

Bats and Wind



Tens of thousands of bats are being killed each year at wind-energy facilities in North America. The grim pace of bat fatalities was documented four years ago by scientists of the BCI-led Bats and Wind Energy Cooperative (BWEC). Biologists generally assumed that the bats were dying in collisions with the giant, spinning turbine blades. But now it appears that another culprit may be involved: many bats seem to be dying because the turbines cause a sharp drop in nearby air pressure.

In research published in the journal *Current Biology* and reported in *Scientific American* online, Erin Baerwald of the University of Calgary describes her examination 188 hoary and silver-haired bats killed at the Summerview wind farm in southwestern Alberta, Canada. Nearly half of the bodies showed none of the external injuries that would be expected from bat-blade collisions.

Baerwald's research was supported in part by a Bat Conservation International Student Research Scholarship, which was by BWEC, an alliance of industry, government agencies, universities and conservation groups.

Scientific American reported that Baerwald autopsied 75 of the killed bats and found that nearly all them died of burst blood vessels in their lungs. "What we found," she said, "is a lot of internal hemorrhaging."

The online magazine said that air pressure drops sharply behind the turbine blades and "any bat unlucky enough to blunder into such an undetectable low-pressure zone would find its lungs and blood vessels rapidly expanding and, quickly, bursting under the new conditions."

"If bats have a lungful of air as they fly through the air-pressure change, there's nowhere for the air to go," Baerwald told *Scientific American*. "The small blood vessels around the lungs burst and fill the lungs with fluid and blood." Birds rarely show similar damage because their lungs are more rigid and their capillaries are stronger.

It is unclear at this point how such pressure-related bat fatalities might best be prevented, but BWEC research continues.

The full impact of these bat-killing pressure zones extends far beyond the wind farm, the magazine said. "Such migrating bats travel from Canada as far as Mexico, eating thousands of insects en route, including crop pests such as moths and beetles. ... 'Bats killed in Canada could have a detrimental impact in America or Mexico,' Baerwald notes. 'It's not local. It's an ecosystem-wide issue.'"

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