

# **Avian Mortality at Communications Towers**

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## **Introduction Number 1**

### **Avian mortality at communications towers: background and overview**

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### **Albert Manville, Workshop Co-chair, Introductory Remarks**

I'd like to welcome all of you to our first ever workshop on avian mortality at communication towers. My name is Al Manville, I'm with the Office of Migratory Bird Management, U.S. Fish and Wildlife Service, in Arlington, VA. Our other co-chair, my esteemed colleague is Bill Evans, whom most of you know -- acoustical researcher, ornithologist, who has been working on this issue for some time.

I would like to attempt to set the stage, and put the issue into context of why we are here this afternoon, why this issue is of importance to all of us. Migratory birds are a trust responsibility for the Fish and Wildlife Service (FWS or Service). The Service is responsible for the conservation and management of 836 species of migratory birds, 778 of which are on so-called nongame species, while the remaining 58 are legally hunted; all protected under Migratory Bird Treaty Act of 1918, as amended. While populations of some of our bird species are doing well, in fact some much too well as many of you are aware -- including Snow Geese, urban Canada Geese, Cowbirds and Cormorants -- unfortunately, many others are not. We are seeing continuing declines of over 200 species. Currently, we have 75 species listed as Endangered and 15 species listed as Threatened under the Endangered Species Act. We also currently have 124 species, so-called nongame species of management concern, whose populations are declining, in some cases precipitously. The next step for some of these species could be listing under the Endangered Species Act. I imagine most of you realize this is a train wreck we would prefer to avoid.

This current list of 124 nongame species has increased sizably for various reasons from what was published in 1987, then 30 species of management concern. For some one-third of the 836 species of birds, we have essentially no population data, so what the impacts of the towers and other mortality factors are on these birds we unfortunately don't really know. Thus the individual factors that kill birds including collisions with towers, electric power lines, wind generators, glass windows, cats, aircraft, cars, electrocutions, poisoning from pesticides, oil spills, and other causes are of growing concern to the FWS. What the impacts of towers are to bird populations we simply don't know.

That's one of the reasons why we are here this afternoon. Add to this the impacts of the loss and/or the degradation of habitat to the above list of bird threats, and the overall problems of bird survivorship and population stability can be critical ones. Birds are big business in North America, and I might point out that we must not underestimate their importance. Some 65 million Americans feed, photograph and watch birds and spend more than \$21 billion per year pursuing these activities. Birdwatching has become America's fastest-growing hobby increasing 150 percent in the past decade. More Americans today reportedly go on vacation to watch birds than to play golf. Birds pollinate flowers and remove insect pests from many important commercial food crop and forest species making possible a multi-billion-dollar industry extremely dependent upon birds for their success.

Take, for example, one pair of adult warblers that will remove caterpillars from more than one million leaves in a two-to-three-week period while feeding their nestlings. In the Pacific Northwest, 24 species of neotropical migrants feed on western spruce budworms and Douglas-fir tussock moths, two of the most destructive defoliating insects in that region. Birds remove countless weed seeds including exotic species that compete for food crop and forest production. Birds distribute seeds of important forest, shrub and tree species whose survival would not exist without bird-seed dispersal. The global reduction of pollinators, including birds, raises alarm. Two-thirds of our flowering plants are pollinated by birds, bats and insects producing a global economic benefit estimated at \$117 billion per year. In short, birds are extremely important to us all.

While the FWS plays other roles in the review of tower permitting and placement through the National Environment Policy Act and Section 7 of the Endangered Species Act, as you'll hear from Robert Willis later this afternoon on the second panel of speakers, the Office of Migratory Bird Management became actively involved in a tower-kill issue early last year. By now many of you are well aware of the large kill that occurred on January 22, 1998, at three towers and a natural gas pumping facility in western Kansas where up to an estimated 10,000 Lapland Longspurs and a few other species were killed that one snowy, foggy, night. The issue of the bird kill at that site was almost immediately brought to our office's attention by the American Bird Conservancy, The Ornithological Council, the National Audubon Society and other groups asking what the Office of Migratory Bird Management was going to do about this problem. On April 6th of last year, I was asked to brief the Policy Council of the American Bird Conservancy on, among other things, the mortality from bird strikes at communication towers. At that time, I provided a partial but not complete literature review and list of abstracts put together by Migratory Bird staff member John Trapp. Following that meeting, informal discussions continued with representatives from the Federal Communications Commission (FCC), the Service's Division of Habitat Conservation, and the Office of Migratory Bird Management. On November 17th of last year, representatives from the Service's field, regional, and Washington, DC, offices met at Adam Kelly's office at Geo-Marine in Panama City, FL, to discuss, "Migratory bird conservation and communication towers: avoiding and minimizing conflicts." Many of you, I hope, have had a chance to look at the detailed minutes of that meeting which were disseminated to the public. In December, Robert Fisher, senior mediator for the environmental dispute resolution group RESOLVE, met with several of us to discuss next steps.

The culmination of that discussion led to a meeting on June 29th of this year with 42 stakeholders from the scientific, agency, non-governmental, and industry perspectives, many of whom are here this afternoon. The meeting focused on research needs. A Communication Tower Working Group was formed consisting of 15 stakeholders from the RESOLVE meeting. The group's task is to create a structure to put into place what research needs were discussed at that June 29th meeting. Those research needs are to be further discussed this afternoon which is exactly what we intend to do. What we hope to learn today will help in formulating a research protocol and further identifying research needs.

At the RESOLVE meeting, I indicated the Service's interest in developing a partnership with the communication industry much like we already have with the electric utility and wind generating industries. We need to look to the electric utility industry through the Avian Power Line Interaction Committee also of which the Service is a member, and to the wind generation industry through the Avian Subcommittee of the National Wind Coordinating Committee, also to which the Service is a member, to see what these industries have done with similar bird collision and electrocution problems, and perhaps look at their research protocols, and their metrics and means documents, as a guidance and model of what we need to do next. Paul Kerlinger will discuss, in part, this issue this afternoon. I also had attempted at the RESOLVE meeting to reiterate that the purpose of that meeting was not to lay blame. We have no intentions of shutting down the communication industry nor do we intend to enlist our sister agencies, the FCC, the Federal Aviation Administration, and the Biological Resources Division of the U.S. Geological Survey, to conquer new territory and combine forces to block industry growth.

The focus of this workshop, as was the focus of the RESOLVE meeting, is to review known, anticipated, promising, and new research opportunities that will result in minimizing or even avoiding bird collisions and mortalities.

Some have argued there is nothing we presently can do. I would disagree. The Service currently recommends the following, especially for new towers: 1) If it all possible, co-locate. Put a planned tower on an existing tower or on another structure. 2) Keep towers below 200 feet if it all possible. The magic formula for lighting is anything taller than 199 feet above ground level (AGL) is required by the FAA to be lit -- and we will hear from David Bayley this afternoon from the FAA more about those initiatives. 3) Keep towers unguyed if at all possible because the guy wires are very problematic to the birds. 4) If it all possible, keep the towers unlit. There are a number of towers less than 200 feet that are lit and they may not necessarily need to be. Mike Allred will discuss this issue in part this afternoon as well. However, there are still many questions that we need to answer; let me throw out a few of these to you this afternoon.

Question: how many birds are actually killed annually by towers? Dick Banks authored a special FWS scientific report in 1979 projecting annual mortality at upwards of 1.4 million birds per year based then on 1,100 existing tall towers. Today the FCC's February 1999 Antenna Structure Registry Database places 48,642 lit towers greater than 199 feet AGL in the United States, and this figure does not include towers classified as "poles." Some argue the figure could be closer to 80,000 lit towers. We do know that more towers are planned, including the digitization of all television stations by 2003 requiring an estimated 1,000 additional what I would call, "mega-towers" (these are towers greater than 1,000 feet AGL) that are going to be placed around the country.

Question: what are the true impacts of the existing and planned new towers? Answer: We don't know. Based on Bank's estimate, data from Tall Timbers Research Station and other sources, Bill Evans conservatively estimated current annual mortality at upwards of four million birds. The figure could be off by an order of magnitude. Again, we simply don't know. Perhaps a detailed research analysis might answer this question, but we don't need reliable mortality data before we act. I must stress this point. We already know that we have an important conservation problem and we need to deal with it now. If I may borrow from an extrapolation that Ron Larkin put together -- one of our speakers this afternoon -- if towers presently are killing four million birds per year, that means that towers are on average killing one bird every seven-and-a-half seconds, every day and every night, all year long. These are mostly the little birds, the songbirds. So this is, I would say, a fairly significant impact.

Question: what tower characteristics are least likely to cause migratory bird collisions? In answer, probably towers less than 200 feet AGL, unguyed, and unlit.

Question: can we come up with relative risk categories of tower characteristics that cause bird kills based on the best existing information? Answer: we attempted to do that at Panama City, FL, last year but there needs to be more work done on it.

Question: are lights and light colors the problem or is it the duration, the relative amount of dark vs. light, during the blinking cycle of the light that makes a difference? Answer: Michael Avery, Sid Gauthreaux, and Bob Beason have some important suggestions that I hope they will share with us this afternoon on this very issue.

Question: what radar, acoustic and ground survey techniques will be useful in determining major migratory bird movements and bird migration timing? Answer: We will hear from Bill Evans, Adam Kelly and others on this issue this afternoon as well.

Question: can we develop an effective monitoring protocol? Answer: Paul Kerlinger will address this issue in part.

Question: what is the scope of research already completed or in progress? Answer: Unfortunately, there isn't much.

Question: what research needs to be conducted? Answer: Ellen Paul presented a good framework for a research study at our RESOLVE meeting. Michael Avery expanded on Ellen's suggestions and this is what was suggested.

We need a randomized selection of tower study sites, stratified geographically, statistically rigorous, of various tower height classes over a three-to-five-year period, spring and fall, focused on lighting schemes including the use of radio telemetry to determine bird movements towards lights to assess their responses and develop preventative measures. Sounds like a very interesting suggestion to say the least.

And question: what can we do with existing towers and new planned towers? In answer, with existing towers there isn't too much, but if they are currently lit with either solid red or blinking red lights, the white flashing strobes seem to be of less hazard and impact to the birds so we would recommend the lighting scheme to be changed. And with new planned towers, there are a number of things we can look at. Siting is important. Keeping the towers less than 200 feet, unguyed, and unlit, and if they are over 199 feet, suggest using white strobe lights rather than the red flashing incandescent lights. There are obviously many more questions about the impacts of towers on birds than we have answers, but to answer these many questions we all need to be working together. We also need to do whatever we can now to minimize impacts, not necessarily wait until the detailed research study is completed. To reiterate, what we can do is co-locate, keep towers unguyed, unlit, and under 200 feet, and if they have to be lit use the white lighting protocol.

So with those thoughts, let me pass the baton to our Co-chair, Bill Evans, for his thoughts and observations this afternoon. Thank you.

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