

# Wildlife & Windpower



Researchers routinely find that wind energy has one of the lowest impacts on wildlife and their habitats of any utility-scale way to generate electricity. That's why groups like the National Audubon Society and National Wildlife Fund support responsibly sited wind farms. Still, the wind industry is doing more than any other known mortality source to find ways to reduce its comparatively small impact-and even find ways to offset others' impacts.

## Migratory Birds

Wind energy is responsible for less than 0.01 percent of human-caused bird fatalities. A sampling of causes of mortality is below that puts wind energy's impacts in their proper context:

CAUSES OF BIRD MORTALITY		
Cause of Mortality	Number of Birds	Reference
Cats	1.4-3.7 billion	Loss et al. 2013
Buildings and Windows	365 -988 million	Loss et al. 2014a
Vehicles/Roads	89 - 340 million	Loss et al. 2014b
Pesticides	17 -91 million	Mineau 2004, 2005
Overhead Lines	12 -64 million	Loss et al. 2014c
Communication Towers	6.5 million	Longcore et al. 2012
Lead ingestion	1 -2 million	Scheuhammer and Norris 1995, Kendall et al. 1996
Mowing, agricultural cultivation	1 million -2 million	Tews et al. 2013
Commercial fishing	750,000 -2 million	Manville 2005, Brothers et al. 2010
Oil pits	500,000 -1 million	Trail 2006
Forestry	300,000 -1 million	Hobson et al. 2013
<b>Wind Energy</b>	<b>200,000 - 350,000</b>	<b>Erickson et al. 2014</b>

## Bald and Golden Eagles

The perception that wind projects kill a large number of eagles is not true. Wind farms rarely impact bald eagles, with only a handful of examples in the four-decade history of the U.S. wind industry.

The vast majority of wind facilities (more than 90 percent) do not observe any golden eagle mortalities at all.

- Of those that do, most only have observed one.
- Relatively few projects (1.6 percent) observe more than one eagle mortality.
- The few most impactful projects in California were built decades ago, before the relationship between wind and eagles was fully understood. Modern turbines are now replacing that outdated equipment, and golden eagle impacts are falling by 75 percent.

Wind is responsible for around only 3 percent of human-caused golden eagle mortality.

## Bats

The wind industry works hard to identify potential impacts on bats and is engaged in initiatives to reduce, if not eliminate, those impacts. This includes:

- Pre-construction surveys and post-construction monitoring for bats.
- Implementing a best management practice on operational turbines that reduces impacts to bats by as much as 30 percent.
- Researching other ways to cause bats to avoid wind farms all together and reduce impacts even further.
- Creating the Bats and Wind Energy Collaborative with Bat Conservation International-the leading bat conservation group on bats-several years ago to better understand, reduce and mitigate impacts to bats.

## The Wind Energy Industry Works Hard to Reduce Even Our Limited Impacts

Wind energy project developers voluntarily adhere to the FWS Land-based Wind Energy Guidelines (WEGs) adopted in 2012.

- The WEGs are based on unanimous recommendations from U.S. Fish and Wildlife staff, state wildlife officials, scientists, conservation groups, industry and Tribes, among others.
- They go beyond what is required by federal law, including guidelines for species not protected under federal law.
- The guidelines provide guidance on pre-construction surveys, protocols, and duration; best management practices for development, construction, operations and decommissioning; mitigation and adaptive management; post-construction fatality monitoring protocols and duration; and research if impacts are larger than predicted.
- A key step was the establishment of the American Wind Wildlife Institute to tackle wind wildlife issues more broadly, particularly by developing decision support tools and by identifying areas where more research is needed and to ensure that research is carried out.