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Volume 37, Issue 1

March 2013

Pages 19–33

Wind Energy and Wildlife Conservation

Comparing bird and bat fatality-rate estimates among North American wind-energy projects[†]

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First published:

26 March 2013 [Full publication history](#)

DOI:

10.1002/wsb.260 [View/save citation](#)

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[†] Associate Editor: Brennan

Abstract

Estimates of bird and bat fatalities are often made at wind-energy projects to assess impacts by comparing them with other fatality estimates. Many fatality estimates have been made across North America, but they have varied greatly in field and analytical methods, monitoring duration, and in the size and height of the wind turbines monitored for fatalities, and few benefited from scientific peer review. To improve comparability among estimates, I reviewed available reports of fatality monitoring at wind-energy projects throughout North America, and I applied a common estimator and 3 adjustment factors to data collected from these reports. To adjust fatality estimates for proportions of

carcasses not found during routine monitoring, I used national averages from hundreds of carcass placement trials intended to characterize scavenger removal and searcher detection rates, and I relied on patterns of carcass distance from wind turbines to develop an adjustment for variation in maximum search radius around wind turbines mounted on various tower heights. Adjusted fatality rates correlated inversely with wind-turbine size for all raptors as a group across the United States, and for all birds as a group within the Altamont Pass Wind Resource Area, California. I estimated 888,000 bat and 573,000 bird fatalities/year (including 83,000 raptor fatalities) at 51,630 megawatt (MW) of installed wind-energy capacity in the United States in 2012. As wind energy continues to expand, there is urgent need to improve fatality monitoring methods, especially in the implementation of detection trials, which should be more realistically incorporated into routine monitoring. © 2013 The Wildlife Society

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