



WingTips

A Publication of the Lake/Cook Chapter of the Illinois Audubon Society ♦ August 2015

On the Fly

2016 will mark the centennial of the founding of the National Park Service, inspired in large part by environmentalist John Muir. As you will see in our enclosed 2015-2016 brochure, the chapter's Sept. 16 program will focus on conflicting views of Muir's legacy. Then on Thursday, Sept. 24, we are co-hosting a movie with Heller Nature Center about Muir's childhood. On Thursday, Oct. 1, Heller and Ryerson's Brushwood Center are airing a film about the John Muir Trail. There is also a PBS documentary called *John Muir in the New World* that you can watch online at www.PBS.org or borrow from the Wilmette library. And of course there are dozens of books about Muir. It's a great opportunity to boost your environmental history IQ and – perhaps – get inspired to do your part to preserve the planet.

– Rena Cohen, Chapter President

i Bluebird Monitors' Labor of Love Gives Birth to 650+ Young Annually

Since last March, more than four dozen volunteers have been monitoring, cleaning and lovingly caring for roughly 1,300 Eastern Bluebird nesting boxes on 47 sites throughout Lake County to help bring the next generation of this colorful thrush to life. It's tedious work, requiring two or three site visits per week, but the reward is worth it. Roughly 650 young are born and fledge at these sites by the end of June and more at other monitored locations that don't report their results, yielding immeasurable pleasure to birders as well as to the monitors themselves.

"When I open the doors and see those little nestlings looking up at me, or see the juveniles hanging out in nearby trees, or hear the gentle warble of the adults, I feel I have contributed in a small way to the continuation of the species," says Lake Forest's Maureen Marsh, a Lake/Cook board member who currently monitors 36 boxes at three Lake Forest Open Lands properties.



Human intervention was not always necessary to maintain populations of Eastern Bluebirds, a species that Henry David Thoreau once described as "carrying the sky on its back." In the 1800s, these vibrant songbirds were abundant, nesting in natural tree cavities or wooden fence posts then common in agricultural fields.

Then came site competition and outright predation from non-native House Sparrows and European Starlings, surges in pesticide use, a change to metal fence posts, and the disappearance of natural nesting cavities as communities began cutting down dead trees. By the late 1960s, the National Audubon Society had placed the Eastern Bluebird on its Species of Concern list.

Continued on page 2

✓ 1st Program of the Season Aug. 18: Bison & Birds at Nachusa Grasslands

In 2014, bison returned to Nachusa Grasslands southwest of Rockford after an absence of nearly two centuries to help maintain the health of a unique tallgrass prairie ecosystem that has been restored over the last 20 years and is now home to 700 native plant species and 180 species of birds.



In our first program of the season, Jeff Walk, Director of Science for The Nature Conservancy in Illinois, will explain the significance of the project, the details of the relocation effort, the bison's role, and their expected impact on the Nachusa bird community. The program is at 7 pm on Tuesday, Aug. 18, at Heller Nature Center, 2821 Ridge Road, Highland Park. See website for full program listing.

Bluebird Monitors' Labor of Love

Continued from page 1

Since then, manmade nest boxes and volunteer monitoring programs like Lake County's have returned the species to health. The work starts in early March, when migrants return to the Chicago area and begin to look for nesting sites.

Volunteers install new boxes when needed, make repairs to old ones, and wait for bluebirds to take up residence. Sometimes the gratification is immediate. Sometimes, not. Evanston's Mark Vaughan, a passionate bluebird evangelist who has monitored up to 40 boxes at multiple sites per year, once had a bluebird move into its new home 10 seconds after installing a new box. Gurnee's Sheila and Bill Lebensorger, on the other hand, had to wait six years for the first bluebird to occupy one of the 18 boxes they manage at Prairie Wolf Slough in Deerfield.



One of the reasons is that other bird species claim 75-80% of the bluebird nesting boxes in Lake County. Tree Swallows are the #1 squatters, followed by House Wrens and Black-capped Chickadees. Once one of these birds has laid eggs, they are considered protected and cannot be removed to make way for bluebirds.

House Sparrows, on the other hand, can legally be removed and euthanized because they are non-natives. Otherwise, they are likely to peck the heads and eyes of both baby and adult bluebirds to try to claim a box as their own.

Other challenges come from non-bird invaders such as raccoons, mice, snakes, coyote, foxes, feral cats, wasps and blowflies. Monitors intervene when possible to keep these threats at bay. In the case of wasps, they may rub ivory soap or Vaseline inside the roof of the box so the honeycombs cannot adhere. And if blowflies settle in a box, monitors may replace the nests altogether to save the birds.

If all goes well, however, nesting bluebirds will lay an average clutch of five eggs in their box and see four of the five hatch in 12-14 days. Deerfield resident and Lake/Cook board member CiCi Birnberg has had as many as 10 bluebirds fledge in one year from the 15 boxes she tracks at Berkeley Prairie in Highland Park. Fringe benefit: the spectacular display of native wildflowers at the site, many of which are not visible without going off-trail to reach the bluebird boxes.

Interested in being a bluebird monitor? Contact Walt Sivertsen at 847-223-4730 or email mcfwalt@yahoo.com.

Waukegan Beach Bird Habitat Threatened; Action Needed

Waukegan Beach is extremely valuable dunal habitat, attracting common and uncommon bird species including Piping Plover, Whimbrel, Marbled Godwit, American Avocet, Tri-colored Heron, Short-eared Owl and even state-endangered Common Terns that attempted to nest there this summer before an ATV drove them away. It is also rich in plant life. Yet part of the area has already been bulldozed to 'clean up' the beach, removing native grasses that comprise the essential habitat these birds need. Another section is now in danger.

Please write Waukegan Mayor Wayne Motley and 7th Ward Alderman Lisa May – both at City of Waukegan, 100 N. Martin Luther King Jr. Ave., Waukegan 60085 – to urge them to stop the destruction to save both bird and plant life. Remind them, too, that birders also buy gas, eat lunch and patronize local businesses in Waukegan.

Welcome New Members

David Ashbach, Olympia Fields
Geraldine Bujnowski, Chicago
Martha Campbell & Chris Kopp, Chicago

Lawrence Domont, Glencoe
Jean Dubach, La Grange Park
Barbara & Erwin Epstein, Glenview

David & Laurie Farrell, Springfield

Michael Farrell, Northfield
Laurel Feldman, Highland Park

Gerald Ginsburg, Evanston
Walter Glogowski, Northfield

Jill Goldman, Highland Park
Hoffman Estates Park District

John Giacolone, Hoffman Estates

Anita & Paul Kallman, Chicago

Natasha Kaminsky & Jordan Voskuil, Chicago

Paul & Mikey Kramer, Buffalo Grove

Jean & Owen Lynch, Mundelein

Pam & Ron Mattson, Elmhurst
Diane Mielnikowski, Wilmette

Karen O'Hayer, Libertyville
Patricia Rich, Palatine

Judith & James Satkiewicz, Vernon Hills

Dianne Siekmann, Mundelein
Robyn Silberstein, Highland Park

Bob Stanley, Highland Park
Earl Stubbe & Kathleen Frank, Lombard

Lynn Waishwell, Cary
Mike Zarski & Sheila Hollins, Wilmette

What Juncos Tell Us about Birds' Adaptability to Different Climates



University of Illinois PhD student Maria Stager, a Lake/Cook Chapter grant recipient, is studying the molecular mechanisms that birds rely on to respond to seasonal changes through work with Dark-eyed Juncos. Here Maria describes her work and preliminary findings.

One fascinating aspect of bird biology is the ability of many birds to thrive in extremely variable environments. Without hats and gloves, birds must rely on their own insulation to stay warm, but their fat and feathers can only get them so far. In the winter, they must also generate their own heat and increase their metabolic rates in order to facilitate shivering to stay warm. In the summer, when shivering is no longer a necessity, their metabolic rates drop again.

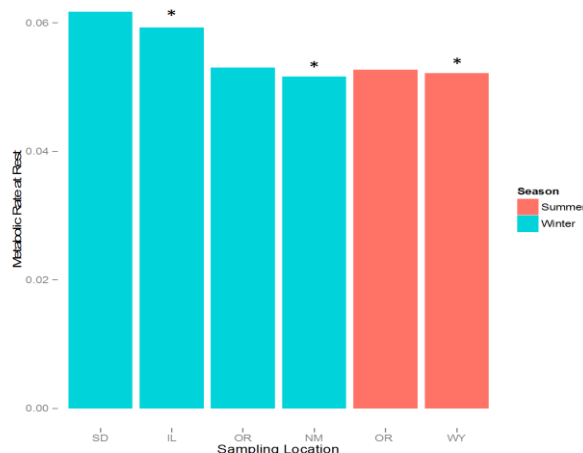
My graduate work focuses on how birds respond to the seasonal cues they receive to make these adjustments. Understanding the mechanisms by which birds can respond and adapt to environmental cues will be instrumental in predicting the effects of climate change on avian diversity.

The Dark-eyed Junco is an ideal subject for exploring these issues. Several subspecies occur across North America in highly disparate conditions, from the Slate-colored Junco that graces Chicago-area backyards in winter to the Gray-headed Junco that lives and breeds in the highest peaks of the Rockies with freezing temperatures even in August as well as the added stress of living at elevations with low oxygen concentrations. Comparing these groups both in the field and in the lab is yielding some interesting findings.

What we are seeing is that juncos adapt their metabolic rates to the conditions they are experiencing at the time. This is why we see both geographic variation (in the winter Wyoming juncos have the highest metabolic rate) and seasonal variation (junco metabolic rates are higher in winter than summer). This variability, in turn, suggests that maintaining a high metabolic rate is a difficult strategy used only when the environment requires it.

In the field, we capture juncos and then conduct a series of overnight measurements to quantify their metabolic rates both at rest and under cold stress. To do this, the bird is placed in a modified Nalgene container, and air is pumped into and out of this chamber. Oxygen and carbon dioxide concentrations are measured and used to determine the metabolic rate. We can examine this phenomenon further by altering the temperature and light cycles to simulate winter and summer conditions for the birds in the lab.

We also take blood and tissue samples, which are later employed for physiological assays. For example, with the use of genomic technology, we can determine which genes are responsible for the physiological changes that juncos use to endure cold weather. Specifically, I am interested in expression patterns in the pectoralis—the big muscle that you enjoy when you eat chicken breast—which is essential for shivering and generating heat. For these analyses, I correlate measures of gene expression in the pectoralis to an individual's metabolic rate and to enzyme activities in this same muscle. This allows me to validate the functional importance of these expression patterns for enhancing a junco's shivering capacity.



Metabolic rates of juncos at rest across populations and seasons. Abbreviations represent the state where the data were collected. Starred locations (*) indicate my own data from Illinois, New Mexico and Wyoming. Data for other locations come from my collaborator, Dr. David Swanson (University of South Dakota).

It turns out that in the cold, juncos increase the expression of genes involved in muscle growth, capillary growth, and the transport and breakdown of fats—a bird's primary fuel source. Such changes could potentially allow for enlarged muscles for shivering, a heightened supply of blood and fuel to those muscles, and an improved efficiency to generate energy from those fuels. This work suggests that juncos are able to make these physiological changes over a relatively short time period, enabling them to stay warm not only in the dead of winter, but any time a sudden cold snap hits.

The next time you look out at your feeder on a cold winter day, think about all the changes those birds have undergone in order to be able to survive the winter. They have put on fat, enlarged their muscles, increased their circulatory system, and changed their metabolism. That's quite an achievement for an animal weighing no more than a few paper clips, and it may be deserving of a few more suet balls to help them along.

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Lake/Cook Members Donate Highland Park Rock Garden

Growing up in Highland Park, Marjie Ettliger spent many hours skipping stones and looking for rock treasures on local beaches. She later took her children and grandchildren to do the same thing. And she always wondered: what are these stones and where do they come from?

Now Marjie and her husband Dick, long-time Lake/Cook Chapter members and nature lovers, have funded an unusual rock garden on Highland Park's Millard Park Beach at the end of Ravine Drive to spark the same curiosity in others. The installation was dedicated on June 27.

Marjie first approached the Park District of Highland Park several years ago with a simple idea to bring the diversity of stones on the beach to the attention of local residents. She proposed a cement bench embedded with various types of stones and a metal plaque serving as an identification aid.

The final project, conceived by the district's Rebecca Grill and exhibition designer John Dalton, is more than that. It consists of large basalt, granite, limestone and other boulders representing each type of rock that is worn down to make sand, a whimsical wood "pebble harp" built by Eagle Scouts that tinkles as stones are dropped into it, and a bench with a built-in sieve for sifting sand and stones. Signage near the parking lot explains that, millions of years

ago, stones found on the beach were part of giant rock formations; that Great Lakes beaches have more color and variety of stones than anywhere else on the planet; and the long-ago origins of each type of boulder in the garden. Thanks to the Ettligers – now we know.

