Estimation de la mortalité de la faune causée par les installations d'énergie éolienne

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Abstract

Mortality estimates are a fundamental tool for studying the impacts of wind turbines on wildlife and how to minimize such impacts. Multiple methods for statistically estimating bird and bat fatalities at wind energy facilities have been developed over the last 20 years, and several are still in wide use. Examples include Shoenfeld (2004), Huso (2010), Huso *et al.* (2012), Korner-Nievergelt et al (2013), Perón et al (2013), and Wolpert (2013). These methods adjust raw survey data to account for carcasses missed due to scavenging by other animals, natural decay, unsearchable areas, the fact that searchers may miss some carcasses, and other factors. Each estimator makes assumptions regarding input parameters, which, if not met, can lead to biased results that can either over- or under-estimate mortality rates. In addition, disagreement over which method is most appropriate can lead to conflicts during project permitting and compliance. How then to develop the most accurate, cost-effective, and comparable estimates possible?

The statisticians who developed several of the estimators in current use have worked together to combine them under an over-arching statistical model that has been coded in user-friendly, publicly available software that carries out its complex calculations. This single estimator (GenEst) is now widely used by consultants to generate summary reports for post-construction monitoring. Its User Guide has been translated into French making it much more accessible to non-English speakers. In this talk I will briefly review the conceptual model of mortality estimation, the parameters that need to be estimated and optimal field methods to determine search area, search schedule, persistence patterns and efficiency of searchers. I will provide participants with a clear understanding of what can be expected of the software and how to access the French-translation version. When an unbiased estimator is used, mortality rates among turbines, sites and regions can be meaningfully compared to help wildlife managers to determine impacts of wind power development on local wildlife populations and eventually to develop methods of mitigating these impacts.

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