

Experts examine risks to birds from wind turbines (w/ Video)

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(PhysOrg.com) -- Are wind turbines dangerous to billions of migrating birds?

Nobody really knows for sure because two-thirds of migrating bird species fly at night, making direct study of their habits and potential hazards a challenge, said Cornell researchers at the Cornell Workshop on Large-Scale Wind-Generated Power, June 13.

The workshop for U.S. and international experts took place in Hollister Hall, June 12-13 and scientists addressed issues associated with the growing use of wind power to generate electricity in the United States.

Radar, combined with state-of-the-art bio-acoustic listening devices,

could be an effective way to record birds' flight calls at night and then quantify and identify species migrating past potential and existing wind-power sites, asserted Chris Clark, director of the Bioacoustics Research Program at Cornell's Lab of Ornithology, and Andrew Farnsworth, a postdoctoral associate at the lab and an expert on migrating [birds](#), in a presentation. The bioacoustics program has developed such listening devices as well as the software to analyze them, Clark said.

Farnsworth showed a brief video of [radar data](#) from the network of weather surveillance radars in the continental United States, superimposed over a map of the country, revealing migrations in the night sky between sunset and sunrise on Oct. 1, 2008. The color-coded radar map illustrated areas of precipitation over the coasts as well as vast movements of tens of millions of birds, bats and insects across the entire country. In the densest areas, the color-scales indicated movement of 2,000 birds per cubic kilometer.

"You're talking about a massive movement of birds overnight," Farnsworth said.

Migrating birds evolved with past and present weather patterns, which means migration pathways tend to overlap with high-wind areas that have the greatest potential for wind-energy development, Farnsworth said. Though research shows that windows in tall buildings and housecats may be the greatest threat to migrating birds, the risks that wind turbines pose for these birds are not clear, he added.

Although radar data can show the magnitude, location, timing, speed and direction of migration patterns and provide information on key stopover sites, they do not identify types of birds or accurate flight altitudes, Farnsworth said. But combining radar data with data from flight call recordings and tracking tags on birds could allow researchers to identify many species in key areas.

Clark added that recorders are cost effective, can be automated for many months at remote sites, provide data on many species simultaneously, increase the probability of tracking secretive and endangered species, and could allow regulatory agencies to develop computer models to assess risks to birds from [wind turbines](#).

He acknowledged, however, that using such acoustic technology could produce a massive "data crunch"; a single microphone over a three-to-four-month period can record 120 to 140 gigabytes of data, so data from several hundred microphones would be too much to process without advanced software. Also, researchers would need to better recognize the wide variety of flight calls and learn to integrate data from radar with those from acoustics and tracking tags, he added.

More research is needed, Clark stressed, to determine at what altitudes species tend to fly and whether birds sense turbine blades and avoid them.

Cornell has "opportunities and responsibilities" to make use of its multidisciplinary talents and resources, be proactive and engage the public to "do things today to save tomorrow," Clark asserted.

Provided by Cornell University ([news](#) : [web](#))

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