

## Bat Mitigation Resolution

### Resolution:

Many conservation groups are very concerned about massive bat mortality at industrial wind projects in Pennsylvania. We therefore recommend that the Pennsylvania Game Commission (PGC) advocate for required mitigation at all industrial wind projects in Pennsylvania. This mitigation could be restricted to evening hours and to times of the year when mortality is greatest during wind speeds that are less than 5 meters per second.

We further request that the Pennsylvania Game Commission work with the Mammal Technical Committee of the Pennsylvania Biological Survey to develop the mitigation protocol.

### Support:

**Dozens of conservation groups have already endorsed this resolution. The complete list of endorsements will be presented to the Pennsylvania Game Commission in July 2011. If you represent an organization that would like to endorse the Bat Mitigation Resolution, click on the "Contact SOAR" tab at the top of the SOAR Home page and send us a message, so we can add your group to the endorsement list.**

### Rationale:

Without required mitigation, Pennsylvania's bat populations are in great jeopardy from industrial wind development. The Pennsylvania Game Commission "Wind Energy Voluntary Cooperation Agreement Second Summary Report" states:

*The average estimated [mortality of] bats/turbine/year for the five surveys that followed PGC protocol was 24.6 (range 6.8 – 42.7).*

With thousands of additional wind turbines proposed for construction in Pennsylvania, the average mortality rate of 25 or more bats per turbine will be devastating to bat populations. It has been argued that there is no proof that wind development has impacted bat populations, but we know that bats have a low fecundity rate and that increased mortality rates are likely to have an unsustainable impact. Although much more research needs to be done on population viability analyses, we need to protect these keystone species as much as possible. White-nose syndrome (WNS) is decimating our hibernating bats, and industrial wind turbines are decimating our migratory tree-dwelling species. We don't have a clue how to stop white-nose syndrome, but we do know how to protect bats from turbine hits.

Worldwide, bats are of great economic impact to agriculture and to forest viability. A single colony of 150 big brown bats in Indiana has been estimated to eat nearly 1.3 million pest insects each year. Considering the number of insects eaten by cave bats and the number of bats killed by WNS, between 660 and 1320 metric tons of insects are no longer being consumed each year in WNS-affected areas (1). The above study also determined the economic importance of bats to agriculture in each state. In Pennsylvania alone, the conservative economic value of bats to farmers is estimated to be \$292 million each year. Bats consume a significant number of agricultural pests, thereby reducing the amount of pesticide needed on crops. Furthermore, bats provide significant control on the numbers of pests that impact forests. Studies in Canada on the

diet of the eastern red bat, native to Pennsylvania, showed that it ate gypsy moths, tent caterpillars, coneworms, cutworms, and a variety of agricultural and forest moth pests (2).

Turbine low wind curtailment is most critical when bats migrate from late July through mid-October. Research at Casselman Wind project in Somerset County shows that stopping the turbines during low-wind conditions results in an annual power production decrease of just 0.3 to 1% (3). This means the proposed curtailment will not create undue economic hardships for wind developers.

Results from the second year of the Casselman (BCI Annual Report 2009-10) study showed that bat mortality was reduced by 44 to 93% when turbines were curtailed (2). There is no evidence that human-induced impacts to the affected tree bats are of similar magnitude to mortality at wind turbines (4). The impact of turbines on bats is an unprecedented human consequence that would be relatively easy for wind projects to mitigate through turbine curtailment.

We simply cannot afford to ignore the impacts to bats from industrial wind development. The Pennsylvania Game Commission is the state agency charged to protect our state's birds and mammals. We have the science to show that industrial wind turbines cause significant mortality to bats and we have the science to show that turbine curtailment will protect a significant number from being killed.

The course of action is clearly drawn: we need regulated curtailment of industrial wind turbines during critical times of bat migration. We respectfully request that the Pennsylvania Game Commission include this Best Management Practice (BMP) into its Voluntary Wind Energy Cooperative Agreement, with assistance from the Mammal Technical Committee.

1. Justin Boyles et al., **Economic Importance of Bats in Agriculture**, *Science* **332**, 41 (2011)
2. Dr. Thomas Kunz, **Ecosystem services provided by Bats**, *Annals of the New York Academy of Sciences* 1223 (2011) 1-38.
3. **Bat Conservation International Annual Report 2008-2009 and 2009-2010:**  
<http://www.batcon.org/index.php/media-and-info/about-bci/annual-report.html>

**And:** [http://www.batcon.org/index.php/media-and-info/bats\\_archives.html?task=viewArticle&magArticleID=1038](http://www.batcon.org/index.php/media-and-info/bats_archives.html?task=viewArticle&magArticleID=1038)

4. Dr. Paul Cryan, Research Biologist, USGS Fort Collins Science Center, Web Version of Presentation to the Wind Turbine Guidelines Advisory Committee, Technical Workshop & Federal Advisory Committee Meeting, Washington, D.C., 26 February 2008 Overview of Issues Related to Bats and Wind Energy <http://www.fort.usgs.gov/Products/Publications/22170/22170.pdf>