

Wind Energy and Sensitive Bird Habitat: Methodology and Links



ABC-sponsored research shows that wind turbines are being installed in sensitive bird habitat on a massive scale. Here, you can find more details on the research project's methodology, as well as links to key outputs.

Turbine Locations:

The locations of the wind turbines used in the study were derived using data supplied publicly by [FAA](#) (for proposed turbines) and [USGS](#) (for existing turbines). These data sets provide specific locations for individual wind turbines in GIS form.

As there is some overlap due to time lag between the data sets, the GIS files were de-duplicated by removing any turbines that are shown as being located within 50 feet or less of each other (that may refer to the same turbine). We have also removed any proposed turbines that have already been assessed as being high risk for air traffic as they will likely not be constructed. Decommissioned turbines were also removed from the assessment.

GIS analysis was conducted on behalf of ABC by Eric Wengert, a graduate student at Mississippi State University.

Bird Areas:

Orange Areas: High Importance

Solid orange signifies Globally **Important Bird Areas**. Areas shown in a tint of orange are one of the following:

- **Key Migration Corridors** where bird risk will differ from season to season, and may also differ from year to year among specific locations within the corridor.
- **Key Habitat Areas** for birds on the Red [WatchList](#) (plus both widespread eagle species, and Ferruginous Hawk), where the species may not be present year round. Birds are likely to be most at risk from wind development where their optimal habitat is found within the tinted area.
- **Marine Important Bird Areas** where bird usage is also seasonal.

It might be possible to develop wind within *some* of these tinted areas if seasonal shutdowns during migration are feasible, or if micro-siting can enable the key habitat areas to be completely avoided.

Red Areas: Critical Importance

Wind power (and its associated infrastructure) is not appropriate for any of these areas and their immediate environs. These areas include:

- Important Bird Areas with congregations of 500,000 or more migratory birds at some point during the year.
- Important Bird Areas for the rarest WatchList birds—or those that have very specific and limited habitat requirements and/or are especially likely to be vulnerable to wind-related mortality or habitat impacts.
- Critical Habitat designated for bird species listed under the Endangered Species Act (ESA).
- Important habitat for bird species listed under the ESA for which ESA Critical Habitat has not yet been designated
- The highest-importance “bottleneck areas” for migrant birds, such as those where 500,000 or more birds are present seasonally.

Data Sources:

The bird data were derived from a variety of sources. Examples of primary sources include ABC’s list of the 500 most Important Bird Areas in the U.S., data on key sage-grouse areas from the Bureau of Land Management, and data on the migration corridor of the Whooping Crane from the U.S. Fish and Wildlife Service (FWS). “Critical Habitat” designated by FWS as authorized by the Endangered Species Act was downloaded from the FWS [website](#).

Site boundaries are either provided by existing federal or other GIS layers, or produced by ABC using the best available data, maps, and expert staff opinion. There is currently insufficient quantitative data available to set numeric boundaries for the “edges” of most migration corridors, and these may also change from year to year depending on weather and other conditions. The boundaries of these areas are therefore set based on ABC’s best expert judgment as to where the greatest concentration of birds will be present during regular migration periods.

Another very useful source on migration patterns are the animated migration maps produced by the Cornell Laboratory of Ornithology. California, Illinois, Montana, and North Carolina State Audubon Chapters also made their state IBAs available in polygon form.

Boundaries for Key Habitat Areas are based on greatest breeding densities from Breeding Bird Survey (BBS) maps combined with expert staff opinion. For the few Red WatchList species where BBS data were unavailable, entire species range boundaries were used.

Wind Turbines Currently Within, and Planned for, Sensitive Bird Areas in the U.S.

1) Federally Designated Areas	Current	Planned	Total
Whooping Crane Corridor	5,500	18,518	24,018
Greater Sage-Grouse Core Areas	1,107	1,854	2,961
National Wildlife Refuges	60	93	153
Critical Habitat for ESA-Listed Birds	3	17	20
Sub-totals and total	6,670	20,482	27,152

Note that the first two categories cover both federal and non-federal lands.

2) All Important Areas	Current	Planned	Total
Red Areas	5,022	1,381	6,403
Orange Areas	29,262	53,529	82,791
Sub-totals and total*	34,284	54,910	89,194

Notes:

- *All locations included in 1) are also part of 2).
- Maps depicting these locations are available in Google Earth KMZ format on request.
- All turbine data is current to August 2014. Note that planned turbine data from FAA is updated monthly.
- Source: American Bird Conservancy 8/28/14, Contact: Mike Parr at 202-684-5805 or [email](#).

Key References:

- [American Bird Conservancy Wind Development Bird Risk Map](#)
- Whooping Crane Corridor
- Greater Sage-Grouse Core Areas
- Critical Habitat and National Wildlife Refuges
- Existing Turbines
- Proposed Turbines
- Chipley et al (2003) *American Bird Conservancy Guide to the 500 Most Important Bird Areas in the United States*. Random House, New York