Don't Just Map it, Conserve it! Conservation success stories with MAPPR

Stefanie Covino
scovino@massaudubon.org

MACC
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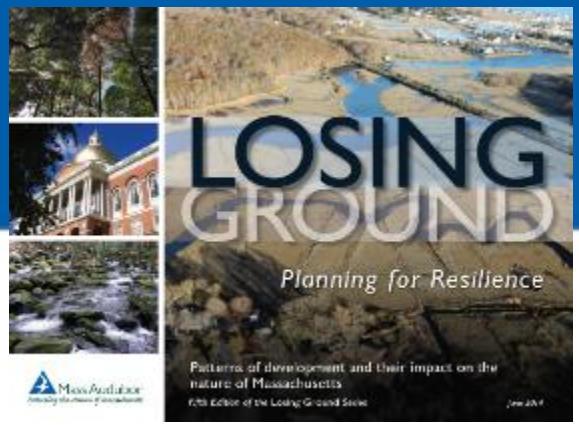
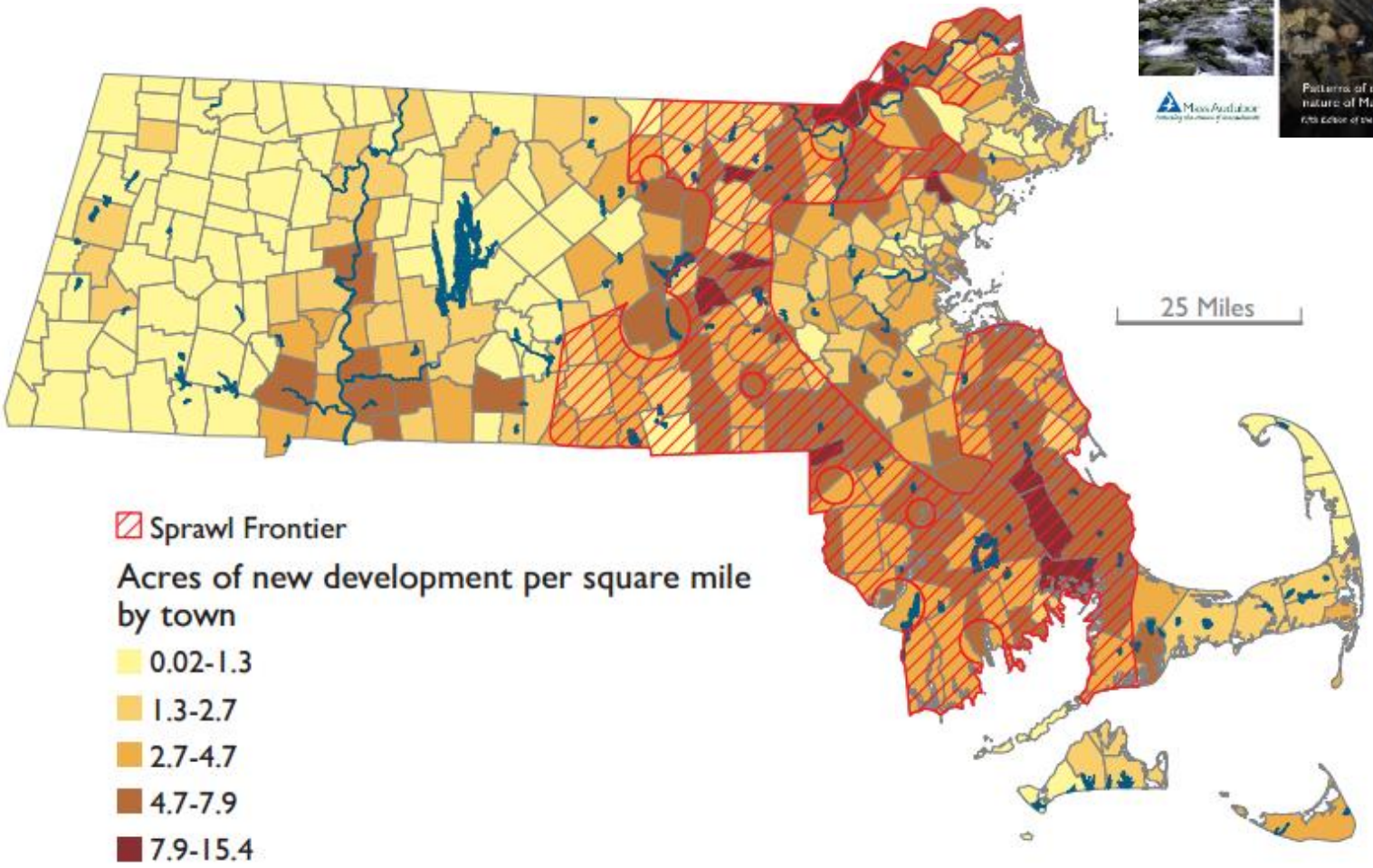
Shaping the Future of Your Community

Development of MAPPR supported by
Open Space Institute Land Trust (OSILT)
&the Lookout Foundation

Mass Audubon

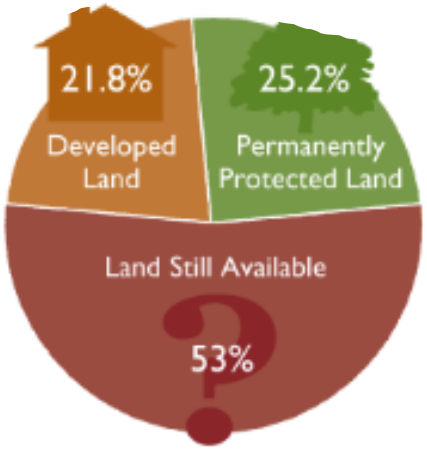
Losing Ground





Losing Ground

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



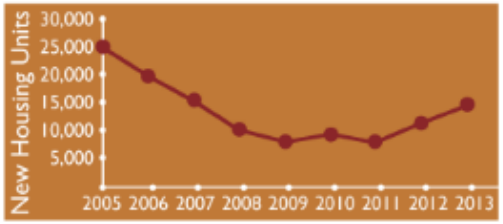
Recent Trends

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.



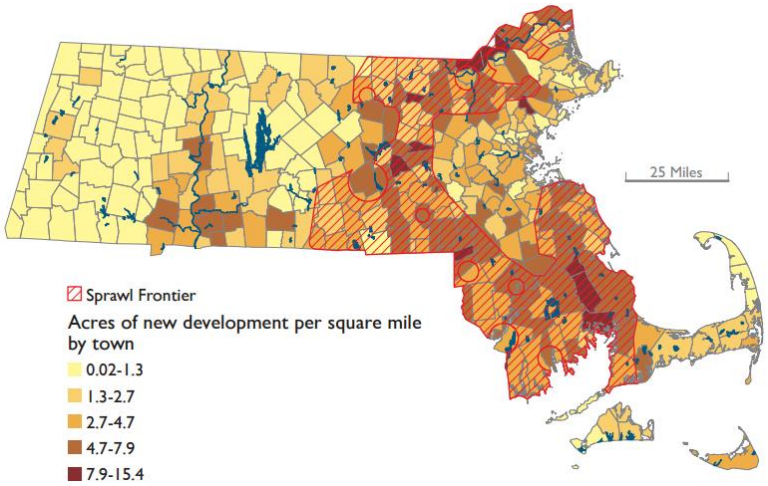
Planning for the Future

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.**

Shaping the Future of Your Community

- Created in 2009 in response to *Losing Ground*
- Help the fastest-developing communities chart a more **sustainable future** through customized community workshops and direct assistance



Shaping the Future of Your Community

Mass Audubon

We need to change course

Traditional development

Impervious surfaces

Large, thirsty, fertilized lawns

Groundwater depletion

Stormwater runoff

Water quality impairments

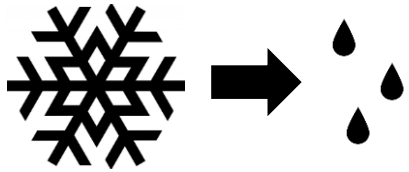
Infrastructure impacts

Unsustainable for people & wildlife

Key Observed Climate Changes in MA

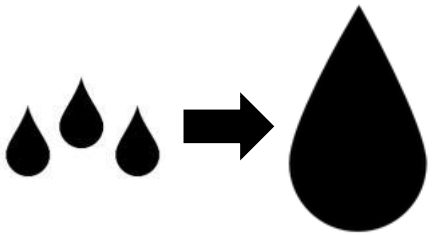
Temperature: **2.9°F** Since 1895

Growing Season: **11 Days** Since 1950



Sea Level Rise: **11 inches** Since 1922

Strong Storms: **55%** Since 1958



Climate change

Sprawling Development

increased precipitation

increased temperature

impervious surfaces

stormwater & WQ issues

flooding & infrastructure damage

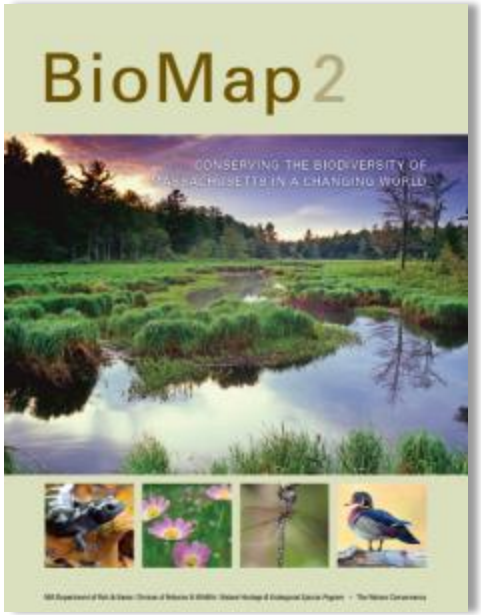
heat-related illnesses

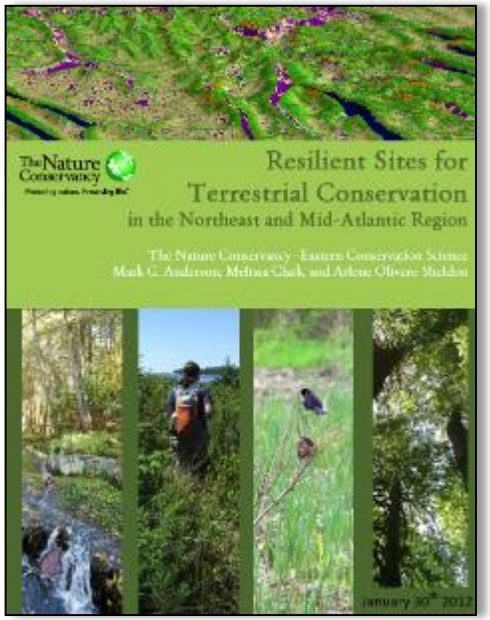
more cooling shelters

What do we do about it?
Protect what we have & develop smarter

1. **Conserve** the natural GI already providing free ecosystem services
2. **Integrate** LID and green infrastructure design into development
3. **Restore** urban resiliency through LID in redevelopment

MAPPR: Mapping And Prioritizing Parcels for Resilience





BioMap2:
Habitat, Biodiversity

TNC Resilience:
Climate Adaptation

Critical Linkages:
Ecological Connectivity

- Parcel Size
- Block Size
- Adjacent to Protected Land
- Under-protected Settings

Resilience: The capacity to absorb disturbance and reorganize while retaining the same basic function, structure and identity.

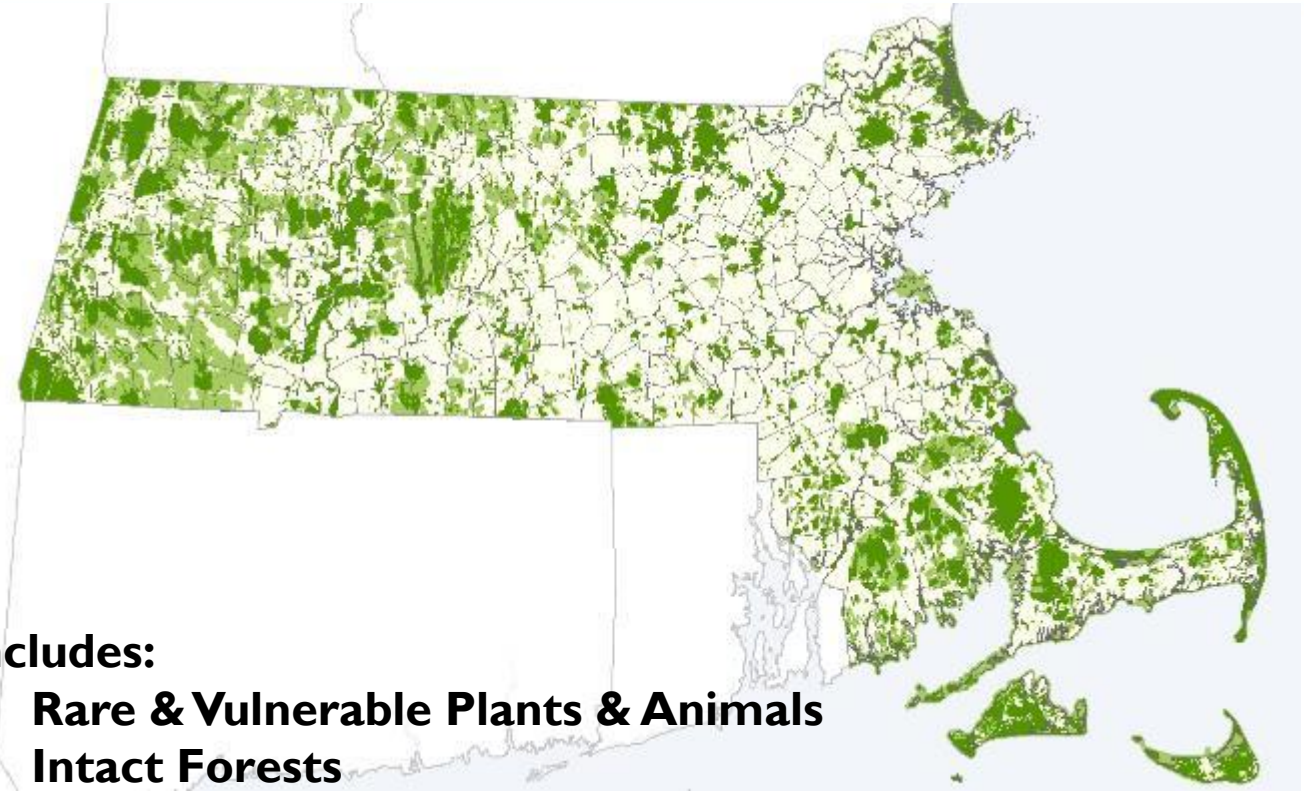
Landscape Complexity

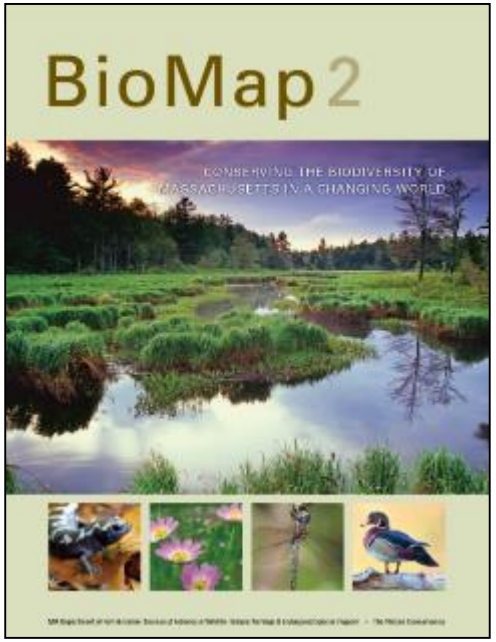
Number of microclimates are found in the area

Landscape Connectivity

Possibility for individuals and populations to move among these microclimates

BioMap2





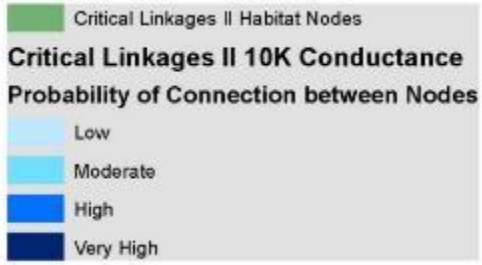
Includes:

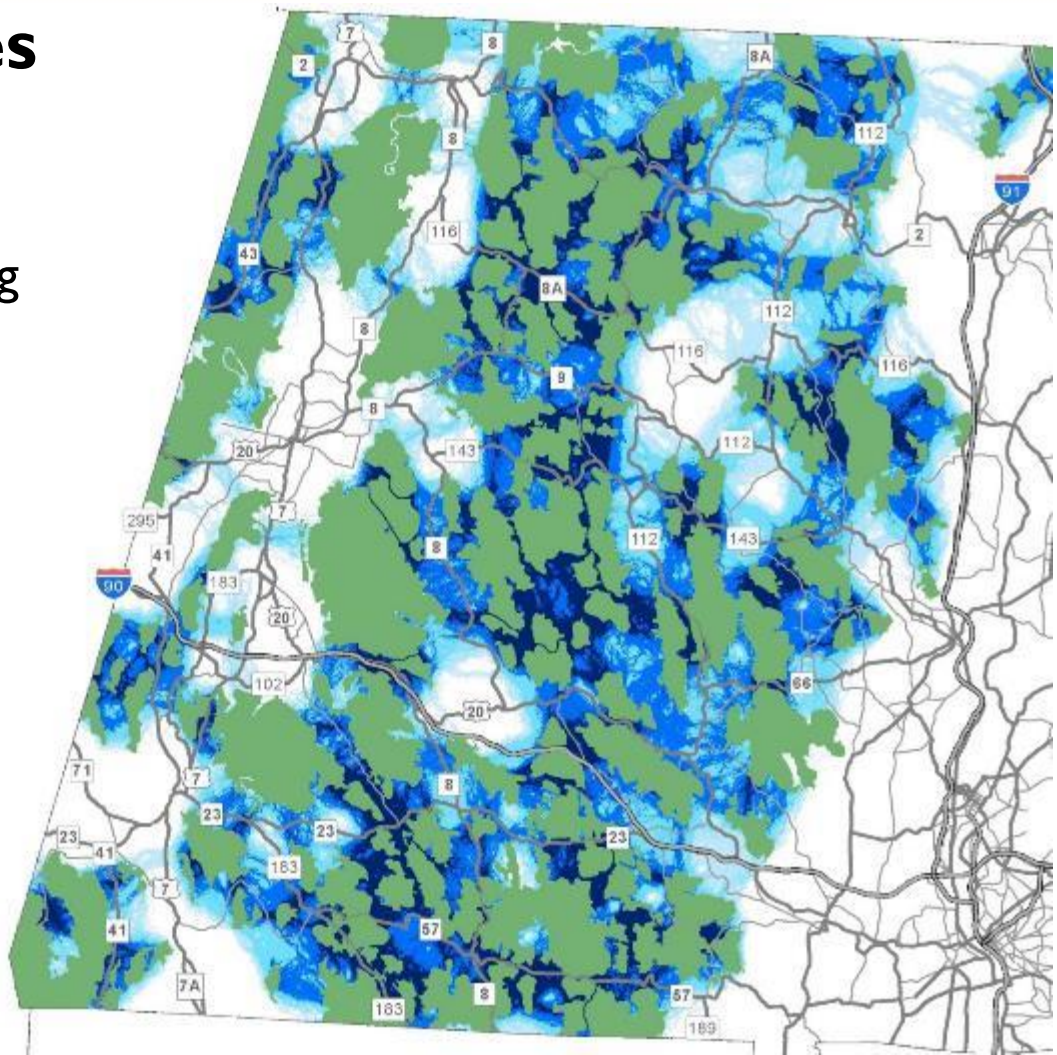
- **Rare & Vulnerable Plants & Animals**
- **Intact Forests**
- **Intact Wetlands**
- **Intact Rivers**
- **Vernal Pools**
- **Intact Landscape**

…**long-term persistence** of **species** and their habitats, **natural communities**, and a diversity of **ecosystems**

Critical Linkages II

- **Conservation Nodes**
  - Conservation Areas
- **Conductance**
  - Probability of animals moving





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  - Protecting Land & Wildlife
  - Ocean Management
  - Climate Change

Version 2.0 just released - Mapping and Prioritizing Parcels for Resilience Project

Mass Audubon, in partnership with The Nature Conserva... LandVest, developed **Mapping and Prioritizing Parcels for Resilience (MAPPR)** to allow Massachusetts conservationists to rapidly identify specific parcels that, if protected, could contribute the most to achieving land protection goals.

Resources

MAPPR Tool 2.0

Resources

MAPPR: 3 Steps

1

Select a study area

- Town, county, watershed, DFW district, or land trust region

2

Choose model

- Choose a pre-calculated model (balanced, resilience, aquatic, or biological)
- Choose specific model values

3

Run & Review Results

- Review results, including priority scoring and parcel ownership
- Adjust optional filters and constraints

Value examples: resilient sites for conservation, adjacency to protection, surface water protection, prime agricultural soils

Select a study area

1

MAPPR Tool 2.0

MAPPR 2.0 has been enhanced to evaluate properties that include prime farmland as well as parcels critical to surface water supplies and wellhead protection zones. In addition, all open space and parcel data was updated to the September 2016 versions. Finally, we added the following new study areas for analysis: Multi-town Land Trusts and MassWildlife Districts.

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. The higher the number and darker the color, the more critical that parcel is for conservation based on selected inputs. Click on a parcel to learn why it received that score – each input is scored as 0 (did not exist) to 1, 2, or 3 (very important for this input). Note: colors are relative based on the scale of the search – town vs. watershed for example. However, the numbers are absolute for each input.

Analyses are based on open space data and assessor parcel data available through MassGIS as of September 2016. 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 hide

Step 1 - Select your study area.

Step 2 - Choose to run a custom

Step 3 - Apply additional criteria/

Step 4 - Click Run Model button.

Step 5 - After the model has run.

odel Values section.

Examples hide

Example 1

Example 2

Study Area

Choose a category

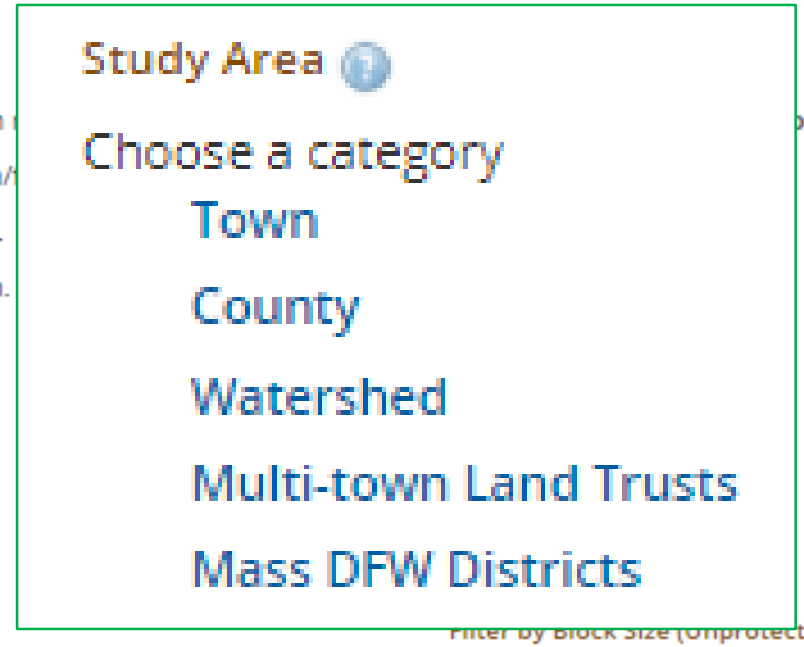
Town

County

Watershed

Multi-town Land Trusts

Mass DFW Districts



Filter by Block Size (Unprotected Acres)

select min block size

Constrain Model Only Adjacent to Protection

2 Choose a pre-calculated model

Choose a category

- Town
- County
- Watershed
- Multi-town Land Trusts
- Mass DFW Districts

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
- ☐ Prime Farmland
- ☐ Surface Water Protection Zones
- ☐ Wellhead Protection Areas
- ☐ Parcel Size
- ☐ Block Size
- ☐ Adjacent to Protection
- ☐ Under-represented Settings

Ref Layer

- ☐
- ☐
- ☐
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- ☐
- ☐
- ☐
- ☐
- ☐

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

2 Or choose specific model values

Choose a category

- Town
- County
- Watershed
- Multi-town Land Trusts
- Mass DFW Districts

Pre-calculated Models

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

Assign Model Values

Ref Layer

- Resilient Sites for Conservation
- Critical Linkages Priorities
- BioMap2 Core Habitat
  - BioMap2 Priority Natural Communities
  - BioMap2 Forest Cores
  - BioMap2 Vernal Pool Cores
  - BioMap2 Wetland Cores
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- Under-represented Settings

select min parcel size

Filter by Block Size (Unprotected Acres)

select min block size

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Map Type Selector

- Street Map
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RUN MODEL

Choose a category

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- County
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- Parcel Size
- Block Size
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Ref Layer

select min parcel size ▼

Filter by Block Size (Unprotected Acres)

select min block size ▼

Constrain Model Only Adjacent to Protection

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- Blocks of Contiguous Parcels

Map Type Selector

- Street Map
- Satellite

RUN MODEL

3

Run & see results

Additional Considerations & Controls

Instructions show

Examples show

Study Area

Choose a category

- Town
- County
- Watershed
- Multi-town Land Trusts
- Mass DFW Districts

Pre-calculated Models

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

Assign Model Values

- Resilient Sites for Conservation
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- BioMap2 Critical Natural Landscape
  - BioMap2 Landscape Blocks
  - BioMap2 Coastal Adaptation
- Prime Farmland
- Surface Water Protection Zones

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

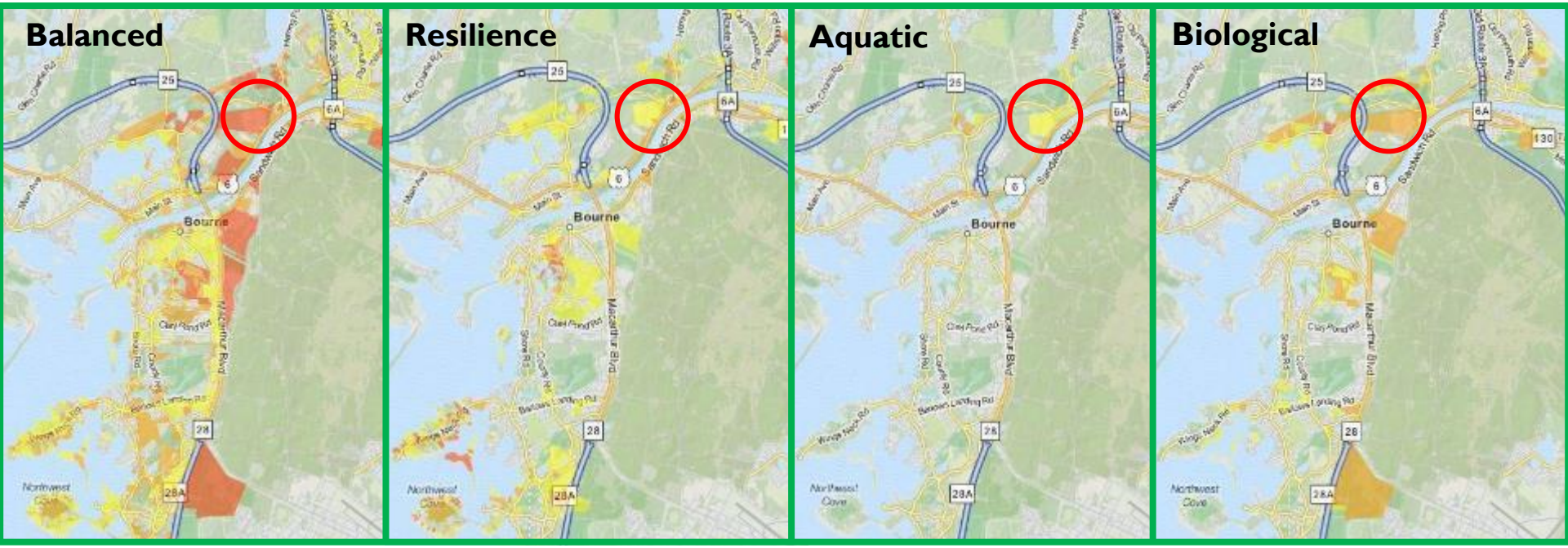
- Show parcel priority ranks
- Show parcel export IDs
- Hide parcel labels
- Parcel priority rank colors
- Mass GIS Open Space Layer
- Blocks of Contiguous Parcels

Map Type Selector

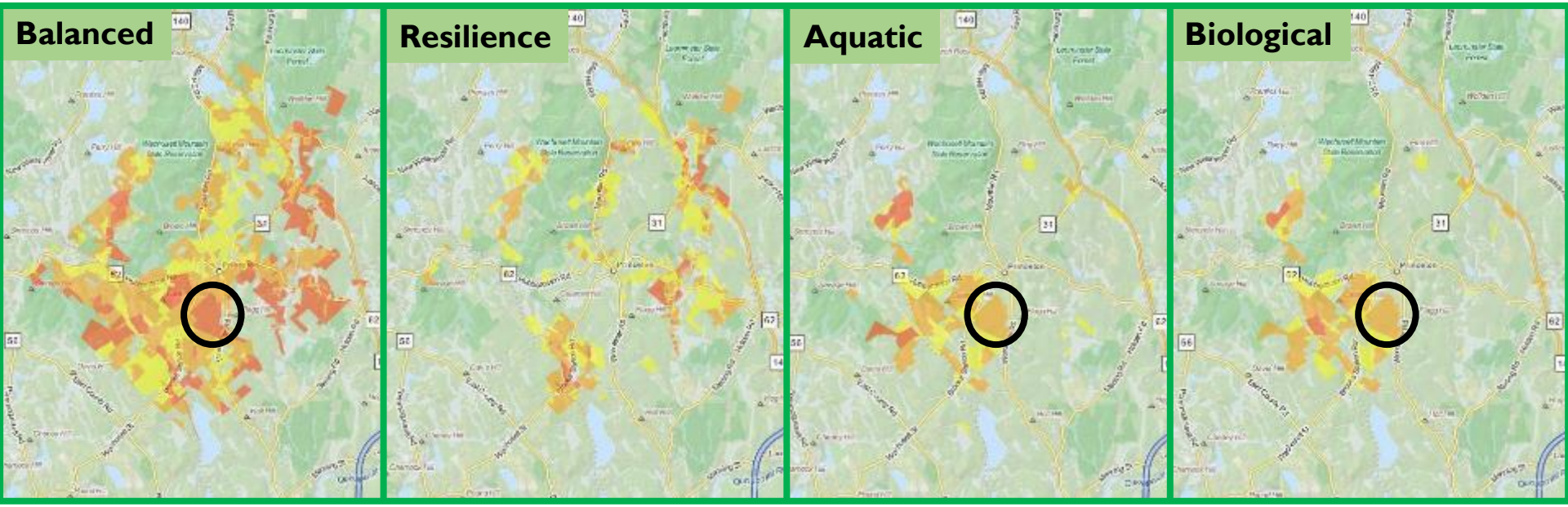
- Street Map
- Satellite

RUN MODEL

The different models. Example: Bourne



The different models. Example: Princeton



Priority

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

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"**Health** is the capacity of the land for self-renewal.

Conservation is our effort to understand and preserve this capacity."

- Aldo Leopold 1949

Thank you!
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Mass Audubon

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