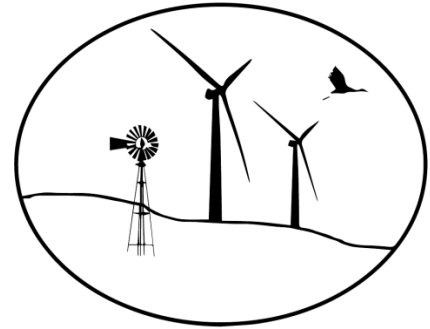


# Wind Energy and Wildlife News

December 23, 2015



## Around Nebraska...

**HOT OFF THE PRESS - [Effects of Wind Turbine Noise on Male Greater Prairie-Chicken](#)**

**[Vocalizations and Chorus](#)**, M.S.

Thesis by Cara Whalen. This thesis is packed with information!

Abstract:

Wind energy facilities are constructed without full knowledge of their effects on birds, and the noise generated by wind turbines is a particular concern. I investigated the effects of wind turbine noise on male Greater Prairie-Chicken (*Tympanuchus cupido pinnatus*) vocalizations and chorus near Ainsworth, NE, USA in 2013 and 2014. I studied 14 leks located in the area surrounding a 36-turbine wind energy facility. I used two main approaches in this study. First, I recorded Greater Prairie-Chicken boom, cackle, whine, and whoop vocalizations at each of the study leks and measured the duration, sound pressure level, peak frequency, dominant frequency, fundamental frequency, bandwidth and nonlinearities of each vocalization. I used linear models to determine whether the vocalizations at leks near the wind energy facility differed from vocalizations at leks farther away. I found that within 1000 meters of the wind energy facility, boom and whoop sound pressure levels were higher, boom duration was shorter, whine fundamental frequency was higher, and cackle biphonations occurred less often. These differences suggest that male Greater Prairie-Chickens are adjusting aspects of their vocalizations in response to wind turbine noise. In the second approach, I placed audio recorders along transects extending from leks to record the sound of the Greater Prairie-Chicken chorus. I also placed audio recorders at locations in a grid formation overlaid on the wind energy facility. I created models to describe how the chorus and wind turbine noise were affected by covariates. I used the models to predict levels of the chorus and wind turbine noise and assess the potential for wind turbine noise to mask the chorus under specific scenarios. The results suggested that wind turbine noise may have the potential to mask the Greater Prairie-Chicken chorus at 296Hz under these scenarios, but the extent and degree of masking is uncertain. Many factors, including the accuracy of the masking threshold, variation in signal detection, and characteristics of the chorus, may affect the masking assessment.



**[Rural Nebraska lawmaker sees wind energy as an urgent lifeline.](#)** Nebraska state Sen. Al Davis is a rancher, a longtime resident of rural Nebraska, a proponent of renewable energy, and a Republican. Now going into his fourth year as a state legislator, Davis views this as a propitious moment for his home state to convert much more its abundant wind into exportable energy.

**Broken Links on Nebraska Wind Energy and Wildlife Project Website.** The Nebraska Game and Parks Commission has created a new website (<http://outdoornebraska.gov/>), so many of the links to their website on the Nebraska Wind Energy and Wildlife Project website no longer work. I am in the process of updating the links, but it may take until the end of January. My apologies for the inconvenience.

## **Around the Nation & World...**

### *Wind and Wildlife*

[Using DNA barcoding to improve bat carcass identification at wind farms in the United States](#), Korstian et al. 2015. Conservation Genetics Resources. Using DNA barcoding, we were able to identify 14 carcasses to species that could not be identified in the field due to extensive decomposition and scavenging, and determined that another 18 carcasses had been misidentified in the field. Furthermore, we found field misidentifications increased with time until discovery. We conclude that DNA barcoding can improve the identification of salvaged bat carcasses especially when rare and uncommon species are encountered. This technique has other practical applications, such as identifying remains from hibernacula (potentially including carcasses of unknown bats with white-nose syndrome) or identifying species from fecal samples at roost sites or other locales.

[Assessing local population vulnerability with branching process models: an application to wind energy development](#), Erickson et al. 2015. Ecosphere. We applied branching process models to quantitatively compare and prioritize species locally vulnerable to the development of wind energy facilities. We simulated different mortality rates from wind farms while calculating local extinction probabilities. The longer-lived species types (e.g., cave bats and eagles) had much more pronounced transitions from low extinction risk to high extinction risk than short-lived species types (e.g., tree bats and grassland songbirds). High-offspring-producing species types had a much greater variability in baseline risk of extinction than the lower-offspring-producing species types. Long-lived species types may appear stable until a critical level of incidental mortality occurs. After this threshold, the risk of extirpation for a local population may rapidly increase with only minimal increases in wind mortality.

[US agency rarely intervened in projects that could risk endangered species](#). The US government has not halted a single project out of the 88,000 actions and developments considered potentially harmful to the nation's endangered species over the past seven years, a new study has found.

[Acoustic Assessment of Bats near the Landusky Wind Turbine Site in the Little Rocky Mountains of North Central Montana and Management Recommendations for Bats](#). October 2015. Montana Natural Legacy Program.

### *Wind*

[Tax incentives signed into law](#). The US Congress passed a government spending and tax package that includes a five-year extension of renewable energy incentives and president Barack Obama promptly signed the bill into law.

[Renewable energy efforts stymied by transmission roadblocks](#). Converting the wind and sun into electricity is increasingly affordable, but it can be difficult to get that electricity from distant plains and deserts to the places where it's needed. The reasons range from technical to regulatory. "Transmission is the biggest long-term barrier for wind energy development," said Rob Gramlich, senior vice president of government and public affairs for the American Wind Energy Association. "That's because the best wind resources are often in remote areas on farms and ranches that are far from population centers."

### *Other*

**[A review of regulatory framework for wind energy in European Union countries: Current state and expected developments](#)**, González and Lacal-Aránegui, 2016. Renewable and Sustainable Energy Reviews. The analysis covers three main aspects of regulatory framework: support schemes, electrical grid issues and potential barriers for wind power deployment. This analysis shows that some Member States have shown a strong commitment supporting wind energy; however, in other countries the support has not been enough to stimulate the desired level of investment.

### *Tools*

**[RE-Powering's Electronic Decision Tree](#)**. Developed by US EPA's RE-Powering America's Land Initiative, the RE-Powering Electronic Decision Tree tool guides interested parties through a process to screen sites for their suitability for solar photovoltaics or wind installations. EPA encourages renewable energy on already developed or degraded land instead of green space.

**[US EPA Decision Tree Tool Webinar](#)**. The recording of the webinar is available.

### *Upcoming Conferences & Trainings & Webinars*

**[Register for Jan. 14 webinar: Western Governors' Species Conservation and ESA Initiative](#)**. The Western Governors' Association has announced a series of webinars as part of its **[Species Conservation and Endangered Species Act Initiative](#)**. The first webinar, "**[Voluntary Species Conservation Incentives and Collaboration](#)**," will be held Jan. 14. The webinar will highlight the recovery of Black-footed Ferret in Colorado and Wyoming. Panelists representing the diverse range of groups involved with the recovery will participate in a moderated discussion, as well as a question and answer session. **[Register here](#)**.

**[AWEA Wind Project Siting and Environmental Compliance Conference](#)**, March 22-23, 2016, Charleston, SC. where leaders from the wind industry, environmental permitting and compliance sector, the scientific community and regulatory officials come together for a robust discussion about the current state of siting and environmental compliance, and network.

**The Wildlife Society Renewable Energy Working Group – LinkedIn**. Connect with other resource professionals involved in renewable energy – wildlife work. To join, go to:

**[http://www.linkedin.com/groups?gid=4433729&trk=my\\_groups-b-grp-y](http://www.linkedin.com/groups?gid=4433729&trk=my_groups-b-grp-y)**, click Join.

Check out the Nebraska Wind Energy and Wildlife Project website at: **<http://snr.unl.edu/renewableenergy/wind/>** and Wind Energy and Wildlife news at: **<http://www.scoop.it/t/wind-energy-and-wildlife>**.