The Rivertown Naturalist

NEWSLETTER OF THE HUDSON RIVER AUDUBON SOCIETY OF WESTCHESTER

October 2008, vol. 36, no. 2

Hudson River Audubon Society of Westchester, Inc. is a non-profit chapter of the National Audubon Society serving the communities of Ardsley, Dobbs Ferry, Hastings-on-Hudson, Irvington and Yonkers.

Our mission is to foster protection and appreciation of birds, other wildlife and habitats, and to be an advocate for a cleaner, healthier environment.

DIRECTIONS TO LENOIR

Hudson River Audubon Society of Westchester, Inc. holds its meetings at Lenoir, a Westchester County Nature Preserve, on Dudley Street in Yonkers, New York (914) 968-5851.

By car: Take Saw Mill River Parkway to Exit 9, Executive Blvd. Take Executive Blvd. to its end at North Broadway and turn right. Go ¼ mile on North Broadway and turn left onto Dudley Street. Parking lot is on the left.

NEWSLETTER OF THE HUDSON RIVER AUDUBON SOCIETY OF WESTCHESTER

EVOLUTION IN THE 21st CENTURY

Wednesday, October 22
7:00 PM, Lenoir Nature Preserve
Presenter: Dr. Saul Scheinbach

Darwin’s 19th century idea that organisms evolve through natural selection has not only survived 150 years of scientific scrutiny, but is at the center of 21st Century biology. Join Dr. Saul Scheinbach as he shows us why. “Nothing in biology makes sense, except in the light of evolution.”

Dr. Scheinbach touched on the subject during his presentation (along with his wife) on the Galápagos Islands last Spring. He is returning this month to give this topic “the full consideration it deserves.”
Once again we are preparing for our annual Project FeederWatch. This program is sponsored annually, from November through March, by the Cornell Lab of Ornithology. At our Lenoir Preserve, sitting inside the nature center, we take turns counting birds at and around our feeders, and record our findings. The results are then sent to Cornell. We do the count for at least two hours on two consecutive days, every two weeks.

FeederWatching helps us learn more about the birds at our feeders. Our observations help scientists at the Ornithology Lab monitor long-term trends in bird distribution and abundance. Our FeederWatch program has also become a great social event! At each FeederWatch session we usually have refreshments (e.g. bagels or donuts, etc.) provided by the person in charge of that particular session.

At this time we are looking for volunteers to lead just two 2-hour sessions between November 8 and March 29. Each leader can specify a preference of Thursday, Friday, Saturday, or Sunday. During the 2-hour watch, the volunteer leader records the number of each species seen at the feeders and the weather conditions of the day.

If you you are interested in volunteering, or have any questions, please contact Carol Lange at 668-5101 or CarolLange@aol.com.

Save December 13 for our annual Holiday luncheon.
Flowers are all about sex, and they all face the same problem. They need to attract as many pollinators as possible, who, while drinking nectar, will pick up pollen and perform the service of transferring it to other flowers. In this manner the plant not only spreads its own genes, but picks up potentially beneficial ones from others of its kind—a process known as outcrossing. But what if the first visitor takes all the nectar, draining the day’s production and leaving the flower unattractive to everyone else? One strategy is to make lots of nectar, but that takes energy and it doesn’t stop a greedy pollinator. So how does a plant achieve the right balance of being attractive to pollinators, yet shooing them away so some nectar is left for others?

A team of molecular biologists headed by Ian Baldwin, Max-Planck-Institute, Jena, Germany, has the answer in the August 29, 2008 issue of *Science*. By genetically manipulating two chemical components normally present in the nectar of a desert tobacco plant (*Nicotiana attenuata*), Baldwin and his colleagues show how these compounds influence the amount of nectar removed by pollinators, and the number of visits a flower receives. By using the right combination of chemicals, the flower both attracts and repels its pollinators, which increases the number of visits and optimizes its own reproduction.

Each evening the tobacco plant opens its small white flowers to lure its main pollinators, hawkmoths, like the white-lined sphinx moth (*Hyles lineata*), and hummingbirds, like the black-chinned hummingbird (*Archilochus alexandrí*). To attract them it embellishes its nectar with benzyl acetone (BA), a sweet-smelling compound, but it also laces its nectar with bitter-tasting nicotine (N) that acts as repellent.

In order to study the effect of each chemical individually, Baldwin and his colleagues first determined what genes produce these chemicals and then, using a gene silencing technique, made four lines of genetically modified plants. Plants were created that could not make either BA or N, as well as a line that made neither chemical. Lastly, a control line was also genetically manipulated, but without impairing the function of either gene. The transgenic plants were grown in special plots at a field station in the Great Basin Desert in Utah.

To determine the effect of each chemical on pollinator activity, the scientists measured the amount of nectar left by them each morning and also monitored the number and duration of visits with video cameras. Flowers lacking N had about half the nectar volume of those that produced N, verifying that N acts as a deterrent to excessive nectar consumption. Videos also confirmed that N is a deterrent; both pollinators lingered almost twice as long while drinking at flowers lacking N than from those that contained it. The videos also showed that flowers lacking BA, with or without N, received fewer visits from hummingbirds and hawkmoths, confirming that BA is an attractant.

The presence of N not only increased the number of visits per flower, it also deterred flower-devouring caterpillars and nectar-robbing carpenter bees. The bees pierce the bottom of the flower and take nectar without transferring any pollen. Surprisingly, BA also discouraged this activity. Most important from the plant’s point of view, DNA analysis of seeds produced by each line of plants, showed that the control group, containing normal levels of BA and N, was most successful at passing pollen along to neighboring plants and receiving pollen from them.

These plants, it seems, have learned that by striking the right balance—not too sweet, not to bitter—they gain the sweet smell of success.
The Southern Cassowary cannot fly. This tall bird uses its strong legs to run, fight and build its nest. The male hatches the eggs and takes care of the chicks. He shows them how to find fallen fruit on the forest floor.

green = 1
light brown = 2
dark brown = 3
light blue = 4
violet = 5
red = 6
dark gray = 7
dark blue = 8
orange = 9
Hudson River Audubon Society

Bird Seed Sale — 2008

Deadline to Submit Orders: **Wednesday, October 22**
Pick-up Days for Seed: **Thursday, October 30, through Sunday, November 2**
Pick-up Location: WILD BIRD CENTER, 400 Central Park Ave., Scarsdale

10 A.M.– 6 P.M. TUESDAY-SATURDAY; NOON – 5 P.M. SUNDAY; (914) 713-0630

Your Name: (Print clearly)
Address:
City/State/Zip: ___________________________ Phone ___________________________

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<tr>
<th>Type of Seed</th>
<th>Size</th>
<th>Price</th>
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Sub-Total

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<td>GRAND TOTAL</td>
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Checks and orders must be received by **Wednesday, October 22**
Questions? Call Michael Bochnik (914) 237-9331

Please make check payable to: **Hudson River Audubon Society**
Mail to: *Hudson River Audubon Seed Sale, P.O. Box 616, Yonkers, NY 10703*

All profits from our Bird Seed Sale help support chapter activities
The pattern of rapid diversification is well known to biologists—they’ve even coined a name for the process, “adaptive radiation.” But the best-known examples tend to involve geographic isolation: Darwin’s finches of the Galapagos, anole lizards of the Caribbean, and the marvelously colorful cichlid fishes of Africa’s inland lakes.

“What’s interesting is that this happened on a continent, where it’s ecologically much more complex than an island,” Rabosky said. “You’ve got lots of competitors. Clearly, lots of other birds were already here, eating insects and probably doing what warblers do now.”

Rabosky and Lovette chose to study the warbler genus Dendroica and to use DNA analyses because they needed a detailed picture of the genetic relationships among the 25 species—a level of information that fossils simply can’t provide. Those details let them reconstruct, species by species, the chronological order in which new species appeared.

And besides, four-inch-long, half-ounce forest birds don’t leave much of a fossil record. “In fact,” Rabosky said, “the vast majority of biodiversity on this planet that we need to explain doesn’t have a fossil record. But just by using species that are alive today, and looking at their DNA, we can see the signal of an early explosion of species millions of years ago.”

Rabosky and Lovette developed a new mathematical model that attributed the pattern to the way closely related species divide up their environment. At first, with few relatives around to compete with, species can differentiate rapidly. But as the species list grows, competition becomes fiercer and leads to fewer opportunities for additions.

“Right after the dinosaurs went extinct, most people are aware that there was a huge explosion of mammal diversity,” Rabosky said. “That extinction created lots of ecological ‘space’—opportunities for new species of mammals to take advantage of resources. On a much smaller scale of both space and time, this little group of warblers from North America might be playing out the same story.”

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**Forest songsters evolved in early rush**

ITHACA, NY—Evolution seems to have happened in fits and starts—at least that’s what the fossil record shows. From trilobites to pterodactyls, ammonites to Archaeopteryx, scientists find the same pattern: brief bursts of innovation in which a single species, or branch on the tree of life, turns into a cluster of new twigs, then lapses into long stretches ruled by the status quo.

The question is why. Is the fossil record incomplete—are fossil beds just snapshots of a process that occurs at a steady pace throughout time? Or might changing environmental or geologic conditions alter the rate at which species arise?

“It’s arguably one of the most fundamental questions in all of evolutionary biology,” said Dan Rabosky, a graduate student at the Cornell Lab of Ornithology and lead author of a new analysis of the problem. “How do species arise? Where does all this biodiversity that we see on Earth come from?”

Rabosky and coauthor Irby Lovette, director of the Fuller Evolutionary Biology Program at the Lab of Ornithology, used DNA analyses to look at five million years of evolution in 25 species of colorful North American songbirds known as wood warblers. They discovered that a flurry of species divergence occurred early on, with many species appearing in just the first million years. The research appeared online July 9 in the journal *Proceedings of the Royal Society B*.

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**Myrtle Warbler**
THE BIG SIT  
Sunday, October 12, 2008

MEET AT LENOIR NATURE PRESERVE, YONKERS AT 8 AM

Join us for our seventh Big Sit! What’s a Big Sit? It’s the largest sedentary bird watching event of the year! Teams and individuals around the country will try to identify as many species all from a 17-foot-diameter circle. Our circle is at our hawk watch. We should see hawks, warblers, phoebes and a surprise or two. Up to fifty species may be seen. We will be out there by 8 AM (or earlier), but you can join us later. Help keep us company and help spot the birds.

This field trip is free and open to non-members. Bring binoculars if you have them. Some are available for loan for those who need them. Dress appropriately for the weather.

For more information, contact Michael Bochnik at 914-237-9331.

CAPE MAY TRIP  
October 17–19, 2008

We will visit Cape May Point, the Avalon Seawatch and many other places. We will see land bird migrants, hawks and shorebirds in this well-known bird watching hot spot.

On Friday, drive down to Cape May on your own. Drive time is about 4 hours. Most of us will be staying in Rio Grande at: Off Shore Motel, 1801 Route 47, Rio Grande, NJ 08242, phone 609-886-2829.

Directions:
2. Take NJ Turnpike to Exit 11 – Garden State Parkway.
3. Take Garden State Parkway to Exit 4A – Route 47. The motel is right next to the Garden State Parkway off Exit 4A so you shouldn’t miss it. It’s on the opposite (South side) of Route 47.

Friday evening dinner will be on your own. Then meet us at 7:00 AM in the motel parking lot. We will stop at a Wawa for quick bite to go, then head for Cape May Point State Park. For more details, contact Michael Bochnik at bochnikm@cs.com or 914-237-9331.

HAWK WATCH  
Saturday, October 18, 2008

MEET AT LENOIR NATURE PRESERVE, YONKERS AT 9 AM

ROCKLAND LAKE  
Saturday, November 22, 2008

MEET AT PARKING FIELD 1 AT 8 AM

More details in the next newsletter or check out our web site at www.hras.org
Join the Hudson River Audubon Society of Westchester, Inc.

Every membership supports Audubon’s vital efforts to protect birds, other wildlife and natural habitats. Membership includes a subscription to Audubon magazine and affiliation with National Audubon. As a member, you will also receive our chapter newsletter, Rivertown Naturalist, and an open invitation to all our guest lectures, field trips and events.

SIGN ME UP AS A NEW MEMBER FOR 1 YEAR FOR $20

Name

Address

City

State Zip Code

Telephone

CHAPTER NO R20 7XCH

Send check and this application to: National Audubon Society Membership Data Center P.O. BOX 52529 Boulder, CO 80322

Please make check payable to: National Audubon Society