

Thelander, C.G. and L. Ruge. 2000. Avian Risk Behavior and Fatalities at the Altamont Wind Resource Area. March 1998 to February 1999. National Renewable Energy Laboratory Report.
http://www.batsandwind.org/pdf/ThelanderandRugge_2000.pdf

Introduction: Wind energy development in the Altamont Pass region of California peaked during the mid-1980s, when most of the wind turbine towers now in existence were erected (Hunt 1997). Since 1981, more than 7,000 wind turbines have been installed in the Altamont Wind Resource Area (WRA). Currently about 5,000 are operating, with that number being reduced as repowering continues. They are distributed over an area of approximately 150 km² (Walcott 1995).

In the Altamont WRA, wind speeds average 25.45 km/hr between April and September, when the facility produces 70% to 80% of its power. During winter, the wind speeds drop to 15.25 km/hr. In the summer months, wind speeds are generally sufficient to operate the turbines by mid-afternoon and well into the evening hours. Since about 1989, several university and private research groups have conducted research on bird interactions with various turbine and tower configurations in the Altamont WRA. Most of these early studies focused on quantifying fatalities and calculating mortality rates for highly vulnerable bird species, specifically raptors.

Although it has long been documented that wind turbines kill birds, especially predator species (i.e., raptors), little is known about specific flight and perching behaviors near wind turbines. What behaviors cause birds to be struck by turbine blades? Can these factors be predicted or quantified in such a way that future wind energy facilities can be designed to avoid or minimize them? Bird fatalities, and how to minimize them, often are a major licensing consideration for any wind energy facility's proponents and for the regulatory agencies responsible for conserving natural resources.

In March 1998, the National Renewable Energy Laboratory (NREL) started a research project designed to address behavior factors that contribute to turbine mortalities. Previously researchers had not attempted to correlate bird flight and perching behaviors with fatality data for the same period and at the same turbines. This approach is the central focus of this project. This report is intended solely as a progress report. The five tables and three figures referenced in the text appear in a separate section at the end of the report. The findings presented here should be considered preliminary ones. A comprehensive report is scheduled for the end of Phase II.