

Mortality and habitat fragmentation from wind farm development

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The use of wind as a renewable energy source is expanding rapidly worldwide. However, wind energy is not without its own potentially damaging consequences for nature conservation. Therefore, there is a need to balance the risks and benefits and to minimise any adverse environmental effects. Birds and bats can collide with wind turbines, or encounter the vortex wake behind the turbines. They can also become disturbed in their breeding, resting, and foraging areas, or during migration. Because the effects depend on a wide range of factors including the wind farm configuration, surrounding land, and species present, there is considerable variation in the reported impacts. Many studies are also methodologically weak, and more long-term assessments are required. Although the direct habitat loss from wind turbines and possible accompanying infrastructure like access roads and power lines is relatively low, the effects because of visual and acoustic disturbance can sometimes result in significant habitat loss or habitat quality degradation for birds and bats. In this rapidly changing environment, more wind farms can lead to avoidance of previously suitable habitat and will serve as barriers to movement. This will likely increase fragmentation in an already fragmented landscape. There is a strong consensus that the selected location for wind farms is critically important in determining the likelihood of deleterious cumulative impacts on birds and bats. Strategic planning on regional and national or international scale is therefore recommended, including the use of dynamic fauna and ecosystem vulnerability maps. These maps can be created from fauna distribution data, sensitivity categories and policy frameworks. An integrated approach will also be necessary, so that current and planned habitat defragmentation measures coming from the aspect of transportation and infrastructure can remain successful.