

Executive Summary of 'The 2015 National Survey of Breeding Hen Harrier in Ireland'

The hen harrier (*Circus cyaneus*) is an Annex I European protected raptor. Member States are obligated under the EU Birds Directive to protect and conserve the species. These obligations involve key actions to designate Natura 2000 sites, also known as Special Protection Areas (SPAs) and also to undertake monitoring of hen harriers nationally, regionally and within the designated areas. The fourth national survey of hen harriers in Ireland was undertaken in 2015 and was preceded by surveys in 2010; 2005 and 1998-2000. Similar to previous surveys the aims were to quantify the size and distribution of the breeding population and examine changes since the previous national surveys. The survey effort and participation increased since 2010 with more than 7000 hours observational effort undertaken by 259 fieldworkers, largely via volunteer networks.

In 2015, an estimated 108 – 157 breeding pairs of hen harrier were recorded. This is lower than the population estimates in 2010 (128 – 172); similar to the estimate in 2005 (132 – 153) and marginally higher than the population 1998 – 2000 (102 – 129). This represents a decline of 15.6% in the number of confirmed breeding pairs since 2010 and an 11.4% increase in the number of possible pairs. The distribution of the confirmed breeding population was similar to 2010 with 62 10km squares occupied, however overall breeding distribution (including confirmed and possible pairs) of the population has increased by 22% to 84 10km squares compared to 69 10km squares in 2010. This may in part be due to increased survey effort and/or the increasing number of possible breeding pairs.

In order to minimise biases of increasing survey effort within population estimates a series of subset analyses were undertaken along with calculating an estimate of the mid-point metric also to reduce survey effort bias between national surveys. The national population (confirmed and possible pairs) has declined by 8.7% since 2010 whilst mid-point analysis indicated a national decline of 11.7% since 2010. Analysis of 139 10km squares surveyed in both 2015 and 2010 estimates a population decline of 16.4%. Analysis of 110 squares surveyed in 2015; 2010 and 2005 estimates a decline of 9.7% between 2005 and 2015. Analysis of 78 squares covered in all four national surveys estimates an overall decline of 33.5% between 1998 – 2000 and 2015. Observers recorded useful metrics on pressures in hen harrier breeding areas to help inform current environmental conditions for breeding hen harriers.

Some regional areas have declined and others increased which may be at least partly explained by the redistribution of pairs and/or increased survey effort. The SPAs held between 43% and 46% of the national population (50 – 68 pairs) with four SPAs recorded to decline and two which have increased since 2005. Overall the population of hen harriers within the SPA network has declined by 27.7% since 2005. Hen harriers in this breeding survey were most frequently recorded to forage in open non-afforested habitats (51.3%) compared to afforested habitats (40.6%) but recorded more frequently to nest in second rotation forest (58.3%) than heather moorland (25.9%). Breeding success was higher per confirmed breeding pair (45.3%) than recorded in other studies but productivity was low (0.96 young per confirmed breeding pair) compared to published studies. This survey report should inform further spatial analysis to inform management to optimise the environmental conditions for the breeding population of hen harriers in Ireland.