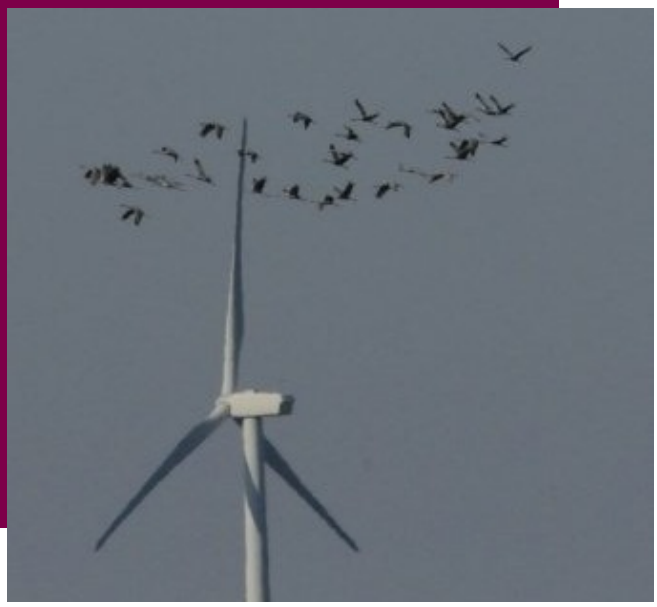
USDA Forest Service
Research & Development

Science
Wildlife and Fish Strategic Program Area
Wildlife and Wind Energy

Background:

Wind energy development is an important emerging concern for Forest Service scientists. With the release of the final Forest Service directives on wind energy and the final U.S. Fish and Wildlife Service land-based wind energy guidelines, increasing interest in effects of wind energy development on bats and other sensitive species, and the recent convening of a multi-agency wind energy-wildlife task force focusing on decision support tools to assess risks to wildlife populations and habitats from wind energy development, FS R&D is ready to support these efforts and dialogue.

Forest Service researchers across the county are using acoustic, radar, and telemetry monitoring techniques to develop, evaluate, and refine tools to predict wind-related fatalities and inform mitigation strategies for wildlife and their habitats related to wind energy development.



Research Activities:

Basic Research on Bat and Raptor Ecology: (1) Development of quantitative tools to assess bat populations; (2) research on migration ecology of bats in northern California; (3) echolocation monitoring of bats, designed to quantify site occupancy and survey effort needed to quantify population trends or management impacts; and (4) radiotelemetry of bats and bald and golden eagles for wind-related behavioral and population assessments.

Risk Assessment: (1) Examine potential effects of wind energy development on greater sage-grouse, a federally listed species, and its habitats across the species' range, using a before/after impact design; (2) impacts of wind energy development on migratory birds of prey, especially golden eagles, in eastern North America, to produce region-wide maps displaying relative risk to birds from turbines; (3) evaluating impacts of wind energy development on bats, particularly offshore wind development; (4) an assessment of the impacts of offshore wind energy development in the South Atlantic Region on bats, including an assessment of research needs; (5) developing research on effects of wind energy development on bald eagles along the western Chesapeake Bay; (6) evaluation of small-scale wind development to evaluate impacts to bats and birds in Missouri; and (7) assessment of acoustic tools used to quantify activity of bats and nocturnal birds at proposed wind energy facilities.

Technical Assistance: (1) Evaluation of the FWS wind energy guidelines; (2) serving on the FWS Eagle Technical Assessment Team, which is developing and refining a risk assessment model for wind energy to predict "take" of golden eagles and other wildlife; (3) technical review of proposed wind development project on the Green Mountain National Forest in VT for potential effects on black bear and its habitat; (4) contributor to FS wind energy directives; and (5) technical advisor on Pandion/Normandeau Habitat-Based Wind-Wildlife Risk Tool (commissioned by DOE).

Tools and Guidelines: Tool that predicts bat activity at wind energy facilities from seasonal and meteorological variables routinely measured on-site.

Emerging Issues: Exploring how to strike a conservation balance as the bat species most heavily impacted by wind development may be those that survive exposure to White Nose Syndrome.

Monitoring Design and Application: Quantifying survey effort necessary to characterize activity levels of bats at proposed wind energy facilities.

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