

The Washington Times

By Darryl Fears October 12, 2014

Health & Science

Bats are hit by a hard one-two punch: Deadly windmills and white-nose disease

It's not that researcher Paul Cryan set out to prove the old saying, "blind as a bat." It just seems that way.

For two months, Cryan, a research scientist for the U.S. Geological Survey, led a team that watched the behaviors of migrating tree bats near wind turbines. They set up thermal video surveillance cameras to study them night after night in an attempt to discern why up to [900,000 bats](#) are killed by windmills each year.

In the end, they came away with a simple conclusion. Migrating bats that are vision-challenged seem to think wind turbines are trees.

"The way bats approach turbines suggests they follow air currents and use their dim-adapted vision to find and closely investigate tall things shaped like trees," said Marcos Gorresen, a scientist at the University of Hawaii and a co-author for the recently released study.

Long-distance migrating bats, such as the hoary bat, tend to socialize and roost in trees, as opposed to hibernating bats that fly short distances to group in caves. For migrating bats, it seemed to hardly matter that wind from the turbines could toss their little bodies. They fearlessly dived toward the spinning blades of three research wind turbines for various reasons.

Twelve lifeless bodies were found near the machines at a wind farm in Benton County, Ind., during the study period between July 29 and Oct. 1 in 2012. The study was published this month in the Proceedings of the National Academy of Sciences.

More dead bats is bad news, particularly at this time of year. Around the end of the month, hibernating bats will start flocking back to caverns, where a lethal disease called white-nose syndrome lurks.

The disease will almost certainly kill tens of thousands of them, as it has every year since it was first detected in New York in 2006. The disease has claimed at least [7 million bats](#), wiping out



Bats — such as the hoary tree bat, which nests in trees — are mistakenly trying to nest in wind turbines. (Paul Cryan)

about 90 percent of bats in the Northeast, according to a U.S. Fish and Wildlife Service estimate two years ago, and has spread to 25 states and several Canadian provinces.

The one-two punch of wind turbines and white-nose syndrome is an ecological disaster that hits farmers in the wallet, said Cryan, the study's lead author. Bats that eat bugs by the metric ton are worth about \$3 billion a year in pest control for U.S. agriculture, according to a separate report that Cryan also helped write in 2011.

"People often ask why we should care about bats," he said. "Bats are saving us big bucks by gobbling up insects that eat or damage our crops."

The financial boon to agriculture lowers food costs for Americans and is reason enough to give bats more respect and help, Cryan said.

"If we can understand why bats approach wind turbines, we may be able to turn them away," he said.

That's easier said than done. Watching radar during those long, lonely nights, researchers noticed that migrating bats seemed unaware of the threat they faced at a wind farm with 600 turbines.

It didn't help that a dinner buffet flew alongside them. Radar detected more than 3 million flying things during the observation period, most of them bugs. Of those blips, 1,700 were determined to be flying animals, and 80 percent of those were identified as bats.

They hovered, dived toward the three test turbines, chased other bats toward the blades, things they might do near trees with far less dangerous leaves. "At a fundamental level, tree bats may not be able to discriminate wind turbines from trees," the study concluded.

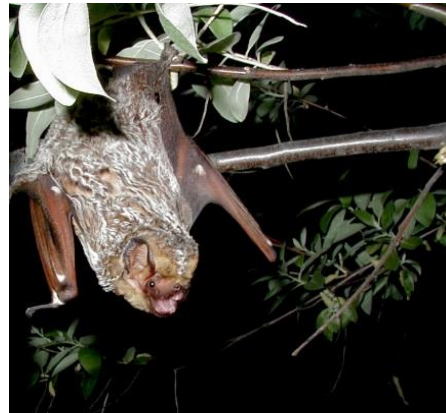
Turbines, with their great height and tall, round trunks, can look like trees to the dim-sighted. Earlier studies have shown that bats guided by sonar largely avoid smashing into buildings and skyscrapers, unlike the billions of birds that fly into them each year.

But significantly more bats than birds are killed at wind turbines, according to a [University of Colorado study](#) by researcher Mark A. Hayes published last year.

At the experimental turbines in the USGS study, where the blade speeds were manipulated for the experiment, bats flew near wind turbines about 900 times, managing to avoid them far more often than they hit them, Cryan said.

It's possible that bats could have been struck more often than monitors could tell. They rarely saw blades strike bats. Injured bats could have flown off and died somewhere other than the base of the turbine where dead animals were found.

The authors had a few recommendations to lower the death toll. Wind-turbine operators could turn off the blades when the wind is too low to produce energy, for example. They could also stick a pulsing light on the pole or a beeping device that would scare off bats.



The bats are often killed by the blades of the turbines. (Paul Cryan)

For hibernating bats, researchers have offered few solutions to counter their instinct to fly back to caves, and often, to their doom. When they get there and fall into their deep sleep — hearts and minds barely active — the fungus that causes white-nose syndrome will creep on their bodies.

It doesn't discriminate between little brown bats, big brown bats, Indiana bats and gray bats. The disease attacks them all.

Scientists at the USGS and the Fish and Wildlife Service theorize that the immune system of the animals goes into full attack mode to fend off the intruder, not unlike what the human immune system does to protect people from HIV. Tens of thousands of bats have been found in death piles at the mouths of caves.

"I'm terribly, terribly concerned," said Katie Gillies, a conservation biologist for Bat Conservation International. "I don't think the disease will run its course. There is no way to save our bats from white nose without intervention. The situation is . . . absolutely dire."

In August, the Fish and Wildlife Service provided \$1.2 million in grants to 30 states to confront the disease.

The funding source, federal Endangered Species Recovery and Science Applications programs, is an indication of the peril bats face.

• *Ernest Istook is a former Republican congressman from Oklahoma. Get his free email newsletter by signing up at eepurl.com/JPojD.*

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