

Editor's Overview
by Ted Floyd

Understanding Bird Collisions at Communication Towers and Wind Turbines—Especially Wind Turbines!

Even before we went to press, Paul Kerlinger and coauthors' article in the January 2011 *Birding* ("Understanding Bird Collisions at Communication Towers and Wind Turbines: Status of Impacts and Research," pp. 44–51) was creating quite a stir. First things first. The article went through the normal review process at *Birding*, getting the usual hard look by our technical reviewers, associate editor, copy editor, and of course me. No alarm bells went off. Our review and editing process here at *Birding* is open and transparent, and word of the article "leaked." I confess: I was at least one of the leaks. I have no problem with letting folks know about upcoming articles of interest.

Right away, I started hearing rumbles of protest. One complaint was that the article did not acknowledge or otherwise identify Kerlinger and coauthors' affiliation with the wind industry. Fair enough. During the final round of magazine production, we were able to squeeze in a brief note acknowledging the wind industry's support for the research reported in the January 2011 issue of *Birding*. Here now is a more detailed statement of the sources of support for Kerlinger and coauthors' research:

Acknowledgments

We thank the following organizations and agencies for providing access, funding, and other assistance during our research: Michigan State Police and Attorney General's office, U.S. Fish and Wildlife Service, U.S. Forest Service, Ornithological Council, Michigan Department of Natural Resources, Central Michigan University, National Fish and Wildlife Foundation, and Federal Communications Commission. We are also grateful to the Federal Aviation Administration for permitting a variance to change lights on several of the towers and four anonymous companies for permitting us access to their towers. Fatality studies at wind turbines were permitted and funded by many different wind power companies. Finally, we thank those who conducted the fatality searches.

—Paul Kerlinger, Joelle Gehring, and Richard Curry

Several prominent voices in the birding community have submitted responses to the article by Paul Kerlinger and colleagues, and they are printed here in full as part of this *Birding* WebExtra. Scroll down a bit if you want to go straight to those two responses. In the meantime, here is some commentary (pp. 5w2–5w3) on the photo by Bob Steele that appears on the cover of the January 2011 *Birding*.

About the Cover Photo: Tehachapi Pass Wind Farm

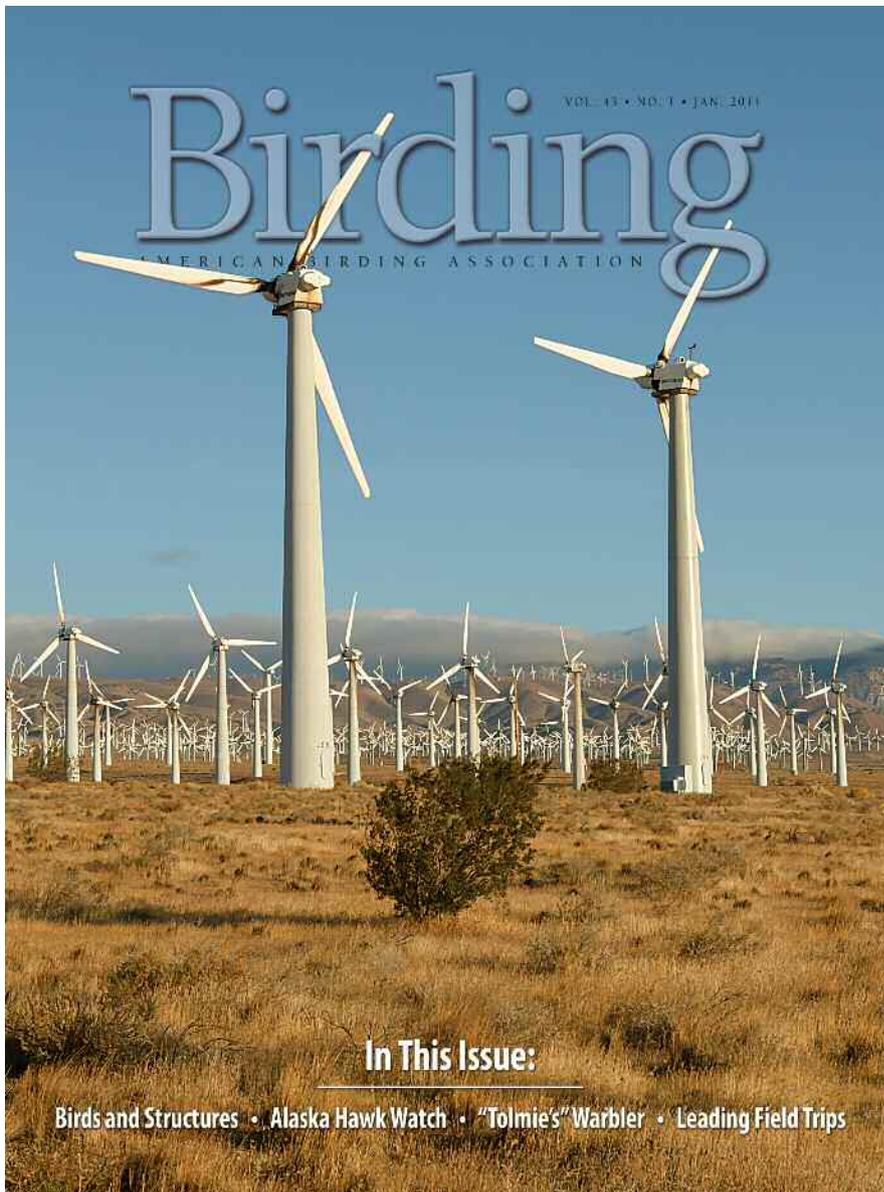
Photo by © Bob Steele—Kern County, California; 9 November 2010

When Ted Floyd asked me to write something about wind turbines in the Tehachapi Mountains (depicted on the cover of this issue, as well as in the panoramic photo spanning pp. 44–45), he suggested I address the potential risk to the birds that frequent that area. His question took me back nearly a decade to a study I did with Bob Barnes of the Kern River Preserve. Bob and I wanted to know more about spring migrants in a canyon near the famous Butterbredt

Spring; this was an area that was being considered for wind turbine development.

Butterbredt is one of the most important stopover areas for spring-migrant songbirds in the Tehachapi area. It is just outside an area where turbines have been operating for about 25 years and where more are being planned. That study not only provided insight into the dedicated birders from Kern County, but it also demonstrated that there were other canyons and creeks that host spring migrants in fairly large numbers. That is only one of the special ornithological attributes of that area. The Tehachapi Mountains are home to a vibrant and important avifauna, some representatives of which are impacted by the turbines.

The Tehachapi Wind Resource Area, as it is officially known, is one of the oldest in North America. Today, it is something of a turbine museum, with more than 3,000 turbines dating to the early 1980s. Some generate only



100 kilowatts of power (enough for about 30 homes), whereas others generate 2,000–3,000 kilowatts (ca. 600–900 homes). Tehachapi is one of the largest and most diverse of wind farms in North America.

At least one study was conducted there by the California Energy Commission, back in the late 1990s. In that study, risk to birds was demonstrated to be relatively low and not dissimilar to what has been found at most other wind power facilities in California and the U.S. Collision fatalities were spread among dozens of species, but the rate per species was low. With the exception of American Kestrels, dead raptors were found in very small numbers. Golden Eagles live in the Tehachapis year round, but none was found dead during that study. It is likely that few, if any, are killed at the Tehachapi Wind Resource Area.

As you might expect, the birds killed most often include the most common species. Red-tailed Hawks and American Kestrels are the most frequently killed raptors, for instance, whereas Western Meadowlarks lead the list for songbirds. Night migrant songbirds were found dead in small numbers, and a few dead owls were found. As with other wind plants, fatalities of shorebirds and waterfowl were almost non-existent.

What seems to be the most important risk factor at wind plants is the overall number of turbines. A relatively large number of smaller turbines is needed to generate the same amount of energy as from far fewer larger turbines. In the Tehachapis, most of the 3,000+ turbines are older models that have blades which come closer to the ground than for the newer and larger turbines, and they are spaced closer together than the newer models. An analogy to a fishing net is appropriate. Nets with smaller mesh pose a greater risk to fish. Newer turbines that are spaced farther apart and that have blades which do not come close to the ground are not as risky. With fewer structures, risk is generally lower.

Overall, the absolute numbers of birds killed at wind turbines in the Tehachapis and elsewhere is relatively low, especially when compared to the impacts from fossil fuel-generated electricity; collisions with vehicles, buildings, and fences; predation by cats; drowning in cattle troughs; legal hunting; and fatalities from a host of other human structures and activities. The fatalities at wind farms are likely lower than fatalities caused by the process of making milk and cheese, in which farmers kill an undetermined but presumably large number of birds while mowing hay.

Of these activities, only hunting harvests and studies at wind turbines provide reliable fatality estimates that offer a high degree of confidence. For example, in California, we know that the federal and state agencies permit the harvest of more than 1.6 million birds per year. (The total is more than 20 million per year in the U.S.) These harvests are not biologically significant, which means they do not jeopardize the population of any of legally hunted species. Compare this to the numbers of individuals killed by turbines (see our *Birding* article), and it is reasonable to conclude that the impacts from turbines have not been biologically significant. Ironically, we do not have defensible estimates for other human-induced causes of mortality, even though some of those uses are permitted regularly by federal, state, and local governments.

In the coming years, the older turbines in the Tehachapi “museum” will be phased out and replaced with larger, more efficient machines that produce far more electricity. These turbines will be fewer in number and more widely spaced. With continued wind power development in the Tehachapis, it would be prudent to conduct fatality studies at the newer turbines so that we continue to track impacts before they lead to significant problems.

—Paul Kerlinger • pkerlinger@comcast.net

Birding has invited Kenn Kaufman and Kimberly Kaufman, two highly respected authorities on bird conservation, to respond to Kerlinger and coauthors' article in the January 2011 issue of *Birding*. Here is their response:

Response to "Understanding Bird Collisions at Communication Towers and Wind Turbines"

The subject of bird conservation as it relates to wind power has received a lot of attention in recent months. Those who are aware of the current discussion were—to put it mildly—surprised to hear of an upcoming *Birding* article about wind power with Paul Kerlinger as lead author. Kerlinger has been a paid consultant to the wind power industry for several years, and as might be expected, he tends to see wind turbines in a more positive light than many of us do.

The organization of the article, the choice of subjects, and their sequence appear to be designed to leave birders with a positive impression of wind power. By starting with bird mortality at communications towers and then selectively giving certain facts about wind turbines, the article conveys a sense that wind turbines are comparatively very benign, not something that any of us should worry about.

By printing this one-sided article, which comes across as a cheerleading piece for the wind industry, *Birding* is out of step with most of the bird conservation community. There is a growing sense of concern about the potential damage to bird populations that could be caused by wind power development. A wide range of groups—from Ducks Unlimited to the American Bird Conservancy—is now actively working on the issue. We have become heavily involved here in northwestern Ohio, where some of the most important bird migration stopover habitats on the continent—with iconic names like Magee Marsh, Crane Creek, and Ottawa National Wildlife Refuge—are threatened by the potential encroachment of wind turbines. The Black Swamp Bird Observatory has a page with a brief summary, along with links to a lot more information, here:

bsbo.org/wind_energy.htm

Kenn has recently written a rather long essay that attempts to explain stopover habitat and potential threats to migratory birds. This essay, which is conveyed in a way that will be understandable to the general public, is available here:

nimsoh.blogspot.com

As described in *Birding* in 2010 <aba.org/birding/v42n1p38.pdf>, the Magee area of northwest Ohio is a fabled destination for birders during migration seasons. Birders who get to enjoy such spectacles also have a responsibility to try to safeguard them; if we don't, who will? Studies elsewhere have indicated relatively low rates of mortality of migrating birds at wind turbines, suggesting that nocturnal migrants mostly fly higher than the tops of the blades; but it should be obvious that such statistics wouldn't apply at stopover habitats, where nocturnal migrants are landing and taking off in the dim light of dawn and dusk. This potential threat has been consistently glossed over or ignored by proponents of the wind industry. We suggest that birders should look beyond the reassuring story suggested by Kerlinger and coauthors and really try to educate themselves about this issue.

—Kenn Kaufman • kenn.kaufman@gmail.com
 Kimberly Kaufman • kimkaufman@bsbo.org

Birding has also invited the American Bird Conservancy (ABC) to respond to the article by Kerlinger and coauthors. Here is a response from ABC's Wind Campaign Coordinator:

Response to "Understanding Bird Collisions at Communication Towers and Wind Turbines"

It's great to see *Birding* magazine cover the threat that communications towers pose to birds. The American Bird Conservancy (ABC) has been working on the tower issue for more than a decade, and we are delighted that *Birding* is helping to raise awareness of the issue in the birding community. We support wind energy when it is "bird smart."

However, we were disappointed to see the article "Understanding Collisions at Communications Towers and Wind Turbines" imply that the threats to birds posed by wind energy are relatively unimportant in comparison to those from communications towers. While ABC agrees that as far as anyone knows, collisions with communication towers currently kill many more birds than collisions with wind turbines, the negative impacts that wind power can have on birds are not limited solely to collisions with turbines.

Wind energy development involves more than just erecting turbines. Wind farms come with access roads, substations, power lines, and meteorological towers. As a result, wind energy development can lead to habitat loss, fragmentation, and abandonment by birds such as declining Greater Sage-Grouse, which stay away from structures that predatory birds could use as hunting perches. This will become an increasingly serious problem as the U.S. moves toward getting 20% of its energy from wind power by 2030.

Additionally, power lines associated with wind energy development pose a significant collision threat to large birds such as the endangered Whooping Crane, whose migratory pathway transects core areas slated for wind power development.

There are two particular statements in the article that we'd like to address.

First, the article gives the number of bird deaths per year from collisions with wind turbines as 100,000. However, researchers with the U.S. Fish and Wildlife Service have estimated those deaths as already 440,000 per year. For further reading, see Albert M. Manville's 2009 report, "Towers, turbines, power lines, and buildings: Steps being taken by the U.S. Fish and Wildlife Service to avoid or minimize take of migratory birds at these structures," which appears on pp. 1–11 of the *Proceedings of the Fourth International Partners in Flight Conference*. While both numbers are much lower than estimated deaths from communications towers, we need a better sense of what the baseline number is now before we get to full build-out of wind energy.

Second, the article says that "[n]o federally endangered or threatened bird species has been documented to be killed to date." This is incorrect. The Kaheawa Wind Farm on Maui has had documented fatalities of one Hawaiian Petrel and four Nēnē (Hawaiian Geese) since coming online in 2006. ABC hasn't checked the records of every wind farm across the country, so we don't know if there have been deaths of endangered or threatened birds elsewhere.

Ultimately, threats to birds are cumulative. We need to reduce all threats if we want birds to survive for future generations. Mandatory standards for placing wind projects to avoid habitats of sensitive species, best management practices for operation to avoid risks to migrating birds, and mitigation for habitat and collision losses would help this fledgling industry to be bird smart from the beginning.

—Kelly Fuller • kfuller@abcbirds.org