Massachusetts
State of the Birds

Measuring changes in a rapidly changing climate and landscape.
Intrinsic worth

• Camping
• Fishing
• Hiking
• Watching the sunset

...what if there was no natural soundtrack?

Birds in cages, Beijing
Why Should We Care About Changes in Bird Population?

“Birds are nature’s heralds” – E.O. Wilson, 9/19/2011

The “Watchmaker’s Rule”

Recreation

Economic impact

Wiki Commons, Daniel Schwen
## Economic Impact of Birding in the US

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trips expenditures (Food, lodging, transportation, etc.)</td>
<td>$12 billion</td>
</tr>
<tr>
<td>Equipment</td>
<td>$24 billion</td>
</tr>
<tr>
<td>Total output (combined effects of expenditures by birders)</td>
<td>$82 billion</td>
</tr>
<tr>
<td>Number of jobs created</td>
<td>671,000</td>
</tr>
<tr>
<td>Average annual salary for these jobs</td>
<td>$41,000</td>
</tr>
<tr>
<td>Employment income</td>
<td>$28 billion</td>
</tr>
<tr>
<td>State tax revenues</td>
<td>$6 billion</td>
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<tr>
<td>Federal tax revenues</td>
<td>$4 billion</td>
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In Massachusetts:  
1.4 million birders contribute ~$560 million to the state’s economy.

Source: US Fish and Wildlife, 2006
Purpose of the SoTB Report

“to document and analyze the current state of Massachusetts birdlife using the best scientific evidence available”
The report identifies. . .
- the most vulnerable bird species and groups of species, as well as stable or increasing species
- habitats in which birds are declining most dramatically
- causes for changes in MA bird population

The report also. . .
- describes the value of birds to health and well-being of people and nature in MA and
- recommends corrective strategies to arrest current declines and maintain our common wealth of birdlife
Review of Tools
State of the Birds
Pieces of the Puzzle: 3 Tools

Mass Audubon: Breeding Bird Atlas 1 & 2
US Geological Survey: Breeding Bird Survey
National Audubon: Christmas Bird Count
Mass Audubon Breeding Bird Atlases 1 & 2

- Maps the distribution of breeding bird species of given geographical areas in Massachusetts
- Atlas 1: 1974-1979
- Atlas 2: 2007-2010
- Volunteers collect evidence of species’ presence or absence in survey blocks of 9 square miles
- Does not attempt to assess abundance of the species
Breeding Bird Atlases 1 & 2

1979

American Kestrel - BBA 1

2008

-60%

American Kestrel - BBA 2

American Kestrel in Atlas 1
- Not Found
- Possible
- Probable
- Confirmed

American Kestrel in Atlas 2
- Not Found
- Possible
- Probable
- Confirmed
USGS North American Breeding Bird Survey

- Nationwide survey conducted each summer since 1964 by USGS Patuxent Wildlife Research Center and the Canadian Wildlife Service.
- Uses a point count methodology for estimating the abundance of birds along a series of road routes.
- Volunteers record numbers of individual birds, stopping at 50 points for three minutes at one-half mile intervals along fixed 24.5 mile routes.
Nationwide, conducted since 1900

Birders spend one day between December 14 and January 5 counting birds within a 7.5 mile radius circle

Results reflect abundance, particularly of wintering birds

33 circles are surveyed in Massachusetts
Over 200 species of breeding birds in Massachusetts

134 wintering species

28 species are listed as endangered, threatened or “of special concern” under the Massachusetts Endangered Species Act (MESA)

American Bittern, John Van de Graaf
The report analyzed the results from the 3 data sets as well as other information sources in several ways:

- Identified species-specific trends

- Identified trends by groups of birds, using several categories
  - Habitat Groups (Grasslands, Shrublands, Forests, Urban habitats...)
  - “Behavior Groups (Ground nesting, aerial insectivores...)
  - Migration Groups (permanent resident, long / short distance migrant...)

State of the Birds Analysis
60% of MA bird species increasing in distribution (Breeding Bird Atlas)

32% of MA bird species increasing in abundance (Breeding Bird Survey)
Positive Trends

• ~ 60% of birds that return each spring to breed are becoming more abundant
• Certain birdlife, such as that in our cities/suburbs and forests is becoming richer in species and in number.

Carolina Wren, John Van de Graaff
However. . .
  • one-third of our bird species populations have decreased

Many Rare Species are Imperiled
  ◦ common loon
  ◦ bald eagle
  ◦ peregrine falcon
  ◦ piping plover

*Piping Plover, courtesy of WikiCommons*
Common Species at Risk too

- Baltimore Oriole
- Eastern Phoebe
- Blue Jay
- Song Sparrow
- Common Grackle

Blue Jay: Matt Kamm, used with permission
Birds that rely on specific habitats are especially at risk.

_Grassland and shrubland birds:_

- Early Successional Habitat
- PierPont Wildlife Sanctuary
Grasslands and shrublands are examples of “early successional habitats” that result from disturbances that open the landscape:

- natural disturbances (wildfires, hurricanes, floods)
- man-made disturbances (mowing, grazing, timber harvest, controlled burns)
Only 35,000 acres of freshwater marshes left in MA

36 species nest

6 of 14 obligate residents are declining, such as
-- American Bittern
American Black Duck – 56% Decline

American Black Duck, Shawn Carey
What’s causing these changes in bird populations?

Habitat Destruction (development)

Habitat Fragmentation

Toxic Chemicals

Courtesy of Treehugger.org
Collisions are the single greatest human-related cause of bird mortality (cats are second).

As many as 1,000 birds per major building may be killed in a single night, and up to 900 million birds die annually in North America in collisions with glass windows.

174 million birds are killed by colliding with power lines across the continent.

Motor vehicles are responsible for the demise of 67 million birds a year.

(US Fish and Wildlife)
How many birds are injured or killed per night in Boston?
- Henry Wiggin study, 1967-1974
26 Participating Buildings:

- Dim or extinguish internal lighting between 11pm and 5am
- Extinguish decorative architectural lighting between 11pm and 5am
• Saves birds, especially during spring (March 1 - June 1) and fall (August 15 - October 31) migration periods

• Saves energy and reduce the heat-trapping gases that contribute to climate change

• Saves money on electricity costs
Climate Change

- Winter temperatures have increased by 1.3 degrees every decade since the 1970s
  - Effects: timing of migrations, the food available, types of trees suitable for nesting

Tufted Titmouse, southern cousin of the Black-capped Chickadee, increasing in MA
Recommendations: Conservation and Management

Protect and manage land that provides critical bird habitat

• Grasslands, agricultural areas, open fields and shrublands
• Freshwater marsh habitat
• Undeveloped land adjacent to sensitive coastal habitats
• Habitat used by coastal waterbirds during breeding and migration
Recommendations: Research

Continue research

• Climate change impacts
• Wind turbines
• Toxic chemicals
• Long-term monitoring

Turbine, Courtesy of Wiki Commons
Integrate SoTB findings into:

- State and regional conservation plans
- Commonwealth land protection agencies’ conservation strategies
Make your property bird friendly

• Keep cats indoors
• Put up nesting boxes
• Landscape using native plants
• Avoid pesticides
Recommendations: What YOU Can Do...

- Become active in your community’s land use planning and decision making

www.massaudubon.org/shapingthefuture
Support land conservation efforts

- Help your community pass the Community Preservation Act (CPA)
- Use CPA open space funds to protect habitat
- Pass an Open Space Residential Design bylaw
- Support your local land trust
Support Mass Audubon’s Important Bird Areas (IBA) Program

www.massaudubon.org/Birds_and_Birding/IBAs/
Recommendations: What YOU Can Do... 

- Become a member of Mass Audubon and volunteer to assist with habitat management, species monitoring, and other conservation projects.

- Go Birding!
Recommendations: What YOU Can Do...

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