Introduction to Birding in New Jersey

Why bird watching?

Assunpink, NJ Mar.17, 2014
Why bird watching?

Why do some people not watch birds?
OK, but why watch birds in New Jersey?
Diversity of birds:

• Making a List

• from Bird Watcher to Birder

World Birds: approx 10,000

Annette LeBlanc Cate (2013)
Why ‘listing’ is not (that much) stupid!

Christianne Girard
My score card – a global F and a local C

World: 2,015 (of approx. 10,000 = 20%)
North America: 679 (of 914 = 74%)
New Jersey: 326 (of 465 = 70%)

What’s a Bird or What’s wrong with these pictures?

Hint: two answers ....
Vocalization

Birds sing ...

to impress

territoriality

mate finding

fun?

Northern Mockingbird

Vocalization: sound theory

Northern Mockingbird
Types of Vocalization

The Chaffinch has many:

- Flight call
- Social call (contact call)
- Injury call
- Aggressive call
- Courtship calls (several for the occasion)
- Subsong (practice)
- Song

As a rule: songbird (passerines) have most complex vocalizations. “The bigger the bird the more simple the sounds” (but see the Lyrebird ...)

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Vocalization

Black-capped Chickadee

Song: “hey sweetie”

(mild) Alarm call: “chick-a-dee”

Aggression call: “gangle”

From D. Kroodsma 2006
Vocalization
How to study calls – most of bird identification is done by ear

Sonagrams and Oscillogram

Sonagram: sounds plotted as frequency (khz = 1000s of cycles/sec.) versus time (seconds), volume is indicated by darkness

Oscillogram: sound represented in terms of relative loudness (air wave pressure) versus time (seconds), no indication of frequency

Kroodsma 2006

Vocalization
How to study calls – most of bird identification is done by ear

Sonagrams and Oscillogram

White-throated Sparrow

Kroodsma 2006
Vocalization

Having fun with software: RavenLite1.0 (Cornell Lab of Ornithology):
Interactive Sound Analysis Software

Free download:
www.birds.cornell.edu/Raven

Alarm and Mobbing calls: an avian form of Esperanto or international mayday call – many species have similar calls

Kroodsma 2006
**Vocalization**

Syrinx: a special voice box

Wood Thrush

Simultaneous Output from Two Syrinxes

Kroodsma 2006

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**Rosetta Stone to the Warblers**

The Cornell Lab of Ornithology

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Vocalization

Sounds made by other means (feathers, bills etc.):

- Downy Woodpecker:
- Ruffed Grouse:
- Woodcock
- Snipe (winnowing)
- White-bearded Manakin

[Images of birds]

Kroodsma 2006

Migration

- **Migration** is moving to another region where conditions are more favorable:
  - arctic terns make annual migrations of 30,000 km, moving from summer in Arctic to summer in Antarctic:
  - monarch butterflies migrate seasonally North America (as north as Canada to Mexico)
  - African ungulates follow geographic patterns of rainfall and fresh vegetation
  - migration in locusts represents a developmental response at high population densities

[Images of birds]

How migration evolved

Easy to understand why birds move south in winter – but why not stay there?

Hypothesis A: Climate variation during earth's history caused birds to migrate. **Northern origin hypothesis**
– “avoiding the ice”

Alternative

Hypothesis B: Birds evolved in the tropics and explored the seasonably good northern areas. **Southern origin hypothesis** - “summer vacation”

Neotropical migrants: Nest in N America and winter in the tropics: 50% of species. - more resident species in the tropics

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How migration evolved

Easy to understand why birds move south in winter – but why not stay there?

To migrate or not to migrate?

The economy of migration: Trade-off

<table>
<thead>
<tr>
<th></th>
<th>Tropical resident</th>
<th>Migrant</th>
<th>Temperate resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult survival</td>
<td>High (80-90%), no hazards of migration and harsh winters</td>
<td>Moderate (50%) Migration hazard</td>
<td>Low (20-50%) Winter: hazards and low food</td>
</tr>
<tr>
<td>Reproductive Success</td>
<td>Low no food boom competition predators</td>
<td>Moderate Food boom Need to establish territories each year</td>
<td>High Food boom in summer</td>
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</tbody>
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After Able 2004
Risky Migration

Migrants are not accustomed to stop-over sites:
- Natural predators
- Human-made structures

Migration patterns translate into discrete flyways: clear in North America

Coastlines:
- continuous N-S guidelines
- constant breeze
  (temperature differences)
- good food resources

Mountains:
- continuous N-S guidelines
- updrafts

Large River valleys (Mississippi)
- continuous N-S guidelines
- good food resources
When to travel

By day: most larger birds, especially soaring birds (thermics)

By night: many smaller birds (songbirds mainly).
- forage during the day
- less predation?,
- less wind?

Nonstop: various groups of birds

Sedge Warbler: nonstop
1900 miles in 2-3 days
(loss of 50% weight in fat)

Orientation and Navigation: how do they find their way?

No single answer ... species specific and combination of clues

- Visual assessment of landscape
- Star, sun and moon position
- Magnetic compass
- Prevailing wind direction
- Polarized light
- UV light
- Sound waves (infrasound from distant mountains)
- Smells
- Air pressure (weather)
NJ’s four Ws
Where to go – 1. strategic places along the flyway
2. good habitat (food and shelter)
When to go (time of year, weather)
What to look for - habitat and bird types

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Ecology of Birds: 3. Flight & Migration

Elphik ed. 2007
The Atlantic flyway
(from Lincoln 1952, Migration of Birds)
We are in a Blue State!!

Total Bird Species Richness in the United States

Source: USGS 2012
Not all the “4 Ws” have to be perfect: On local patch(es)

Local Park (urban best)

Power of place, birds will provide chance and diversity

Backyard: “unlimited” stewardship
Developed 35%
Forest 40%
Wetlands 20%
Agriculture 15%
141 species of Birds since 2005

110 x 55 feet = 6,050 sq feet
= 34 cars or a small McMansion

111 species of birds since 2005
6,050 sq feet

111 species of birds since 2005
Bird walks on Campus

Every Wednesday in May, 7:45am

Boyden Hall entrance at plaza side

BYOB* if you can

*bring your own binoculars

info: holzapfe@rutgers.edu
Stewardship:
Habitat Improvement
Urban green spaces: traps or havens for migratory birds?
Urban green spaces: Traps or havens for migratory birds?

Questions

Do migratory birds linger in small urban patches and if so, how long do they stay?

Do they gain or lose weight during their stay?

Stopover time

Mean observed stopover duration (days):  
Fall 5 days (SD ± 3.7)  
Spring 3 days (SD ± 2.7)
Mass change

<table>
<thead>
<tr>
<th></th>
<th>Mean weight change (%)</th>
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<tbody>
<tr>
<td>Fall</td>
<td>+2.07 (SD ± 5.54)</td>
</tr>
<tr>
<td>Spring</td>
<td>-0.05 (SD ± 6.14)</td>
</tr>
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Error bars ± 1.9SE

You are part of a community.

or: A birder is not an island

(but it might be good to bird on an island)

• Audubon Society, local chapters and other clubs
• eBird
• Mailing Lists (Jerseybirds)
Stuff we (really) need:

BBC
Bins
Books (or apps?)
Camera

From:
*Bill of the Birds*

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A too short Bibliography, really


A “where-to” guide, the classic for NJ, gives ideas where and when to go


I always recommend this most, beautiful, small enough and very authoritative, there is also a version for the West Coast


This is the large copy for home, too heavy to carry, covers all of North America


A good alternative to the “Sibley”, this covers the East Coast but there are also a West Coast and a complete North America versions


New, playful introduction to birding, works for children and adults
Sat May 2: 9-11 am

Washington Rock Parking lot of South Mountain Reservation

194 Glen Ave
Millburn, NJ 07041
40.726535, -74.304846

My cell phone #: 732 501 9135