



## Scientists monitor migrants using eye in the sky

By Michael Burger, Ph.D.

Birdwatching goes high tech — literally. As the fall migration nears its end here in New York, millions of birds will have passed over us without many of us realizing it. On nearly any given night from the middle of August through the middle of November, birds of all kinds pass over as singles, small groups, or in waves as they travel toward their wintering grounds. This year, they did so under the watchful eye of a team of scientists from National Audubon Society, Cornell Lab of Ornithology, Clemson University Radar Ornithology Lab and the Academy of Natural Sciences that call their collective efforts BirdCast.

Birds have been apparent on radar images as far back as the days of World War II when British radar operators dubbed the mysterious shadows drifting across their screens as angels. Years later, Louisiana State University graduate student Sidney Gauthreaux showed that these

images were birds, but progress since has been slow due to limitations of the radar technology.

With the development of Next Generation Doppler Weather Radar (NEXRAD) in the early 1990s, ornithologists had a tool they could effectively use. The radar images that we commonly see on nightly television weather forecasts have already had the signals caused by migrating birds removed so that we can see the precipitation patterns. By analyzing raw data NEXRAD images, BirdCast scientists can roughly determine the numbers of birds aloft and the direction they are moving.

What they can't determine is which species are migrating. This is where a mix of another new technology and good old-fashioned leg work come in. First the new technology. Remember those millions of birds flying in the dark? It so happens that they periodically emit calls that help them communicate and prevent them from bumping into each other. These nocturnal flight calls are very unlike

the beautiful songs they sing during the breeding season; many are only a fraction of a second long. However, many of the calls are different enough that species can be identified with the aid of computer technology. Microphones are placed on rooftops across the state and wired to personal computers. The following morning, the data are sent to the Cornell Lab of Ornithology for analysis.

To ground truth these remote sensing methods, a more traditional method of identifying birds is used. Hundreds of devoted birders have volunteered to go birding at the same spot every day or so during the migration and report their sightings. Nearly 40 such volunteers are operating at this time in New York. These birders can help verify which species of birds arrived with the night's flight.

Together, the radar images, flight call recordings, and ground-truth data help complete a picture that has been puzzling ornithologists for years — how to measure the magnitude of bird migration. More important, using the

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data that are gathered to help determine how weather and other factors influence bird migrations, scientists can begin predicting when and where birds will be migrating. BirdCast will provide information to the public and public officials in addition to suggestions for decreasing human-caused dangers that migratory birds face, such as cats allowed to roam outside and pesticide applications.

For more information on BirdCast and to see radar images, please visit the BirdCast website at [www.birdcast.org](http://www.birdcast.org).

## BIRDING FIELD NOTES

### Top birders raise \$\$ for Montezuma

Birdwatching was more than an entertaining pastime in September at the Montezuma Wetlands Complex in central New York. More than 80 of the state's top amateur and professional bird enthusiasts descended upon the complex to compete in a 21-hour, no sleep, bird-til-you-drop marathon — the fourth annual Montezuma Muckrace.

From midnight until 9 p.m. Sept. 16, 20 teams searched for as many avian species as they could find within the 36,000-acre wetlands complex, which includes Montezuma National Wildlife Refuge and Northern Montezuma State Wildlife Management Area.

The Muckrace, organized by the Friends of the Montezuma Wetlands Complex and the National Audubon Society of New York State, is no easy feat. In addition to enduring sleep-deprivation and a tight schedule of birding along a carefully-planned route, participants must also be up to the challenges of fall birding, including being able to identify distant shorebirds, songbirds that sing infrequently and many species in winter or intermediate plumages that differ greatly from their more obvious breeding plumages.

Yet to many, the challenges are irresistible. “The Muckrace is an addiction, and I am addicted,” said Ithaca's Meena Haribal, a member of this year's Cayuga Bird Club team. Haribal reported that even after the event she couldn't get her mind off birds. “The running tap water sounded



Vern Durkee

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like a Great Horned Owl. Now I am looking forward for next year's event.”

Although competition and a love of birding spur on teams during race day, participants' ultimate objective is to raise money for bird conservation projects at the complex. Previously, revenue supported a radio-tracking study of Sora and Virginia Rails and a population monitoring program. This year's Muckrace raised more than \$2,000. Among the sponsors were local bird clubs, small businesses and conservation organizations, as well as nationally known groups such as Leica Camera Inc., The Roger Tory Peterson Institute, National Audubon Society and Wild Birds Unlimited.

It's no surprise that this event would draw national attention. In 1996, the National Audubon Society of New York State recognized the Montezuma Wetlands Complex as a global-level Important Bird Area because of the

great number of waterfowl, shorebirds and songbirds that its habitats support.

“Altogether, birders participating in the Muckrace this year saw 176 species, not to mention more than eight state-listed species, like the endangered Peregrine Falcon and the threatened Least Bittern,” said Mike Burger, director of bird conservation for Audubon in New York.

The Ecology and Environment Inc. Eagles (E and E Eagles) from Buffalo and the Genesee Ornithological Society Windbirders from Rochester tied for top honors by finding 114 species. Neither team was new to the event, and the E and E Eagles had claimed the top spot also in 1998. Second and third places went to two Ithaca teams, Niall and the Matts and the Gallinagos. The fourth place team, Leica Camera Inc. Lakeside Chickadees, was the top youth team for the second year in a row. This all-girl

Rochester-area team, ages 11 to 17, topped out at 103 species. Prizes were provided by Wild Birds Unlimited, Roger Tory Peterson Institute, Cornell Lab of Ornithology, Eastman Kodak, Marsh Creek Avian Haven and other small businesses and individuals.

### Bird conservation on the web

National Audubon of New York State (NASNY) is pleased to announce a new way to learn about Important Bird Areas (IBAs). We invite you to visit our IBA website at [ny.audubon.org/iba/](http://ny.audubon.org/iba/). Each of New York's 127 IBAs has its own page, complete with unique descriptions, bird information and conservation concerns. Interactive maps of the state and its regions make it easy for users to discover IBAs in their area, and an alphabetical list allows users to quickly locate a specific site. Also on the website is detailed background information on the IBA program, including its history, qualification criteria, goals and outlook.

Also new on the web at NASNY is a summary of our Forest Biodiversity Research Project, at [ny.audubon.org/forest/](http://ny.audubon.org/forest/). The site outlines the project's origins, its role in NASNY's forest program, and key personnel, as well as detailed study methods, preliminary results and analysis.

Both sites were developed by Audubon intern Jackie Cerretani, who works with the bird conservation program at the Cornell Lab of Ornithology. Stay tuned as these sites continue to develop.