

## Wind Power-Related Research Projects at USGS Patuxent Wildlife Research Center

Interest in electricity from wind energy has been growing internationally. Large “wind farms” have sprung up around the world, each consisting of scores of turbines standing several hundred feet high with blades at least 100 ft. across. Wind energy is relatively inexpensive and clean, without the air pollution and green-house gases that are by-products of coal-burning power plants or the worry about where to dispose of nuclear wastes. This makes the production of electricity from wind attractive.

However, wind turbines can have adverse effects on wildlife. Some wind farms have at times killed substantial numbers of birds and bats. At present, little is known about the specific environmental circumstances that result in bird and bat kills. USGS Patuxent Wildlife Research Center researchers are investigating bird movement and distribution patterns within the regions of the Eastern U.S. where wind-power projects are being developed or proposed: the Appalachian Mountains and Atlantic coastal and off-shore waters. The science aims to give resource managers tools to make decisions that minimize conflicts between wind turbines and wildlife.



Wind turbines near Meyersdale, PA, October 2004; photos by Deanna Dawson, USGS Patuxent Wildlife Research Center.

### Nocturnal Bird and Bat Migration through the Appalachians

[http://www.pwrc.usgs.gov/resshow/windpower/bird\\_bat\\_dawson.cfm](http://www.pwrc.usgs.gov/resshow/windpower/bird_bat_dawson.cfm)

### Modeling seabird distributions in offshore waters between Maine and Florida: minimizing conflicts with proposed wind energy development

[http://www.pwrc.usgs.gov/resshow/windpower/oconnell\\_seabird\\_dist.cfm](http://www.pwrc.usgs.gov/resshow/windpower/oconnell_seabird_dist.cfm)

### Delineating Breeding Populations and Tracking Night-time Movements of Long-tailed Ducks Wintering in Nantucket Sound

[http://www.pwrc.usgs.gov/resshow/windpower/longtails\\_perry.cfm](http://www.pwrc.usgs.gov/resshow/windpower/longtails_perry.cfm)

### Proactive Research For Bird and Bat Migration Assessing the risk of wind development in the northeast (USGS/FWS Projects Funded to Address Wind Power in PDF)

[http://www.pwrc.usgs.gov/resshow/windpower/documents/proactive\\_research\\_windpower.pdf](http://www.pwrc.usgs.gov/resshow/windpower/documents/proactive_research_windpower.pdf)

### Background Information on Wind Power Impacts on Wildlife:

#### Wildlife/Wind Interaction Publications from National Wind Coordinating Committee

<http://www.nationalwind.org/publications/wildlife.htm>

#### Bat Mortality and Wind Power: a problem of migration?

<http://www.fort.usgs.gov/BatsWindmills/>

#### Avian Literature Database is a bibliographic database of documents on the effects of wind energy development and towers, power lines and other wires, on birds.

[http://nrelpubs.nrel.gov/Webtop/ws/avianlt/www/web\\_data/SearchForm](http://nrelpubs.nrel.gov/Webtop/ws/avianlt/www/web_data/SearchForm)

#### Avian Reports Published by NREL (National Renewable Energy Laboratory)

[http://www.nrel.gov/wind/avian\\_reports.html](http://www.nrel.gov/wind/avian_reports.html)

#### Second North American Sea Duck Conference (includes several presentations concerning Wind Power)

[http://www.pwrc.usgs.gov/seaduck\\_conf2005/](http://www.pwrc.usgs.gov/seaduck_conf2005/)

#### Offshore and Nearshore Wind Facilities -- Seaduck Impacts--Powerpoint Presentations on Wind Turbines (PDF) from Second North American Sea Duck Conference, November 7-11, 2005

[http://www.pwrc.usgs.gov/seaduck\\_conf2005/SeaduckConf2005\\_Workshops\\_wind.htm](http://www.pwrc.usgs.gov/seaduck_conf2005/SeaduckConf2005_Workshops_wind.htm)

#### Related Links:

##### National Wind Coordinating Committee

<http://www.nationalwind.org/>

##### American Wind Energy Association

<http://www.awea.org/>

##### US Dept. of Energy Wind & Hydropower Technologies Program

<http://www.eere.energy.gov/windandhydro/windpoweringamerica/>

##### National Wind Technology Center

<http://www.nrel.gov/wind/>

##### Wind Energy Guide

<http://windeis.anl.gov/guide/index.cfm>