Project: Adjustment of Radar Counts of Birds

Client: Hamer Environmental

Project Leads: Bryan Manly/Chris Nations

Completion Date: August 2000

WEST was responsible for adjusting counts from horizontal and vertical radar to allow for the reduced probability of detecting birds as the distance from the radar increases. These studies are done for the assessment of possible impacts on birds of windpower developments.

With the horizontal radar, counts of the number of birds occurring in bins (rectangles in space) over a period of time were made. These bins were along a line in front of the radar, and from the left to the right of the radar. The bins on the extreme left and extreme right of the radar tended to have the lowest counts, which is assumed to be due to fewer birds being detected in these bins. A log-linear model was used to estimate the probability of detecting a bird at a distance d from the radar, on the assumption that this probability would be 1.0 immediately in front of the radar. Using this model, the counts in bins were adjusted to what would be expected for the bins closest to the radar. These calculations were made for Fall 2001 and Spring 2002, at three sites.

The situation was more complicated with the vertical radar. In this case the bins were to the left and right of the radar, but also at varying heights. A log-linear model was used in this case to relate the counts in bins to both the distance from the radar and the height above ground. The distance part of the fitted function was then used to correct the counts in bins for the reducing probability of detecting a bird as the distance from the radar increases. Again these calculations were made for Fall 2001 and Spring 2002, at three sites.

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