

Chamberlain, D.E., M.R. Rehfisch, A.D. Fox, M. Desholm and Sarah J. Anthony. 2006. The effect of avoidance rates on bird mortality predictions made by wind turbine collision risk models. *Ibis* 148:198–202.

The model of Band *et al.* (2005) used data describing the structure and operation of the turbines: number of blades; maximum chord width and pitch angle of blades; rotor diameter; and rotation speed; and of bird size and flight: body length; wingspan; flight speed; flapping; or gliding flight, to derive a probability of collision. This approach was found to be generally sound mathematically (Chamberlain *et al.* 2005). Sensitivity analysis suggested that key parameters in determining collision risk were bird speed, rotor diameter and rotation speed, although variation in collision risk was still small within the likely range of these variables. Mortality is estimated by multiplying the collision probability by the number of birds passing through the area at risk height, determined from survey data. Crucially, however, the model assumes that an individual bird takes no avoiding action when encountering a turbine, so an adjustment must also be made for avoidance behaviour.

In this paper, we examine critically the estimation and use of avoidance rates in conjunction with the collision risk model (CRM). The sensitivity of predicted mortality to errors in estimated avoidance rates is assessed in three studies that have used the CRM. It should be noted that we consider only direct mortality caused by wind turbine collisions, but we accept that there may be other indirect effects on bird populations such as disturbance, displacement and loss of habitat (Langston & Pullan 2003, Percival 2005, Fox *et al.* 2006) that are outside the scope of this paper.