An EPIC Big Year of Birding

Wednesday, January 22, 2020
Lenoir Nature Preserve
19 Dudley Street, Yonkers
7:00 pm Refreshments, 7:30 pm Program

Christian Hagenlocher, high school science teacher, licensed falconer, and youngest person to break the 700 mark in an ABA Big Year. He will explain how he did a continental Big Year on a budget, living out of his Subaru Outback, and cutting corners to save money to find birds in the remotest corners of the continent.

He intended his adventure to be EPIC
- E Engage others with birds
- P Promote Learning, Protect Habitat
- I Inspire People to explore the Outdoors
- C Connect people and birds using Technology

Check his website (www.thebirdingproject.com) for this and other projects

The Rarest Eagle on Earth

Wednesday, February 26, 2020
Lenoir Nature Preserve
19 Dudley Street, Yonkers
7:00 pm Refreshments, 7:30 pm Program

This award-winning nature documentary (produced by the Cornell Lab of Ornithology) starts out as an adventure and ends with serious questions about the future of a strangely beautiful raptor, the Great Philippine Eagle. The film is must viewing for all bird lovers.

Watch a preview at www.birdofpreymovie.com
“We experimentally went back in evolutionary time to reconstruct an event that happened naturally several times, several million years ago.”

– A. Agrawal

Monarch butterflies (Danaus plexippus), the Bambis of the insect world, are beloved by all. But unlike that famous fawn they are loaded with a deadly toxin acquired from the milkweed plants (Asclepias spp.) they consume as caterpillars (for the best milkweed to plant in our region see - https://blog.nwf.org/2015/02/twelve-native-milkweeds-for-monarchs/).

Since insects began eating plants over 400 million years ago, plants have evolved a host of chemicals to deter them (http://hras.org/sw/sw501.html). For milkweed the deterrent is a cardiac glycoside, ouabain, a bitter tasting emetic. Ouabain inhibits an essential physiological process, the sodium-potassium (Na-K) pump. The pump regulates the movement of sodium and potassium ions into and out of all animal cells. This movement sets up a gradient of electrical charge critical for the firing of nerve cells and the contraction of heart muscle cells. Ouabain strongly binds to the pump found in heart muscle cells and ‘gums’ it up. At high enough doses it can stop a beating heart.

Co-opting the milkweed’s poison is an effective survival strategy for the monarch. Any naïve bird that eats a monarch will vomit and subsequently avoid the butterfly’s distinct orange and black warning coloration. But how did the monarch become immune to the toxic effects of ouabain? Research published in the October 2, 2019 issue of Nature reveals the evolutionary pathway the monarch used to become a poison pill to its predators.

The research team lead by evolutionary biologist Noah Whiteman, University of California, Berkeley, Berkeley, CA, and including Amurag Agrawal, Cornell University, Ithaca, NY, used the gene editing technique, CRISPR, to create three key mutations in the gene that builds the Na-K pump in the fruit fly (Drosophila melanogaster). These mutations change the pump structure to prevent it from being clogged with poison and the resulting ‘monarch flies’ (see the ‘monarch fly’ on a monarch wing) produce larvae that can happily dine on a diet laced with ouabain and, just like monarchs, carry it in their bodies when they change into adults.

The scientists first looked at naturally-occurring mutations in the pump gene of 21 other insects that eat milkweed like the Queen butterfly (Danaus gilippus), the milkweed bug (Oncopeltus fasciatus) and even another fruit fly (Dacus siliqualactis) that lays its eggs on milkweed seeds, which have little poison. This helped them to predict which of the three mutations showed up first and piece together the evolution of the monarch’s resistance to ouabain. Then they tried different combinations, adding them sequentially to D. melanogaster via CRISPR, to re-create that pathway.

They found that the path to resistance was a three step process. Fly larvae with the mutation that first arose in the monarch’s ancestors exhibited some resistance, but the second increased it 10-fold. Adding the third made them resistant to much higher levels of ouabain (1,000-fold), and yielded adults that could also retain lots of poison in their tissues. Gaining each mutation one at a time allowed monarchs to secure a new food source few could eat and repel the many new predators they encountered as they expanded their range across North America.

The mutations had to occur in a specific order, otherwise they have a downside. “It looks as if the mutations protecting the flies against the toxin create a neurological vulnerability. They needed to get the mutations in the right order,” said Whiteman. For example, ‘monarch flies’ engineered only with the third mutation had severe seizures after being shaken.

The team found that ‘monarch flies’ with only the first mutation had an altered Na-K pump that afforded some resistance but it too made the flies somewhat prone to seizures. Adding the second mutation changed the pump at another site to create an increased level of resistance and it also eliminated the seizures. Now adding the third mutation produced the greatest...
resistance without introducing seizures because the second mutation was already in place. “Biologists call this a constrained adaptive walk, where one mutation is followed by another, in a particular order, setting a species, or more than one, on a trajectory to higher fitness,” said Whiteman.

“Our study suggests that, although there is a universal ancestor to life on earth, small modifications were critical in specific adaptations. We now have the tools to reconstruct how organisms evolved over millions of years,” said Agrawal.

-Saul Scheinbach

President’s Message

Winter Survival

Here we are, in the depths of winter, recovering from the celebrations that started with Thanksgiving and ended with New Year’s Day. The next set of holidays will give some of us a 3-day weekend and others memories of holidays of yesteryear. Parents will have to try to figure out what to do for that February winter break if their pockets aren’t deep enough to take the family skiing or go somewhere tropical. I’m grateful for Martin Luther King’s Birthday weekend – and am thankful that he was born in January. Not only was he a formidable civil rights leader but he graced us with a needed mid-January holiday. Years ago Washington and Lincoln’s birthdays weren’t folded into one 3-day Presidents’ Day weekend and weren’t big shopping occasions. There’s Valentine’s Day, but I wonder if it makes people happy and miserable in equal number.

It’s a tough two months coming up, and I look to birds and bears for inspiration.

First, there’s the golden-crowned kinglets’ strategy.

Golden-crowned kinglets defy the rule that a large animal survives lower temperatures better than a smaller one. The larger the body mass, the less surface exposed to frigid temperatures, so, less heat loss. Think of it this way: penguins do well in Antarctica, warblers do not. Golden-crowned kinglets maintain a body temperature of 109˚ F even in winter temperatures that routinely fall to zero and below Fahrenheit. They have the body circumference of a walnut and weigh as much as 2 pennies.

I’m impressed. Their secret? They are non-stop day light consumers of insects, larva and pupae inanimate but alive, in subfreezing temperatures. As inspiring as their adaptability is, I’m glad we have grocery stores. Although there may be a lesson in their hyperactivity – keep on the move.

There’s also another strategy, which humans can attempt an outer resemblance but not the real thing. Torpor. That’s when a bird allows its body temperature to drop, greatly reducing its need for energy. Hummingbirds in mountainous regions go into torpor every night. It’s like a deep sleep, with the need for energy to maintain normal body temperature greatly reduced. The problem with this is that the hummingbirds must shiver themselves awake. This wakes them from their torpor; they are ready for another day of replenishing their energy supplies and another night of conserving them. I don’t think I’d want to wake up every day to a session of shivering; an alarm clock is bad enough.

There is of course the best bird adaptation to cold weather which is migration to warmer climates. Like any migrating bird could say, there are high costs involved. For us, it’s the plane ticket and the hotel; for a bird, it’s finding refueling stops – feeding places – along their path. And not running into either predators or bad weather.

Then there’s the bear’s approach, outright hibernation. A big eating spree in the fall, a hefty layer of fat, weight loss during sleep (don’t we all like that idea?) and then, svelte and energetic, ready for spring. It’s a great strategy but sadly, since we humans haven’t evolved for that kind of life. Although some of us can manage a close approximation.

Sigh. I will continue to watch the birds who do stick around during the winter & watch them face
down cold temperatures and snow with bravery, feathers fluffed out to trap a layer of warm air around them and some with thermo-regulated legs which reduce blood circulation to naked extremities and conserve energy. How can you not envy an adaptation like that?

As a member of a species originating in a warm climate, I create my own tropical environment – in my home. I do not set my thermostat at 80 degrees, but 70 during the day, 65 when I’m sleeping. I, too, use feathers. I own a down jacket, a down coat and a down quilt. I thank every duck & goose that contributed to my winter comfort.

- Frances Greenberg

…… We extend a sincere thank-you to everyone who contributed to our Annual Appeal. Your generous contributions help support conservation and other nature-related efforts in our local community.

…… Special thanks also go out to Jackie Bruskin, who after serving for many years on our Board, is stepping down from the board. Fortunately for us she will still be around and will continue to offer invaluable help and advice.

Project Feeder Watch – Rolling On

Project FeederWatch is progressing well. Every other weekend members and friends of Hudson River Audubon get together to count the birds visiting the Lenoir feeders. The host of the day tallies the count that will be submitted to the Cornell University Ornithology Lab. Cornell tracks the number of birds and species from all over the country.

We hope you will join us when you can. It’s a good way to learn bird identification, while socializing at the same time.

It's a rewarding way to be a Citizen Scientist!

Our Feeder Watch operates every other weekend

Upcoming FeederWatch dates, hosts and times:

Sat., January 18 Linda Brunner 11 am -- 1 pm
Sun., January 19 Joe Rothstein 11 am -- 1 pm
Sat, February 1 Hank Weber 10 am -- 12 noon
Sun, February 2 Fran Greenberg 10 am -- 12 noon
Sat, February 15 Bill Van Wart 10 am -- 12 noon
Sun, Feb 16 Cathy & Larry Mazzella 10 am -- 12 noon
Sat, February 29 Sandra Wright, Sun, March 1 Fran Greenberg 10 am -- 12 noon
Sat, March 14 Judi Veder&Saul Scheinbach 2 -- 4 pm
Sun, March 15 Cathy &Larry Mazzella 10 -- 12 noon
Sat, March 28 May Guglielmo 1 -- 3 pm
Sun, March 29 Sandra Wright, 10 am -- 12 noon

Feeder Watch is a great opportunity for beginners to learn our local birds from more experience birders in a comfortable, social setting.

Our Feeder Watch operates every other weekend
Amplify your climate actions

5 New Year Resolutions.

1. Tell Your Climate Story
Research shows that discussing climate change with friends and family reinforces that the crisis is real. To truly connect, share a personal story: Talk about a favorite place at risk, for example, or changes to the species at your feeder.

2. Give Your Home an Energy Overhaul
Our abodes can be wildly inefficient. Request an energy audit to see how yours can be improved. Projects like adding insulation and filling cracks and gaps can reduce home energy use by 20 percent or more.

3. Choose Native Plants
Even small yards can combat climate change and at the same time provide precious habitat. First, tear up any turf. Then, plant species native to your region (audubon.org/plantsforbirds), which require less water and offer birds more bugs.

4. Become a Low-Carbon Traveler
Travel produces nearly a third of U.S. greenhouse gases. This year, resolve to skip short car trips and build habits around public transit. And when you fly, purchase carbon offsets through certified programs.

5. Write a Letter to the Editor
There are few better ways to raise awareness than by writing a letter to the editor. Pick a local newspaper and tell your climate story. Keep your message short, stick to one point, and don’t forget to have it proofread.

For more tips on how to take meaningful climate actions, visit audubon.org/climate-action-guide.
All field trips are free and open to the public. Bring binoculars, some are available for loan. Bring lunch and refreshments for all day trips. Dress appropriately for the weather. More details found on our web site.

Saturday, January 25, 2020
Pelham Bay Park
8 AM; far left corner of Orchard Beach parking lot.
Pelham Bay Park is known for its wintering owls, such as Northern Saw-whet, Great Horned, and Long-eared. We will also search the woods and water for winter birds. American Wigeon, Bufflehead, Red-breasted Merganser should be in the bays.
http://www.hras.org/wtobird/pelhambay.html

Saturday, March 28, 2020
Jones Beach – Early Spring Arrivals
8AM at the Coast Guard Station West End II
This is a good time for a rarity or a western stray to show up. A variety of bird should be seen from seabirds, ducks, hawks, shorebirds and late land migrants.
http://hras.org/wtobird/jonesbeach.html

Saturday April 25, 2020
Nature Study Woods, New Rochelle
8AM at entrance along Webster Avenue at Flandreau Ave at 8:00 a.m. (~ 806 Webster Ave)
Local early spring migrants

Saturday, May 2, 2020
The Great Swamp, New Jersey
Meet at 8 AM at the Wildlife Observation center lot at 220 Long Hill Road, Gillette, NJ. This large refuge, about 90 minutes from Westchester has a mix of forest, fields and wetlands. Early spring birds should include Wood Duck, Eastern Phoebe, Swamp Sparrow, Common Yellowthroat, and both orioles.

Saturday, May 9, 2010
Sterling Forest
Meet at end of Ironwood Road
Golden-winged Warblers, Scarlet Tanagers

Sunday, May 10, 2020
28th Annual Mother’s Day Warbler Walk
Lenoir Preserve
10AM Short stroll looking for spring migrant followed by refreshments

Saturday, May 16, 2020
Annual Bird-A-Thon

Saturday/Sunday, May 30/31
Bashkill Marsh
Overnight trip includes evening and early dawn birding looking for Common Nighthawks, Whippoor-wills, rails and other marsh species

Mark your calendar. Save the Date.
Our annual Spring Lunch will be on Saturday, April 18, 2020. Good food. Good program. Good friends. Don’t miss it this year.
Preventing Bird Window Collisions

In an effort to make NYC safer for migrating birds that travel through every spring and fall, the City Council passed a bill requiring “bird-friendly” glass on all new construction to reduce building collisions, making New York the nation’s largest city to require architecture that mitigates avian fatalities.

NYC Audubon estimates that as many as 230,000 birds are killed every year from flying into the city’s buildings. Windows and other glass are especially dangerous for birds, which often mistake the reflective surfaces for sky or vegetation and, as a result, fly straight into the buildings.

This new bill requires new construction and major renovations to install materials that are visible to birds, such as dotted patterns, tints, or glazing on glass and windows. Specifically, the bill requires that at least 90 percent of the exterior of a building’s first 75 feet be constructed with bird-friendly materials. Other cities including San Francisco and Oakland have adopted similar regulations to mitigate bird injuries and deaths from collisions.

These relatively simple measures have proven to be extremely effective. In 2013, the Jacob K. Javits Convention Center in Manhattan replaced its windows with fritte glass, resulting in a 90 percent reduction of bird deaths, according to NYC Audubon.

The city has also implemented measures in previous years to make the metropolitan area safer for migrating birds, specifically through Audubon’s Lights Out initiative. In 2015, Governor Andrew Cuomo announced that state buildings will turn off non-essential outdoor lighting from 11 p.m. until dawn during peak migration in the spring and fall.

Collisions with buildings are one of the greatest threats to birds, and one of the most preventable. North America has ready lost nearly 3 billion birds since 1970 and we must make every effort to create a safer future for New York State’s wildlife. The New York City Council has set this precedent for the rest of the nation to help reduce or eliminate mortality from collisions.

Closer to Home
We have been pleased by the effectiveness of the bird crash preventing cords we installed on the large window overlooking our bird feeders. No more birds hitting the window with a dull thud. They work. Learn more about buying or making your own crash protector for your windows at [www.birdsavers.com](http://www.birdsavers.com).

And checkout [www.stores.santarosanational.com](http://www.stores.santarosanational.com) for info on a similar system that uses monofilament (fishing) line instead of cord to prevent bird crash. You can help save birds.
A new plaque on a bench near the Beverly Smith Butterfly Garden that reads

"TAFT 2009-2018
MY BEST FRIEND AND THERAPY DOG
ALWAYS IN MY HEART."

Did you know Taft? Taft was the beautiful Yellow Lab who belonged to Danniela Ciatto, former Curator at Lenoir, now at Cranberry Lake.

Danniela got Taft from The Guiding Eyes for the Blind to raise as a puppy, preparing him for training as seeing-eye dog.

Since she was our Curator and lived right at the Nature Center, Danniela sought out our Audubon members' help with socializing Taft. For 15 months we felt that puppy was ours, too! We loved him and did whatever we could to help with the socialization process. Finally Taft left us going into training for 5 months. Obviously, that's the hardest part for the people who have raised a puppy, but Taft was ready to move on.

Taft was so special that he was selected for special needs training, which is not only to lead a blind person, but to lead a blind person with an additional needs. He was doing very well, but unfortunately he developed ear infections and was then sent to Canada for treatment, but things just did not improve. As sad as it was to give up on the plan for Taft, the next move was a joyous one. Taft came back to Lenoir, to live out the rest of his life with Danniela, and, of course the Hudson River Audubon Society!

Taft spent the next 7 years living a wonderful life. What more could a dog want than having Danniela for a "mom" and a whole Nature Preserve as a playground, not to mention the love and attention of many members of HRAS? Taft enjoyed his many walks with Danniela and loved to sit with her on the bench at the Butterfly Garden. When Taft passed away at 9 a half years old, Danniela had the loving plaque installed on the bench.

So now you know the story of our beloved Taft. We all miss him. May he rest in peace.

- Carol Lange

Hudson River Audubon Society Membership

Become a chapter member for $20. Your contribution supports our local efforts and education programs.

Make check payable to Hudson River Audubon Society

and mail to

HRAS
P.O. Box 616,
Yonkers, NY 10703

Name______________________________________
Address______________________________________
City________ State____ Zip________
Email______________________________________
CLIMATE CRISIS ACTIONS You CAN DO

**STEP 1**
Talk to at least three people about climate change and help them understand how they can be part of the solution.

According to data from the Yale Program on Climate Change Communication, 70 percent of people in the United States agree that the climate is changing and will cause harm to plants, animals, and humans. But, when asked if people talk about this issue, two-thirds of people in the U.S. say "Never." This is a real problem. Not talking about climate change fuels the idea that it is a taboo topic, left only to scientists and politicians. It also gives "deniers" a stronger platform.

**STEP 2**
Make adjustments to your daily life by taking two individual actions from these carbon-saving categories.

<table>
<thead>
<tr>
<th>Transportation</th>
<th>Electricity</th>
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<tr>
<td>• Carpool or take public transit</td>
<td>• Switch to renewable energy</td>
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<td>• Walk or bike for shorter trips</td>
<td>• Use LED bulbs</td>
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<td>• Upgrade to an electric or hybrid vehicle</td>
<td>• Turn off and unplug electronics when they are not in use</td>
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<tr>
<th>Food</th>
<th>Land Protection</th>
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<tr>
<td>• Reduce your food miles by eating local</td>
<td>• Plant a native tree or shrub</td>
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<tr>
<td>• Eat less meat</td>
<td>• Support your local land trust, parks system, preserves and sanctuaries</td>
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<tr>
<td>• Go vegan! Not able to commit to 100% vegan? Try avoiding meat and dairy one day a week or even twice a month</td>
<td>• Advocate for the preservation of local wetlands, forests, and other critical ecosystems that serve as carbon sinks and natural buffers to the effects of climate change</td>
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**STEP 3**
Join or initiate one community action to mitigate climate change. Some ideas are below.

- Encourage your community to purchase sustainable energy through community solar.
- Join a group dedicated to building climate solutions at the local level.
- Advocate for actions in your workplace, school or community to reduce carbon footprints.
- Support and advocate for policies that will place a price on carbon.
- Support and vote for candidates who will support climate solutions.

FOR MORE IDEAS
www.un.org/sustainabledevelopment

Federated Conservationists of Westchester County
www.fewc.org
**Audubon Board Members**

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<th>Position</th>
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**At Large**
Kelli Bochnik, Gerry McGee, Allegra Dengler, Cathy Mazella, Mark Testa, Lynn Shaw, Sandra Wright, Joe Rothstein, Debbie Dolan, Jackie Bruskin

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*Pay More Attention to Nature in the New Year*