



Winging It

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Dancing in the Moonlight: Nocturnal Bird Migration From the Top of the Empire State Building

BY ROBERT DECANDIDO

The birders were worried: autumn was approaching and waves of migrants would soon be passing through New York City. Towering above us was one of the world's premier skyscrapers—the Empire State Building. We could see it by day from Central Park, where we looked for migrants. At night, it glowed like a giant Exxon sign rising sharply above the city's skyline. Sadly, we feared that migrating birds could see the building all too well, and that untold numbers of migrants, confused by the lights, must be crashing against it. What could anyone do?

Determine the facts! We needed accurate information about what was really happening “up there.” Were birds crashing into the Empire State Building in countless numbers? Were hordes of helpless, injured birds being eaten by rats on the streets below? A study of night migration might answer such questions and suggest reasonable solutions.

At the beginning of this research, a colleague remarked, “You know, you have the biggest one of them all.” He was right. During our study in 2004-2005, at least half a million people (2,000-5,000 people each night) trekked to see the mag-

nificent view. These are exactly the people conservation biologists need to reach: most had never watched a bird migrating before, and even fewer knew that most birds migrate at night. And the Empire State Building itself is no ordinary skyscraper: it is an icon. With some luck, our recommendations to make New York's skies safer for night-migrating birds would be adopted in other cities such as Toronto, Chicago, perhaps as far away as Tokyo and Kuala Lumpur.

On the first evenings, I cringed every time a bird approached. However, after seeing more than 30,000 migrants pass by, I have yet to see one smack into the building and die in either spring or fall. Instead, my colleagues and I have experienced some of the most thrilling birding anywhere. Whether it was seeing a quarter-ounce kinglet in its mad rush across the night sky, or hearing the flight chips of hundreds more emanating from the darkness above, we regularly

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CORRECTION

Note that a corrected version of “The Road to Lafayette: Birding in South-central and Southwestern Louisiana” is now available at americanbirding.org/pubs/wingingit/archives/vol19no2p1and4to5.pdf. Unlike the print version, the online article properly credits this fine piece to its authors, **JAY V. HUNER** and **MICHAEL J. MUSUMECHÉ**. Apologies to Jay and Mike, and to *Winging It* readers, for the error. —Rick Wright

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watched a nightly procession of small shooting stars above the Manhattan skyline. Non-birders stopped in their tracks to ask about what they were seeing. Why were birds flying at night? Where were they going? How far would they travel tonight? I left each night at midnight full of hope: migrating birds had captured the attention and imagination of these soon-to-be birders. Once people were aware, they cared.

Secrets of the Night

In autumn 2004, we counted 10,826 migrating birds, averaging 29 birds/hour. When numbers of passerine and non-passerine migrants are combined, we counted 14,706 migrants from mid-August through mid-November 2004. At least some migration was observed on 67 of the 77 nights (87%) of observation. In autumn 2005, we counted 17,594 passerines, averaging 42 birds/hr from early August through mid-November. We also counted an additional 1,500 or so non-passerines. At least some migration was observed on 79 of the 95 nights (83%) of observation in autumn 2005. In both years, on big migration nights, the first birds appeared an average of 56 minutes after sunset.

We made new and important scientific discoveries about birds, right here in the heart of the city. Members of our “rapid flight assessment team” studied Peregrine Falcons regularly chasing night migrants, something that had been reported only occasionally before. We were likely the first people to see a diurnal raptor species, the Osprey, migrating at night. We saw two owl species in migration: Northern Saw-whet and Short-eared. We watched more than 200 American Woodcocks flap madly past the building, never pausing to stop or circle. We saw an Eastern Phoebe and a Great Crested Flycatcher land on the railing above us, then sally forth to catch insects.

Contrary to expectations, we did not report horrible scenes of death and destruction because we did not see any. In our study, we knew of seven birds that died. All of them were recovered after one October evening of heavy rain. In autumn 2004-2005, on 29 evenings (22% of the nights on which we saw migration) when skies were overcast and light winds prevailed, we watched birds circling the Empire State Building. However, the next morning, no dead birds were found at the building or nearby. On evenings of heavy migration, we saw birds such as Yellow-bellied Sapsuckers, Northern Flickers, Black-throated Blue Warblers, Magnolia Warblers, and Common Yellowthroats land for up to 90 minutes before resuming their migration.

Most of the migration in both spring and fall occurred on nights when winds were greater than 15 mph. On such nights, migrants passed the Empire State Building with no apparent



Eastern Phoebes hunt at night from perches on the Empire State Building. Photo © Deborah Allen.

difficulty. When winds exceeded about 20 mph, the migrants would often approach within 50 feet of the building, and turn their bodies so that they faced directly into the wind. In autumn, this meant a bird would turn to face west to northwest as it passed near the building. Once clear of the building, the bird would turn to face south again, and then zoom off into the darkness. Watching this, we came to believe that birds were well aware of their relation in space to the illuminated building.

Sometimes we saw small birds migrating in “loose associations,” not tight flocks. Migrants would arrive in waves of 10 to 25 birds and continue past us for up to a minute. Then there would be a pause until the next small wave arrived. In November, we would occasionally see single-species flocks of 7 to 20 American Robins traveling together. How-

ever, we came to view the night migration of birds as the movement of individuals across the sky. Our highest single-night total occurred in 2005 on October 18th. That evening, from 7:10 until 11:45 pm, we counted 3,387 small migrants such as woodpeckers, warblers, and sparrows. During the peak hour, from 9 to 10 pm, we saw 1,009 birds pass by, or about one migrant every four seconds. On 31 nights when we counted more than 100 migrants, our data suggest that the migration peaked after midnight.

Birds and Buildings

We were well aware that birds had collided with tall buildings in New York City and elsewhere in the past. In order to understand the deadly effects of tall structures, I began reading newspaper and magazine accounts from the late nineteenth century. On the evening of 22 August 1888, after a cold front passed through New York City, almost 1,500 migratory birds were found dead below the nearby Statue of Liberty, apparently drawn to the newly installed electric lights on the statue. During the next several years, after studying specimens brought to the Department of Ornithology of



Researchers count birds at the Empire State Building. Photo © Deborah Allen.

the American Museum of Natural History, Jonathan Dwight Jr. concluded that many more dead birds were found during autumn than spring migration. Of the more than 100 species found dead at the Statue of Liberty, the Common Yellowthroat was the most frequently collected bird, with 60% of all individuals belonging to this species. Such observations still hold true today: in New York City, most casualties occur during autumn migration, from early August through late October. Neotropical migrants are most vulnerable, with warblers such as Common Yellowthroats and Ovenbirds collected in high numbers.

Sixty years later, on the foggy evening of 11 September 1948, approximately 750 migrating birds of at least 30 species were found dead or injured below the Empire State Building. An advancing cold front had stalled in the New York City area. Instead of flying past the Empire State Building that night, the birds were likely attracted to the lights of the skyscraper shining through the fog. Beginning after midnight, dead and dying birds rained down on nearby city streets. Warblers made up more than 90% of the birds killed. Migrants probably circled the glowing tower and illuminated sides of the building; no one knew whether these circling birds then hit the building (or even each other) or simply collapsed from exhaustion. In subsequent years, casualties always seemed to occur after midnight, and in at least one instance after the lights of the building were turned off. However, since about 1980, no single evening—in fact, no single season—has seen reports of more than 100 dead birds at the Empire State Building during the fall or spring migration.

I believe that when birds are killed during migration in New York City, it is not happening at the tallest buildings. Most deaths probably occur in the early morning hours as birds come down to look for a safe place to feed and rest. At ground level in Manhattan, endless streets of plate glass windows reflect the sky or trees of nearby parks. Other buildings have potted plants or shrubs placed behind windows, offering an inviting but deadly picture. Our night migration research at the Empire State Building supports the findings of Daniel Klem Jr. of Muhlenberg College, who has shown that reflective glass at or near ground level is responsible for the annual deaths of countless migratory (and resident) birds in both urban and suburban America. As a result of Dr. Klem's research, people in cities such as Toronto, Chicago, and even here in New York have joined with building managers to identify "problem" buildings and make them safer for migrating birds.

The Future

For the bigger picture, we need more visual studies of the behavior of birds in migration at night, especially as they move past tall buildings and towers. Recent

research by Dr. Joelle Gehring in Michigan shows that more avian collisions occur at illuminated tall structures with support lines that birds cannot see. Also, fewer collisions seem to occur at towers near cities, but we don't know why. What we do know now is that each site is unique because of its location, the number and species of birds that pass through the area in migration, wind and

weather patterns, the type and intensity of lighting used, etc. Cities such as Toronto and Chicago may be very different for night migrants than Los Angeles, Philadelphia, Atlanta or New York. Not every building or tower is bad just because it is big. If we can identify "problem" buildings and lighting arrays, we can work with structural managers to make things better for migrants. The best results will occur when birders and building managers work together to solve problems based upon studies conducted at particular sites.



Common Yellowthroats are among the most frequent victims of collisions with buildings in New York. Photo © Deborah Allen.

Robert DeCandido, Ph.D., is an urban ecologist and research associate scientist at the Hawk Mountain Sanctuary. He and photographer Deborah Allen have studied migrating birds in New York City, and in Asia from Israel east to Nepal, Thailand, and Malaysia. They lead bird tours in

Central Park and at night to the Empire State Building. For free copies of their 2004-2005 night migration reports or their scientific papers about night migration, email rdcny@earthlink.net.

The Long-eared Owl

By RANDY HORVATH

surely you heard me, tromping and trudging
my way through the tangles, crunching snow
and ice, snapping dead branches – man on
a mission to find you

perhaps, enthroned on your bough of spruce,
lord and master of an evergreen demesne,
you could not imagine that one such as I
would dare invade your wintry world

it seemed the elements and flora had conspired,
determined that I should not disturb you
but the frigid cold, the razor winds, the thorny vines
that raked my thighs could not dissuade me

little did you know
you were doomed to discovery

and when at last I glimpsed your outline,
surely you heard the pounding of my heart
as I drew nearer, nearer, nearer still –
and yet (thank God!) you did not flee
but kept your post, intrepid, unperturbed

and oh how grateful still I am, for
never will I forget the look of
supreme surprise –parting a curtain of needles
and cones to gaze with glee and wonder
into eyes that wondered at me

Randy Horvath is a Canadian ABA member currently teaching English at a language academy in Busan, South Korea.