

## Geese and wind farms in Scotland: new information

### Background

Scotland hosts large numbers of wintering geese, including pink-footed geese, greylag geese and species of conservation concern such as barnacle geese and Greenland white-fronted geese. Many wind farm proposals located in agricultural areas overlap with the distribution of these species and such overlap means that there is a risk of birds colliding, being displaced or being disturbed by these developments. These effects must be taken into account as part of environmental assessments and, as a result, SNH staff are required to assess many applications for their potential impact on breeding and wintering populations.

We have recently reviewed the evidence-base behind three key considerations: avoidance rate, connectivity with protected areas and goose feeding distribution and behaviour. These reviews have led to a change in the recommended avoidance rate for use in collision risk modelling as well as providing more detailed information on goose behaviour to help inform survey requirements near protected areas and an overview of goose feeding locations to identify potentially sensitive sites. Links to the detailed information are below.

The process of assessing applications and environmental statements will remain the same but we anticipate that the new information will help to provide a stronger evidence-base and help to support the right developments in the right locations. More detailed guidance on the application of this information to individual cases is currently in preparation.

### 1. Avoidance rates for geese

SNH recommend the use of collision risk models to calculate likely mortality from collision. Collision risk models use an avoidance rate in the calculations and further information on avoidance rates for a range of species is available on the SNH web site. Experience has shown that species of greatest concern in most environmental statements are raptors, some breeding waders and wintering waterfowl, especially geese and swans.

In 2006, SNH commissioned the BTO to review a paper (*Fernley, Lowther & Whitfield 2006 A Review of Goose Collisions at operating wind farms and estimation of the goose avoidance rate. Report by Natural Research Ltd., West Coast Energy and Hyder Consulting*) which re-evaluated the likely avoidance rate used in the SNH approach to estimate collision mortality. SNH staff evaluated the BTO report and concluded that changing the default avoidance rate from 95% was justified but we took the decision to adopt a precautionary **avoidance rate of 99%**.

Since this decision was taken, it has become increasingly apparent that use of an avoidance rate of 99% in collision risk models does not reflect levels of mortality that are being detected at operational wind farms. The consequence of this is that a collision risk model using this avoidance rate is likely to exaggerate collision mortality, thereby devaluing the insight into any likely population effect that it can offer in environmental assessments.

A compounding issue is that, whilst impacts arising from individual developments are invariably small, the increasing number of wind farm developments means that predicted cumulative effects on goose populations in particular may reach significant levels for some species in some areas.

**We have, therefore, re-visited the current avoidance rate for geese recommended by SNH and propose a new value of 99.8% to reflect the improved evidence base available on goose collisions with operational wind turbines.**

The full text of the guidance note can be found at:

<http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/bird-collision-risks-guidance/>

## **2. Goose distribution in relation to SPAs in Grampian.**

There are currently many applications for small-scale wind farms (1-3 turbines) in Scotland. These are often associated with significant levels of flight and/or feeding activity by pink-footed and greylag geese at roosts or foraging areas. Assessment of impacts at each of these sites involves considerable work, both for developers preparing an application and for planners reviewing the evidence. This report is intended to help inform a more focussed approach to this process, with the early identification of benign applications which do not require in-depth bird assessments.

Although we are keen to consider the implications of this data on a wider geographic scale the current study was conducted based primarily on information from Grampian. As such, the data is applicable only in this area. Further work is planned to investigate whether this approach can be extrapolated more widely. The full report is available in our publications catalogue on the website:

<http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1991>

## **3 Mapping the distribution of feeding Pink-footed and Icelandic Greylag Geese in Scotland.**

A strategic approach to planning the location of wind farms is of benefit in safe-guarding bird species. Although impacts to geese at many sites are likely to be low, the siting of wind turbines near to areas preferred by geese may give rise to undesirable levels of collision mortality, disturbance and displacement, while also contributing disproportionately to cumulative impacts. The purpose of this report is, therefore, to map the feeding distribution of pink-footed and greylag geese in Scotland in relation to SPAs designated for these species, thereby helping to identify those areas likely to be more sensitive in terms of wind energy developments.

The report presents a series of indicative maps of feeding distribution, at 1 km resolution. The nature of the available data means that the maps cannot be comprehensive, and some important areas may have been missed.

The review was carried out by WWT in partnership with SNH and is available at:

[http://monitoring.wwt.org.uk/pdf/mitchell\\_2012b.pdf](http://monitoring.wwt.org.uk/pdf/mitchell_2012b.pdf)

Distribution maps are available to SNH staff as GeoView layers at Natural Heritage Data - Species - WWT Goose Data.

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