NatureScot
Scotland's Nature Agency

**NatureScot**

**SCIENTIFIC ADVISORY COMMITTEE**

**INFORMATION PAPER**

# Highly Pathogenic Avian Influenza (HPAI) update

## Purpose

1. To update the SAC on the extent of the current Highly Pathogenic Avian Influenza (HPAI) outbreak and the work undertaken over the Summer 2023 and Winter 2023/2024

## Action

1. The committee are asked to note the paper.

## Preparation

1. The paper was written by Alastair MacGugan, Jenny Park and Rae McKenzie. It is sponsored by Eileen Stuart.

## Background

1. *SAC HPAI Sub-group –* The subgroup provided invaluable advice and support to NatureScot staff. The production and continued refinement of their report provided the first comprehensive view around the knowledge base pertaining to the H5N1 outbreak in Scotland[[1]](#footnote-1). The report provided the basis for stronger policy decision making within NatureScot and the Scottish Government Avian Flu Response Plan[[2]](#footnote-2)
2. The subgroup has not as a whole met collectively since the last update provided to SAC. Individuals from the group have however continued to provide invaluable advice on specific topics such as serology testing, review of published papers on removal of carcasses, environmental testing and implications of HPAI outbreaks abroad. The subgroup has facilitated a stronger relationship between NatureScot and key researchers. Thus while there may not be a requirement for the subgroup to formally meet, members have agreed to be available to discuss related issues as they arise.
3. *Positive wild bird cases in Scotland -* There have been 6 positive findings in Scotland this winter (samples collected since 1 Oct) in 5 species: gannet, pheasant, sparrow hawk, herring gull and shag. The last positive in Scotland was 26 November (herring gull at Solway) since then there have been over 50 samples tested; all of which presented negative results. Over the same period last year there were approximately 100 positive findings out of 140 samples tested.
4. *Positive wild bird cases in the UK* - There have been nearly 800 tests carried out in UK since 1 October, with only 27 testing positive. The positive tests ranged across 15 species and (in addition to those listed above) were: whooper swan, mute swan, Canada goose, greylag goose, buzzard, merlin, common gull, razorbill, lesser black-backed gull. This total includes a great black-backed gull collected from Scotland in September which tested positive in October. Over the same period last year there were approximately 800 positive UK findings out of 1,500 samples tested.
5. *NatureScot mortality surveillance network* - Our mortality surveillance network comprises NatureScot site staff, RSPB and NTS site managers, local authority rangers and a small number of trusted volunteers. The winter network covers sites of importance for wintering waterfowl while the summer network focuses on key sites for seabird species. The key purpose of the network is to provide early intelligence on unusual mortality with the sightings reported via the Epicollect App. 13.5K sick and dead birds have been reported since Epicollect started in November 2023. Fewer dead wild birds have been reported this winter; around 1K compared to 2.7K by same period last year.
6. *Support for the GB Wild Bird Surveillance Scheme* – We have built up a team of 46 individuals (mainly NatureScot staff, some RSPB, NTS, volunteers) who are trained and equipped to collect samples from dead wild birds (from areas where it is difficult for the APHA contracted collector to cover). We have collected 145 samples in total (since Nov 2022) 32 samples this winter so far, 89 samples last summer and 24 samples last winter. This support has also allowed us to take samples from birds that would not have otherwise met the GB Wild Bird Surveillance Scheme triage but were deemed by us to be important from a conservation management perspective.
7. In addition to sending swabs to APHA we provided 25 birds to SRUC for HPAI testing and subsequent postmortem examination; 12 guillemot, 5 razorbill, 4 shag, 2 kittiwake, a fulmar and a white-tailed eagle. These have all been submitted since 1 Sept 2023 (prior to then there was no agreed arrangement in place). All of these submitted birds tested negative for HPAI and most are thought to be victims of storm event and/or food shortages and an attack by another raptor. The initiative provided early intelligence to suggest that the mid-summer auk wrecks were more likely due to difficulties with food availability rather than infection from H5N1.
8. *Serology work* - Over the spring/summer 2023, a limited number of NatureScot staff have undergone the training to gain Home Office personal licences. Working closely with Edinburgh University we now have a small group of staff who can take bloods from live birds. Thus, over the winter we have sampled bloods from 31 Svalbard barnacle geese on the Solway and 42 Greenland barnacle geese on Islay. In addition, we will attempt to take bloods from gulls and skuas over the next few months. If resources allow, we would like to continue to work with Edinburgh University and continue taking bloods across seabirds as well as waterfowl. We will review this as the results of the geese and seabird sampling come in.
9. Previous to having the Home Office licence and the time critical nature of understanding the impact of the severe HPAI outbreak on the Solway in 2021/2022 and on Islay in 2022/2023, 27 geese were shot on the Solway and 30 geese were shot on Islay and bloods taken from them. The results of the Solway work have been published[[3]](#footnote-3). Whole-genome sequencing of thirty-three HPAIV isolates from wild bird species demonstrated that there had been two distinct incursions of the virus, but the two viruses had remained genetically stable within the population, whilst viruses from infected wild birds were closely related to those from poultry cases occurring in the same region. Analysis of sera from the following year demonstrated that a high percentage (76%) of returning birds had developed antibodies to H5 AIV.
10. *Further research* – The impact of disturbance on the ability of birds to respond to H5N1 during an outbreak at a site remains an outstanding area for research. The lack of knowledge on whether reducing disturbance has any impact on an individual bird’s survivability makes completing a robust Habitats Regulation Assessment, when considering research requests difficult. Lack of resources would imply this will remain the case for the foreseeable future.

Contact: Alastair MacGugan, [alastair.macgugan@nature.scot](mailto:alastair.macgugan@nature.scot)

1. <https://www.nature.scot/doc/naturescot-scientific-advisory-committee-sub-group-avian-influenza-report-h5n1-outbreak-wild-birds> [↑](#footnote-ref-1)
2. <https://www.gov.scot/publications/scottish-wild-bird-highly-pathogenic-avian-influenza-response-plan/> [↑](#footnote-ref-2)
3. Ross, C.S.; Byrne, A.M.P.; Mahmood, S.; Thomas, S.; Reid, S.; Freath, L.; Griffin, L.R.; Falchieri, M.; Holmes, P.; Goldsmith, N.; et al. Genetic Analysis of H5N1 High-Pathogenicity Avian Influenza Virus following a Mass Mortality Event in Wild Geese on the Solway Firth. Pathogens **2024**, 13, 83. https://doi.org/10.3390/pathogens13010083 [↑](#footnote-ref-3)