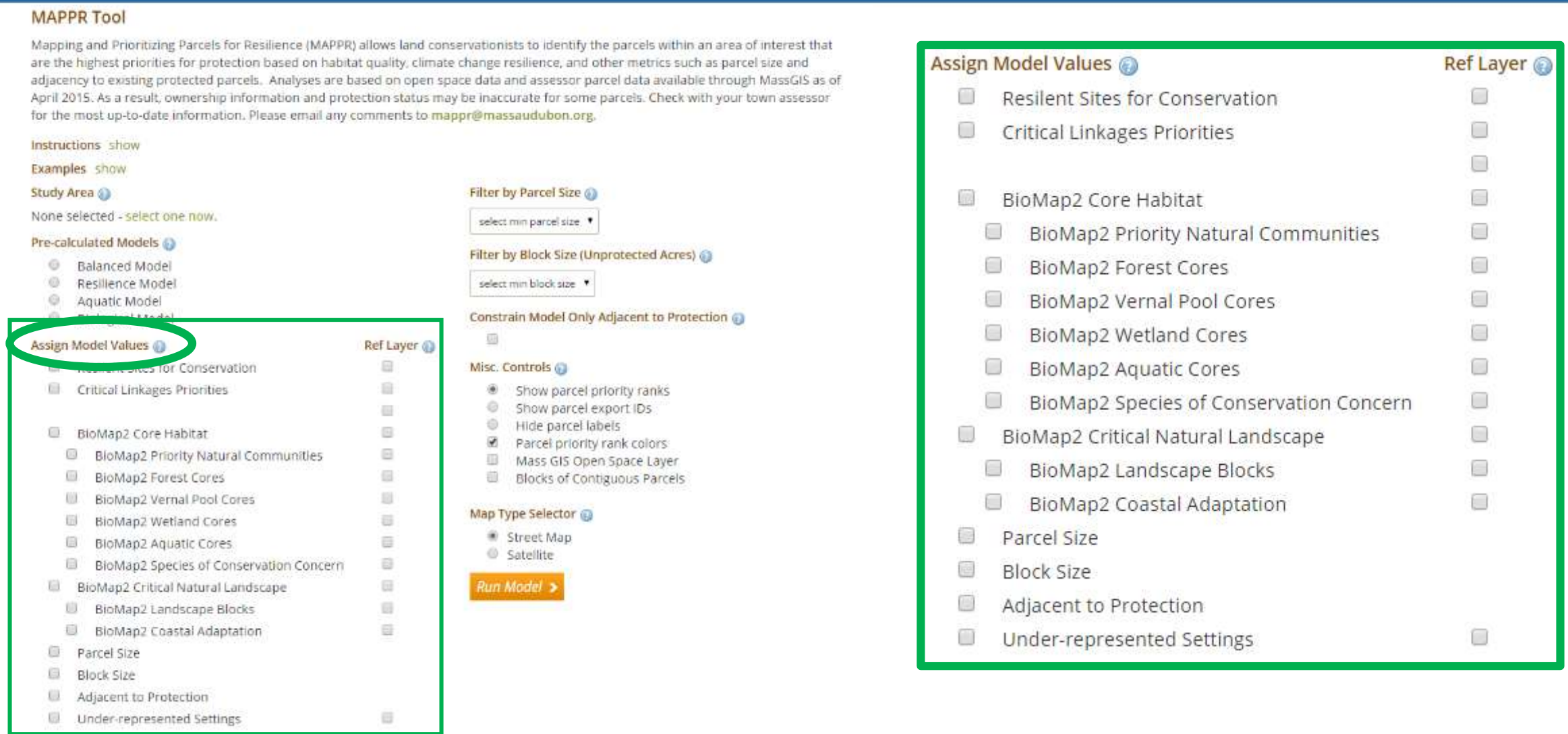
Map Type Selector

- Street Map
- Satellite

Run Model >



Or choose your own adventure



Check out the differences between models

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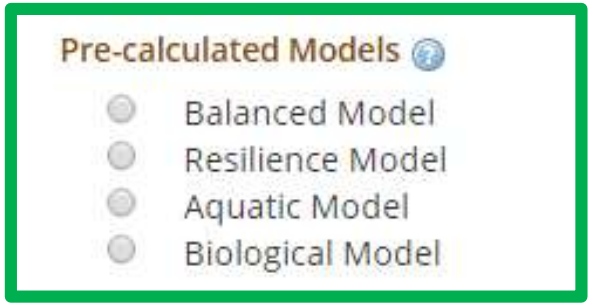
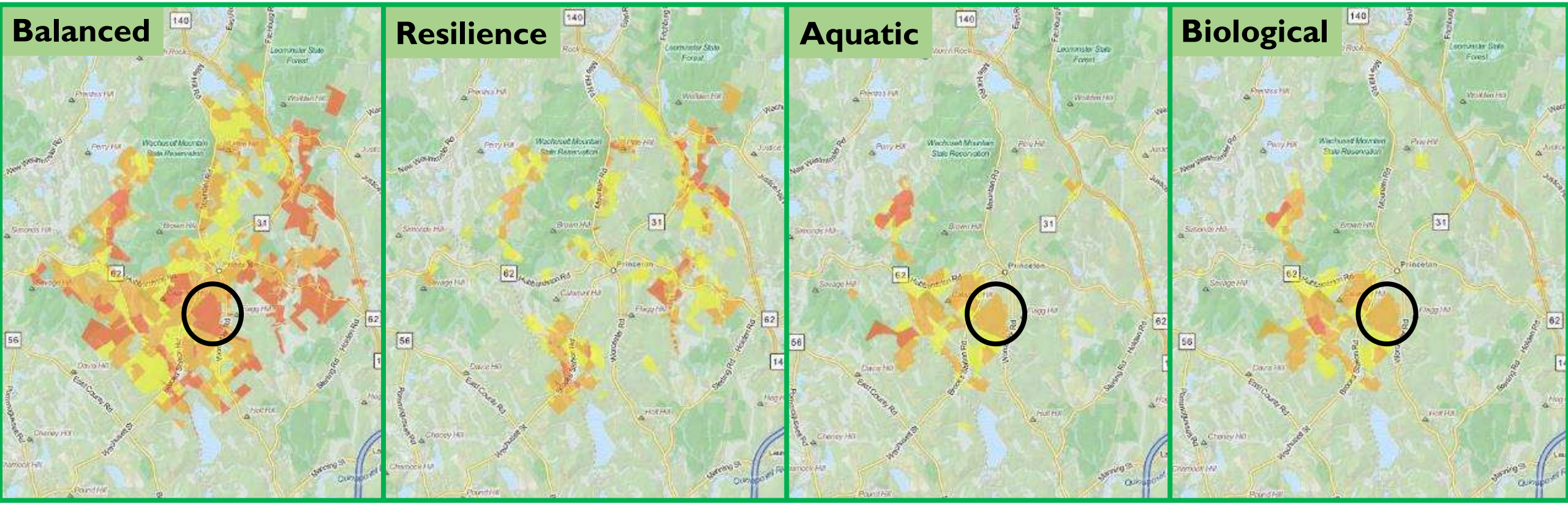


The different models: Princeton



Priority

- High Priority Parcels
- Medium Priority Parcels
- Lower Priority Parcels

Available Tools Focus on Farmland (not habitat)

- **Farm Level**
  - Agricultural Preservation Restriction
  - Chapter 61
  - Farm Viability Enhancement Program
- **Community Level**
  - Zoning changes
  - Agricultural Commissions
  - Right to Farm bylaws
  - Community Preservation Act (CPA)

Massachusetts grown…and fresher!™

State of the Birds 2013 Recommendations & Farming

- Support a net gain of land in agriculture in Massachusetts
- Encourage everyone to embrace Massachusetts-based agricultural products
- Develop tools for both foresters and farmers to encourage bird-friendly management options on their lands
- Develop plans to increase shrubland maintenance and creation in sustainable locations

Tools for Farmers: Agricultural Preservation Restriction

- Voluntary program

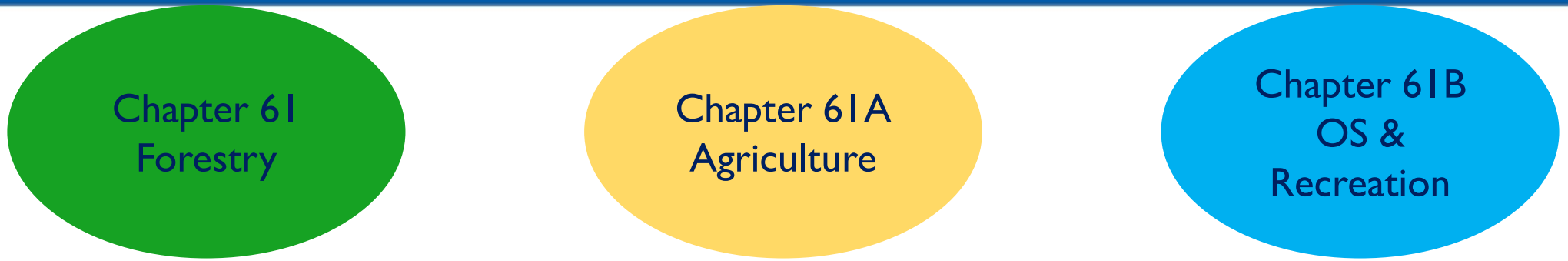
- Farms receive value of development rights (market value – agricultural value) in exchange for permanently protecting land from development

Tools for Farmers: APR

Agricultural Preservation Restriction

- Numerous considerations, focus on physical and economics
  - 5+ acres
  - Used for a 2+ years
  - $500+ in gross sales/yr for first 5 acres
  - Landscape context
  - Physical features, soils
  - Degree of threat of development
  - Availability of assistance for funding, legal services, etc.

Tools for Farmers: Chapter 61A



- Property tax break in exchange for keeping land undeveloped
- Temporary, 10 year period (can be renewed)
- Community has first refusal option

"providing important public benefits like clean water, wildlife habitat, rural character, wood products, food, and outdoor recreation"

Tools for Farmers: Farm Viability Enhancement Program

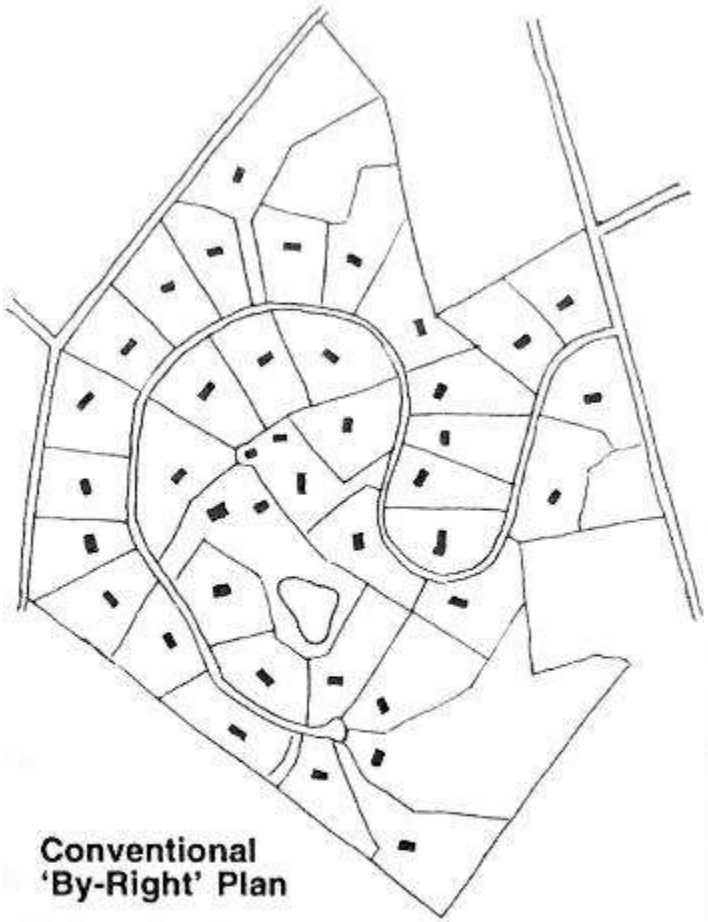
- Farmers can apply to work with ag, enviro, and economic consultants to create a *Farm Viability Plan*
- Looks to increase income through management, value-added opportunities, agri-tourism, diversification, more
- Recommends pollution prevention & resource conservation measures
- Funding available in exchange for commitment to farm land for prescribed number of years

FVEP by the numbers

- In FY2015:
  - 9 – farms received technical assistance, completed business plans, and received funding (avg. $86,995 per farm)
  - 1,441 – acres protected through agricultural covenants
  - $650,000 – direct grants received by farmers
  - $80,000 – technical assistance received by farmers
- Since 1996
  - 404 – farms protected
  - 39,805 – acres protected through covenants
  - $17,671,472 – direct grants paid to farmers
  - $444 – average cost per acre

Tools for Communities: Zoning Changes

- Open Space Residential Design (OSRD) allowed by right or preferred
- High density, smaller lot sizes
- Flexible requirements on frontage, setbacks, etc.



Conventional 'By-Right' Plan

- 38 units
- 3+ acre lots
- No open space
- No rural character

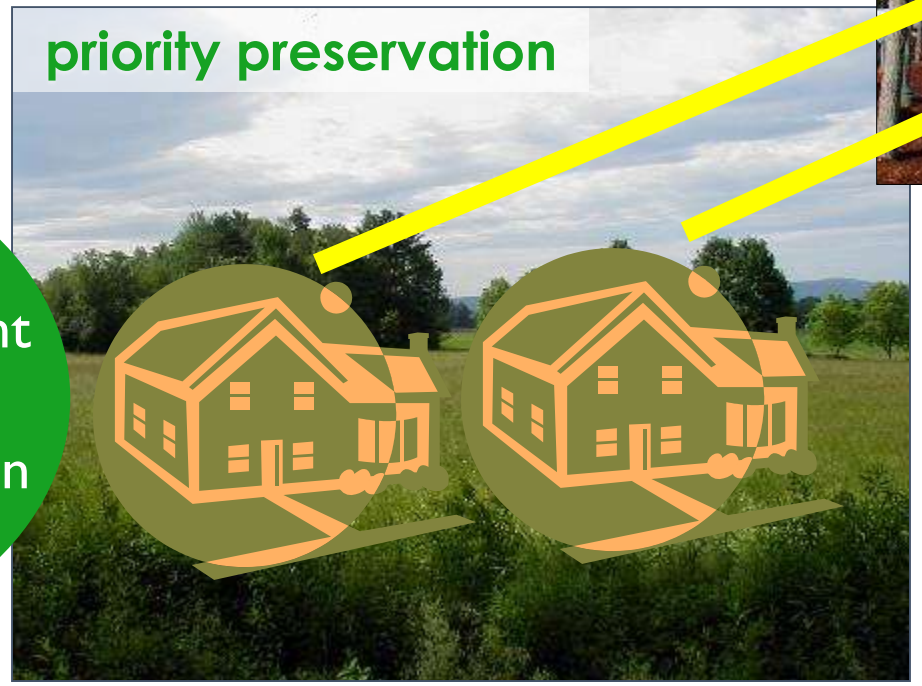
Alternative Open Space Plan

- 46 units
- 26 one acre lots
- 16-unit village
- 4 units on three farms
- 68% open space
- preserves rural character and working farmland

Natural Resource Protection Zoning

Tools for Communities: Zoning Changes

Transfer of Development Rights (TDR)

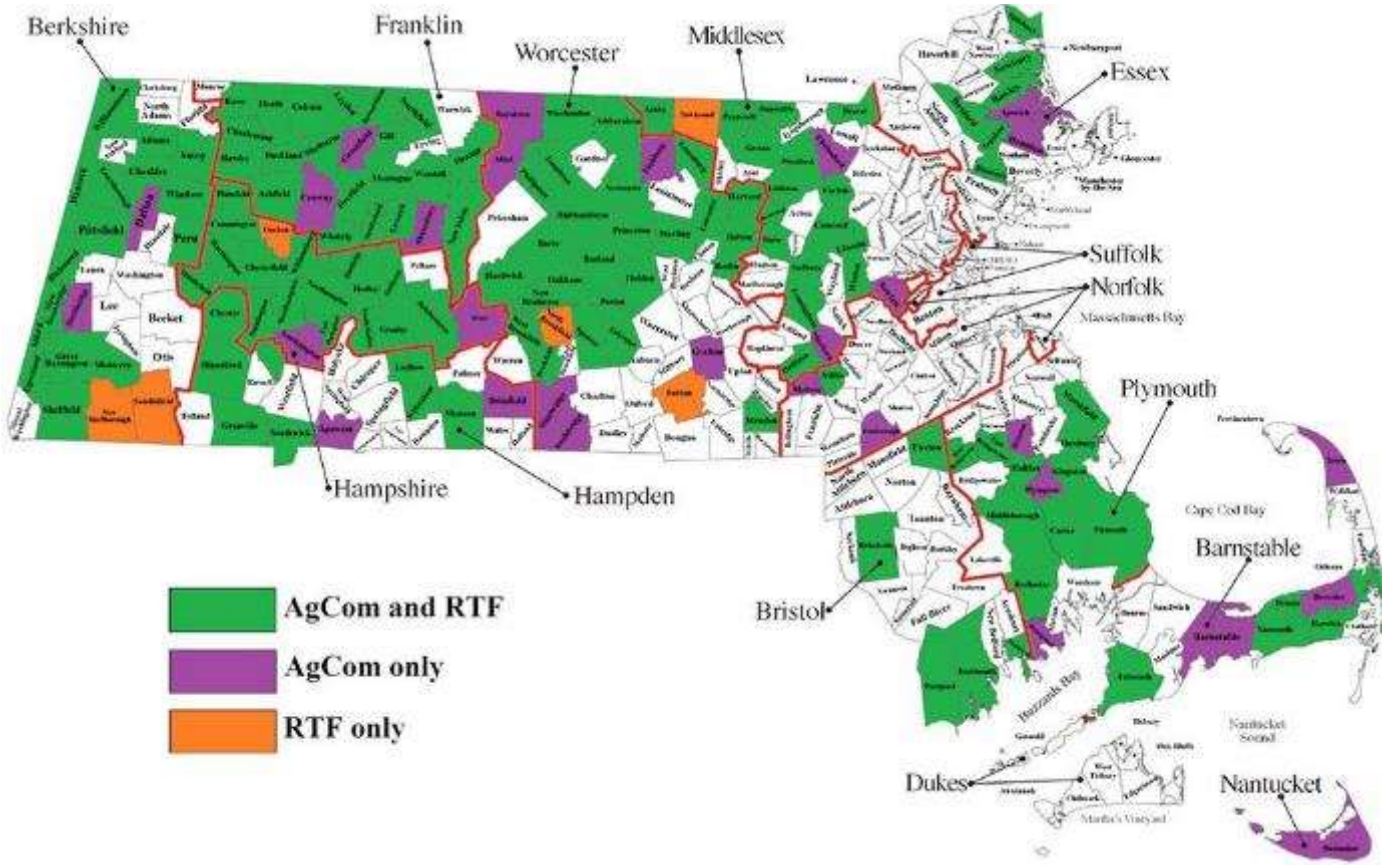


Owner of "sending" parcel sells development rights in exchange for permanent conservation easement

Owner of "receiving" parcel buys development rights to build at densities higher than allowed under base zoning

Tools for Communities: Agricultural Commissions

- Committee formed by vote of Town Meeting or City Council
- 163 communities in MA have AgComs
- Resources available through Massachusetts Association of Agricultural Commissions (MAAC) massagcom.org



AgComs: Goals

- Visibility and voice for farms, farmers
- Resolve farm related conflicts
- Protect farmland
- Work with other local boards
- Assist with natural resource management

AgComs: Examples

- Adopting local right-to-farm by-laws
- Raising money for farmland protection and economic development
- Starting local farmer's markets
- Providing mediation and conflict resolution on farm related disputes within town
- Collaborating on development proposals with other boards
- Educating town residents about the value of agriculture in the community
- Holding educational workshops on farm viability, property transfer, etc.
- Obtaining technical assistance on nonpoint source pollution, conservation farm planning, manure management, environmental stewardship

Tools for Communities: Right to Farm Bylaw

- Demonstrates importance of and support for farming within community (for current & potential residents)
- Encourages agriculture within the community and local economy
- Community allows agricultural "with minimal conflict with abutters and town agencies"

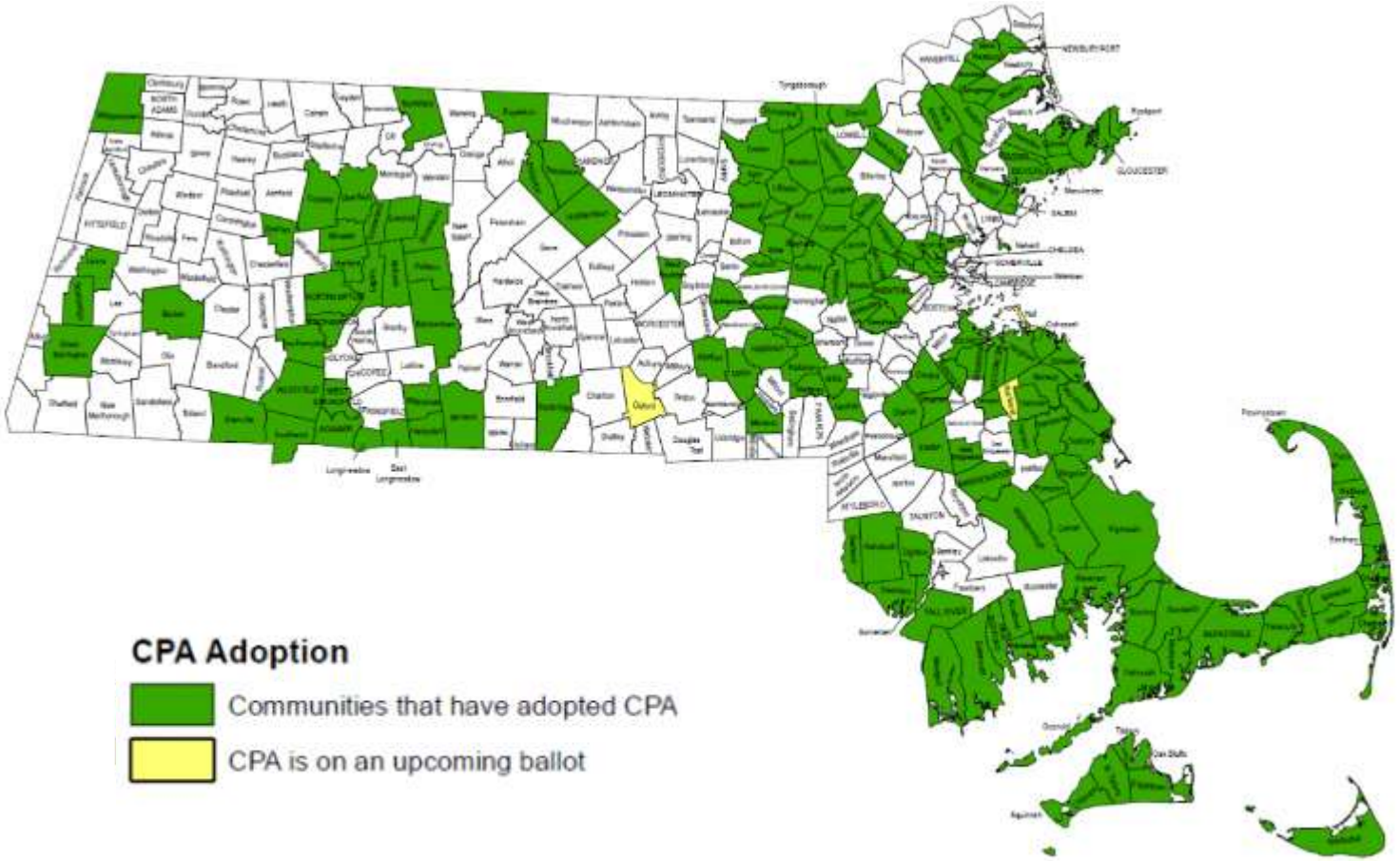
Tools for Communities: CPA

- A state law enabling cities and towns to create a dedicated fund to
  - Preserve open space
  - Preserve historical resources
  - Create community housing
  - Create outdoor public recreation areas
- 0.5-2.0% on local property tax bill

Tools for Communities: CPA

CPA to date:

- 161 communities
- $1.6 billion raised
- Over 8,100 projects
- 23,471 acres of open space



Financial challenges to farmers, birds

- Farmers mow during critical Bobolink/grassland bird nesting season
- Bobolink Project raises money to "buy" time for the birds and pay farmers for not harvesting during critical time
- Demonstrates value of farmland to birding habitat
- Partnership between Mass Audubon, Audubon CT, Audubon VT

Foresters for the Birds

Mass Audubon program adopted from Audubon VT

Goals

- Increase forest plans that manage for bird habitat and timber
- Reduce parcelization and fragmentation rates
- Stabilize or increase priority bird species populations

Take Home Messages

Mass Audubon
Protecting the Nature of Massachusetts

- MAPPR is a useful tool, ag info coming soon
- Lots of tools available for farmers and communities to preserve farmland
- Sustaining open spaces for people and nature!

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