

Birds at the Market

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Session Goals:

1. Raise people's interest and excitement about Minnesota birds
2. Familiarize market-goers with local bird species and ways to connect with them
3. Explore bird-related resources like the Cornell Lab of Ornithology BirdSleuth Program and the FeederWatch Program.

Activities

Activity #1 – Local birds quiz

Desired Learning outcomes:

1. Become familiar with a set of local birds
2. Learn to recognize some of these birds by their songs and appearance
3. Become more aware of birds in general

Materials:

1. Computer
2. Video including local bird songs and photos: [Minnesota Birds on YouTube \(https://www.youtube.com/watch?v=BFIV1ZLFzvK\)](https://www.youtube.com/watch?v=BFIV1ZLFzvK)
3. Speaker

Lesson:

Run through the video once, with images, names (and mnemonics?) on screen as the birds' vocalizations play. This is to build familiarity. Next, the screen will go black, but the vocalizations will go on, leaving it up to the market-goers to identify the birds by ear.

Activity #2 – Museum specimens

Desired Learning Outcomes:

1. Understand the value of museum specimens
2. See what birds look like close-up
3. Learn interesting facts about some local birds with real specimens

Materials:



1. Museums specimens (roundskins). These will ideally be all the same species that are showcased in the quiz video, along with some particularly exciting species.
2. Microscopes

Lesson:

This lesson is a nice plug for the Bell Museum, and more broadly for the value of museum collections and for natural history in general. Each specimen can be examined up-close by market-goers, and some natural history facts about those species can be shared by the Market Scientist. The emphasis here should be on seeing local birds up close, but some more exotic specimens can be brought for show. What matters most is that a compelling scientific story can be told about the specimen. Then, the hope is that the market-goer will leave interested in birds and museum collections, understanding that both are valuable.

Examples of specimen comparisons used here:

1. Close evolutionary relationships versus similar appearances: We used specimens of American and European Robins, which are quite similar in coloration yet not closely related to demonstrate that similar appearances do not necessarily mean a close evolutionary history.
2. Genetic versus acquired feather pigmentation: We used two blackbird specimens, one that lacked the typical dark pigmentation in its feathers, but still had a yellow breast to demonstrate that the coloration is from two different sources. The darker feather colors are genetic and the lighter bird had a mutations so that it could not produce this pigment. The yellow feathers are acquired from carotenoids in fruit and seeds and so even the light bird could have a yellow breast.

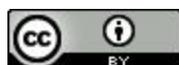
Activity #3 – Build your own birdfeeder

Desired Learning outcomes:

1. Learn how to attract more birds to your home
2. Teach market-goers that citizen science is fun and easy to do
3. Expose people to the FeederWatch program

Materials:

1. Bird seed
2. Sunbutter (in case of nut allergies - nut butters work just as well)
3. Cardboard tubes
4. Bird seed mix for molds
(www.everydaymomideas.com/2012/10/easy-bird-feeder-craft.html)
5. Disposable aluminum containers for molds
(amazon.com/Cutequeen-Disposable-Aluminum-Cupcake-Utility/dp/BookQFYKoU)
6. Ribbon
7. Wooden skewers with the sharp ends cut off (need a few for making holes to attach ribbon)
8. Spoons (a few metal ones from home)
9. Printed material describing FeederWatch



Lesson:

We will show market-goers how to make two simple bird feeders:

1. Cardboard tube bird feeder:
 - a. Spread cardboard tube with a thin layer of Sunbutter
 - b. Roll Sunbutter-coated tube in bird seed
 - c. Attach ribbon (optional - tube can be placed directly onto a tree branch)
2. Molded bird feeder (see website above for more detailed instructions):
 - a. Press bird seed mix into aluminum molds using a spoon
 - b. Make a hole in the seed mix using a wooden skewer
 - c. Leave seed mix in aluminum mold to dry (a few hours to overnight, depending on humidity)
 - d. Supply market goers with a piece of ribbon to tie to the feeder once it has dried

Information about the Cornell University FeederWatch program (feederwatch.org) will also be on display as a printed sign.

Activity #4 – Binocular tutorial

Desired Learning outcomes:

1. Teach market-goers—primarily children—how to use the birder’s most essential tool
 - a. How to adjust binoculars for their eyes.
 - b. How to focus the binoculars by spinning the focusing wheel.
2. Learn how to find things in binoculars by finding your target with your eyes first, and then bringing the binoculars up to your eyes *without* looking down.

Materials:

1. Lots of binoculars (that are okay to break, if something bad happens)
2. Chalkboard/whiteboard with a list of common things at the market to find (e.g. a sparrow, a black dog, a white hat, etc.)
3. Curious children

Lesson:

This is a simple exercise, again aiming to build familiarity with an important part of birding. Binoculars will be available, and will be offered to anyone curious about how to use binoculars. Participants will be shown the focusing wheel, how to adjust the binoculars, and then will be shown how to find things in the binoculars. Even though they can’t bring the binoculars home, this tutorial will make it easier for them to use binoculars for birdfinding at home.

Activity #5 – Meet a Raptor

Desired Learning outcomes:

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1. Raise interest and excitement about birds, especially birds of prey, by allowing them to see a live raptor close-up
2. Learn some of that particular species' natural history
3. Learn the value of raptor conservation and rehabilitation

Materials:

1. *Provided by Raptor Center*
2. Second tent
3. Sheet or tarp to use as a backdrop for the tent where the bird will be housed

Lesson:

A volunteer from the Minnesota Raptor Center is bringing a raptor (most likely a hawk or falcon) to share with market-goers for 1-2 hours between 10 AM and noon (busiest time of day). John Benning arranged this for a reduced rate of \$100. The bird will require shade, so we are giving the bird and handler the whole area under a tent during their visit (Beth Fallon requested a second tent). The Raptor Center also requires that the tent has a backdrop, so a sheet will be hung from the back of the tent.

Optional Handouts

Links to references or background materials

Links shared at the market:

<http://ebird.org/content/ebird/>

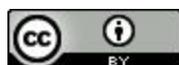
<http://feederwatch.org/>

Recommended age range

Age range varies by activity, but most activities will be interesting to people of all ages.

Pre-session trivia:

1. Colored bright red, the _____ is the most common state bird in the United States.
 - a. Scarlet Tanager
 - b. Northern Cardinal
 - c. Purple Finch
 - d. Cinnamon Teal
 - i. *b) Northern Cardinal.* The Northern Cardinal is claimed by seven states as their state bird, beating out Western Meadowlark by just one state. This fact tells an interesting story about the symbiosis between humans and Northern Cardinal. Adapted to forest edges and openings, the cardinal was far less common when the East was covered in continuous forest. But when European



colonizers began deforestation of the East, new habitat that cardinals never had access to was suddenly opened up. Now, as suburbs and other developments spread across America at the expense of native forests, so too does the Northern Cardinal. If Eastern forests had never been cut down to the extent that they were, it's questionable whether Northern Cardinal would ever qualify as a state bird.

2. Most of the bird species that fly south for the winter have a diet composed of _____.
 - a. Seeds
 - b. Fish
 - c. Carrion
 - d. Insects
 - i. *d) insects.* Part of the reason so many birds have to migrate south for the winter is that their main food source--insects--can't handle the cold. By migrating to the tropics for the winter and to the northern reaches of North America in the summer, migratory birds take advantage of where the most insects can be found at a given time. With this in mind, you can guess that any birds you see around Minnesota during the winter don't feed on insects, or at least don't in the winter!
3. After of months of wear and tear, birds _____ their feathers, and sometimes take on a different appearance.
 - a. Pluck
 - b. Preen
 - c. Molt
 - d. Dust-bathe
 - i. *c) molt.* Over time, birds' feathers wear down. And as feathers wear down, so too do birds' colors, camouflage, and aerodynamics. For these reasons, it's essential for birds to replace them periodically. Birds molt their feathers once, twice, or even three times per year, and can molt different parts of their plumage at different times. Because multiple molts can happen per year, birds often molt into an impressively colorful plumage before the breeding season, and then molt back into a more camouflaged plumage for the nonbreeding season (male Scarlet Tanagers are a perfect examples of this).
4. Birds are living proof that the _____ never went entirely extinct.
 - i. *Dinosaurs!* Modern birds are just one branch on the dinosaur tree of life. While most dinosaurs went extinct 65 million years ago, birds live on and flourish. According to taxonomic work on the border between paleontology and ornithology, birds have been shown to be closely related to raptors like Velociraptor. This lines up with recent research that reveals some surprising facts about dinosaurs: many of them had feathers long before they evolved flight, and many if not all of them were warm-blooded.

Photo URLs:

- https://upload.wikimedia.org/wikipedia/commons/d/do/Sayornis_phoebe_-Owen_Co_nservation_Park,_Madison,_Wisconsin,_USA-8.jpg



- <http://carolinabirds.org/DanielsXLG/crow,%20american%2008-04%20Acadia.jpg>
- https://www.audubon.org/sites/default/files/House_Finch_s52-13-264_l_1.jpg
- https://www.audubon.org/sites/default/files/House_Sparrow_s52-12-123_l_1.jpg
- https://upload.wikimedia.org/wikipedia/commons/3/31/Great_Blue_Heron_Wading_2.jpg
- https://upload.wikimedia.org/wikipedia/commons/6/60/Agelaius_phoeniceus_0110_t_axo.jpg
- https://upload.wikimedia.org/wikipedia/commons/d/db/Agelaius_phoeniceus2.jpg
- https://upload.wikimedia.org/wikipedia/commons/e/eb/Bubo_virginianus_-Canada-6.jpg
- <https://upload.wikimedia.org/wikipedia/commons/b/b8/Turdus-migratorius-002.jpg>
- https://upload.wikimedia.org/wikipedia/commons/d/d8/Cardinalis_cardinalis_-Columbus%2C_Ohio%2C_USA-male-8_%281%29.jpg
- https://upload.wikimedia.org/wikipedia/commons/f/f4/Cardinalis_cardinalis_-Florida%2C_USA_-female-8.jpg
- https://upload.wikimedia.org/wikipedia/commons/b/bf/Anas_platyrhynchos_male_female_quadrate.jpg
- https://upload.wikimedia.org/wikipedia/commons/9/98/Picoides_pubescens_f_CTBJ.jpg
- <https://upload.wikimedia.org/wikipedia/commons/0/09/Sitta-carolinensis-001.jpg>
- https://upload.wikimedia.org/wikipedia/commons/7/75/Zenaida_macroura_-California-8-2c.jpg
- http://www.audubon.org/sites/default/files/Red-tailed_Hawk_v11-13-016_l.jpg

Recommended citation for this lesson plan

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