

## A *Birding* Interview with the Bobs: Robert C. Leberman and Robert S. Mulvihill

The Bobs—Robert C. Leberman and Robert S. Mulvihill—together pioneered bird-monitoring methods and gathered decades of data from migrating landbirds at the Carnegie Museum of Natural History’s 2,200-acre Powdermill Nature Reserve in southwestern Pennsylvania, where one of the longest-running, year-round bird-banding stations in North America is located. The half-million-record dataset they helped create represents almost 200 bird species and is widely considered to be among the very best of its kind. Both Bobs have produced a large number of scientific publications on topics ranging from avian body mass dynamics to migration patterns and long-term population trends. Leberman is now retired, and Mulvihill serves as Ornithologist at The National Aviary in Pittsburgh.

In our first joint *Birding* interview, Bob and Bob keep up a lively conversation about the amazing birds, research, people, and Appalachian landscape that shaped their tenures at Powdermill.

—Noah K. Strycker  
Associate Editor, *Birding*

***Birding:*** When you arrived at Powdermill, what were your hopes for this program?

**Robert C. Leberman:** I arrived in 1961 with few expectations of any future here. When I applied for a summer job at Powdermill, I had written to Dr. M. Graham Netting of the Carnegie Museum of Natural History, asking about the possibility of running bird census plots there. I only casually mentioned that I had a bird-banding permit. He called me, *not* to do breeding bird plots, but to see if I would like to set up a trial bird-banding operation. I came down to the reserve for that summer and fall, and essentially never left. The late Kenneth C. Parkes, Curator of Birds at the Carnegie Museum, took a great interest in the banding program and became my supervisor and mentor, and from him I learned a great deal about bird molt (think Humphrey–Parkes), identification of subspecies, and hybrid warblers—all areas of his particular expertise. Ken often spent weekends at Powdermill helping with the banding, as did the late Mary H. Clench, who became supervisor of the program. With their enthusiastic mentoring, they turned a young, green birder into a working museum/field ornithologist. Much of life is indeed serendipitous.

***Birding:*** When you came on board, what innovations did you make?

**Robert S. Mulvihill:** My principal contribution to the Powdermill banding program probably was my close examination

and study of molt, especially molt limits—visible but often subtle contrasts among feathers resulting from age-related differences in the extent of molt. Like “the other Bob,” I learned much from Dr. Parkes, and I became very interested in the possibility of using molt limits and other molt data for determining the age of birds caught for banding.

When I was still a volunteer, Bob L. had made me aware of the primary references that every bird bander should have—for example, Thomas Roberts’ 1932 *Birds of Minnesota* and Lars Svensson’s 1975 *Identification Guide to European Passerines*. But it was my experience reading Jonathan Dwight’s classic *Sequence of Plumages and Moults of the Passerine Birds of New York*, published in 1900, that resulted in a “Eureka!” moment for me early in my career. Dwight described the extent of the “post-juvenal” molt as being less than complete in many species, and he further described differences in the appearance of molted and retained juvenile feathers. I began looking for these “molt limits,” as they later would become known, in my Dark-eyed Juncos, and, indeed, they were there!

In 2000, I created a website devoted to the bird-banding program <[tinyurl.com/Powdermill-Highlights](http://tinyurl.com/Powdermill-Highlights)>. I realize now that what I created actually was a blog about our banding station—a simple accounting of what we banded each day; descriptions of the interesting things we observed, liberally illustrated with close-up photos, and presentation of practical information (for example, about molt limits) for other ban-



**Robert S. Mulvihill** (left) and **Robert C. Leberman** (right), after failing to locate a Black-tailed Godwit that had been found during the Eastern Shore Birding and Wildlife Festival at Swan Cove on Chincoteague just before they arrived, were compensated with good looks at an American Avocet in October 2012 from this very spot on Metompkin Bay. *Photograph by © Pam Ferkett.*

ders, ornithologists, and birders. Interest in the website grew steadily from the start, eventually reaching as many as 150,000 or more hits per month from thousands of users around the world. The recognition and attention that the website brought

As Bob Leberman explains in the accompanying interview, “The most special thing about the location of Powdermill is that there is nothing special about it.” Field studies at this typical, unexceptional site have cemented the importance of the central Appalachians as a great cross-roads of migration, a high-traffic corridor for birds breeding from Alaska all the way to the Atlantic provinces. *Photo by © Robert S. Mulvihill.*

to Powdermill led to some very productive professional collaborations and long-time friendships that we value greatly to this day. One of the most important of these is with Professor David Norman, a “ringer” (bird bander) and wildlife conservationist from England. David discovered Powdermill through the banding website, inquired about visiting, traveled across the pond to visit and band birds with us many times over the years, and very quickly became a valued research associate and good friend to us all.

[This website is featured in *Birding* in Paul Hess’s “News and Notes” column in the February 2003 (p. 19) issue. Additional Powdermill coverage in *Birding* appears in the September 2010 (pp. 29–30) and May 2011 (pp. 32–42) issues. —Ed.]

**Birding:** Why did you stay at Powdermill so long?

**RCL:** With my life-long interest in natural history, and birds in particular, this has been the perfect situation. Not only could I work with live birds, but also, in the earlier years in particular, when the flora and fauna of the new reserve were being cataloged, I had the exceptional opportunity to work in the



field with the museum's famed botanists, herpetologists, lepidopterists, and so forth. What an opportunity for any young naturalist!

**RSM:** The short answer is: Simply because there was just so much there to do that was worth doing and that was gratifying to do, both personally and professionally. I considered it an extraordinary honor and privilege to be able to contribute to the research, education, and conservation mission at Powdermill. Oh, yeah, and Powdermill just happens to be one of the most beautiful and interesting places on the planet!

**Birding:** How is Powdermill different from other field stations?

**RCL:** The most special thing about the location of Powdermill is that there is nothing special about it. This is a typical, mostly forested, Pennsylvania Appalachian valley, through which a typical bird migration can be documented throughout the year—different from the usual migration observatory, usually at a location along a coast where migrating birds are funneled through in exceptional concentrations during a specific period. At Powdermill, we are looking at normal inland numbers of birds moving over a wide front and over 12 months of the year.

**Birding:** Why is Powdermill's database a national treasure?

**RSM:** The data in Powdermill's database are nearly continuous, spanning more than five decades, and are very diverse and voluminous, representing more than 190 species and nearly a half million individuals. Importantly, 90% or more of the data have been collected by just a few people who trained and carefully calibrated with one another, making it one of the most internally consistent banding databases in existence.

Many rare birds have been netted over the years at Powdermill. This "Sutton's" Warbler (a hybrid between the Yellow-throated Warbler and the Northern Parula) was a spectacular, if not entirely unexpected, find—in all likelihood the first of its kind ever banded. "Sutton's" Warbler was discovered in the central Appalachians, and named for George Miksch Sutton (1898–1982), long affiliated with Powdermill's institutional sponsor, the Carnegie Museum of Natural History. *Rector, Pennsylvania; 6 May 2008. Photo by © Robert S. Mulvihill.*



It is very important to note, however, that another great strength of the Powdermill banding database has been the painstaking work of Marilyn Niedermeier, who has coded, entered, and proofed data contained in the myriads of handwritten record sheets generated by the banding at Powdermill over a period of more than 25 years. Marilyn has caught—and resolved—innumerable potential errors and inconsistencies in our banding data in a manner that I feel quite sure no computer could ever be programmed to do as carefully or thoroughly. Truly, Marilyn is the reason the Powdermill database is so "clean."

**Birding:** What lessons about bird-monitoring methods have we learned from your work at Powdermill?

**RCL:** I started banding before skulling—parting the feathers of a bird's head and viewing the structure of the skull through the thin, transparent skin—was being widely used. For several years, I examined the skull of nearly every bird I handled, looking at the timing and pattern of pneumatization—assessed by noting the presence of air spaces between the plates in a bird's skull—in order to determine how long the process took for each species. Much of this information was shared with the Patuxent Bird Banding Lab, which incorporated it into the keys that they provided to banders for aging birds. We also studied differential migration of many species to answer questions like, "Does the migration of the two sexes or age classes within a species peak at the same time or does one group migrate before or after the other, and why?"

**RSM:** While Bob L. pioneered the use of skulling in the first half of the Powdermill banding program, I pioneered the use of molt limits for aging our birds in the second half. The great advantage of molt limits for aging birds is that this technique enables us to age many species over a greater time period than is possible through skulling.

Bob's landmark study, published in 1970 in *Bird-Banding*, of the rate of skull pneumatization in the Ruby-crowned Kinglet showed that separating age classes by skulling is possible only during the period of time when young birds still retain visible unpneumatized skull "windows." In the case of the kinglets, that can be as little as 90 days after hatching. In comparison, in species which have an incomplete molt in their first fall after hatching, molt limits can be used to separate the adult and immature age classes for about a year, or until a young bird finishes its first complete molt.

**Birding:** What have analyses of Powdermill data taught us?

**RSM:** Among our many published findings are that: (1) southwestern Pennsylvania and the central Appalachians are at the

crossroads of migration for vast numbers of boreal land birds from Alaska to Newfoundland, especially in fall; (2) various effects of climate change are evident in wild bird populations, from changes in migration timing to changes in body size; (3) smaller size in male Ruby-throated Hummingbirds may aid them in reproductive competition with other males, but this comes at a substantial survival cost, with males living about half as long on average as the larger-bodied females; (4) variant “orange-tail-banded” Cedar Waxwings and “orange-breasted” Yellow-breasted Chats have eaten (or been fed) large quantities of red berries from invasive shrub honeysuckles planted to benefit wildlife beginning in the late 1950s; (5) Louisiana Waterthrushes are reliable and useful bio-indicators of stream water quality on both their breeding and wintering grounds; and (6) believe it or not, birds are vectors for the dispersal of land slugs!

[Please see the recommend reading provided by the interviewees on p. 21. —Ed.]

**Birding:** How many visitors—human and bird—has Powdermill received in its lifetime?

**RCL:** Human visitors have averaged more than 1,000 a year. The total number would probably exceed 60 or 70 thousand. In addition, our website visitors probably number in the hundreds of thousands by now.

**RSM:** About 400,000 birds have visited Powdermill in 50 years, and many of these have returned and been captured in Powdermill’s mist nets or banding traps one or more additional times, for a total of more than 100,000 recaptures. Our oldest bird is a Blue Jay that lived to be at least 16 years old. A number of other birds banded at Powdermill hold the national age record for their species, including a 12-year-old male Scarlet

Tanager banded in 1990 and found dead in Freeport, Texas in 2001. The most common bird by far at Powdermill is the Dark-eyed Junco, with more than 40,000 banded. The most unexpected birds have been several unique hybrids, including the very rare “Sutton’s” Warbler (Yellow-throated Warbler x Northern Parula).

**Birding:** How many bird banders has Powdermill trained?

**RSM:** We haven’t kept detailed records, but the total is almost certainly approaching 200. We’re very proud that, over the years, many of our long-term banding interns and trainees have successfully pursued academic and professional careers in ornithology, environmental and conservation biology, and related fields.

**Birding:** What are your most cherished memories at Powdermill?

**RCL:** Wow, there are a lot! One was the netting and banding of a Kirtland’s Warbler on September 21, 1971. This was at the time when the species was at its lowest numbers. On a net run, I came across a net that had 10 or 12 Yellow-rumped Warblers hanging in it. I looked down and saw this larger bird, and immediately thought KIRTLAND’S! I couldn’t believe it really was a Kirtland’s, so I finished taking out all the Yellow-rumps before allowing myself to actually realize it was indeed a Kirtland’s. If I remember correctly, this was the first “KIWA,” as banders call it, ever banded away from the Michigan breeding grounds. As the population has recovered, there have been many subsequent captures at stations away from the breeding grounds.

Perhaps our most exotic banding recovery was of the Swainson’s Thrush banded in 1972 and shot in Peru with a blowgun. A Peruvian man apparently



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was wearing the band as a piece of jewelry, and, through a long, unlikely series of events, the record eventually reached the banding lab, where rumor has it that the keypuncher processing the record panicked briefly because there was no code for “killed by blowgun”!

My most cherished memories, though, are of the many wonderful people I have met and worked with there—famous and otherwise.

**RSM:** My memories of Powdermill go way back to when I was a 12- or 13-year-old boy with a passionate interest in birds. My family had a small cabin that was just over the mountain from Powdermill, which I knew about from frequent references in the monthly bulletin of my local Audubon society. One day I was able to convince my mother to drive around until we found Powdermill. I got to watch “Mr. Leberman” banding birds, including a Wilson’s Warbler and a Least Flycatcher. I can remember that experience like it was yesterday. Years later, when I was a college student volunteering at the Carnegie Museum, I asked Dr. Mary Clench if volunteers were ever needed at Powdermill. She made a call to Bob on my behalf, and, apparently remembering me as the young boy who had visited in the past (who knew his birds fairly well!), Bob invited me to the banding station. I will never forget the day when Bob led me around the mist net lanes for the first time. At the very first net, a beautiful adult male Indigo Bunting had been caught. I watched as he deftly disentangled it and held it up for me to see. Then, to my surprise, Bob put the bird right back into the net and instructed me to take it out again! It was a thrill to be put in that position, and I was seriously hooked from that moment on. Over the course of the next four years, I spent every possible spare hour and day volunteering with Bob. Eventually, I was there so often and for so long that, as I often tell people, I must have created the illusion that I was indispensable to the program! Thankfully, I was able to be hired in 1983 and, like Bob, essentially never left.

I will always remember the wonderful surprise party that my wife Pam Ferkett, Bob, and bander-in-charge Adrienne (a.k.a. “honorary Bob”) Leppold arranged for me on the occasion of my 25th anniversary with the Powdermill banding program. They created a scrapbook of articles and photos, and presented me with a beautiful original watercolor of my favorite bird, the Louisiana Waterthrush, painted by our good friend, the world-renowned bird carver, Larry Barth. It was



Outreach is a key component of the mission of the Powdermill Avian Research Center. In this 2002 photo, staff from the then-recently opened Shanghai Science and Technology Museum (Administration Officer Mr. Li, left, Deputy Director Dr. Jim, second from right, and Collection Manager Ms. Liu, right), escorted by Carnegie Museum of Natural History librarian and translator Xianghua Sun (second from left), learn from Bob Leberman (center). Photo by © Robert S. Mulvihill.

very fitting, because in 1986 I had helped to arrange a similar celebration for Bob’s 25th anniversary at Powdermill, when we presented him with a carving by Larry of one of Bob’s favorite birds, the Worm-eating Warbler.

**Birding:** Is there life after Powdermill? Do you miss each other?

**RCL:** I am still living at Powdermill and visit the banding office often, but only occasionally lending a hand. I have been working on a 30-year revision of my *Birds of the Ligonier Valley*, and enjoying my retirement. I really miss working with Bob M., but we talk and see each other often. We remain best friends. We always worked well together, perhaps in part because our ornithological interests don’t overlap as much as many people imagine. Bob is more deeply into molt and flight dynamics; my interests are more in distribution, range changes, and migration, as well as the history of ornithology in western Pennsylvania.

**RSM:** I do miss Powdermill, Bob, and the banding very much. I always thought that I would spend my entire career there. But after completing a six-year stint as the full-time statewide project coordinator for the 2nd Pennsylvania Breeding Bird Atlas in 2010 (Penn State University Press, 2012), my vacancy with the bird-banding program had been filled. There certainly is life after Powdermill, though. I am enjoying the challenges and opportunities of my new job as Ornithologist with The National Aviary in Pittsburgh, where my wife and I grew up. I am interested in starting a banding station in one or more of the open green spaces in and around the city in order to monitor birds in an urban environment, train a new generation of banders, and educate area school students about science and conservation.

Beginning this summer, in collaboration with researchers at the Smithsonian Institution, I launched *Neighborhood Nestwatch* in Pittsburgh, a citizen-science backyard bird-banding project that promises to engage and educate the public about birds, science, and the environment, and, at the same time, to improve our understanding of the dynamics of urban bird populations. So much about my current research and outreach activities has been influenced, and will continue to be shaped, by all the great years I spent with Bob Leberman at Powdermill.

### Recommended Reading

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Check out the Powdermill Avian Research Center online at [powdermillarc.org](http://powdermillarc.org)



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